

NATIONAL DEFENSE UNIVERSITY „CAROL I”

**REGIONAL DEPARTMENT
OF DEFENSE RESOURCES MANAGEMENT STUDIES**



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IN THE 21ST CENTURY**

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Regional Department of Defense Resources Management Studies



**INTEGRATED DEFENSE RESOURCES
MANAGEMENT IMPACT ON ARMED FORCES'
INTERNATIONAL MISSIONS ACCOMPLISHMENT
AND ITS SYNTHETIC INDICATORS-BASED
ASSESSMENT**

***THE SCIENTIFIC COMMUNICATIONS SESSION OF THE
REGIONAL DEPARTMENT OF DEFENSE RESOURCES
MANAGEMENT STUDIES***

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**NATIONAL INTEGRATED DEFENSE RESOURCES MANAGEMENT SYSTEMS
INFLUENCE ON THE MISSION ACCOMPLISHMENT OF THE ROMANIAN
ARMED FORCES INVOLVED IN INTERNATIONAL MISSIONS**

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**CONCLUSIONS OF THE COMMUNICATIONS SESSION
„IMPACTUL MANAGEMENTULUI INTEGRAT AL
RESURSELOR DE APĂRARE ASUPRA ÎNDEPLINIRII
MISIUNILOR INTERNAȚIONALE ALE TRUPELOR ȘI
CUANTIFICAREA ACESTUIA UTILIZÂND INDICATORI
SINTETICI (INTEGRATED DEFENSE RESOURCES
MANAGEMENT IMPACT ON ARMED FORCES’
INTERNATIONAL MISSIONS ACCOMPLISHMENT AND
ITS SYNTHETIC INDICATORS-BASED ASSESSMENT)”.**

The communications session took place at the Regional Department of Defense Resources Management Studies, Braşov, on the 21st of November and is one of the major activities underlying the CNCSIS 981/2007 grant entitled: ***NATIONAL INTEGRATED DEFENSE RESOURCES MANAGEMENT SYSTEMS INFLUENCE ON THE MISSION ACCOMPLISHMENT OF THE ROMANIAN ARMED FORCES INVOLVED IN INTERNATIONAL MISSIONS***

As a consequence of the scientific debates a number of conclusions emerged. In this respect, one of the most important emphasizes the idea that the integrated defense resources management has a major role in ensuring missions accomplishment on behalf of the Romanian armed forces deployed in theatres of operations in terms of efficiency and effectiveness. However, the latter are not values per se. Consequently, their quantification by using a set of indicators grouped by scientific criteria and applied to concrete

situations is needed. Thus, by resorting to these indicators the complete image on the extent to which a military mission is likely to succeed is ensured.

The conclusions drawn were as follows:

The security environment is in a permanent change generated by its fluidity, most commonly referred to as VUCA (volatile, uncertain, complex, and ambiguous). Moreover, as a consequence of the world crisis which has among its consequences serious financial difficulties, increasing preoccupations regarding the efficiency and effectiveness of each military action and especially of multinational missions inside NATO or in ad-hoc coalitions are needed.

But for this reason it is necessary a methodology to quantify the efficiency and effectiveness. The latter are not mere values, but are of great importance in the scientific character of assessment. Therefore, a lot of indicators are needed and, more specifically, synthetic indicators as a result of their association to specific criteria. Every responsible political and military decision-maker's attention is focused upon efficiency and effectiveness, which are two essential parameters that affect the likelihood of an international military mission occurrence. In order to make them more relevant they have to be quantifiable due to multiple assessments made by decision-makers after highly competent synthetic indicator-based analyses. These indicators gain variable weight and importance, but eventually manage to reflect the extent to which a military mission is efficient and effective. We reiterate that the role, place and importance of a synthetic indicator is not rigid, but it rather evolves along with the unfolding military mission as well as with the enemy's reactions to its own troops' performance.

Any combat unit's operational costs, as well as its success in war missions and guarantee of mission accomplishment is rendered by the interaction between human resources' quantity and quality, military equipment and logistics supplies.

In this respect, special focus on behalf of the air forces is on quantitative quantifications of its combat units' potential, as well as on the estimation of likely combat situations through synthetic indicators aimed at ensuring and maintaining fire power, combat disposition and maneuverability.

Standard estimation and assurance of combat units' potential through **synthetic indicators** consists of calculations of the capabilities needed to conduct and accomplish war missions. Therefore, the focus of one of the article was on the indicators directly impacting upon air force resources management in international missions

To be part of an international alliance, whose main goal is the security and the defense, a joint force, established through what the member countries of the alliance can put at its disposal is many times involved. This joint force should improve the information exchange between the partners, and, thus, a better synchronization of all the international tasks that the alliance has to confront with. At the beginning this joint force is heterogeneous, but the member states have to make some steps in the way for make it more efficient and more interoperable.

Interoperability involves that some of the tasks at the national and international level have to be accomplished simultaneously or not, but sometimes using the same troops. These tasks involve appropriate resources, but also an appropriate control and coordination, at both, the national level and international level. Thus, an appropriate managerial interoperability is needed to achieve the established objectives. When it is necessary to clarify how the joint force accomplishes the tasks during the international missions the managerial interoperability becomes not only a very important indicator but a fundamental one.

Deductive managers define the problems and indicate the direction of settlement without knowing if there is a feasible solution. Inductive managers detect single solution and develop conditions of applicability in the studied

field in order to solve the information assisted reengineering systems issue. Stage research design processes subject reengineering and determining the optimal variant with minimal financial efforts. In these perspective performance indicators, indicators of control, and indicators of profitability are calculated. If the solution is feasible in technical-economic aspect then schemes operational and technological specifying the details of assembly-operation are drawn up.

For the purpose of measuring and generating reports regarding the effectiveness of the Romanian troops' actions assigned for different international missions, there is a final attribution remaining for the people assessing this operational preparedness level: gathering data on each and every area of activity that supports the fulfillment of the mission at the highest level of responsibility. Setting the channels for gathering data is going to be the next step in our scientific research so that one can have a reliable tool at one's disposition not only for the current framework (international missions of the Romanian detachments) but also something to be possibly generalized to the level of the entire military organization effectiveness and efficiency control management.

Recently, there has been some effort in utilizing quantitative indicators in a more systematic, coordinated fashion to capture the state of a particular Information Technology infrastructure. Such indicators are intended to reflect the "assurance" of the IT infrastructure to reliably transfer information. These indicators can be used to identify areas of the information infrastructure that require attention. They can also be used by an IT organization as a means of gauging the return on investment for IT Infrastructure equipment purchase.

Despite the existing work that is underway, there is currently no standard or widely accepted method of capturing and presenting the assurance levels associated with a particular IT infrastructure æ this includes end-hosts, servers, applications, routers, firewalls and the network that allows these

systems to communicate. A comprehensive, standardized set of quantitative metrics and indicators would be useful in order to identify areas of the IT infrastructure that are candidates for enhancement and pro-actively implement improvements to the IT infrastructure.

In order to approach the concept of integrated defense resources management in terms of its indicators, what is first and foremost needed is an integrated perspective over organizational management. The underlying reasons for this are as follows. First of all, Romanian troops participating in international missions come from a well- established organization, namely the Romanian military institution that, despite its unfolding transformation is grounded in tradition and core values. Second, taking part in international missions involves acknowledging and pledging allegiance to the core values upheld by international or transnational organizations such as NATO, UN, OSCE, EU or by temporary coalitions of the willing. Consequently, an identification of the socio- cultural indicators that play an important role in assessing the extent to which Romanian troops accomplish their missions abroad needs to start from an overview of the socio- psychological and management factors with a say in any kind of organization. Moreover, a correlation of these factors with socio- linguistic ones may help develop an integrated framework of analysis for the indicators needed in intercultural contexts.

A system of indicators is useful to define the core competencies which stem from the speed, global range, precision, flexibility, unparalleled access, and awareness afforded by the military forces that contribute internationally to the global safety and security.

The above recommended indicators, resulted from the research and mentioned references, are seen as being a small contribution to the Romanian system of indicators creation and this paper is subject of debates and completion.

A number of important indicators are now available to help HR organizations quantify their worth and support their role in driving the business.

HR professionals have long understood their value in helping line organizations achieve their goals by offering critical service in the area of recruitment and retention, compensation and benefits, assessment and evaluation, training, performance management, organizational development and succession planning.

Indicators are also available for deciding whether outsourcing any or all of these services makes economic sense. Any HR function, large or small, should be taking advantage of these and other resources to establish relevant indicators to quantify the value of their HR services and link these indicators to their organization's objectives. The establishment of indicators is a fundamental first step in demonstrating HR's contribution to the organization's bottom line.

The main elements contributing to defining some missions is its triggering legal act. Apart from it, other details can be mentioned according to each particular situation. Every mission of Romanian armed forces must be funded on an obligation assumed by means of an international treaty approved by Romania's Parliament.

We consider very important to be reiterated the critical obligation of every political and military decision-maker in order to ensure the legal character of all international military actions. This enhances its effectiveness and efficiency assessed by using modern indicators-based tools for I argue that respecting the legal character of international military missions is the prerequisite of the assessment of synthetic indicators.

One of the fundamental conditions for joint efforts of the armed forces belonging to alliances or coalitions is their mutual access to equipment, ammunition when needed. Such situations are frequent and the underlying

causes are the great losses inflicted in the battlefield, the impossibility to access own supplies as a consequence of enemy actions, lack of ammunition as a result of fight intensity, etc

What we actually witness is technology transfer among allies during the integration process or as a result of adhoc decisions.

The technology that can be transferred is, in my opinion, expressed numerically as a percentage indicator that assesses the efficiency of the military actions.

The NCW concept applies to the entire spectrum of warfare. It has the enormous potential to improve battle space awareness, speed of command, and force responsiveness at all levels, including operations other than war. NCW also assists in meeting the full operational potential of the force. It will allow a military force to get the most out of its people and equipment, resulting in improved collaboration, speed of command, and employment of advanced technologies.

Efficient management is a condition of organizational existence in general and of the military organization's existence in particular, for the latter is, after all, a special type of organization.

We consider it useful to state that decision-making is a leadership tool and duty at every organizational level. From an organizational perspective, a decision-maker's act has direct consequences at least upon one other individual's decisions and actions.

In the current political-military context, one cannot speak about decision-making without considering terms such as command and control interoperability, technology transfer, defense industries cooperation and/or migration. NATO standards should not be applied only in tangible fields such as finance and material resources, but rather in unquantifiable areas of human resources, which are more difficult to manage, especially in building interpersonal relations that enhance communication and teamwork.

French literature underlines also the importance of efficiency and effectiveness of the actions undertaken regardless of the environment or the human or material resources involved. The direct result of such an approach can be inferred from the prosperity and performance French society thrives on, as well as from the manner France manages the European Union presidency under the severe crisis the whole world is confronted with at the moment.

However, both efficiency and effectiveness must be quantified in order to assess the extent to which they meet the requirements of today's society. Thus, any assessment needs to be based on a set of tools, more specifically a set of synthetic indicators. As a consequence, the aim of this article is to focus on the impact of the integrated defense resources management assessment through synthetic based indicators on military international missions as presented in specialized French literature.

Another conclusion emerging during the communications session is that establishing synthetic- based indicators does not only require expertise, but also a thorough analysis. Hence the ensuing issues as presented in one of the articles. The difficulties facing in the process of establishing synthetic indicators to assess the impact of DRIM on the participation of Romanian forces in international mission are generated by two types of factors: independent or objective and subjective factors.

The first category is coming from the specific of external environment of military organizational structures deployed in theaters of operations such as: type of mission, environmental characteristics: weather, terrain, local population, their culture, customs, values and habits, security, socio-economic and political issues and others.

In addition, even though they are not totally objective or better to be underline as determined by the decisions made under the circumstances of operational and managerial specifications, the organizational traits must be

considered as generating difficulties in defining adequately the relevant synthetic indicators.

In the binomial relation object – subject of study, the inner factors coming from both individual and group decision making process should be taken into account in order to present the entire picture of difficulties in establishing the synthetic indicators for evaluating the performance of defense resources integrated managerial process in the context of international missions in which Romanian troops are part.

These are the main conclusions drawn during the communications session that concludes the grant 981/2007 entitled: *NATIONAL INTEGRATED DEFENSE RESOURCES MANAGEMENT SYSTEMS INFLUENCE ON THE MISSION ACCOMPLISHMENT OF THE ROMANIAN ARMED FORCES INVOLVED IN INTERNATIONAL MISSIONS*

It is worthwhile mentioning that the communications session benefited from the presence of high ranking specialists both from the military and from the civil environment that contributed suggestions and remarks on the topic. The opinions expressed in the papers are open for further discussions and completion on behalf of the reader.

As far as the grant members are concerned, we pledge to carry on the endeavors undertaken during this grant since, due to the rapid changes in the international environment, the efficiency of the Romanian armed forces participating in international missions depends on the accuracy of the just-in-time assessment of the situation.

THE MAIN QUANTIFICATION INDICATORS OF THE IMPACT OF THE INTEGRATED DEFENSE RESOURCES MANAGEMENT UPON ACCOMPLISHMENT OF THE INTERNATIONAL MILITARY MISSIONS

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Abstract

În actualele condiții când mediul de securitate devine din ce în ce mai instabil, având toate caracteristicile concentrate în abrevierea deja consacrată VUCA (volatile, uncertain, complex, ambiguous), iar fluiditatea lui este accentuată de criza mondială și de evoluția nefavorabilă a conflictelor (Irak, Afganistan) în care sunt angajate forțele țărilor democratice, ambele conducând la serioase constrângeri financiare, este de înțeles atenția specială acordată eficienței și eficacității fiecărei acțiuni militare, cu precădere celor multinaționale, care în ultimele decade ale secolului trecut și prima din cel actual au devenit prevalente. Nici un stat, indiferent de mărime, putere economică și militară, de numărul misiunilor internaționale în care este implicat, nu-și mai permite să aloce sumele uriașe de până acum îndeplinirii acestora, iar soluția este realizarea obiectivelor propuse cu minimum de resurse umane și materiale și cu rezultate maxime care să ducă în timp scurt la scopul propus pentru fiecare acțiune militară (tactică, strategică), desfășurată în limitele misiunii respective. Eficiența și eficacitatea nu sunt noțiuni abstracte, ci doi parametri esențiali la care se raportează însăși posibilitatea declanșării unei misiuni militare internaționale iar pentru sporirea relevanței lor ele trebuie cuantificate sens în care se utilizează indicatorii sintetici, care de la situație la situație capătă pondere și importanță

variabile dar care finalmente reușesc să redea gradul în care o acțiune militară este sau nu eficientă și eficace.

Security environment is in a permanent change having as main cause its fluidity very relevant concentrated in known abbreviation VUCA (volatile, uncertain, complex, ambiguous), grown by world crisis which has among its consequences serious financial difficulties which requests the increasing preoccupations regarding the efficiency and effectiveness of each military action and especially of multinational missions inside NATO or in coalitions ad-hoc made.

But for this reason is necessary a methodology for quantification efficiency and effectiveness which are not simple values, they having a great importance in scientific character of assessment and for this there are necessary a lot of indicators and its association according to some criteria, in synthetic indicators. Every responsible political and military decision-maker's attention is focused upon efficiency and effectiveness, which are two essential parameters that affect the likelihood of an international military mission occurrence, and in order to make them more relevant they have to be quantifiable due to multiple assessments made by decision-makers after highly competent synthetic indicator-based analysis. These indicators gain variable weight and importance, but eventually manage to reflect the extent to which a military mission is efficient and effective. I restate that the role, place and importance of a synthetic indicator is not rigid, but it rather evolves along with the unfolding military mission as well as with the enemy's reactions to its own troops' performance. I consider that the huge human and material losses encompass all the pre-requisites of the military action and, therefore, all other indicators.

It is clear that the above considerations are valid not only for the military system, but also for the society in general, which can be seen everywhere in today's world.

From many examples I chose three regarding different social domains:

1. Educational effectiveness and efficiency¹

Descriptors: Cost Effectiveness; Educational Assessment; Educational Economics; Educational Indicators; Efficiency; Elementary Secondary Education; Evaluation Criteria; Evaluation Methods; Foreign Countries; Measurement Techniques; Organizational Effectiveness; School Effectiveness

This monograph identifies appropriate quantitative indicators of educational effectiveness and efficiency, and discusses how such indicators should be used to assess education at multiple levels of the system. It focuses on the practical aspects of introducing effectiveness and efficiency concepts/measures into the deliberations of educational practitioners. The first part deals with the conceptual and definitional issues related to the measurement of education effectiveness and efficiency. It reviews the appropriateness of the application of the efficiency model to education and proposes specific definitions for common terms. The second part involves indicators of educational effectiveness--the first chapter with input and process measures, and the second with output and outcome measures. The role of qualitative indicators is also discussed. The third part reviews basic cost issues and demonstrates how efficiency analysis is conducted under four alternative forms: benefit-cost, cost-effectiveness, least-cost, and cost-utility analyses. Part 4 assesses the policy relevance of indicators as they relate to the

¹ [Windham, Douglas M.
http://eric.ed.gov/ERICWebPortal/custom/portlets/recordDetails/detailmini.jsp?_nfpb=true&_ERICEstSearch_SearchValue_0=ED351784&ERICEstSearch_SearchType_0=no&accno=ED351784](http://eric.ed.gov/ERICWebPortal/custom/portlets/recordDetails/detailmini.jsp?_nfpb=true&_ERICEstSearch_SearchValue_0=ED351784&ERICEstSearch_SearchType_0=no&accno=ED351784)

development and use of educational management information systems. It concludes with a brief review and set of recommendations to improve the practical relevance of efficiency considerations to educational systems and institutions. Thirteen tables, four figures, and an extensive bibliography are included. (LMI)

2. Improving the efficiency and effectiveness of local government Australian Government activities to support local government performance improvement²

Local government service delivery has come under increased scrutiny with the ongoing process of reforms both at the State and national levels. Over the past decade, State governments across Australia have embarked on an ambitious program of local government reform aimed at enhancing efficiency in this sector.

At the national level, the Australian Government's interest in improving local government performance is related to the significant funding provided to local government through the financial assistance grants. Further, the government's microeconomic reforms, such as the National Competition Policy and its related legislation, for example, the *Trade Practices Act 1974*, are designed to enhance national economic performance. Microeconomic reforms by local government improve economic efficiency and contribute to overall national economic performance.

In February 2003, the Australian Parliament's House of Representative Inquiry into Local Government and Cost Shifting released a discussion paper 'At the Cross Roads: Inquiry into Local Government and Cost Shifting'.

This discussion paper stated that:

² http://www.infrastructure.gov.au/local/publications/reports/2002_2003/C3.aspx

The Committee raises the question whether [there] is a case for closer Commonwealth scrutiny of local government systems and performance to ensure value for the very large sums of taxpayer funds spent in supporting councils.

Under the *Local Government (Financial Assistance) Act 1995* the Australian Government Minister for Local Government is required to provide to Parliament an assessment, using comparable national data, of the performance of local government including its efficiency. This chapter outlines some of the key initiatives undertaken to improve the performance of local government in 2002-03.

In relation to this requirement, in 1997 the Australian Government engaged the Industry Commission (now the Productivity Commission) to examine the feasibility of producing a nationally consistent approach to performance measurement in local government.

3. Evaluation of the different RES-E support schemes (effectiveness and economic efficiency)³

In reviewing and evaluating the different RES-E support schemes described above, the key question is whether each of these policy instruments has been a success. In order to assess the success of the different policy instruments, the most important criteria are:

Effectiveness: Did the RES-E support programs lead to a significant increase in deployment of capacities from RES-E (Renewable energy sources- electrics).

³ <http://www.wind-energy-the-facts.org/en/part-3-economics-of-wind-power/chapter-4-prices-and-support-mechanisms/evaluation-of-the-different-res-e-support-schemes-effectiveness-and-economic-efficiency.html>

- In relation to the additional potential? The effectiveness indicator measures the relationship of the new generated electricity within a certain time period to the potential of the technologies.
- Economic efficiency: What was the absolute support level compared to the actual generation costs of RES-E generators, and what was the trend in support over time? How is the net support level of RES-E generation consistent with the corresponding effectiveness indicator?

Other important performance criteria are the:

- credibility for investors; and
- reduction of costs over time.

However, effectiveness and economic efficiency are the two most important criteria and they are discussed in detail in the following sections.

This indicators' identification is a very difficult work, but my attempt to discover them, suggest my conviction that multinational missions in hot zones of the world must have relevant scientific tools.

My opinion regarding the indicators weight put in practice some values appreciated as a ratio between the existent (real) and the maximum performances for each domain.

My emphasis upon interoperability comes to underline its importance in stated objectives achievement.

In my paper, I tried to present the main indicators and synthetic indicators, in my opinion of course, and for each of them a very short definition and its weight.

The first indicator I consider the human and material loss, because they have a deep influence upon troops moral and simultaneously upon

efficiency and effectiveness. I didn't dare to purpose a number for weight but I am sure that this must be 3-5.

Second I placed the interoperability degree with other armed forces participating in multinational missions. Here the weight is the number resulted from the required and the real level of the each troops participating in a joint mission. In my opinion, the indicators' weight becomes simple considering that it is similar to the interoperability percentage. I will not exemplify for the calculus itself can be found in other papers presented here.

An essential indicator is from my very personal point of view is logistics with its two components: asset and support; asset is inside each country and the support in operational theatre. The weight is towards 1-2.

I think the weight must be carried out with percentages of all types of materials that have to be interchangeable (not necessarily to achieve the highest level of compatibility, for no NATO member as achieved that as a result of the technological discrepancies compared to the US military). We attempt to launch a controversial opinion coming from the military logistics field, that is, during the support there is a technological transfer of technology as well as a transfer of all types of materials (ammunition, fuel, equipment, etc.) which may be seen as derivatives of the technology transferred prior to the actions themselves. This transfer takes place not only in the area of the military actions, but also from the country that owns them to the country that needs them, and also by means of own troops. In this context I would like to mention re-engineering atypical materials, that is, bringing them to the lowest acceptable standard of interoperability. The weighing is thus done according to the percentage of our equipment made interoperable compared to its counterpart from other armed forces (numerically, of course).

Another important chapter is that of funding these actions. Financial constraints led to ensuring a minimum level of the necessary, which makes me think that this indicator may be the numerical expression of the supplied out of the necessary. As information plays a critical role in today's world, the information resources is, in my opinion, one of the most important indicators that might be included in any combination resulting in relevant synthetic indicators. To answer the question "what is the weight coefficient?", I need to digress in terms of the significance of each piece of information as well as the quantity and quality of its source (HUMINT, SIGINT, IMINT, OSINT, MASINT, TECHINT). Finally, I consider that the useful information out of the total available amount is the weight indicator regarding the synthetic indicators in which the information resource is included. the software and hardware do not need any further comments as their weight is carried out in terms of the standards met at the top of this field of activity.

Other indicators are: the quantity and quality of the human resource; the informational resource; the level of CIMIC; the intercultural and inter-linguistic compatibility among allies; the level of bureaucracy, etc.

I presented but a few of the elements which, in my opinion, pertain to indicators, particularly to the synthetic ones, in spite of knowing that I did not manage to include all of them, but only to identify the most significant ones. My scientific endeavor resulted from the fact that the world in which we live is subjected to transformations that used to occur in centuries, and now take place within decades or years. In order to ensure the social development, everything must be assessed and quantified as accurate as possible with what we have available. Most certainly, the use of synthetic indicators is one way to achieve results that are relevant in terms of efficiency and effectiveness, without which everything would be hard or even impossible to assess.

As a conclusion: in each human activity the most important are efficiency and effectiveness and for them evaluation there are necessary a lot of indicators and synthetic indicators. In our session these indicators will be analyzed in scientific papers conforming of the grant requirements.

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SYNTHETIC INDICATORS OF AIR FORCES RESOURCES UTILIZATION IN INTERNATIONAL MISSIONS

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Abstract

Pentru apărarea și promovarea intereselor de securitate ale statului român, forțele aeriene ale acestuia sunt chemate să-și îndeplinească cu eficiență misiunile atât în interiorul granițelor naționale, în cadrul NATINADS, cât și-n afara acestora, în operații multinaționale NATO sau non-NATO, sub sau fără mandatul ONU.

1. Quantitative synthetic indicators used in preparing and conducting war missions

Any combat unit's operational costs, as well as its success in war missions and guarantee of mission accomplishment is rendered by the interaction between human resources' quantity and quality, military equipment and logistics supplies.

In this respect, special focus on behalf of the air forces is on quantitative quantifications of its combat units' potential, as well as on the estimation of likely combat situations through synthetic indicators aimed at ensuring and maintaining fire power, combat disposition and maneuverability.

Standard estimation and assurance⁴ of combat units' potential through **synthetic indicators** consists of calculations of the capabilities needed to conduct and accomplish war missions. Therefore, the focus of this article will

⁴ Any tactical or operational structure that can accomplish war missions independently or in a centralized manner

be on the indicators directly impacting upon air force resources management in international missions.

2. Synthetic indicators of the radiolocation resource usage

Radiolocation usage in air space recce is a defining indicator of any radio technical unit's combat capabilities and it consists of the parameters of the area under recce which are established by the radio technical unit. Therefore, I will present the manner of calculating two parameters of the investigated area that can be viewed as synthetic indicators to be employed in calculating the radiolocation resource.

One of the most important parameters of the investigated area is *the investigated area's inferior limit height* and it can be defined as the minimum height ensuring safe detection of own aircraft and uninterrupted pursuit of the enemy's.

In order to calculate the *investigated area's inferior limit height* through radiolocation H_0 , the numerical value pertaining to the detection range for the main radiolocation station in the case of a specific combat device is first established for the area's inferior limit height (D_0) by the formula:

$$D_0 = \sqrt{\frac{S_{Z.D.}}{2.6N_{sub.}}} , \quad (1)$$

Where:

$S_{Z.D.}$ – Surface of display area;

$N_{sub.}$ – Number of subunits.

Once the numerical value of D_0 established, where the vertical direction of the radiolocation unit $D_d = f(H)$, we then calculate the height value of D_0 which equals the area's inferior limit height.

The probability of air targets detection represents the radio technique system's capacity to positively identify air targets that have similar effective surface reflection and fly at the same height.

For the radio technical unit the ***probability of air targets detection*** is an important matter especially in terms of the recce area's inferior limit height.

The probability of air targets detection can be calculated for one entity in the case of alignment, direction, or for the whole higher echelon by using the formula: (2):

$$P = 1 - (1 - P_1)(1 - P_2)(1 - P_3).....(1 - P_n) \quad (2)$$

where:

$P_1, P_2, P_3...P_n$ refer to the probability of air target detection by any radiolocation unit and P is the probability of air target detection at a lower combat echelon for the radio technical unit.

3. Synthetic indicators used to calculate air force resource

I will now present some objective ***synthetic indicators*** used to calculate the air force resource, namely the most significant capabilities of the combat units within the air force group (that is the joint multinational air force component) represented by aviation and ground- air missiles.

Aviation resource calculations

If the irretrievable losses in air force capabilities are taken into account, the following formula is to be applied:

$$N_{i.av.} = N_0 \frac{1 - \beta^n}{\alpha} \quad (5)$$

where:

$N_{i.av.}$ - the aviation resource expressed as sorties/ time length taking into account the losses

⁵ Fl. Răpan, *Tendințe de întrebuințare a aviației militare în cadrul strategic actual*, Editura Academiei de Înalte Studii Militare, 1998, pag.100

N_0 - the initial number of sorties

α - average coefficient of global losses calculated as

$$\alpha = K_{n.r.} + K_{r.c.} + K_{r.m.} + K_{r.crt.}$$

$K_{n.r.}$ – irretrievable losses coefficient;

$K_{r.c.}$ – coefficient of losses resulting from general overhaul

$K_{r.m.}$ – coefficient of losses resulting from average repairs

$K_{r.crt.}$ – coefficient of losses resulting from current repairs

The losses coefficient „K” is the ratio between the average number of lost or under repair planes and the number of planes:

$$K = \frac{N_p}{N_{av}} \quad (6)$$

$$\beta = 1 - \alpha$$

n – the total number of sorties for the given period calculated in terms of fight intensity „I”:

$$n = N_z \cdot I$$

N_z – the number of days for which the resource calculations are made;

I - the fight intensity (number of sorties per day for a plane)

Based on the initial formula we can also calculate:

a. The average number of lost planes– N_p :

$$N_p = N_0(1 - \beta^n) \quad (7)$$

b. After how many sorties „ n_n ” the losses reach a given level „ N_p ” that actually results from the agreed upon level of losses when the operation is halted or when the efficiency level no longer matches the efforts (costs).

$$n_n = \frac{\ln\left(1 - \frac{N_p}{N_0}\right)}{\ln\beta} \quad \text{or} \quad n_n = \frac{\ln\left(1 - \frac{N_p[\%]}{100}\right)}{\ln\beta} \quad (8)$$

c. The number of planes N_n that can participate in the „ n ”- sortie.

$$N_n = N_0(1 - \alpha)^n \quad (9)$$

d. The number of operational planes on ground after an „n” sortie.

$$N_r = N_0(1 - \alpha)^{n-1} \quad (10)$$

Mathematical determinations of the expected number targets downed/annihilated

A more complex and thorough manner of calculating air force combat capabilities is provided by the *theory of mass servicing* by viewing combat units as service systems with losses or with limited abeyance (mono- channel or multi-channel).

I will exemplify how the aviation annihilation expectancies can be calculated based on the results of the analysis of the service systems with losses, multichannel:

α = service factor, $\alpha = \lambda t_d$;

λ = entry flux parameter; average cost of the planes arrived in the time unit

t_d = service time

t_c = shooting/ control cycle

$t_d = t_c$,

n = the number of channels of the service system

k = the number of units within the system; K position

$$P_k = \frac{\lambda^k}{k! \mu^k} P_0, \text{ the probability for the system to be in the position „k” (13)}$$

$$P_0 = \frac{1}{\sum_{k=0}^n \frac{\alpha^k}{k!}}, \text{ the probability for the system to be clear}$$

(14)

(no channel engaged)

$$P_n = \frac{\frac{\alpha^n}{n!}}{\sum_{K=0}^n \frac{\alpha^k}{k!}}, \text{ the losses probability}$$

(15)

(the probability for all channels to be engaged)

$$P_d = 1 - P_p = 1 - \frac{\frac{\alpha^n}{n!}}{\sum_{K=0}^n \frac{\alpha^k}{k!}}, \text{ service probability} \quad (16)$$

$$W_* = 1 - e^{\frac{-N_v \cdot I_v \cdot P_d \cdot W_n}{N_i}}, \quad (17)$$

where:

W_* = probability of annihilation of an enemy plane by at least one of the combat planes;

N_v = number of fighter palnes participating in annihilating enemy in the air;

I_v = own number of fighter sorties during the enemy's attack;

N_i = number of enemy planes participating in attack;

P_d = probability of service;

W_n = probability of annihilating an isolated enemy plane by one of the fighters.;

M_c = mathematical determination of the number serviced/ countered targets

M_n = mathematical determination of the number of annihilated targets

4. Synthetic indicators used to calculate the ground-air missile resource

As far as the ground- air missile resource is concerned, a highly used method to calculate the fire power (that is *the combat and annihilation*

expectancies) employs the ratio between *the number of anti-aircraft channels* within fire power system and the *density of the air attack*.

Calculating the combat (employment) expectancy

$$\begin{aligned} M_c &= N \cdot (Ta / Tc) + 1 \\ N &= n \cdot k \end{aligned} \quad (18)$$

where: N = total number of anti aircraft channels;

n = number of antiaircraft systems of a certain type;

k = number of channels of that antiaircraft system.

In order to thoroughly evaluate fire expectancy it is necessary to analyse a few possible tactical situations emerging from the analysis of the likely air ballistic attack against the target: *the number of ballistic missiles* that will attack the target estimated by compartment A_2 and the *attack duration*.

An example in this respect will clarify the above observations. Thus, should there be a ballistic attack (that is 30 ballistic missiles) attack against the target as indicated by compartment A_2 for 1 min.

$$d = \frac{30}{1} = 30$$

The result of previous calculations had pointed out that out of the 30 missiles attacking target „M”, $M_n = 24$ ballistic missiles would be destroyed, whereas 6 missiles would hit and destroy the target.

The effectiveness of antiballistic defense of target is 24/30 %, that is 80 %, with an attack density $d = 30$ ballistic missiles/min.

Tactically speaking, attack density „ d ” is of high importance since by resorting to it one can determine the number of antiaircraft systems (channels) that are necessary in the antiballistic defence of an objective (N). Thus, mathematical expectancy is met as follows: $n = d \cdot T_c$,

$$(21)$$

Where, according to the example above, $n = 30 \cdot 0,25 = 7,5 \approx 8$

cantiballistic/ antiaircraft shooting channels.

As for the mathematical expectancy in terms of the ballistic missiles fought back:

$M_c = 8 \cdot (60/15) + 1 = 32 + 1 = 33$ ballistic missiles fought back (system's capacity) ≥ 30 , which means that all 30 ballistic missiles are fought back.

$M_n = 30 \cdot 0,96 = 28,8 \approx 29$ ballistic missiles downed.

Thus, system's efficiency is $29/30 = 0,96$ (96%), increasing by 16%.

In conclusion, I have identified some of the objective synthetic indicators used to calculate combat operational capabilities of the air force (that is the air force resources from joint multinational force). Moreover, I wish to emphasize the role of these indicators in employing the air force resource at its best in accordance with the features of international operations where the air force resources are employed.

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MANAGERIAL INTEROPERABILITY - MAJOR INDICATOR FOR THE ACCOMPLISHMENT OF THE INTERNATIONAL MISSIONS

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To be part of an international alliance, whose main goal is the security and the defense, many times involves a joint force, established through what the member countries of the alliance can put at its disposal. This joint force should improve the information exchange between the partners, and, thus, a better synchronization of all the international tasks that the alliance has to confront with. At the beginning this joint force is heterogeneous, but the member states have to make some steps in the way for make it more efficient and more interoperable.

Interoperability involves that some of the tasks at the national and international level has to be accomplished simultaneous or not, but sometimes using the same troops. These tasks involve appropriate resources, but also an appropriate control and coordination, at both, the national level and international level, and thus, an appropriate managerial interoperability is needed to achieve the established objectives. When it is necessary to clarify how the joint force accomplishes the tasks during the international missions, the managerial interoperability becomes not only a very important indicator but a fundamental one.

In this paper, I present some necessary actions at the national level that can help to improve the managerial interoperability, and thus, the efficiency of the joint force, and how to proceed for measuring the related national efforts, because is very important to increase the confidence and to be sure that you are on the good.

I will start by enumerating the stages that I and some others consider to be necessary in the process of making more interoperable the national forces at the disposal of the alliance.

How to build the managerial interoperability in the military field?

To build an interoperable force, any nation has to follow some major transformations at all the levels of the military system. The European states know this, but there are few examples to be proud in the field of the security and the defense, especially related with the joint international missions.

Romania, in the field of the investments within the Defense Ministry, in the last twenty years some alternatives were proposed and used; all of these alternatives were taken to improve the military acquisition process, mainly based on the specific needs of each of the military branches. In some cases, when the military force involves troops from different branches, as in the case of joint operations, the discrete systems can not interact enough quick and efficient, and some cases involves additional costs.

As result, the transformation, that should create the joint capabilities, has to change the way of thinking and to lead toward new concepts, capabilities, human resources, and organizations. The main objective of this transformation has to be the delivery of a rapid military force, adaptable to new challenges and to sudden circumstances. Therefore, it is necessary to develop new concepts to deploy and to use in the future the joint forces, and these involves new doctrines, a new organization and a new leading team,

new methods and procedures to educate and to train the personnel, new material resources and facilities.

Transformation should lead towards better information management and towards such a reorganization of the structures for a faster and better understanding of the context in which the forces at the disposal have to act. This context includes answers to some questions referring to battles, opponents, the command and the control of the operations, the possible attack and defense procedures to be used, the information management, the training and the equipment of the own forces.

From the battlefield perspective, the joint capabilities have to improve the understanding of the context and to reduce at minimum the risks of the friendly fires. Commandants will have better decisions, and the led by them joint operations can be more efficient, if they should know better the resources at their disposal and where to find these resources. Logistic units have to understand how the combat units should be sustained on the battlefield, and how to dispose the different needed resources, to reduce the time until they arrive where they are necessary.⁶

The building process of the capabilities that are necessary for joint operations has to be originate on collaboration, and should be based on five functional concepts: the knowledge of the battlefield, the command and the control, how to use the force, how to focus the protection and the logistics.⁷

If we have in mind the changes occurred during the last decades, which are related with the battlefield, that often the military operations are asymmetric, for the future it is necessary to rethink these operations as being more jointly. Nowadays the states, especially from Europe, reduce their armed forces. Thus, member states of an alliance participate very often with different troops for the joint force of the alliance, and the alliance needs more

⁶ Alberts David S., Hayes Richard E. - [Power to the Edge](#) (PDF), 2003

⁷ Mara, M., A Capability-Based Planning Methodology for Networked Systems-of-Systems. MORS-MAS, 2003

interoperability. These long term ambitious visions push on the traditional managerial practices that have to be changed. The changes have to include all the interested participants, to allow a faster adaptation to the real conditions, to allow a permanent collaboration between all necessary participants on the battlefield at one moment, and to allow a performant management of the information that has to help the all levels decisional process.

To conclude, the forces that are offered by the member states at the disposal of the alliance includes personnel from different national military categories. To operate together, they have to do it, firstly, at the national level and, secondly, at the international level, where they have to operate together with the forces from other states. To achieve this objective, the following steps have to be accomplished:

- The forces have to be trained in similar conditions and accomplishing similar missions;
- The forces have to be equipped and endowed with weapons and military techniques that have to be interoperable at the alliance level;
- The forces have to be endowed with communication systems that have to be interconnectable at the alliance level;
- Concepts, capabilities and standardized organizations have to be used at the alliance level, which means:
 - Doctrinaire principles have to be commune, and the organizational structures and leading structures as similar as possible;
 - The methods and procedures used to educate and to train the personnel have to help them to work, to collaborate and to succeed in the future missions;
 - The materiel and the facilities at the disposal of the joint troops have to be interconnectable;

- The information has to be processed and disseminate faster and more efficient, because the military organizations have to better and faster understand the context in which will act the joint forces;
- The information referring to the battlefield has to be better and faster understood to improve the decisional process and to minimize the friendly fires;
- All the personnel involved has to understand the way of how the logistic units will sustain and supply the troops on the battlefield and how they have to deploy the different resources that are necessary on the battlefield, to be as soon as possible where they are needed;
- The combat units and the logistic units have to have access to the same information related with the available resources, where they are located and how they can be used during the mission time, to minimize the enemy threats.

For measuring the efficiency of all the above activities, whose objective is to build a joint force to be used by an alliance during different international missions, it is necessary to quantify all these activities.

How to quantify the activities that are involved within the process for building the managerial interoperability in the military field?

There is no individual that can predict whether or not all the efforts at the national level will improve the efficiency of the military forces offered to the alliance for international missions. For this reason it is necessary to know from where to start, then to measure all these efforts, and then to compare the results/outcomes with what was established at the beginning. To do these there is necessary to define and to use synthetic indicators.

For the definition of synthetic indicators, indicators from different military programs are classified into three different levels of concretization,

covering information about changes in demand and supply, and the internal organization and business strategy. These synthetic indicators built on the idea of “importance” of an indicator in the description of each level of concretization. With these indicators and using data from those military programs, static analysis is developed for comparing different military national and international realities concerning the development of managerial interoperability.

According to the Endowment Conception with Major Equipment and Systems of the Romanian Military 2006-2025⁸, the Romanian Ministry of Defense intends to update “...the Romanian Military on short, medium and long term in accordance with the principles and provisions established by the **Romanian Military Transformation Strategy** and **Defense Planning Directive** to fulfill the Force Goals (FG), to respect the contributions to NATO Response Force (NRF) in the context provided by the **Prague Conventions concerning Capabilities** (PCC), and the engagements concerning the contribution in forces and capabilities for the European Union”.

To decrease the current discrepancies in the performance of the military capabilities belonging to Romania and other new members, and in order to achieve compatibility and interoperability with allied or partner military NATO has established measures concerning the policy of endowment and modernization of military equipment.

All the military programs propose some targets with the objective “to making operational the force structure engaged through the obligations assumed by Romania with NATO and the need to make it compatible from

⁸ www.dpa.ro/engleza/documente/Endowmentconception.pdf, “General considerations”, pp. 2

the structural and action point of view with the other forces within the Alliance”.⁹

This simple statement entails a more complex situation, affecting not just the armed forces of Romania, but also the Romanian society as a whole.

While this strategic goal is defined taking into account all possible external challenges, it is important to bear in mind that there are important internal constraints, related to the social aspects and to significant economic diversities.

For this reason the main target, stated before, has to be split into more detailed targets and associated subtargets. Thus, several different targets, with more concrete goals to be achieved (subtargets), have to be considered. Romania took in consideration the NATO and EU recommendations and established specific goals for short term (the end of 2006) and for medium term (2014), for each of its services. These goals will be materialized in new capabilities, which will be used both for national or alliance needs.¹⁰

In a complex and decentralized policy setting, to move all the actors (involved in achieving these goals) in a common direction requires clear targets, which will allow monitoring and benchmarking best practices. Precisely, for this purpose it comes up the necessity of establishing, where appropriate, quantitative and qualitative indicators. Indicators are important to inform managerial team(s) whether they are on the right track towards the development of a managerial interoperability, and to what extent they are not. Furthermore, developing a complete set of indicators, with more up-to-date data, is important to design appropriate policies at every level and to set adequate adjustments when necessary.

For a complete analysis of the transformation of the Romanian military services, indicators will be classified according to different criteria. These

⁹ www.dpa.ro/engleza/documente/Endowmentconception.pdf, chapter II, pp. 4

¹⁰ www.dpa.ro/engleza/documente/Endowmentconception.pdf, chapter III, pp.8-9

criteria, which will be broadly explained in later sections, are directed to have an idea of how changes are affecting *demand* and *supply*, the internal *organization* and business *strategies*.

For comparing results on the situation of Romanian military services between different realities can be proposed different *synthetic indicators*, which will capture all aspects related to capabilities measurement, accordingly to different classification criteria. With these indicators, static and dynamic analysis could be easily developed.

For a better understanding, we will give an example for one of the steps, which were presented in the previous chapter: the information has to be processed and disseminate faster and more efficient, because the military organizations have to better and faster understand the context in which will act the joint forces.

This is a synthetic indicator. For an appropriate measurement of this indicator, we have to go deeper and to find what do these mean: firstly, to *process* and to *disseminate* the information, and secondly, how to do them faster and more efficient for improving the understanding of the context of the battlefield, and to make better decisions.

According to Merriam-Webster dictionary, to *process* means “a series of actions or operations conducing to an end”, or “to subject to or handle through an established usually routine set of procedures”.¹¹ Nowadays, to process information, we use computers, information technology. For this reason, we need to know:

- what kind of processing is necessary at each level (headquarters, units, individuals);
- how many computers we need to process the information;
- what kind of computers we need;
- what kind of software we need;

¹¹ <http://www.merriam-webster.com/dictionary/process>

- how many people has to be trained to use these computers and software;
- what is the level of education / training of this people;
- a.s.o.

To *disseminate* the information, according to the same dictionary, means “to disperse throughout” the processed information. How can we do it? Usually we need some chains of communication. How many, what kind, which kind of devices we need there are only some of the questions we have to answer. All these are subtargets, that are measurable, and we can compare what we have, with what the expected results/outcomes are, and to find what we have to do in addition, to determine the needed resources and the needed time framework.

It is not the purpose of this paper to presents the methodology of defining synthetic indicators associated to the different levels of concretization.

Conclusions

Being part of an alliance means to beneficiate of all the rights established through some documents, but also to actively participate in putting in practice of all the objectives that are decided at the alliance level. One of these objectives is or can be related with the participation in some international military missions. Any country which is member of an alliance has to participate with troops and military techniques and devices in these missions. To do that is very important that each country to do some steps, deciding how many troops to offer at the disposal of the alliance, how much and how to be trained, how much and with what to be endowed. All these national efforts have to be managed, and moreover, to lead toward the success. However, for succeeding it is necessary that your troops to act

together with the other troops, that are offered by the other member countries. For this reason, your troops has to be trained, and endowed in similar ways, as the other troops, and to create a good interoperability between all the participants in an international mission, not only at the human resources level, weaponry and military technique level, but also at the managerial level.

This is not an easy job, and it involves a lot of activities that have to be done and to be measured to know whether or not we are on the proper way. It is not easy, but it is very important to do it.

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INFORMATIN MANAGEMENT SUPPORT FOR STRATEGIC MANAGEMENT

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Abstract

Necesitatea de a gestiona cantități din ce în ce mai mari de informație este critică. În climatul economic de astăzi, din ce în ce mai dinamic, informația și capitalul intelectual reprezintă cheia pentru a genera noi oportunități profitabile. S-a demonstrat că în cele mai multe cazuri optzeci la sută din esența unei afaceri este nestructurată – dosare cu diverse informații, fișiere, mesaje, rapoarte, oferte și cereri de ofertă, create în formate diverse și stocate într-o mulțime de locuri. Pe de altă parte managementul organizațiilor are nevoie de informații în timp oportun despre mediul intern și mediul extern pentru a desfășura un proces de decizie optim. Aceasta revărsare de informații se cere a fi pusă în context – să fie filtrată, structurată și pusă la dispoziția acelor care au nevoie, într-o formă cât mai expresivă. Numai atunci nivelele de decizie își vor da seama de valoarea completă, adevărată a informațiilor acumulate în cadrul organizației[7].

Making government more effective and efficient is a national issue. But getting it to work better and cost less will be impossible if national agencies cannot learn to manage with modern practices the information age demands. Today's information systems offer the government unprecedented opportunities to provide higher quality services tailored to the public's changing needs, delivered more effectively, faster, and at lower cost.

Moreover, they can enhance the quality and accessibility of important knowledge and information, both for the public and for national managers.

Strategic information management (i.e., managing information and information technology to maximize improvements in mission performance) will also be a crucial initiative for all national agencies as they move to implement the Government Performance and Results Act, which is focused on results-oriented management. With it, improved management information and restructured work processes can gradually reduce costs and increase service levels[4].

Without it, many agencies will find their efforts to move to results-oriented management hindered by their inability to develop vital data and useful information systems that support performance measurement and substantive mission improvements.

Fundamental Practices

Strategic information management is one critical, integrated part of any general management framework. Similar to the way modern organizations have gradually become dependent on information technologies, it has become an indispensable lens through which to view most vital general management decisions. Strategic information management typically involves defining a mission based on customer segments and needs; establishing core processes that accomplish the mission; understanding the key decisions that guide mission delivery processes; supporting those decisions with the right information available to the right people at the right time; and using technology to collect, process, and disseminate information in ways that improve the delivery of products, goods, and services to customers.

An information strategy describes the overall direction and general framework in which the organization's information resources and processes should be managed so that the organization would achieve its most important goals. An Information Strategy typically consists of the following:

IM goals and objectives that are well aligned with the organization's mission and vision IM principles that articulate desirable outcomes and form the foundation for developing information policies one or more areas of strategic focus: this could be some critical information content; common information to be shared; some information-intensive process; or new information-based products or services.

Information management (IM) is the harnessing of the information resources and information capabilities of the organization in order to add and create value both for itself and for its clients or customers. Information management is the management of organizational processes and systems that acquire, create, organize, distribute, and use information. Information management includes all activities involved in the identification, collection, filtering, fusing, processing, focusing, dissemination, and usage of information.

Information management is a continuous cycle of five closely related activities:

1. identification of information needs;
2. acquisition and creation of information;
3. organization and storage of information;
4. information dissemination;
5. information use;

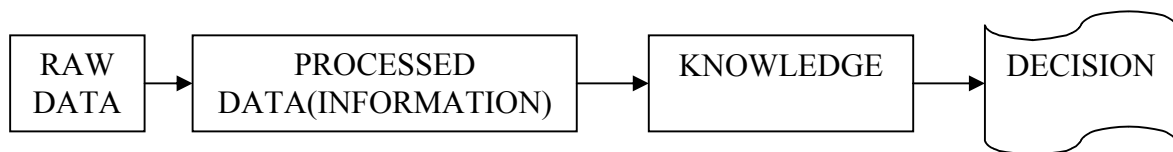


Fig. 1 Information flow[6]

The idea underlying IM is that just as an organization purposefully and systematically manages its human resources or financial assets, it should do likewise for its information resources and processes. All the classic functions of managing an organizational activity apply to IM as well:

- a) defining goals,
- b) providing leadership;
- c) developing policies;
- d) allocating resources;
- e) training staff;
- f) evaluation and feedback.

The term information generically refers to all facts, data, or instructions in any medium or form.

The manager requires quality information to understand situations and events and to quickly control the challenges that confront him. Quality information adds value to the decision-making process and is critical to the success or failure of an operation. Therefore, the manager must determine his information requirements and ensure that information is managed effectively.

Information management addresses information as a commodity instead of a technology and is performed at all levels, regardless of the extent of automation. Effective information management delivers critically important information in a timely manner to those who need it in a form that they can quickly understand.

Benefits of information management

Generally speaking, there are a lot of benefits from managing information strategically:

1. reduce costs;
2. reduce uncertainty or risks;
3. add value to existing products or services;
4. create new value through new information-based products or services.;
5. increased visibility into organization-wide business operations;
6. increased business processes efficiency and effectiveness;
7. accelerated responsiveness to business change;
8. reductions in business errors;

9. strategic management of information across internal and external organizations;
10. increased regulatory compliance.

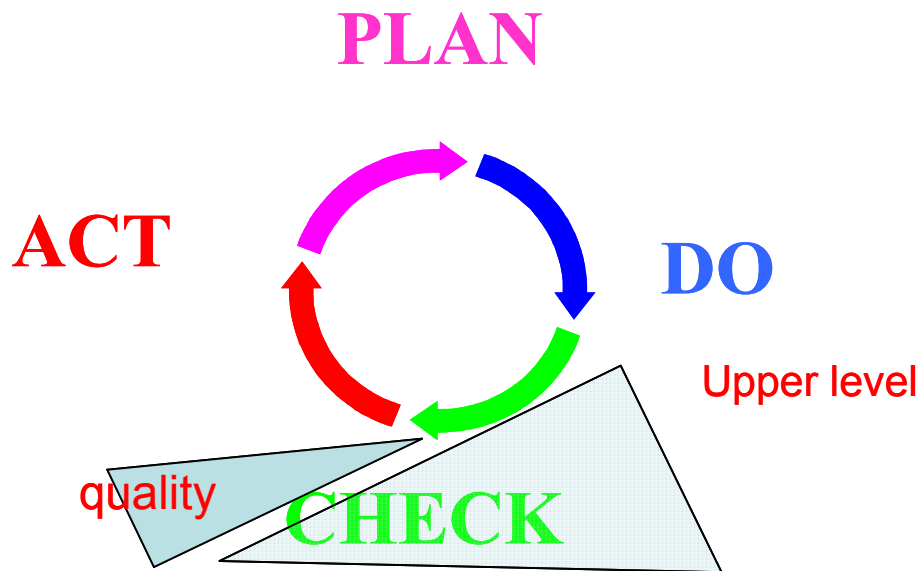


Fig. 2 TQM cycle

In my opinion, the key for a success is to apply the information management in all steps which are made in strategic management process, under the umbrella that are provided by Total Quality Management (TQM).

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THE USE OF EMPLOYEE RETENTION TOOLS IN A GLOBAL WORKING ENVIRONMENT

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Abstract

In today's global economy that involves interactions at all levels skilled labor force, trained employees, become a source of competitive advantage and a scarce resource.

People usually choose to work in environments that are close to their values and behaviors, and which aim towards the same goals that they have. It is for this reason that employee retention tools can take as many forms as there are types of employees.

Just like people, companies foster different types of behaviors. These organizations can be focused on immediate results with little loyalty or can be focused on steadily slow growth with high levels of employee devotion.

There are no preferred retention tools when approaching the subject from a general point of view. Retention tools must be adapted in a flexible manner, so that eventually they can fit the final purpose of the organization stated in its mission and in its value declaration.

Employee retention is one of the most difficult issues faced by organizations leaders in today's economic reality, reality dominated by the shortage of skilled labor, uncertainty of economic growth and increasing worldwide turnover. More and more, with each day that passes we find

ourselves in what becomes a more global world with global competition, with a global market and eventually a global labor force.

Before deciding which retention methods are more advisable to use we first have to take a deeper understanding of the reasons for which sometimes employees and especially those who we find to be important assets to our organizations tend to leave.

In a study conducted by the Society for Human Resource Management (SHRM) and Careerjournal.com, and quoted by Susan M. Heathfield in her article “Retention in an Improving Job Market” employees cited the following three top reasons they would begin searching for a new job:

- 53 percent seek better compensation and benefits.
- 35 percent cited dissatisfaction with potential career development.
- 32 percent said they were ready for a new experience. [1]

This would be one way of approaching the issue, where we consider that all employees have the same needs and the same patterns of behavior and most important, that the companies they are working for all have similar structures. In this case the answer would be quite simple at a first glance, indicating primarily the direction of financial benefits (53 percent seek better compensation and benefits) in order to retain our staff.

Of course, using financial benefits is one of the most difficult tasks in HRM similar with the status of the Price within the Marketing Mix. In the Marketing Mix, managers leverage the four elements of the mix – Product, Price, Promotion and Distribution in order to achieve the winning combination in front of the customers. It is easy to reduce the price in order to sell, but that can eventually lead to a Price War with other competitors’ determining in the end a major decrease in the organization’s overall profit. If we decide to increase the financial benefits of our employees the only way that the competition could attract our human resource would be by offering a

more tempting financial package. Therefore an exacerbation of the financial aspect would not be a desirable path to choose.

But, if we were to consider the organization as a Community with certain specific features than a simple representation would divide these entities according to the unique characteristics of their employees in three different models:

1. The Atomistic or Contractarian Model – here, the individual comes first, he is separated and he is pursuing his self-interest. The employee is characterized as an independent person seeking its self-realization.
2. The Organic or the Functional Model – where the organization comes first and the employee evolves in an interdependent relationship. Relationally and interconnectedness are the way to interact. In this case interdependent persons have functional worth for others or for a greater whole.
3. The Mutual or Personal Model – where the main unique characteristics are Mutuality and Loving Fellowship. In this case the employees objectives are related to both individual and organization goals. To be more specific, Mutuality involves an intention to live for others.

Should these aspects be considered, than we can definitely say that different types of organizations, having different organizational behavior patterns which attract employees that are fit with those defining characteristics, have different needs in terms of employees retention tools.

Further more, there is also the aspect of HRM Consistency in using employee retention tools. HRM departments should also be consistent from the single employee's perspective – consistency among different elements of the HRM system regarding that employee, among employees – same treatment for everyone and finally temporal consistency or continuity.

It is important to align the organization's specific features, with the characteristics of the employee and to have a strategic view when using the retention tools. When deciding to choose a set or a mix of retention tools we first have to place our organization and employees in one of the Transactional or Relational areas.

If for example we were to find ourselves in the Transactional area than our employees could be considered as very individualistic and therefore the incentives should be based on what the initial hiring contract stated. In most of these cases we are talking about financial incentives with the employees fitting in the Contractarian Model so our offer should be based on an attractive, competitive, benefits package with components such as life insurance, disability insurance and flexible hours. These incentives usually address persons with highly individual perspective on goals achievement. Financial benefits can range from percentages for target accomplishment to the more popular concept of "Fringe Benefits".

Fringe benefits are benefits which employees or directors receive from their employment but which are not included in their salary or wages. On the tax return form they are called "benefits in kind". They include such things as company cars, private medical insurance paid for by the employer and cheap or free loans. Some fringe benefits will not be taxed, some will and some will be taxed only for employees who are directors or higher paid. [2]

On the other hand if we were to consider our organization in the Relational area than the emphasis on financial compensation would decrease moving towards the non financial motivational and retention tools that refer to respect from top level to lower level of the employees, possibility of career advancement (in a transparent manner), rich learning experience, satisfying level of authority, transparent rewarding system.

By combining these tools with other available resources in the research field and by blending them with the specific of the organization, optimal

motivational packages can be created in order not only to attract the best available labor on the market but also the one that best fits our organization requirements. Motivation doesn't stand as a part of the equation factor only after employment but also before, by attracting the needed work force for the precise job description.

As a consequence, HRM activities must be improved and any misconceptions or paradigms should be eliminated. Four major steps distinguish themselves as important in achieving higher knowledge of one's own organization:

1. "Training the HR managers first" in order to be always to date with the latest research.
2. Better implementing the knowledge.
3. Periodically external HR consultants to keep pressure on the internal ones.
4. More research on the level of satisfaction of the employees.

Following these steps provides the organization with well trained professionals in the field of HRM capable of using retention tools in a strategic manner ultimately adding value to both the organization and the employee.

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THE INTEROPERABILITY LEVEL OF REENGINEERED ATYPICAL MILITARY EQUIPMENT: A MAJOR INDICATOR OF INTERNATIONAL MISSIONS' ACCOMPLISHMENT

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Abstract

Articolul își propune să analizeze gradul de interoperabilitatea a echipamentelor militare atipice pentru misiunile internaționale, privit ca era unul dintre „nivelurile” standardizării în domeniul NATO, dar și ca o măsură a gradului de interacțiune între sistemele C4I.

Interoperabilitatea este abilitatea forțelor aliate și, după caz, a forțelor statelor partenere sau a altor state, de a se instrui, participa la exerciții și de a opera eficient împreună pentru executarea misiunilor și sarcinilor încredințate. Interoperabilitatea este o caracteristică esențială a capabilității însăși: nu există capabilitate fără interoperabilitate. Interoperabilitatea constă din factori precum echipamentele, logistica și procedurile. Creșterea interoperabilității la aceste capitole va conduce la creșterea eficienței unei operații. Planificarea și cooperarea în domeniul echipamentelor militare atipice pentru misiunile internaționale, având ca obiectiv realizarea abordării multinaționale a chestiunii echipamentelor militare prin reinginerie, pot fi neîndoiește privite ca o strădanie către atingerea nivelului de comunalitate a standardizării.

I. Interoperability

Improvement of military cooperation capability, also known as "interoperability", is an important goal of the Romanian Armed Forces.

Military cooperation between NATO and non-NATO countries creates the prerequisites for taking jointly part in peace support operations or the supporting of international humanitarian operations. Important tools in improving military cooperation are joint exercises and drawing up joint standards and norms.

In Europe today, NATO's military standards and norms are an important point of reference. All European countries base their armed forces' reforms on them. Also the military cooperation within the European Union is aligned with NATO norms and standards. Thus the Partnership is an important tool for Romanian Armed Forces to increase cooperation capability with friendly countries.

For Romanian Armed Forces improving its ability to cooperate with its partners is not just an essential prerequisite for contributions to international peace promotion and disaster relief, it is of equal importance for domestic security operations jointly executed with neighbouring states. All in all, the capability for multinational cooperation increases the armed forces' freedom of action. They have therefore set themselves the improvement of their interoperability as a long-term goal. The success in multinational operations (MNO) depends on two factors:

- the own proper capabilities;
- the degree in which these forces could be involved in MNO.

It clearly results – the multinational force (MNF) general capability is a sum of partial capabilities of the participating forces – occurring from first factor – and from the second – it must to be an interoperability acceptable level, a critic threshold.

I consider that the junction capability enlargement in MNO it should be the central preoccupation at all the levels; even in the situation of a very good interoperability, the absence or shortfalls in critical capabilities such as detection and reconnaissance, air defense, precision strike, communications,

command, control, computers, and information – C4ISR, logistics or, in short terms, information processing (and correct exploitation) capacity can not be replaced.

COMPATIBILITY: proven ability of the different forces to act together without interfere; the notion does not supposes synergy and/or common benefits, the forces acting only separately;

INTEROPERABILITY: proven ability of the different forces to act together changing services and/or mutual support in a common mission; the notion supposes synergy and/or common benefits, the forces acting independently;

INTEGRATION: proven ability of the different forces to act together changing services and /or mutual support in a common mission; the notion supposes synergy and/or common benefits, the forces acting only together due to a (minimal) degree of (inter)dependence.

When we speak about interoperability, the acquisition process must to be placed under the high command of mission capability management; the planning and subprograms must to be strictly accordant with directing documents; it must be avoided the situations in which some program segments can speed up face of others, without that the first ones to be effectively accomplished. This situation is not new, but, in this case, the strictness plays a capital role.

An aspect not less important is the configuration control; interoperability and especially the informational one must to be kept at least at the initial level on all life cycle duration of the systems involved; we must not forget that it is unacceptable that systems initially interoperable, on the battlefield loss this quality.

Each significant technological advantage in warfighting equipment, from the sling to the cannon, and than after from the plane to the missile has triggered changes in the doctrine. Since that time until now the things have

been evaluated, the conflicts are more than more complex; it has not only the profile of a simple war, requiring other kind of implications, participation in coalitions or alliances. Despite of some recent progresses in more clear definition of information interoperability requirements, doesn't exist yet an appropriate process which satisfies these requirements. That problem it will not be solved without fundamental changes in which systems and their operational capabilities – as the services offered by C4ISR systems – to be natural joint born.

Summarizing, we can have the following conclusions:

- reaching the adequate interoperability will request fundamental reforms in the defense processes; ones of them were mentioned in the work paper; it is clear that these reforms must be included in the defense transforming strategy;

- from the multitude of the domains over which the interoperability concept could be applied – armament, ammunition, logistics, etc. – the most important is the information;

- compatibility, interoperability and integration are 3 different stages of the capability evolution process;

II. Reengineering of Romanian Defense Industry

II.1 Reengineering definition

Reengineering project is the radical change of the company designed and developed by general manager into practice the study of innovation total production.

Modern information technology is a component of the concept of reengineering where as assist new processes to produce quality goods and irregularities occurred are asked in real time. Successful managers in reengineering should be based on an inductive thinking and not deductive thinking.

Reengineering and rethinking of AE radical redesign and production is

made in order to improve the substantial technical and economic indicators (quality, cost).

Reengineering starts from scratch and is building a new strategy of thought and realization of the production processes of EA. The new process should be built on new principles and models and facilitate the production structures design based on substantial innovation.

Reengineering industrial processes is following the next sequence of design:

- Redesign technology innovation based on total production AE;
 - Reorganization items in the work scheme based on human engineering;
 - Japanese companies decision making;
 - Inventory and application technology;
 - Minimize entropies in the design stage of the management schemes;
 - Ensuring the quality of the human factor on the basis of empathy maximize management;
 - Engineering teams training process based on converging engineering;
 - Redesign places of work on the ergonomic basis, pursuing optimization of human labor and the environment;
 - Use of innovations theory in of cases of AEPF reengineering.
- The AEPF management reengineering team is able to implement successful radical changes in both the products and the processes. Reengineering success in the applications is based on knowledge and managerial capacity of project leaders to prevent mistakes and ways of generating errors.

The main stages of implementation successfully reengineering are as follows:

- Changing the degree of responsibility of designers by radical innovation architecture of the EA production;
- Redesign process through substantive changes made to the functions and

structures, and management;

- The work of convincing employees to determine AEPF work performance through motivation whereas this way to change mentalities workers;
- The exact definition of the reengineering program objectives;
- Reengineering application in the enterprise is starting from the top level management;
- Acceptance of general manager as a leader of reengineering team because he (she) understands the phenomenon of reengineering as a whole and is able to implement creativity in complex military equipments production process.

II.2 The strengths and weaknesses of defense industrial potential

Strengths of the defense industry

- It is the principal supplier of products of technical military forces needed for endowment of the national defense system
- Export potential
- Labor force with experience in the field
- Has surplus spaces, which can be restored in order to receive other destinations in the sphere of production and maintenance activities
- Owns equipment and objectives unique in South - East Europe.

Weaknesses of the defense industry

- Traders do not have enough money;
- Locations are placed in weak industrialized areas.
- Research and development structures have reduced the personnel number.
- Manufacturing technologies are partial efficient (morally and physically exhausted)
- Investments and modernization of defense sector production capacities
- Personnel structures are not adjusted to principles of modern management.

II.3 Possible courses of action

- Cooperation agreements between Romanian defense industry companies and the defense companies of EU, U.S. and other

geographical areas, in order to achieve the liabilities offset of the final product, sub-assemblies, spare parts and provision of services for processing, painting, integration, assembly and test.

- Realization of offset agreements obligations, transfers of technology, know how, investment flows to modernize production by foreign companies supplying military equipment to Romanian defense industry.
- Defining with high accuracy internal and external markets
- Restart of research-development of their companies / groups, as well as at national level
- Reconfiguring the defense industry structure
- Sizing production capacity for defense in accordance with current requirements and specific forecasts
- The creation of centers of competence and technological centers of development
- Modernization of production capacities for defense
- Development of new production capacities for defense
- International Cooperation
- Intensification of activities promoting the company / group profile, media achievements and reward performers

III. Atypical Equipment Standardization

AE¹² offers benefits to both end users (Romanian Armed Forces Services) and for AEPF¹³. End users (customers) may be based on simplicity and ease of buying standardized AE. Similarly, the fixing of prices uniform (standard) for code labels resulted in a higher efficiency for the retailer. In designing the new AE, standardization can increase productivity by:

- (1) design to avoid unnecessary when there is already an appropriate;

¹² AE- Atypical Equipment

¹³ AEPF - Atypical Equipment Production Firm

- (2) simplify the planning and control of materials during the production of EA, because the system there are fewer components;
- (3) reduce production of components (if the components are produced internally) or reduce the requirements for purchase and limiting the number of vendor (if components are purchased). Risky part of standardization is that competitors AEPF can overcome with a new feature that AE made in AEPF can not touch because of its limited design capacity.

III.1. Atypical Equipments Production Reengineering (Figure no. 1)

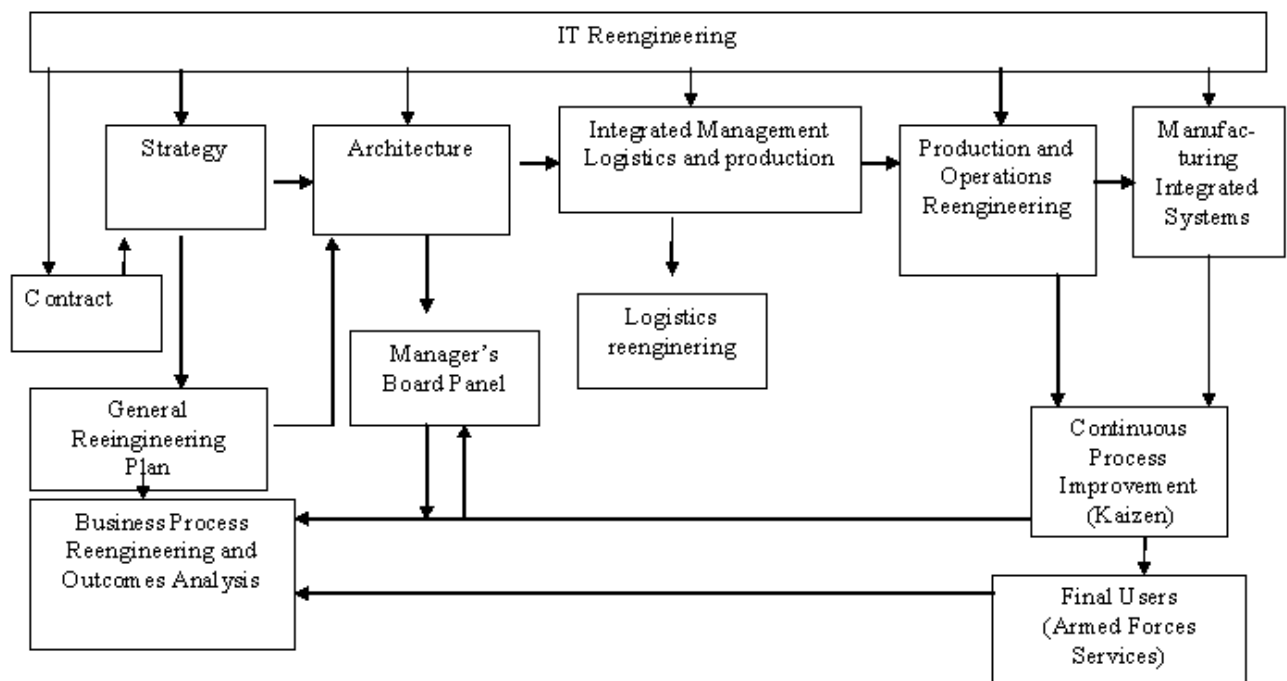


Figure no. 1. Overview of a reengineering production process at AEPF

Process Definition

The process is a sequence of activities that contribute to generate a default result. A task turns partly entries exits, exit from an entry in the work. Each activity adds value. Production management requires. Rethinking the form of a variety of processes. Trials undertaking not to recompose the unity of its structural but functional unit. Management requires the definition of

critical processes.

Taxonomy processes

Production includes activities conducted by people and carried out by means of employment for processing work items into finished products. The production process is composed of processes, processes employment and natural processes.

The process is a part of the production process and includes all operations which are the direct objects of work. Trials of manual work include activities of the contractor. Natural processes are carried out mainly under the action of natural factors (such as paint drying). The production process is composed of a series of partial manufacturing processes:

- The basic processes (which reaches unfinished product);
- Supporting processes (create conditions necessary for conducting basic processes);
- Serving processes (create the conditions for carrying out organizational processes and basic auxiliary);
- Processes attachments (including activities with a lateral process of production). The basic processes are in turn primary (casting, forging), processing and finishing (assembly);

Secondary processes include: the processes of repair, manufacturing SDV-sized energy production. Serving processes are the internal transport, warehouse management, distribution of energy. Annexes processes include manufacturing of packaging, waste recovery, regeneration oils, etc.

Taking into account the human intervention in production processes are different manuals, mechanical processes and automated processes. The basic element of the technological process is the operation of a performer who responds to a particular job. It is the division of labor support, as the main norm work.

Any operation is decomposed in stages and substages.

There are other classifications of production processes. In the international literature meet specified for instance following production processes:

- Based project - in civil engineering, for programs - in the case of special machines or handmade production;
- A lot - for automotive components for electronics items, or the production of clothing;
- On assembly lines - for example for engines for vehicles;
- Manufacturing line - the industry horizontally parts (organs of cars) or preparing meals in a restaurant;
- Continue the process - in metallurgy, chemical industry, paper manufacturing; hybrid production - include industrial processes and natural processes (beer manufacturing, etc.).

Production may be categorized by the following criteria:

- Industry: manufacturing production and services;
- The degree of specialization: handmade production and industrial production;
- The production: production and production continues discreet;
- The strategy used, production orders and production stocks;
- Placements needed: manufacturing and assembly;

To individualize distinct elements of the production processes is necessary to examine some key issues, such as:

- Development characteristics of the manufactured products;
- Processes development
- Evolution of materials
- Development of information
- Manpower development
- Driving the evolution of these processes.

Trials are reviewed in order:

1. Handmade manufacturing (Job Shop)
2. Lots manufacturing
3. Manufacturing in the stopped flow;
4. Manufacturing in line;
5. Continuous flux manufacturing.

a) The evolution characteristics of produced AE

- Decreases the number of models produced;
- Increase the production volume;
- Product customization decreases while is increasing the degree of standardization;
- Introducing new products become less frequent and more expensive;
- Competitiveness is based primarily on price;
- Quantitative aspects are important especially in the production of feed lots or discontinued, the continuous flow of qualitative differences become less significant;

b) The evolution of the processes used

- Production process becomes more rigid;
- Process stages are correlated better;
- It is used more specialized equipment;
- Increases the production volume;
- Increases the size and complexity of construction;
- Machines are used more intensively;
- Location of machine-tools makes the production lines much longer articulated;
- The pace of production is determined from the design;
- Production capacity is measurable in physical units;
- Increased capacity is achieved mainly by large jumps, lost incremental increases in importance;

- Narrow seats appear less frequently;
- Partial adjustments become more frequent, while radical changes become more expensive;

c) The evolution of used materials:

- Increases the degree of vertical integration;
- Using the same raw material for various products;
- Increases safety in the quantity of manufactured items;
- Increases the need for raw materials and supply regularity;
- Contracts validity is higher ;
- Increase the power contract on distributors;
- Reducing stocks of semi-products;
- Increased quantities of finished products which are sold through channels controlled directly;

d) The evolution of information

- The first process is not an organized procedure for the information system of production;
- Forecasts are for sale in the long term;
- To enhance the integration between information system and production;
- Programming techniques to operational use increasingly sophisticated;
- Have managed a large volume of finished products;
- Unidirectional feed and information is usually downward (top - down);
- Quality control standards used increasingly formalized;
- The stock is managed following the cyclical increase in command;
- Because the process is less flexible, they adapt slowly to command oscillations;

IV. Specific Parameters Redesign of the AE

Foundation reengineering management processes of manufacturing is in AE redesign those processes that contribute to the improvement of five specific parameters of the EA:

1. Atypical Equipment features (EC - Accomplished atypical equipment capability in accordance with the end-users requirements)
2. The population offered benefit (increase of perceived security)
3. The quality of the equipment that atypical (the warfighter perceived value)
(MC - military capability and individual performance of warfighters, how to use the atypical equipment and collective performance)
3. The speed of response to the end-user request (flexibility)
4. The type of service provided (SS - supporting strategic AEPF satisfaction for the end user in question - stocks, transport and infrastructure)
5. The cost of manufacturing (competition activity in prices).

The process consists of a series of related activities, which start at some entry and the transformations taking place. According to the principles reengineering, redesign processes is aiming for critical processes, namely those that create greater value and which have the capacity to influence competitiveness. In a AEPF there are not more than 6-7-critical processes. But each of them must have an effect on the market in terms of customers (end users) and competitors.

Model reengineering critical processes (Figure no. 2), comprises six processes:

- 1) the process of change - refers to the strategy of radical change specific reengineering, by redefining the mission AEPF and new paths to follow;
- 2) the process of innovation refers to the AE design, development, testing and launch commercial market;
- 3) process the valorization start of supply of raw materials for production of flexible and AE get to dispatch AE finished;

- 4) the development process - beginning with the choice segment of the market for the production of defense, positioning AEPF market reach and sending the finished EA;
 - 5) the satisfaction - based on the identification orders received from end-users (the Armaments Department and Romtehnica) and extends to achieve their service pre and post sales in order to obtain warfighter satisfaction;
 - 6) the information - creates a system for collecting the information, archiving and reach their communication with end users and control results;
- After the identification process, to determine which of them should redesign and with what priority.

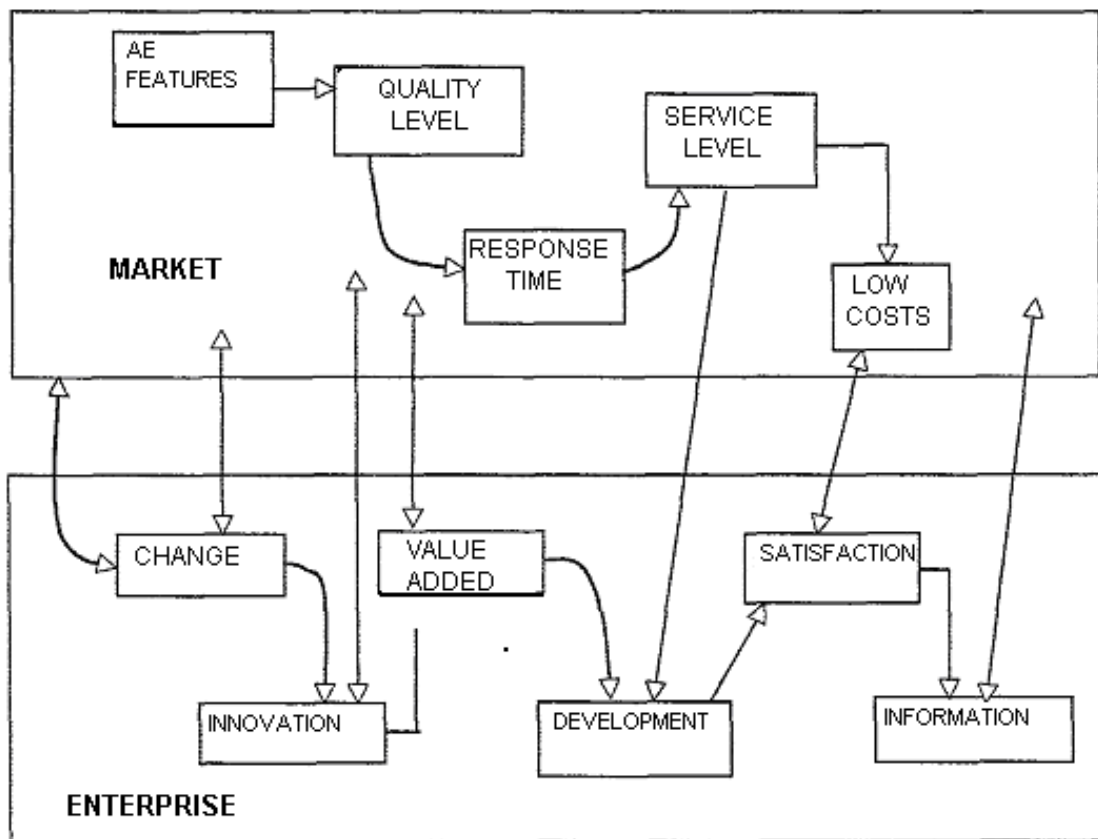


Figure no. 2 - Critical Processes Reengineering for Atypical Equipment (AE)

V. Indices of AE Reengineering Production Flows Efficiency

Reengineering flows efficiency of production of AE can determine the following **indices**:

1) Production Reliability (PR)

Number of orders made

PR = -----

Number of confirmed orders for production

2) Process Efficiency (PE)

The value of unfinished items

PE = -----

The amount of daily achievements

3) Financial Products Validity (FPV)

The total value of stocks

FPV = -----

Average daily

4) Customer Service Level (CSL)

Number of complete orders

CSL = -----

Number of confirmed orders from customers

5. Shipping Performance (SP)

Number of orders completed late

SP = -----

Total orders

6. The ratio of D (production cycle duration) and T (time of dispatch required)

7. Main Plan Execution (MPE)

Number of orders completed late

Number AE products - Number AE unscheduled

MPE = -----

Total number of AE products

8. Profit (P)

$$P = \frac{\text{Annual volume set}}{\text{Average volume in stock}}$$

1 The performance indicators

The performance indicators to be taken into account in reengineering process are based on the following five components:

1. Economic performance: it is to take account of profitability required by shareholders and the financial market. AEPF¹⁴ viable economically will be those that will create value for shareholders, end-users and employees. They will ensure their work success and will have such a decisive advantage against competitors.
2. Satisfying customers (end users of AE¹⁵): End-users of AE products assess their satisfaction with comparisons between the defense capabilities of AE Romanian and other NATO members during developing joint activities.
3. Satisfying employees: I could say that man is the most valuable capital of the company. Competitive conditions AEPF forces to support the capabilities of innovation, responsiveness, flexibility of their employees to better meet increasing demands of end users of the AE product, in terms of price, quality and deadlines.
4. Environmental Performance: pressing constraints on planetary ecosystem (climate change, air pollution) require an improvement in environmental performance. To protect natural resources and balance their AEPF can implement the concept of eco-efficiency, which is to create more functional value products and services, reducing incidences on the environment.
5. The quality of relationships with partners: the case of relations with

¹⁴ AEPF - Atypical Equipment Production Firm

¹⁵ AE- Atypical Equipment

stakeholders, civil society, customer, suppliers and others who are part of the AEPF . The performance indicators show whether the objectives of the result were achieved. But they do not explain why the performance is reached or not and what must be responsible to rectify any irregularities. The should identify cases because it is not administered by costs, is administered undertake activities that cost. Thus, reduce the complexity of an AE complex product AEPF , reducing the number of components of the product will affect the level of stocks, the management of stocks, on the simplification of production operations on purchases and accounting.

The indicators must realize the link between cause and consequences (performance factors). Indicators are referring to the activities and resources related to the product. They are found in the managerial panel and must respond to two essential characteristics:

- Are determined to achieve the level of performance expected from the date of application;
- Controlled by a responsible people who can act on them.

5. Conclusions

Deductive managers define the problems and indicate the direction of settlement without knowing if there is a feasible solution. Inductive managers detect single solution and develop conditions of applicability in the studied field in order to solve the information assisted reengineering systems issue. Stage research design processes subject reengineering and determining the optimal variant with minimal financial efforts. In this perspective is calculated performance indicators, indicators of control, and indicators of profitability. If the solution is feasible in technical-economic aspect is then draw up schemes operational and technological specifying the details of assembly-operation.

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DEFENSE RESOURCES MANAGEMENT FOR MISSIONS ABROAD AS AN ENTERPRISE RESOURCE PLANNING SYSTEM

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Abstract

Apariția și adoptarea pe scară largă a sistemelor integrate de planificare a resurselor (Enterprise Resource Planning - ERP) constituie una dintre cele mai penetrante schimbări în mediul operațional din ultimele decade. Indicatorii de eficacitate a organizației care se folosesc în cadrul sistemelor integrate de planificare a resurselor pentru misiunile internaționale trebuie clasificați în funcție de criterii cum sunt: categoriile de resurse, tipurile de misiuni pentru care se face evaluarea, tipurile de acțiuni militare, etc. Lucrarea de față prezintă o metodă de cuantificare a eficacității managementului resurselor de apărare pentru misiunile internaționale, pornind de la clasificarea indicatorilor și a parametrilor care trebuie luați în calcul.

The emergence and widespread adoption of Enterprise Resource Planning (ERP) systems undoubtedly constitutes one of the most pervasive changes in the operational environment over the past decades. The term ERP can be interpreted in two ways ^[1].

From the point of view of the IT community, the emphasis is on *integration*: an ERP system is a software tool enabling to integrate the different application programs (HR, finance, acquisition, operation planning,...) in a military organization, by efficiently tracking all operations in real time and sharing them across all functions through a common database. In the light of today's operational environment, one can view the integration aspect of ERP as a prerequisite for further improvement of defense resources management, especially when analyzing this activity coming to the support of the organization, planning and development of the international setting operations. Organizations are increasingly aware that the next step in increasing effectiveness and efficiency consists in engaging in effective supply chain management. The emergence of the specialized organization to do this type of management has led to a surge in the number of partners contained in a single chain. And, these partners tend to be spread around the globe, as far as the international NATO led missions are supported by different country detachments, not of Romanian origin only. The success and widespread implementation of ERP systems has laid the groundwork for further integration across the entire supply chain.

On the other hand, managers and the decision making community tend to emphasize the planning aspect: an ERP system should be able to support decisions regarding the planning and execution of the international missions. The operation planning is one of the most important modules supporting ERP systems. It is well known that the strength of ERP is not situated in the planning area. That is largely because ERP nowadays still exhibits many weaknesses of MRP (Material Requirements Planning), as its operation modules are made up of standard MRP logic. The core planning and control assumptions underpinning ERP have less rapidly developed than the new software capabilities within ERP systems.

So instead of concentrating on the decision-support capabilities for the planning and execution, ERP systems have tended to focus on their integration aspect for which it is primarily known, and should have this feature well developed. Although the decision-making support is considered fairly important as a reason for adopting ERP, it is clear that additional decision-support in the planning area of ERP is necessary.

ERP systems evolved out of traditional Manufacturing Planning and Control (MPC) systems ^[2]. As shown in figure bellow, the MPC system still constitutes the core of any ERP system. It reflects the hierarchy of planning, with Standard Operation Planning (SOP) on the long term level, Master Operation Scheduling (MOS) and Material Requirements Planning (MRP) at the midterm level, and Real-time Theatre Control (RTC) and Supplier Systems at the short term level.

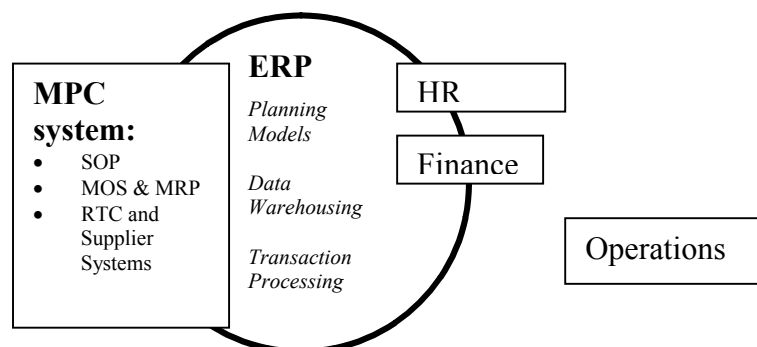


Fig.1 The scope of the ERP system.

The feasibility of the operational improvements that managers expect from an ERP implementation (such as lead time reductions, realistic capacity planning, and improved on-time delivery) largely depends upon the effectiveness of the embedded MPC system.

At this point in time, one can see that there is a possibility to make adjustments, both in plans and current operations by using tools and levers one can find inside data warehousing module of the ERP systems one might wish to apply to any international mission. The idea of applying the ERP

system concept to any military activity is feasible as long as one can find indicators and parameters to quantify the efforts, resources, and energy spent (and saved). By directly interpreting the above parameters, a system of real-time quantifying the activity to support the international missions would be ideal to the mission needs any NATO member country would use to effectively handle the resources it provides.

In this respect, the indicators that the set of routines to be applied inside the ERP system for an international mission promotes, should be categorized according to criteria as: type of resources handled (human, material, financial, technical, information, and/or time), type of mission to be assessed for (single NATO member or several NATO member countries, mixed compound of countries, consisting of both NATO members and non-NATO members), type of military action (peace support, peace enforcement, war prevention, warlike actions, antiterrorist actions, reconstruction actions, etc). It will also contain the type of communication systems used to make sure the mission has the information conveyed in a timely manner in both directions, from and to the detachments in the operation theatre, and to and from the national/international command. It will also take into account the entire volume of resources to be provided, their location, the transportation means and an optimization pattern for the “just-in-time” providing of immediately needed goods, forces, and communication.

Of course, it will always be taken care of having the necessary reserve amount of resources as usually planned for inside any national defense planning situation.

One important thing to be remembered is that the quantifying subsystem inside the ERP system that is to be applied for international missions, when several countries are participating, has to be deployed ONLY after the agreements of each of the attending country are in place so that one

cannot be troubled by the political factors later when implementing the mission provisions.

The current paper, presents a way of quantifying the effectiveness of the international missions defense resources management, starting from the above classification of indicators and parameters to be taken into account.

A team of experts that would be tasked to deal with the issue of both controlling the effectiveness and making the most out of the measures to be applied to provide everything necessary has to look for obtaining the best payoff in managing the temporary (subject for analysis) organization that is to be set whenever an international mission is designed, organized, planned for and applied in practice in different areas of conflict, theatres of operations and Romania is implied through people attending under different positions.

Assessing the effectiveness of an organization is a difficult task. Although the literature on organizational effectiveness is large and growing, there seems to be little consensus on how to conceptualize, measure, and explain effectiveness. The three main models of effectiveness are the “behavioral-attitudinal” model, the “processual” model, and the “goal attainment” model.

Additionally, there are several methods of implementing a goal-attainment model for assessing effectiveness. The different models exist due to the difficulty in defining what the goals of an organization should be. Thus, the measures of effectiveness are independent of the methods used to achieve the goals.

The differences in measuring effectiveness and measuring performance should also be noted. Measures of performance (MOP) are “related to inherent parameters (physical and structural) but measure attributes of system behavior”. The measure of effectiveness is the criterion by which solutions will be judged – proposed solutions, solutions under test, or solutions in being. MOPs are measures depicting how well an entity performed in

accomplishing a mission, whereas MOEs depict how well the mission was accomplished without looking at the method in which it was accomplished. Thus, it does not necessarily matter *how* the mission was accomplished, rather *how well* it was accomplished. This is of course evaluating it from a macro scale point of view.

The MOEs issues to be addressed are: “(1) aggregating the measures, (2) ensuring that the measurements have consistent units and a ‘direction of improvement’, that is, measurements need to be formulated so improvements add to the overall improvement of the system; and (3) being able to combine quantitative and qualitative measures ^[3]”.

Use of a multi-criteria system (MCS) involves frequent and often difficult comparisons. Decision-makers, for instance, have to consider the relative importance of chosen objectives whenever tradeoffs are necessary due to limited organizational resources or the existence of inverse relationships among the objectives (e.g., certain cost vs. quality decisions). Further, assessment of overall organizational performance at the end of a period brings the need for decision-makers to, somehow, reconcile measurements of the multiple criteria, which vary in nature (e.g., customer-related vs. human resource-related), time frame (historical vs. future-oriented), and measurement unit (e.g., dollars vs. time).

The lack of a formal method for prioritizing and comparing strategic objectives and measures limits the usefulness of the MCS. Without reliably weighing of strategic objectives, for instance, an MCS does not precisely communicate the organization’s strategy, including the intensity of effort that should be devoted to each objective. Additionally, for the purpose of performance evaluation, lack of a formal decision-support system leaves individuals with an extremely difficult judgment task to be repeatedly developed each time there is a case for such an assessment. In these cases, an

extended research demonstrates that decision-makers may take suboptimal steps to reduce their cognitive burden.

The Analytic Hierarchy Process (AHP) is a well-known method for assessing multiple criteria and deriving priorities for decision-making purposes. Major companies (e.g., Ford, General Electric), public accounting firms (e.g., KPMG, PricewaterhouseCoopers) and government agencies (e.g., United States Treasury Department, United States State Department) already utilize AHP for various purposes. Additionally, academics have employed AHP in over 2,000 studies. In the accounting literature, for instance, researchers have applied AHP to a number of complex problems such as analytical review, internal control evaluation, and assessment of management frauds' "red flags".

AHP begins with the organization of performance criteria into a "hierarchy", in order to structure and simplify the decisions. As applied to organizational performance measurement, this means that the organization must relate overall performance to strategic objectives and individual performance measures. Just as important, the process of designing a hierarchy and selecting performance measures forces the organization to link each performance measure to a strategic objective and, ultimately, each strategic objective to overall performance.

The second step in applying AHP to performance measurement is for one or more knowledgeable experts to make pair-wise assessments of the relative importance of the items on each level of the hierarchy. The relative importance scale allows the user to refine judgments by selecting numbers between 0 and 9 - 1.5, 2.3 and so forth - as necessary.

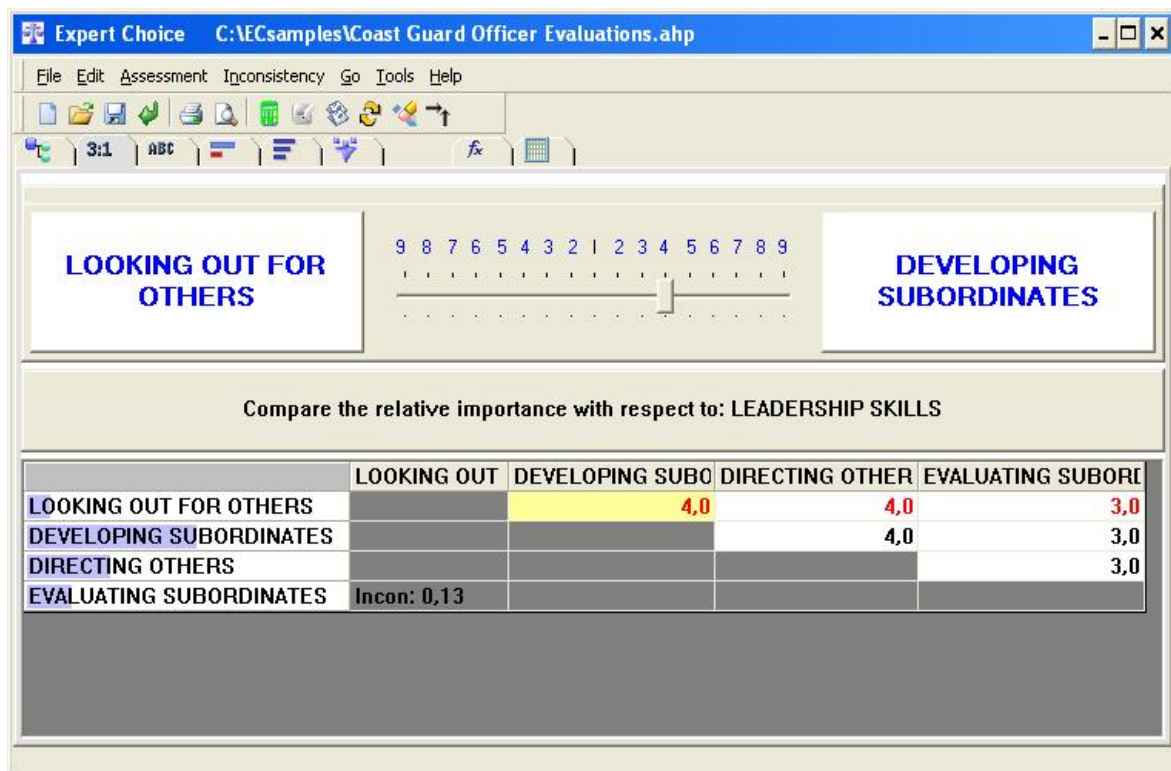


Fig.2 The pair-wise assessments of the relative importance using Expert Choice software.

As applied to the implementation of an MCS, the relative importance scale has several advantages over other methods for recording judgments. First, because the scale allows comparison of items measured in different units, such as dollars vs. time, it is ideal to comparing varied items within an MCS. Second, humans are more capable of making relative judgments than absolute judgments. Third, unlike many absolute judgments, the relative importance judgments yield ratio-scale data, which is more flexible and meaningful than ordinal or interval data. It is mathematically appropriate, for instance, to average the relative importance judgments of multiple members of an MCS design team. Finally, and most important, in situations where results are verifiable, the relative importance scale yields extremely accurate weighing systems.



Fig.3 The pair-wise assessments of the relative importance using Expert Choice software.

A key benefit of the pair-wise comparison approach is that it significantly reduces the computational burden on the individual making judgments. The use of a hierarchy further simplifies the judgment process by ensuring that the expert(s) need not compare excessively heterogeneous performance measures.

A critical advantage of AHP is its ability to measure the extent to which expert judgments are consistent. Logically, if an expert rates item A twice as important as item B and item B twice as important as item C, then the expert should rate item A four times as important as item C. To the extent that the expert violates this logic, a measure termed the “consistency ratio” (CR) increases. An obvious benefit of the CR is that it highlights careless errors in judgment. Additionally, the CR contributes to the learning process by revealing to an expert his or her unconscious bias in one or more pair-wise comparisons.

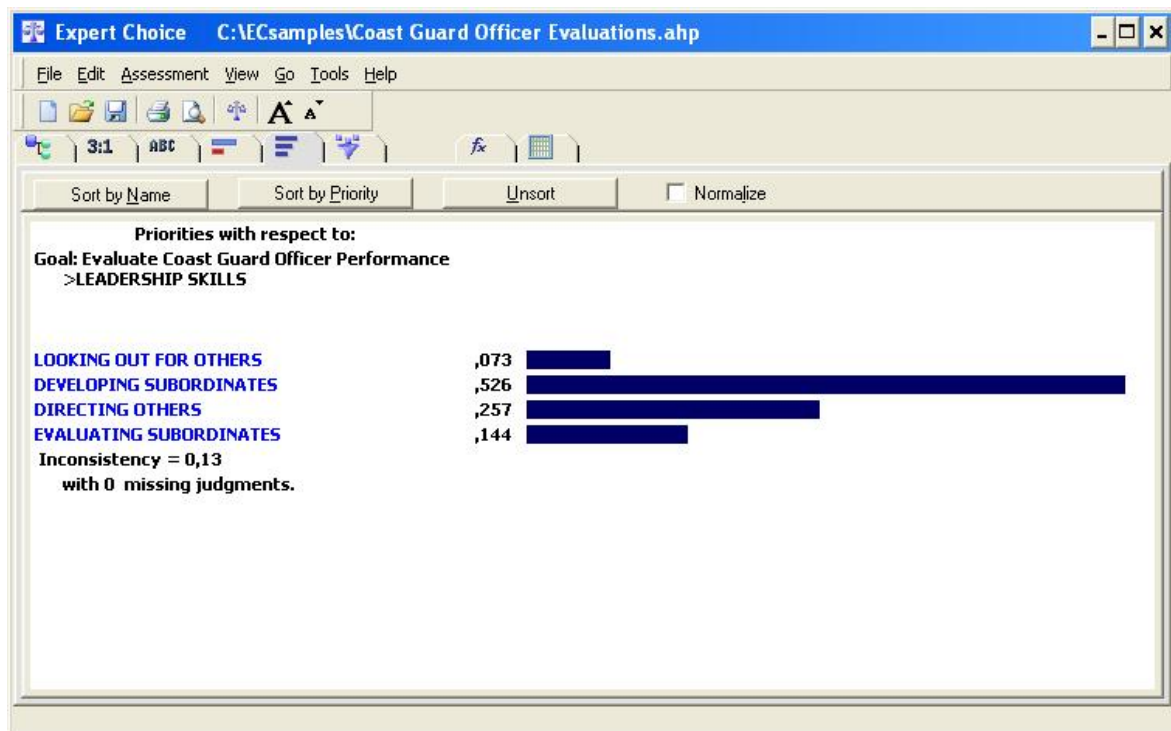


Fig.4 The weights as result of the pair-wise assessments of the relative importance.

In most applications, experts should revisit their pair-wise comparisons when the CR exceeds 0.10. Roughly speaking, a CR greater than 0.10 indicates that there is a ten percent likelihood that the expert judgments were random. Software, such as Expert Choice[®], automatically calculates CRs for the full set of pair-wise comparisons as well as the subset of pair-wise comparisons within each level of the hierarchy, thus simplifying the identification of any problematic judgments. In sum, while scales such as the relative importance scale might not be precise, the use of redundant judgments and CRs lead to the derivation of highly accurate priorities.

Once the pair-wise comparisons are complete, software calculates relative weights for all items at all levels of the hierarchy. Though the matrix algebra involved in the calculation of weights can be complex, the logic is straightforward. The complexity arises when there are small, and thus acceptable, inconsistencies in the pair-wise comparisons. In such cases, the

matrix algebra yields weights that minimize the impact of those inconsistencies.

As noted earlier, organizations need reliable weights to accurately communicate strategy and to measure overall performance. In addition, the ability to weight and aggregate performance measures via an AHP-based MCS gives organizations the ability to test their strategic hypotheses. To the extent that achievement of MCS objectives is not consistent with achievement of organization goals, the organization has evidence that its strategy might need adjustment. Furthermore, to facilitate adjustments, the organization could generate, ex-post (after the fact), ideal weights for comparison to the ex ante (before hand) model. Similarly, the organization can perform sensitivity analyses to determine how incremental improvements on individual objectives might impact overall results.

AHP is a well-established, theoretically sound methodology that organizations can easily adapt for the purpose of generating and maximizing the utility of an MCS.

Consequently, and conclusively, for the purpose of measuring and generating reports regarding the effectiveness of the Romanian troops' actions assigned for different international missions, there is a final attribution remaining for the people assessing this operational preparedness level: gathering data on each and every area of activity that supports the fulfillment of the mission at the highest level of responsibility. Setting the channels for gathering data is going to be the next step in our scientific research so that one can have a reliable tool at one's disposition not only for the current framework (international missions of the Romanian detachments) but also something to be possibly generalized to the level of the entire military organization effectiveness and efficiency control management.

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DIFFICULTIES IN ESTABLISHING SYNTHETIC INDICATORS TO ASSESS THE IMPACT OF DEFENSE RESOURCE INTEGRATED MANAGEMENT ON THE INTERNATIONAL MISSIONS

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Abstract:

Materialul de față dorește să scoată în evidență dificultățile care apar în procesul de stabilire a indicatorilor sintetici pentru evaluarea impactului managementului integrat al resurselor de apărare asupra misiunilor internaționale. În acest scop autorul pleacă de la premisa că procesul menționat este de natură obiect – subiect desfășurându-se în contextul complex al unui mediu înconjurător dinamic și generator de necunoscute, provocări și riscuri. Analiza duală, fără să fie exhaustivă, oferă o perspectivă metodologică necesară înțelegerii și rezolvării problematicilor indicatorilor sintetici.

Theoretical issues

Any theoretical concept is build from general to particular emphasizing the *genus proximus* and the *specific differences*. In this respect, *indicator* as a concept, first of all is coming from the common language, mainly understood as “*an numerical expression quantitatively characterizing a socio-economic phenomenon, from the perspective of composition, structure, timing change, reciprocal relationships with other phenomena*”, or it is “*a published/*

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typed/printed text used as guidance in a field or area of activity” or it is a “*a published/type/printed paper/work providing information related to an area of activity.*” These definitions are from Romanian Explicative Dictionary, the on-line version, which offers the most general definition of this word.

The same source of information defines the word *synthetic* in its feature as an adjective, meaning: concise, brief, summarily, related to synthesis, obtained through synthesis; and the synthesis is: a knowledge method consisting of recomposing a whole from its component parts; reunion; work; opera approaching the main data of an issue, scientific matter etc; (mil.) a reporting document on the situation to inform the higher echelon at the end of a combat day or action. 2. operation, method to obtain a chemical substance from its components or from basic elements

Concluding, in the context of the topic of this material, the synthetic indicators could be understood as a group of statistical values (as level of employment) that taken together give an assessment on the impact of defense resources integrated management (DRIM) on the performance of international missions in which the Romanian military troops are involved. Being of quantitative dimensions but defined in qualitative words, the use of synthetic indicators provides the needed support to evaluate the issue mentioned above.

Therefore, the main difficulty the issue of management of resources impacted the international missions is facing is represented by the matter of identifying and defying the indicators in order to work for the benefit of assessing the managerial process.

General sources of difficulties

Obviously, there are many sources generating difficulties in elaborating and accepting the indicators. Some examples could be mentioned bellow:

- complexity of the approached subject: the impact of DRIM on the international missions;

- environmental features of military operations;
- limited characteristics of human beings as researchers and scholars,
- reduced opportunities for studying and understanding the impact of managerial process due to some security reasons in order to protect the people participating in missions, military documents and operations and others;
- relativism of any apparatus for assessing the reality regardless the topic of study; in our case the instruments able to evaluate a managerial process are human-made constructions which, for sure are imperfect or even worse could be created in an inappropriate manner.

Regarding the complexity of the studied topic a welcome example, (according to the source, www.map.ro – the official website belonging to Romanian Ministry of Defense) is represented bellow.

Table 1. Romanian troops in the theatres of operations

Romanian military troops participating in international missions

THEATRES OF OPERATIONS	MISSIONS UNDER:				TOTAL STRENGTH
	NATO	UE	ONU	COALITION MISSIONS	
BOSNIA-HERTEGOVINA	<u>1</u>	<u>EUFOR: 57</u> www.euforbih			58
KOSOVO	<u>KFOR: 149</u> www.nato.int/kfor				149
AFGHANISTAN	<u>ISAF: 721</u> www.nato.int			<u>ENDURING FREEDOM: 57</u>	778
IRAQ	<u>NTMI: 2</u> (training NATO mission for training Iraqi officers) www.afsouth.nat			<u>IRAQI FREEDOM: 496</u> www.mnf-iraq.com	498
OTHERS	<u>ACTIVE ENDEAVOUR</u> "King Ferdinand" frigate - 203	<u>EUMM 2</u>	<u>MILITARY OBSERVERS AND MONITORS: 57</u>	<u>LIASON OFFICERS: 12</u>	279
TOTAL	1076	64	57	565	1762

Up dated: 22 October 2008

These examples induce the idea that the establishment of synthetic indicators to assess the impact of DRIM on international missions in which the Romanian soldiers carry out different types of operations and missions express a relationship of object – subject type. The researcher is the subject; he or she could be characterized as an imperfect thinker, analyzer or decision maker, because as a human being has reduced rational and knowledge possibilities.

In addition, the researched field, the impact of this variety of management is the object of study, characterized by the complexity of a managerial process conducted in a specific managerial structure as project organizational structure. Generally, DRIM is a process having the phases of planning, organizing, leading and controlling.

Managerial and operational sources of difficulties in setting up the synthetic indicators

Some specific features raise deeper analysis:

- *planning* is performed taking into account the external and internal environment for Romanian military units and personnel participating in international missions:
 - in order to reach the objectives and accomplish the mission, permanently both aspects must be considered: the external environment influence negatively the possibility of well-establishing the indicators due to terrain, weather, inhabitants legal framework, socio-economic and political conditions of the theaters of operations because they are different from a country to a country; and internal: the strengths and weakness of Romanian forces sent abroad, their combat readiness and effectiveness, equipment and hardware.
 - the resources necessary for accomplishing the mission would be accordingly; considering that human, material, information and

financial resources and moreover the time must be integrated for each type of participation, the details of planning them in accordance with the demands of activities could give birth to other difficulties in the process of defining adequately and relevantly the synthetic indicators able to comprise as a whole.

- *organizing* refers to the activities of assigning people in specific positions and giving them some specific tasks:
 - the type of organizational structure, even is project management-oriented and is considered the most appropriate for missions under the umbrella of international organizations such as EU, NATO, ONU do not have the same traits and the indicators should take into account specific aspects of these organizations and are likely to be modified for each case.
 - Similar to organizational structure matter, the tasks assign to military personnel participating in international missions are diverse, fluctuating from combat operations to stability and reconstruction operations according to the mission; therefore, again, the synthetic indicators are likely to be large in order to cover the entire spectrum of operation and to offer a comprehensive overview on the impact of DRIM.
- *leading*, as a managerial function involves the relationships between the leader and the subordinates under the circumstances of combat or stabilization operations:
 - the appropriate leadership style according to the operational environment, socio-economic and political and legal framework is recommended; it is supposed that only experimented military personnel, trained for international missions are sent abroad; even though, the previous factors, stress, work in an international frame, asking for cooperation, trust and mutual understanding, and weather

- and terrain conditions could affect the morale, cohesion, and reliability of troops, and as a result the level of performance;
- indicators suitable for assessing the impact of DRIM on the conduct of international operations should be projected under these circumstances with the obligation of integrating all these factors in a quantitative manner.
- *controlling* is closing the managerial circle permanently by comparing the level of ambition with the level of performance or achievement:
 - methodologically, controlling is the final stage of managerial circle, but it is conducted constantly and permanently in order to evaluate the level of operational and managerial achievement;
 - defining the measurable objectives in a SMART (specific, measurable, achievable, realistic, timeline) perspective is helpful for high performing the managerial process.

This matrix of analysis based on the managerial functions generally accepted for classical organization and even project management-oriented organizations is coming to underline both difficulties and opportunities of defining the synthetic indicators.

Human sources of difficulties in setting up the synthetic indicators

In addition to managerial and operational perspectives, the characteristics of researcher (in the end he is a human being with limits, vulnerabilities and performances), as the subject of knowledge could be perceived from a decision making process approach. He is not a perfect decision maker able to establish the perfect indicators, because some limits are evident as the bellow table shows [¹⁶]

¹⁶ Gary Johns - *Comportament Organizațional*, Ed. Economică 1998, pg. 370

Table 2 The relationship between the perfect rationality and the bounded rationally within decision-making circle

Stage	Perfect rationality	Bounded rationality
Problem identification	Easy and correct perception of hiatuses comprising the problem	Perceptual defense, direct jump to conclusion, attention focused on symptoms not on problems
Information collecting	Free, rapid, in an adequate quantity	Slow, expensive, based on imperfect memory, obtain too much or too less information
Solution developing	Can develop all possible solutions	No all solution are known
Solution evaluation	The finale result of each solution is known, as well as its probability; the only one criteria is the economic gain	The results or probabilities of their occurrence are likely to not be known, the criteria include even political factors
Solution option	Maximizing	Satisfying
Solution implementation	Taken into account at the stage of alternatives evaluation	Could be difficult due to even others are considered
Solution assessment	Objective, according to previous steps	Could involve justification, escalation of course of action wrong post-factum vision

In the decision process of setting up relevant synthetic indicators is obvious the fact that the subject is facing numerous problems either individually or in the case of group decision making¹⁷.

There are some limits reducing the high expectation of well establishing the impact indicators presented in Table no. 3 [¹⁸].

Table 3 Psychological and social limits of human decision makers	
Decision makers: • have the tendency to be too much reliable in the result of their decisions; • have the tendency to search for information confirming their own definitions and solutions; • have the tendency to recall and incorporate recent and fresh events in their decisions; • fail to encompass available data in their decisions related to the probability of future events; • ignore the dimension of sample while evaluating the date samples; • overestimate the superiority of complex networks providing data to them; • do not adjust enough the initial estimations serving anchors, while they obtain more and	

¹⁷ Simon, Herbert - *The Science of Artificial*, MIT Press, 1969

¹⁸ Gary Johns – *Op. cit.*, pg. 370

more information;

- have difficulties ignoring the non-economical costs while make decisions following immediately;
- overestimate their abilities and competencies to forecast the events, after their occurrence taking over them the successes and denying their responsibilities for failures.

Conclusions

The difficulties facing in the process of establishing synthetic indicators to assess the impact of DRIM on the participation of Romanian forces in international mission are generated by two types of factors: independent or objective and subjective factors.

The first category is coming from the specific of external environment of military organizational structures deployed in theaters of operations such as: type of mission, environmental characteristics: weather, terrain, local population, their culture, customs, values and habits, security, socio-economic and political issues and others.

In addition, even though they are not totally objective or better to be underline as determined by the decisions made under the circumstances of operational and managerial specifications, the organizational traits must be considered as generating difficulties in defining adequately the relevant synthetic indicators.

In the binomial relation object – subject of study, the inner factors coming from both individual and group decision making process should be taken into account in order to present the entire picture of difficulties in establishing the synthetic indicators for evaluating the performance of defense resources integrated managerial process in the context of international missions in which Romanian troops are part.

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THE IMPACT OF INTEGRATED DEFENSE RESOURCES MANAGEMENT ASSESSMENT THROUGH SYNTHETIC BASED INDICATORS ON MILITARY INTERNATIONAL MISSIONS: AN OVERVIEW OF FRENCH LITERATURE

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Abstract

În literatura franceză în general, iar în cea militară în special, este frecventă abordarea importanței indicatorilor (cantitativi și calitativi), inclusiv a celor sintetici, pentru cuantificarea (evaluarea) fiecărei activități. Problema a devenit de o importanță primordială mai ales în condițiile constrângerilor financiare care nu ocolesc nici Armata Franței.

Pornind de la experiența acestei armate cu bogate tradiții, consider expresiv modul în care se dorește și în Armata României ca tot ce se realizează să fie măsurabil prin prisma eficienței și eficacității, mai ales când este vorba de misiunile internaționale, care implică un uriaș efort uman și material și mai presus de orice, pot avea cea mai gravă consecință: pierderea de vieți omenești.

Utilizarea indicatorilor, în mod deosebit a celor sintetici, este obligatorie în întreaga societate iar eu opinez că în armată trebuie aplicați cu prioritate pornind de la specificul acestora care o face aptă de a fi în orice moment supusă evaluării și cuantificării îndeplinirii misiunilor de luptă.

Am menținut în comunicarea mea originalul citatelor în limba franceză, atât pentru fidelitatea redării lor, cât și pentru a sublinia încă odată că această limbă este împreună cu engleza, limbă oficială în NATO.

French literature underlines the importance of efficiency and effectiveness of the actions undertaken regardless of the environment or the human or material resources involved. The direct result of such an approach can be inferred from the prosperity and performance French society thrives on, as well as from the manner France manages the Uropean Union presidency under the severe cisis the whole world is confronted with at the moment.

However, both efficiency and effectiveness must be quantified in order to assess the extent to which they meet the requirements of today's society. Thus, any assessment needs to be based on a set of tools, more specifically a set of synthetic indicators. As a consequence, the aim of this article is to focus on the impact of the integrated defense resources management assessment through synthetic based indicators on military international missions as presented in specialized French literature.

The first step that needs to be taken in order to accomplish this goal is defining the indicators. From the various sources consulted, the following definition corresponds better to the framework of this article:

„An indicator is a combination of pertinent information which, if regularly checked, allows for an assessment of its contribution to the objective to be met”.

There are five crieria by which an indicator informs on the achievement of a certain objective:

- How much- quantity
- How – What? – quality
- Who? – the target or beneficiaries
- When ? – the period or the deadline
- Where ? – location

(Un indicateur est une combinaison d'informations pertinentes dont le suivi régulier permet de se situer par rapport à la réalisation d'un objectif.

Un indicateur doit renseigner sur la réalisation selon 5 critères:

- Combien? = Quantité
- Comment? Quoi ? = Qualité
- Qui? = Groupe Cible ou bénéficiaires
- Quand? = Période ou échéance
- Où? = Localisation) “. ¹⁹

According to the same sources the aforementioned indicators are viewed as assessment indicators and as such they are taken for the assessment proper.

What characterizes the assessment process are its systemic features based on which a set of methodological criteria are developed. When an evaluator needs to make recommendations concerning the implementation of a program, there are two criteria that need to be taken into account: the policy quality and previous identification of the needs that policy meets.

The elaboration of a policy, program or public project must focus on meeting four basic requirements:

- Effectiveness
- Efficiency
- Impact
- Relevance

In their turn, each of the above elements needs to be assessed in order to check if it complies with the norms established for a well- designed public policy. Thus, a second step I will take is explaining why the four aspects above must be carefully studied.

An analysis of the effectiveness of a policy or of a program involves comparing the goals established for that policy against the final results.

¹⁹ http://www.cota.be/SPIP/IMG/pdf/Fiche_6_GCP_Indicateurs.pdf (Etude GCP 2003-2007 – COTA asbl- NW-HHC – Fiche Indicateurs de Développement. www.cota.be)

The concept of efficiency refers to the relationship between the means employed and the results obtained. It is different from effectiveness because it focuses on the human and material resources needed to attain the goals and not on the goals proper.

An investigation of the impact of a certain program allows for an insight into the effects of the public action on short, medium and long- term.

Relevance is different from efficiency and effectiveness since it is concerned with the investigation of the goals and means as they reflect in the needs they aim to meet.

(L'évaluation emprunte à la science son aspect systémique en élaborant un certain nombre de critères méthodiques dont elle peut user pour conserver sa rigueur. On peut définir deux aspects qui doivent être présent à l'esprit de l'évaluateur lorsqu'il doit émettre des recommandations sur l'application d'un programme : les qualités de la politique et l'identification préalable du besoin auquel elle répond.

L'élaboration d'une politique, d'un programme ou d'un projet public requiert l'identification de quatre qualités indispensables :

- l'efficacité ;
- l'efficience ;
- l'impact ;
- la pertinence.

Chacun de ces éléments est évalué afin de démontrer qu'il respecte les normes de satisfaction d'une politique publique réfléchie. Nous allons montrer ici en quoi ces quatre aspects doivent être étudiés avec le plus grand soin.

L'analyse de l'efficacité d'une politique ou d'un programme consiste à comparer les effets propres de la politique et ses objectifs.

La notion d'efficience est le rapport entre les résultats et les moyens mis en œuvre. Elle se distingue de l'efficacité en ce qu'elle ne concerne pas les

objectifs mais les affectations humaines ou matérielles attribuées à son accomplissement.

La recherche des impacts, qui peut constituer une étude à part entière quand elle se situe comme préalable au programme, permet de calculer les effets à court, moyen et long terme de l'action publique.

La pertinence se distingue de l'efficacité et de l'efficience en reposant avant tout sur une étude des objectifs et des moyens par rapport aux besoins auxquels ils sont destinés.)²⁰

There are various taxonomies of indicators and as an example of such a classification I will present the one drawn up by CITEPA:

- environment indicators
- economic indicators
- social and cultural indicators
- governance indicators

.(Indicateurs à dominante environnementale

. Indicateurs à dominante économique

. Indicateurs à dominante sociale et culturelle

. Indicateurs de gouvernance) »²¹ .

In order to establish the synthetic indicator, the following issues need to be taken into account:

- Unity%
- The form of the indicator %
- Feasibility – very good
- Minimal occurrence -
- Minimum available scale

(Unité %

²⁰ http://www.editions-performance.com/public/public1_ch.pdf

²¹ <http://www.citepa.org/emissions/regionale/arrdts/nox.>(ARPE – Rue de Tivoli – 31068 TOULOUSE CEDEX – France)

Forme de l'indicateur %

Fiabilité très bonne

Fréquence de production minimale

Echelle minimale disponible)²²

A detailed analysis of the way indicators are checked is necessary in order to establish their relevance.

There is a set of quality criteria (DOPA_ **Deleting Online Predators Act** , SPICED etc) but the most commonly accepted by scientists are the SMART ones (i.e. Specific (univocal); Measurable (verifiable at a reasonable price); Acceptable (the ones mutually agreed upon by the parties involved in a project); Realistic (achievable); Temporal (measurable during the project)) (Verifier a priori les qualites des indicateurs.

Il existe un certain nombre de critères de qualités (DOPA, SPICED, etc...) mais les plus

communément acceptés par les communauté de bailleurs sont les critères SMART :

- ~ Spécifiques (univoques)
- ~ Mesurables (vérifiables à un coût acceptable)
- ~ Acceptables (sur lesquels il y a accord entre les parties prenantes du projet)
- ~ Réalistes (il est possible de les atteindre)
- ~ Temporels (mesurables dans la période du projet) »²³

In order to illustrate the usage of indicators in the military, I will focus on two of them, namely the recruitment indicator and the financing indicator. My choice is accounted for by the importance of these indicators which, in my opinion no longer needs to be proven.

The recruitment indicator refers to the recruitment methods and techniques which include: the CV, the resume, the interview, the written tests

²² http://www.arpe-mip.com/html/files/doc_indicateurs1.pdf

²³ http://www.cota.be/SPIP/IMG/pdf/Fiche_6_GCP_Indicateurs.pdf

and the practical skills examination. Based on all the above the necessary indicators for recruitment are identified. The process of recruitment needs to unfold based on the requirement ensuing from the job description, as well as in accordance with the work, safety and health regulations.

(Procédure et conditions de recrutement CV, lettre de motivation, entretien, test et mise en situation permettent de se donner les indicateurs de jugement nécessaires pour le recrutement. Le profil de poste doit être le conducteur de ce processus et ce, en conformité avec les obligations sanitaires relatives notamment à l'hygiène, à la sécurité et à l'organisation du travail)²⁴.

The financing indicator is concerned with the relationship between the ministry of defense and finances legislation (Lois de Finances _ LOLF).

Thus, the Ministry of Defense should pay attention to LOLF and should assess the effectiveness of the way its resources are employed. Since defense is interrelated with governance, its financing has always been subjected to the political will. Consequently, the defense budget is allocated not in terms of economic efficiency, but in terms of the requests made by the military. Therefore, efficiency is investigated in terms of supply, armament, human resources, estate management. As with other fields of activity, LOLF directs the efforts of the military towards achieving results. Consequently, it lies with the Ministry of Defense to allocate the budget by separate programs dealing with missions and, moreover, by separate activities. The Ministry of Defense is currently running eight programs, out of which two are double hatted by MoD on one hand and by other ministries on the other hand (i.e. safety programs, research and graduate education programs). It is important to underline that LOLF was issued at a time when the armed forces were streamlined and the allocated budget was reduced with a view to transforming the army into a professional one.

²⁴ http://www.justice.gouv.fr/art_pix/1_guidefiphpp2emepartie.pdf

(Le ministère de la défense et la LOLF

Le ministère de la défense est naturellement concerné par la LOLF et se doit de mesurer l'efficacité de l'emploi des ressources humaines et matérielles des armées comme des personnels.

La défense est un domaine particulier de l'action de l'Etat. Son financement a toujours dépendu d'une volonté politique de maintenir ou de développer l'outil de défense. Le budget alloué n'obéissait pas à des déterminants d'efficacité économique mais répondait aux besoins exprimés par les armées. Désormais, la recherche de l'efficacité prime et concerne tout autant les fournitures que les armements, les ressources humaines ou la gestion du patrimoine immobilier.

Comme pour d'autres domaines, la LOLF implique que la défense passe d'une logique de moyens à une logique de résultats. Le ministère de la défense doit donc adopter un budget par programmes déclinés en plusieurs missions elles-mêmes divisées en actions. Le ministère de la défense a la charge de 8 programmes dont deux de dimension interministérielle (sécurité et recherche et enseignement supérieur). Cette LOLF apparaît à une période où des justements ont déjà dû être réalisés en raison de la professionnalisation et de la réduction du format des armées et de resserrement de son budget)²⁵

As it becomes obvious from the French literature review carried out in this article, all the activities undertaken in the French military are quantified. All the more, this aspect acquires significance under the current financial constraints the whole world is confronted with.

Considering the above information, I believe that the Romanian armed forces have already taken the first steps towards the implementation of concepts such efficiency and effectiveness, especially when it comes to international missions involving great expenditures and risks for the human

²⁵Caroline Verstappen Division Recherche C2SD
http://www.c2sd.sga.defense.gouv.fr/IMG/pdf/c2sd_synth_kopp_performance_armees_2005.pdf

lives involved. Therefore, using synthetic indicators in assessing the impact of an integrated defense resources management system on the accomplishment of international missions becomes mandatory.

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http://www.editions-performance.com/public/public1_ch.pdf

<http://www.citepa.org/emissions/regionale/arrdts/nox.> (ARPE – Rue de Tivoli – 31068 TOULOUSE CEDEX – France)

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ROLE OF COMMUNICATION IN CRISIS MANAGEMENT

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Abstract

Within the contemporary era, human and social entities are more and more confronted with difficulties when trying to maintain control over their own lives. Changes occur at such a rapid pace, with so profound consequences, that, in order to determine an advantageous future for the self, the individual, or the entire society has to estimate the current situation and make decisions almost instantly. An analysis of the crises evolution implies the analysis of the risks that led to the crisis appearance, which means that their management has to be accomplished within an integrated environment. As far as organizations are concerned, preventing and managing risks may only be done in case the crisis management is based on a coherent communication strategy in crisis situations. An efficient management of crises is that of an interactive type, and the communication policy belonging to it presupposes the existence of an integrated structure of public relations.

1. CRISIS, CONFLICT, RISK. TERMINOLOGICAL DELIMITATIONS

When belonging to the social, the term ‘crisis’ is one of the most frequently used words, it being tightly connected with situations of incertitude and/or discontinuity. The origin of the word traces back to the Greek ‘krisis’, based on the verb used in Old Greek, ‘krinein’, meaning, among others, ‘to judge, separate, discriminate’ but also ‘**to decide**’. The fact that,

etymologically, the term *crisis* refers to decision is interpreted, in its current use in the given context, as the role of decision in preventing indecision and incapacity of re-evaluation and re-interpretation of problems (seen as sources of crises), and which would jeopardize cohesion and functioning of a system or of an organization [1]. Yet, the mere decision does not imply the crisis management; the optimal management of crises constitutes an endeavor for the decision making factors of a system/ organization and includes complex issues and abilities such as the capacity of foreseeing crises, the anticipation of scenarios for the foreseen situation, the prompt answer in case of their appearance but also the following of strictly designed steps in solving the crisis. The term crisis can convert its meaning according to the field in which it is used, each of the areas of use conferring different significations. Thus, from the perspective of psychology, the crisis refers to the assembly of tensional phenomena that lead to a sudden and significant change; from the psychopathological point of view the crisis refers to situations of acute functional perturbation, due to the above mentioned significant psychological change; from the sociological perspective it reaches the issue of difficulties accumulation, of conflicting tensions release, presupposing the appearance of some pressure toward the change, while from the organizational approach, the crisis describes an unexpected situation, which brings to discussion the organization's responsibility toward its public and which threatens the organization's capacity of continuing its normal activity. All these perspectives regarding crisis attempt to include the events that affect various entities (from people to organizations), while the unanimously accepted term refers to *their abnormality status*.

From this perspective, correlated with the etymological meaning, the crisis may be understood as a factor able of inducing incapacity of decision, meanwhile, the functioning of the organization being either questioned or compromised. Different from crises, conflicts are regarded as dysfunctions, as

well as opportunities, given the possibility of decision making in case of social interactions, fact that finally leads to the annihilation of those dysfunctions that caused the conflict appearance. For Th. Pauchant [2], for example, the conflict represents a stage in crisis evolution, having some local event as its background, which affects the symbolical structure of an organization, but which does not necessarily affect the organization's principles and fundamental values. The Pauchant diagram offers a linear analysis of crises, having its root in situations of ignored risk, following the pattern: incident → accident → conflict → crisis, as shown:

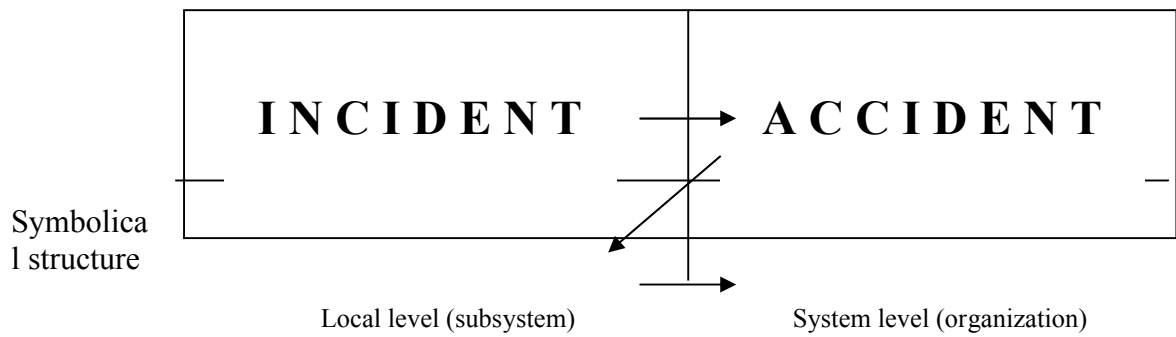


Fig.1 The Pauchant diagram of crises

Consequently, crisis, conflict and risk are terms that cannot be studied separately. And since most of the researchers consider conflict as a stage in a crisis development, the focus will be on the binomial risk – crisis, which induces a quasi- complete approach in the context of frequent transformations, of quality and quantity fluctuations within the contemporary society. In order to access the study of the complex issue of crises, the issue of risks needs to be approached as well. Actually, the present society exposes itself to unexpected changes, to qualitative leaps produced within a rather short time. In this respect, the risk management implies, according to Kenneth Watt, “preparing for the unimaginable” [3], a phrase that characterizes the fluctuating environment of society as a whole, the existing risk factors, and, especially, the capacity of preparing for crises management and the very

management of such crises. Changes in our contemporary world take place at such alert paces, having such profound consequences, that there is need for decision making almost instantly. Within organizations, the quasi-instant preparation of decision is not only the managers' responsibility, but also the people's specialized in counseling such situations, namely, the personnel from the public relations departments.

Within the dynamics context of our contemporary world, risk represents one of the engines of progress and it can be utilized for dysfunctions elimination. Not taking the risks preserves the possibility of crises to appear, whereas taking risks does not equal the disappearance of uncertainty, on the contrary, it leads to its amplification. From etymological point of view, the term "risk" is of uncertain origin, there are two manners of defining it, both of which send us to the idea of 'danger'. The etymons proposed by C. Veltcheff are the Latin *resecare* = *to raise by cutting*, and, respectively, *rixare* = *to argue*. The multiple etymology of the word should not be excluded. Worth mentioning is D. Duclos' analysis, from *Puissance et faiblesse du concept de risque*, published in *L'Année Sociologique*, 46, 1996, n°2: „*Venetian word of Spanish origin, the word ,risk' (riesgo) first describes the cliff in the water (resecum, in Latin), then the shipwreck, and then the potential danger for the shipowner, and finally, it absorbs more and more abstract notions regarding the probability of an unlucky event to take place*” [4].

The risk management has become a study discipline itself as a result of the research field evolution, starting from the area of the complex economy issues, where risk is perceived as the relation between the dimension of expected losses and the probability of losses appearance. Via this approach, a first relationing of risks with rational decision is made, more precisely, with the possibility of their quantitative definition, in order for them to be

evaluated while suitable to a context; nevertheless, it is rather difficult to establish the objectivity of such measurement.

Being itself an element that characterizes the contemporary society, the risk also establishes the relationship between contemporaneity and the possibility of crises appearance, that is, it enables the transfer between risk management and crisis management. Crisis becomes a study object within the contemporary society, the '*risk society*' [5], and implies a perturbation, a critical moment generated by the society's perpetual change and uncertainty, by the pace of innovations, by time and cost pressure, which do not allow an adequate scientific evaluation of risks, as well as by the tendency toward a greater individuality and toward an authoritative public opinion.

In fact, within the context of these newly designed coordinates of crisis study, starting from the issue of risks of the contemporary society, we should return to the crisis definition inside the organization, it being "*a period within a system dynamics, characterized by the accentuated accumulation of difficulties, the conflicting outburst of tensions, fact that will make difficult its normal functioning, thus, violent pressures toward change being released*" [6], respectively, to a more generous approach to crisis, where crisis involves "*an event, a revelation, an allegation or a set of internal and external problems that menace an individual's or an organization's integrity, reputation or even existence*" [7].

Coming back to the relationship risk–crisis, we shall now place the crisis management as a continuation of the risk management, or, better, we shall make it clear that the crisis management within an organization cannot start but with the risk management.

2. CRISIS MANAGEMENT

Crisis management is based on risk management, namely, on "*activities performed toward preventing and evaluating of events of various origins, without initiating prevention steps, but trying to diminish the chances of risk*

development, or by initiating protective steps, trying to reduce the risk effects” [8]. However, in order to prevent undesired events from occurring, or to diminish their chances of appearance, it is necessary to build and manage an image of the organization, as a sum of all reference systems of the target public or as a sum of all reference systems within the strategic interest group of the organization. Building the organization image is the responsibility of the public relations department and it takes time, phenomenon that may be synonymous with continuous communication. To make itself identifiable, the organization needs to emit messages regarding its functioning and its associated competence and responsibility.

Reviewing the entire approach, crisis management implies two previous stages: image building and managing and risk management, responsibilities that belong to the public relations structure.

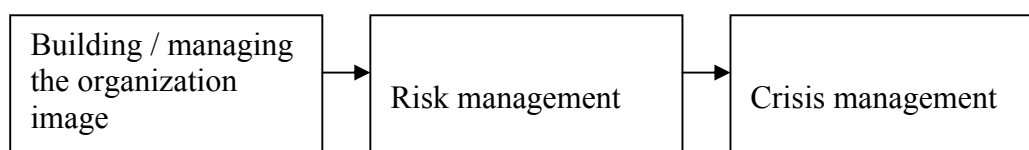


Fig.2 The position of crisis management within an organization strategy

This approach involves an integrated analysis of issues, both at decision - making level and at public relations level. For us to be able to accomplish this integrated approach, we have to analyze the life cycle of risks in direct connection with the conflict stages, as shown below:

Conflict stages (D.R. Forsyth)	disagreement	confrontation	escalation	de-escalation	solving
Crisis stages (Meng – Hainsworth)	potential crisis	emergent crisis	current crisis	latent crisis	
Crisis stages (Fink)	crisis preparation	acute crisis	chronic crisis	crisis end	

Capacity of action	possibility of influencing	difficulty in influencing
Preponderant area of competence	risk management	crisis management
Recommended type of management	proactive management	reactive management
	interactive management	

Table no.1 Crises taxonomies

Examining the conflict stages as shown by Donelson F. Forsyth, we discover that a disagreement implies the manifestation of differences, the existence of certain tensions (potential risk), a confrontation equals the intensification of differences (emergent risk), escalation is represented by real crisis situations, characterized by tensions, uncontrollable arguments, while the de-escalation and conflict solving are stages characterized by formal compulsions, by interventions for identifying a compromise and reaching an agreement, respectively, for eliminating animosities or reducing them to a controllable level of a latent crisis [9].

In M.B. Meng – Brad E. Hainsworth taxonomy [10], during the first stage of the risks lifecycle or the crisis origin, the crisis management presupposes the identification of tendencies that can result in a crisis. The tendencies identification becomes the responsibility of the team specialized in risk management (if that particular organization includes such a structure), or of the specialists belonging to programming and planning departments. During this stage, those events capable of inducing conflicting situations become visible. If risk is eradicated in its incipient phase, the organization's credibility increases, its image becomes clear and powerful. However, reaching such performance asks for a lot of experience and for an integrated

public relations policy. Most of the organizations though, still neglect the source of conflict because they lack experience or are unable to face the unpredictable or to promote integrating policies.

The second stage, of emergent crisis, is characterized by groups formation, by individual differences deepening, by the appearance of mediation or by an amplification of conflicting situations among groups, or individuals or between groups and individuals. On the other side, an increase in pressure from outside the organization is visible, as a result of the interference of those people who try to 'identify' the risk situation. During this stage, risk management has to be doubled by crisis management, because it is not too late to intervene or to influence decisions. The decision factors of an organization should intervene and play a mediating role, so as not to allow the conflict to become a crisis for which an increased effort for de-escalation would be necessary. These two initial stages, characterized by the possibility of influencing the course of actions, call for a proactive management (conflict mediation at this stage of confrontation asks for the use of proactive instruments). Throughout this stage, the public relations team should intervene, in order to plan communication in case of conflict worsening.

Crisis itself is dealt with within the third stage of Meng- Hainsworth taxonomy and it is illustrated as a series of events that threaten the integrity or image of an individual, of a group, or of the organization as a whole. Reaching this stage does not necessarily imply the presence of the previous two stages. The current crisis can appear suddenly, skipping previous steps, and this is possible because imminent risks can, at any time, lead to conflict escalation, and a crisis situation can result from the potential risk situation. The stage characterizes itself by the implementation of the reactive management steps, in case the proactive instruments proved inefficient in stopping the crisis evolution.

The final stage, of the latent crisis, involving at the same time the de-escalation of conflict and its solving, indicates the end of passing through the entire lifecycle of risks and the possibility of transforming the latent crisis into a potential crisis (the risk cannot be eliminated one hundred percent). The final stage is characterized by the public opinion's and respectively, by the administrative structures' (having decisive role in remodeling the normative frame) monitoring of possible identical risk situations, for the purpose of solving similar risks, based on experience gained throughout a risk situation that went through all stages. This involves, first of all, establishing and applying policies in accordance with the risk evolution context.

Crisis management may be brought into discussion only starting with the third stage of the Forsyth, Ming- Hainsworth and Fink taxonomies, a stage in which the Crisis Communication Plan (CCP), previously designed, must be applied by all means, and it should reach the same target public as in case of the regular target of the company during their communication campaign. Within the same third stage there can be established the organization's degree of responsibility since *“an organization is considered to be responsible for a crisis in case the cause is internal, controllable and stable (repeated throughout time)”* [11]. Generally speaking, it is still during this stage when the settled crisis cell comes to stage, and it is specific to the particular critical situation confronted by the organization, even though it can act starting with the second stage of the risks lifecycle.

The carelessness of the organization's decision-making structure may lead to what is known as routine crisis, and further on, to an ampler development, from the potentiality stage of risks to the current crisis, via the emergent phase, and as a result of a faulty risk management. The faulty risk management is due to the lack of applying proactive instruments, in initial phases, such as control procedures, report systems, labor safety standards, signal detection, preparation/ prevention etc. On the other hand, the reactive

instruments, implemented during the last two stages of the risk lifecycle, require crisis plans (Crisis Communication Plan – CCP; Crisis Management Plan – CMP etc.), a limitation of effects, a recovery period a.s.o. in case of an interactive policy, the crisis communication plan and the crisis management plan become reactive instruments, proactively applied, that is tested and applied during various simulations. The CMP consists of a series of specific steps that need to be followed under certain circumstances, the speed of reaction being an essential element. It is crucial for an interactive policy to be applied through the above mentioned simulations, in order to prepare each member of the organization so that they could know exactly what to do and when to intervene. Throughout the third stage, the entire organization (or sector, or affected structure) must act and function as a team, starting from the top managing positions and ending with the operative personnel. The team-action style represents the application of the unitary action principle, and responsibilities in this area are also distributed to the crisis management teams, specifically to those people belonging to the decision making forum (at organization level or at the level of component structures). Each of the employees' responsibility is extremely important since any sensitive statements, in case of an organization affected by crisis, may lead to a worse crisis. This individual responsibility indicates the application of interactive crisis management instruments, which are visible throughout all the evolution stages of the entire risk lifecycle. By using the interactive management, the organization will be able to get over any hardships or difficulties and improve its own action style so as not to repeat the mistakes in case of a new crisis.

3. COMMUNICATION STRATEGIES IN CRISIS SITUATIONS

The communication strategy in crisis situations presupposes a general approach to communication in case of a crisis situation intensification and it belongs to a more complex type of communication, the public relations strategy of the organization in discussion. The outlining of this strategy has to

take into consideration the area of definition for the public relations activities and for the basic rules used in operation. The very existence of this general approach does not restrict, nor does it determine, at the organization level, a certain type of behavior in its employees, but it offers rules of employment so that each of the employees will know his symbolic position within the organization and, respectively, will know which his area of responsibility is and thus, the final defined action of preparing the crisis communication will not degenerate into some chaotic, dezorganized action. Last but not least, this strategy aims at each type of activity , in turn, therefore, each segment of the whole structure will be covered.

The public relations strategy, indeed, does not imply a rigid and sophisticated approach, on the contrary, it equals a passage, inside a dynamic frame of development and in the absence of panic, and its finality is meant to offer *clarity and efficiency*. The best public relations strategy will always be the initial one put into action, while, in order to accomplish this act, there is need for planning in a simulated workframe, as close as possible to a strategic reality. This planning of the public relations strategy constitutes the most difficult part of the entire process of strategic approach of the public relations area. Unfortunately, there are numerous confusions made between the public relations strategy and its necessary tactical steps and within many organizations, such confusions are visible. A strategy that is correctly planned does not limit itself to an algorithm of action, which is supposed to result from a plan of crisis communication or from a crisis management plan, but it has to be included in them. At the same time, a correctly planned strategy involves the concentration of all efforts, for a long period of time and its main objective must be the accomplishment of the desired results [12]. The strategic approach needs to be incorporated into documents showing the action path in gradual steps, namely, in tactical stages, according to the

interactive crisis management, and such action requires careful planning or results from a specific decision made by the managers.

According to Benoit [13] , there are certain communication strategies in crisis situations: the negation strategy (by rejecting accusations); the responsibility denial (by declining chargeability with regard to certain events); the lessening of the dangerous action nature (by trying to obtain support, by reducing the negative sentiments, by differentiating, by transcending, attacking or compensating); the correction strategy (involving promises for the purpose of restauration, recomposition etc.), and the humiliation strategy. According to Coombs [14], the communication strategies in crisis situations are classified into: negation, outstripping, partiality, humiliation and suffering. Once the action strategy has been established, the tactical steps need correlation with the action, based on logical sequencing; in other words, the solution to the problem (the analogical approach) must come into gradual steps (the digital approach), and respectively, for each of these steps, there must be specific objectives and action deadlines. The tactical steps claim a continuous evaluation, based on the established algorithm, and by means of either confronting the prognosticated data and the accomplished elements, or by checking reliability, in case of a new area of expertise.

Consequently, the public relations strategy of an organization is the framework under which all action plans are designed. The lack of such a strategy or its maladjustment to the real context makes difficult the possibility of designing an action plan in crisis situations and facilitates a rapid evolution of risks and their transformation from potential and emergent risks into current risks. The coherence of the public relations strategy confers the coherence of the action strategy in risk situations, although it also detains an important role in preventing/ avoiding emergent risks. Therefore, at the same time with the implementation and the design of the public relations strategy,

the action lines in crisis situations are drawn, so that action could be applied unitarily and coherently, before the crisis team is established and any decisions are made. Further on, as far as the communication strategy in crisis situations is concerned, it will be designed in accordance with the public relations strategy, which means the latter has to take into account several elements necessary for a good functioning under similar conditions. Stavre [15] recommends the mentioning of several tactical approaches within the public relations strategy; these approaches should provide unity of action and viability to the organization while they should also be able to face the concrete reality by: providing a reaction plan for potential crisis situations, in which all of the organization's structures should be involved; sustaining the crisis cell gathering and clarifying the existence of communication among the members of the organization; sustaining the application of the crisis management plan; checking the reliability of such a crisis management plan; updating the crisis management plan; training the crisis team and the decision making factors for a confrontation with the journalists; ensuring the coherence of press releases so as to avoid internal contradictions and to offer the framework for the one single voice principle implementation; communicating internally for the purpose of creating the framework within which the personal activity should be considered as part of the crisis management and not as opposed to this direction or independent of it; monitoring the crisis results in order to ameliorate the plans meant to prevent unforeseen situations. At the level of public relation strategy each variant of possible scenarios needs careful consideration in relation with the specific action plan (tactical steps).

Clearly, these directions, so easily reflected in tactical steps and designed at the same time with the public relations strategy, are to be found within the crisis plans as well (CCP and CMP). Nevertheless, such plans result directly from the crisis situations action strategy, a strategy that may be

identical with the tactical steps necessary to be taken so as to obtain a unitary and coherent action, in case of an *ab initio* application of the *single voice* principle (unity of command - unity of action). Designed and established within the framework of the public relations strategy, the communication strategy in crisis situations modifies and is applied in accordance with the type of crisis and related to the capacity of risk prognosis of the planning team that has taken into consideration the possibility of its emergence. In case of such occurrences, one of the directions established by Benoit or Coombs is selected. The necessity of correlating the communication strategy in crisis situation with the public relations strategy also results from the necessity of a correct presentation of the self-image, from knowing and respecting the others and from admitting of own mistakes [16].

Thus, the probable components of the crisis teams are planned prior to the crisis starting, depending on the assumed risk and the type of crisis it focuses on, while the teams need to “train” under specified conditions and take into consideration potential messages, simulate these messages transmission, and, respectively, they need to execute the tactical steps found in all crisis situations (for this purpose, there are references made regarding the common directions incorporated into the public relations strategy). Such a manner of action simplifies the designing of the crisis communication plan (CCP) since the involved personnel are already trained to solve certain aspects included in it, and they are already confronted with corresponding problems. Similarly, the identification of potential crises, the audience analysis, the naming of action teams, the training of communication teams under crisis situations, the designation of a spokesperson, the preparation of resources necessary for communication and the identification of the communication channels – all become previously known elements, able to make the team’s work easier whenever they attempt to manage a crisis. Other aspects, such as: the effective preparation of the press center, of handouts to

include useful telephone numbers, the monitoring of the crisis, the post-crisis action taking or the evaluation – all of them may be performed subsequently, within the already established framework.

4. CONCLUSIONS

In the context of an interactive crisis management, the issue of communicating in crisis situations is facilitated by the possibility of offering the necessary official information and thus, the communicative pathology of rumor is prevented from being active. A communication team in crisis situations (constituted on the public relations frame and expert in the public relations strategy) is able to meet an increased demand for information, it can ensure the implementation of the one single voice principle or communicate efficiently even though messages carry an increased emotional load, and it may benefit from the increased role of direct communication.

An efficient crisis management, well implemented, will be successful especially at the moment when, within the organization, the public relations are analyzed through an integrated model [17], which is capable to define and protect public relation from incongruent manifestations. An increased consideration toward the area of public relations ensures the organization immunization against potential risks to which it is exposed or, at least, the opportune “cure”, with no side effects, in case these risks become emergent.

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THE ECONOMIC COMPONENT OF MILITARY AND CIVIL-MILITARY STRUCTURES' SECURITIZATION

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Abstract

Necesitatea securizării structurilor militare și civil-militare s-a accentuat după momentul 11 septembrie 2001, iar preocuparea pentru siguranța și securitatea acestora a trebuit să țină cont de factorii economici și financiari, de modificările intervenite în mediul național, regional și internațional. Securizarea economică a structurilor respective presupune contracararea tuturor pericolelor, amenințărilor și riscurilor la adresa resurselor de natură economică, precum și reducerea vulnerabilităților în materie.

Accesul la resursele și infrastructurile de bază necesare reprezintă o condiție sine-qua-non pentru asigurarea unui nivel acceptabil de putere al diferitelor structuri militare și civil-militare. Totuși, resursele ce pot fi puse la dispoziție depind de potențialul statului sau alianței/coaliției respective, potențial ce poate fi măsurat, cuantificat și evaluat cu ajutorul unor indicatori.

In the framework of globalization, achieving a certain degree of security depends on state's capacity to aggregate its resources at internal level and to obtain and maintain the access to external economic resources.

Security can be achieved from individual level to the global one only if some political, economic, social, environmental, and military threats and risks are counteracted, especially addressing the living conditions, which might endanger more vulnerable areas. As well, economic securitization of military and civil-military structures requires both counteracting all dangers, threats and risks to economic resources, and diminishing the specific vulnerabilities. Thereby, the access to needed basic resources and infrastructures represent a sine-qua-non condition for ensuring an admissible power level of that state or alliance/coalition, implicitly of various military and civil-military structures.

In that context, the specialists' efforts to develop a system of indicators for evaluating the vulnerability of a certain economic system and the possibility to affect the defence resources in order to assist decision makers to take the best measures has intensified.

Coverage area of the economic component

Resources fill a primordial place in generating power, in developing an adequate capacity to defend and promoting security interests of a country or alliance/coalition. Economic component of military and civil-military structures refers mainly to human, financial, material, informational and other resources available at a certain moment. More precisely, it consists in all resources that can be supplied to these structures for an efficient course of action of various civil and military committed missions.

In US approach on these resources defines them as “The forces, materiel, and other assets or capabilities apportioned or allocated to the commander of a unified or specified command”[1], and military resources as “Military and civilian personnel, facilities, equipment, and supplies under the control of a Department of Defense component”[2]. We can understand from these definitions that defence resources, including military ones, are those

allocated to a commander to defend the vital interests of his country or an alliance/coalition where a part is.

According to NATO Handbook, the candidate states to join to North-Atlantic Alliance must “commit sufficient resources to defence to allow them to meet the commitments that future membership would bring in terms of collective NATO undertakings”[3]. Thus, the principal form of contribution of each member state in NATO alliance system to collective defence is the funds allocated to NATO common budgets. Beside these, other national resources, as personnel or material ones, are a important part of efforts to defend NATO and its members interests. In European Union, according to EU Treaty, any operational costs in military or defence field must be cover by member states.

From some Romanian military specialists point of view the defence resources represent „the sum of capacities and possibilities of which a state possessed at a certain moment for sustaining, promoting and defending, inclusively with military means, its fundamental national interests,”[4]. Those capabilities consist in political, diplomatic, economic, demographic, structural-territorial, informational and other resources. Other opinions argue that defence resources consist in “the entire forces and means specialized in armed combat which might be used by the state in order to prepare and carry the war, if it’s in difficulty. Those resources consist in: personnel, armament and battle technique; number and quality of command personnel; organization and cohesion of forces; level of preparation of population, economy and territory for defence; infrastructure; development of military science and art”[5]. A more adequate definition we seek in “Military Lexicon”[6], where defence resources are all existent means (possibilities) at a certain moment for satisfying necessities imposed by military actions.

Moreover, the Law of National Defence of Romania, Article 14, underlines that “resources for national defence are the sum of human,

financial, material and other resources, which are provided and engaged by the state in sustaining country's defence efforts"[7]. The Military Strategy says that "these resources comprise the personnel and financial, technological, scientific, material and other means, which will be allocated by the state to prepare country's armed defence. These elements shape quantitatively and qualitatively forces structure and their endowing with necessary battle technique"[8].

In accordance, we can say that the resources destined to military and civil-military structures refer to all possibilities and specialized capacities which are at disposal of the state or alliance/coalition and which can be coagulated at a certain moment to defend their fundamental security interests, inclusive with military means. These include the human, material, financial, technological, scientific, informational, and other resources, which might be allocated by state and society or alliance/coalition taking into account the national or collective war necessities.

Military and civil-military structures' securitization

In the new type of 21st Century conflictuality, strategies, forces, means and manners of engagement are shaped on desired effects. But, these effects can't be achieved without an adequate logistic support derived from appropriate economic and financial sustain. Generally, the main economic deficiencies which can appear in the four phases of operation (planning/preparation, deployment, engagement, redeployment) are indissoluble linked on logistics and technical-material supplies. The permanent and unbroken fluxes of necessary means for efficient sustaining of forces and actions depend mainly on the resources that are available and are vulnerable to several internal and external factors. As example, in conditions of economic or financial crisis, the economic basis of national security and defence of a state is strongly affected both by erosion of economic

environment and activities and worsening living conditions of majority of population, and by state's lack of control over its strategic resources.

Thereby, the necessity of military and civil-military structures' securitization is much more underlined after 11th of September, 2001 and the preoccupation for their safety and security might take into consideration the economic and financial factors, which played and will play a major role in management of various tensions, crises, and conflicts. Moreover, we can argue about interdependency between different economic and financial elements, which have a strong impact in securitization process of military and civil-military structures

The economic component of military and civil-military structures' securitization means "protecting the structural integrity, the interests and the security generating capabilities of that entity against external threats". Structural integrity refers to optimal functioning of that entity by preventing and avoiding the economic-financial difficulties and by accomplishing efficiently the basic objectives of management mission. Security generating interests and capabilities are focused on cooperation in order to reduce the security risks by technical and rational aspects improvement and welfare maximization. Accordingly, the economic security of a military and civil-military structure refers to the preoccupations in that field in the context of external threats which can be faced in the committed mission. In other words, securitization from economic point of view means maximum diminishing of probability to affect any type of resources needed by military and civil-military structures for efficient accomplishment of their missions.

From an economic perspective the resources of a military and civil-military structure, which might be affected by different dangers, threats, risks or particular deficiencies and vulnerabilities refer to:

- level of human, financial, material, and informational national and multinational resources;

- level of resources needed for living of the structure's personnel (barrack equipment, food, water, various services, etc.);
- level of armament, munitions and explosives, spares, fuels and lubricants resources;
- technological level of battle national and multinational technique and means;
- level of standardization and interoperability of forces and means;
- operational capacity of forces and means;
- capacity of strategic transport;
- national capacity of logistic support;
- number and value of contracts with local providers of goods and services;
- level of host nation support (number of technical agreements, number and value of contracts with host nation, capabilities supplied by host nation, etc.);
- level of buffer stocks of different equipments and material goods;
- level of cooperation between civil and military sectors;
- level of cooperation with local public authorities, civil population, national and international organizations, NGOs and volunteers from operations area (number of actions and projects undertaken for local population, investments, created/reinstated infrastructures, quantity of humanitarian aids, number of helped refugees, etc.);
- level of losses and damages regarding infrastructure, battle technique and means, materials, etc.;
- other criteria.

In these conditions, we might say that military and civil-military structures' securitization from economic point of view is one of the most important stages of their planning/preparation process in order to accomplish

with maximum efficiency various military or civil committed missions. The success of that process mainly depends on the manner of the state or states within alliance/coalition mobilize in close cooperation all available resources – political, military, technological, informational, etc. – for achieving following:

- improvement of governmental policy regarding the military-economic security complex;

- decisions according with priorities and parameters needed for developing adequate military and civil-military forces and means on the basis of allocated financial resources and doctrines of the involved state/alliance/coalition;

- support for research-development projects and creation of favorable conditions for technology transfer;

- proper conditions – investment environment, credit banking system, adequate legislation, etc. – for developing the defence industry and its anchor to new scientific and technological advances;

- cooperation in military technology field in order to develop new types of weapons and equipments, military and civil-military services and materials;

- opportune running of acquisitions programs;

- preparation of population and territory for defence;

- other actions and measures.

All these factors are interrelationated and profoundly influence the securitization process of military and civil-military structures, and any dysfunction or disruption of one or the other may destabilize the entire planning/preparation-deployment-engagement-redeployment chain of these forces.

Some suggested indicators of securitization

Resources that can be supplied to military and civil-military structures in different military and civil operations and missions depend by the potential of that state. This potential can be measured, quantified and evaluated with support of some indicators such as follows:

A. General indicators

Indicators of military-economic power:

- military expenditures;
- military expenditures as GDP share;
- military expenditures in relation with the ones of neighboring states;
- military expenditures in relation with the USA ones;
- military expenditures in relation with the NATO average;
- military expenditures in relation with the EU average;
- other indicators.

Indicators of military-economic potential:

- level of providing with human resources;
- level of providing with material resources;
- level of providing with fuels and energy;
- dependency from imports in the field of military armament and equipment;
- other indicators.

B. Indicators of military-economic structures

Defence industry complex:

- constructing facilities according to types of military armament and equipment taking into account the level of defence sufficiency;
- technical standard of production of different major types of military armament and equipment taking into account the international standard;

- total volume of state orders taking into account the production capacity of defence industry complex;
- wage value taking into account the average salary at national level;
- profitability level;
- other indicators.

Military-economic infrastructure:

- capacity of logistic and technical services taking into account the forces needs;
- other indicators.

C. Qualitative indicators

The structure of military expenditures:

- share of research-development in military expenditures taking into account the geopolitical rivals;
- share of military armament and equipment acquisitions in military expenditures taking into account the geopolitical rivals;
- other indicators.

Specific indicators:

- providing with specific resources the military forces personnel taking into account the geopolitical rivals;
- specific expenses of funds for future acquisitions of military armament and equipment;
- remuneration level of military personnel;
- other indicators.

Indifferent of that country's supplied potential and resources, the military and civil-military structures must make all efforts to accomplish the objectives of committed mission, in other words to achieve the scope and maximize the effects for the longest time with as low resources and losses as possible.

Conclusions

The economic securitization of military and civil-military structures represents by the specific initiated and implemented actions and measures a primordial condition for the success of committed missions taking into account the new characteristics of security environment and diversification of threats and risks to these structures. Any economic or financial vulnerability can conduct to fail of committed operations and missions. Durable economic development and increasing of political, economic and military cooperation between world states may provide the needed resources for military and civil-military structures to continue good preparation in order to prevent and manage some crisis and conflict situations more and more complicate. However, it's necessary that all the undertaken actions and measures to ensure an optimal level between allocated resources, pursued objectives and obtained results.

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CRITICAL INFRASTRUCTURE INTERDEPENDENCIES

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Abstract

Termenul „infrastructură” este definit ca fiind o rețea de sisteme și procese interdependente (de obicei private) care funcționează în strânsă legătură și convergent, pentru a produce și distribui un flux continuu de bunuri și servicii esențiale pentru dezvoltarea națiunii (societății). Infrastructurile critice ale unei țări sunt interconectate și reciproc dependente într-o multitudine de moduri, atât la nivel fizic cât și printr-o suită de tehnologii informaționale și de comunicații. Acest lucru face ca disfuncționalitățile produse la nivelul unei infrastructuri să poată afecta, direct sau indirect, alte infrastructuri sau să poată avea un impact major asupra un regiuni geografice relativ întinse, cu repercursiuni asupra economiei globale.

The fact that nations’ critical infrastructures are highly interconnected and mutually dependent in complex ways, both physically and through a host of information and communications technologies (so-called “cyberbased systems”), is more than an abstract, theoretical concept. As shown by the 1998 failure of the *Galaxy 4* telecommunications satellite, the prolonged power crisis in California, and many other recent infrastructure disruptions, what happens to one infrastructure can directly and indirectly affect other infrastructures, impact large geographic regions, and send ripples throughout the national and global economy.

In the case of the Galaxy 4 failure, the loss of a single telecommunications satellite led to an outage of nearly 90% of all pagers nationwide. From an interdependency perspective, it also disrupted a variety of banking and financial services, such as credit card purchases and automated teller machine transactions, and threatened key segments of the vital human services network by disrupting communications with doctors and emergency workers. In California, electric power disruptions in early 2001 affected oil and natural gas production, refinery operations, pipeline transport of gasoline and jet fuel within California and to its neighboring states, and the movement of water from northern to central and southern regions of the state for crop irrigation. The disruptions also idled key industries, led to billions of dollars of lost productivity, and stressed the entire Western power grid, causing far-reaching security and reliability concerns.

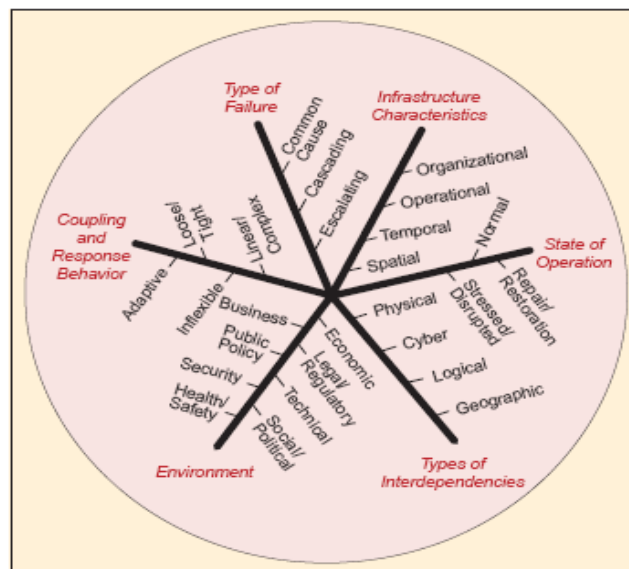


Figure 1. Dimensions for describing infrastructure interdependencies.

Identifying, understanding, and analyzing such interdependencies are significant challenges. These challenges are greatly magnified by the breadth and complexity of critical national infrastructures. These infrastructures, which affect all areas of daily life, include electric power, natural gas and

petroleum production and distribution, telecommunications (information and communications), transportation, water supply, banking and finance, emergency and government services, agriculture, and other fundamental systems and services that are critical to the security, economic prosperity, and social well-being of the nation.

Further complicating this challenge is a broad range of interrelated factors and system conditions that we represent and describe in terms of six “dimensions,” as depicted in Fig. 1. They include the technical, economic, business, social/political, legal/regulatory, public policy, health and safety, and security concerns that affect infrastructure operations. The environment comprising these concerns influences normal system operations, emergency operations during disruptions and periods of high stress, and repair and recovery operations. The degree to which the infrastructures are coupled, or linked, strongly influences their operational characteristics. Some linkages are loose and thus relatively flexible, whereas others are tight, leaving little or no flexibility for the system to respond to changing conditions or failures that can exacerbate problems or cascade from one infrastructure to another.

These linkages can be physical, cyber, related to geographic location, or logical in nature. Interdependent infrastructures also display a wide range of spatial, temporal, operational, and organizational characteristics, which can affect their ability to adapt to changing system conditions. And finally, interdependencies

and the resultant infrastructure topologies can create subtle interactions and feedback mechanisms that often lead to unintended behaviors and consequences during disruptions.

We use this framework, namely, the dimensions shown in Fig. 1, to explore the challenges and complexities of interdependency. We set the stage for this discussion by explicitly defining the terms *infrastructure*, *infrastructure dependencies*, and *infrastructure interdependencies* and

introducing the fundamental concept of infrastructures as complex adaptive systems.

Concepts and Definitions

Infrastructure

The term *infrastructure* is defined as “the underlying foundation or basic framework (as of a system or organization)”. In a report from 1997, addressed to the U.S. President, an infrastructure is defined as a network of independent, mostly privately-owned, man-made systems and processes that function collaboratively and synergistically to produce and distribute a continuous flow of essential goods and services.

In its deliberations, the report narrowly focused on eight critical infrastructures “whose incapacity or destruction would have a debilitating impact on defense and economic security”. These eight are telecommunications, electric power systems, natural gas and oil, banking and finance, transportation, water supply systems, government services, and emergency services. In a broader perspective, other examples of infrastructures (in addition to the report’s eight critical infrastructures) include food/agriculture (production, storage, and distribution), space, numerous commodities (iron and steel, aluminum, finished goods, etc.), the health care industry, and the educational system.

Infrastructures as Complex Adaptive Systems

All of the aforementioned critical infrastructures have one property in common—they are all complex collections of interacting components in which change often occurs as a result of learning processes; that is, they are complex adaptive systems (CASs). Seen from this perspective, which has important benefits for modeling and analysis, each component of an

infrastructure constitutes a small part of the intricate web that forms the overall infrastructure.

All components are influenced by past experiences. For example, electric transformers slowly degrade from overuse, and natural gas pipes age over time. And many components are individually capable of learning from past experiences and adapting to future expectations, such as operating personnel who try to improve their performance and real-time computer systems that adjust electric generator outputs to meet varying power loads.

From a CAS perspective, infrastructures are more than just an aggregation of their components. Typically, as large sets of components are brought together and interact with

one another, synergies emerge. Consider the emergence of reliable electric power delivery from a collection of well placed electric generators, transformers, transmission lines, and related components. Simply aggregating the components in an ad hoc fashion will not ensure reliable electricity supplies. Only the careful creation of an intricate set of services will yield a system that reliably and continuously supplies electricity. This additional complexity exhibited by a system as a whole, beyond the simple sum of its parts, is called emergent behavior and is a hallmark of CASs.

Complex adaptive systems do not require strong central control for emergent behaviors to arise. In fact, many CASs would not function as well with such restrictive operating procedures. However, it is vital for managers responsible for systems of this type, such as the eight critical infrastructures defined by the report, to recognize the nature—and particularly the emergent behaviors—of their systems.

One effective way to investigate CASs is to view them as populations of interacting agents. An agent is an entity with a location, capabilities, and memory. Although the term *agent* is frequently used when discussing specific

modeling techniques, we use it here in the abstract to describe entities with general characteristics.

The entity's location defines where it is in a physical space, such as a geographic region, or an abstract space, such as the Internet, or both. The entity's capabilities define what it can do from its location, such as an electric generator increasing its output or an oil pipeline reducing its pumping rate. The entity's memory defines what it has experienced, such as overuse or aging. Memory is often expressed in the form of agent state variables. Most infrastructure components have a location and capabilities and are influenced by past experiences. Thus, most infrastructure components can be viewed as agents.

Consider an oil pipeline. The pipeline's location can be expressed physically as a set of latitudes and longitudes and abstractly as a specific stage in the oil delivery process. The capabilities of the pipeline include not only its ability to move oil, but also the ways in which it responds to emergencies. Naturally, these responses may not always be positive.

For instance, the pipeline might respond to a rupture or the loss of electricity at a pumping station by simply shutting down the flow of oil. The memory of the pipeline may include the current and past flow rates, pressures, temperatures, operating status of its pumps, and so forth.

Agents communicate with one another as they operate in a particular environment. Each agent receives inputs from other agents and sends outputs to them. These "inputs" and "outputs" need not be resources used in, or products made by, an infrastructure or process. Metrics that describe the state of an agent can also be viewed as outputs that other agents can sense (use as input) and act upon. The inputs to an oil pipeline include electricity to power the pumps and the current demand for oil, whereas its outputs include the flow of oil to external agents and price information.

Dependency

Consider a specific, individual connection between two infrastructures, such as the electricity used to power a telecommunications switch. In this case, the relationship is usually unidirectional; that is, infrastructure i depends on j through the link, but j does not depend on i through the same link:

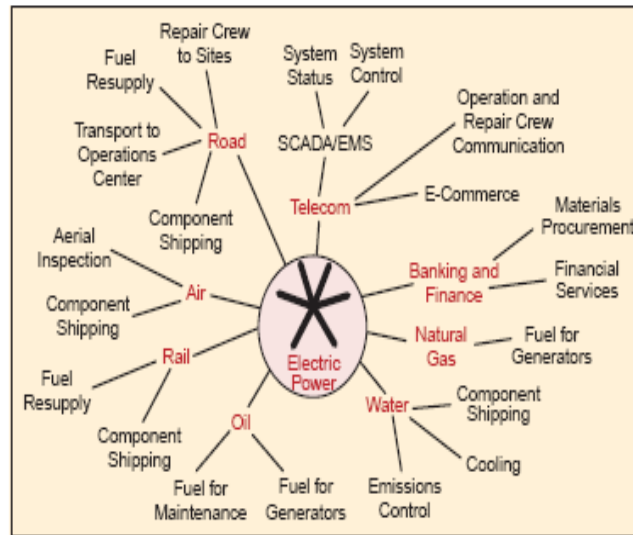


Figure 2. Examples of electric power infrastructure dependencies.

Dependency: A linkage or connection between two infrastructures, through which the state of one infrastructure influences or is correlated to the state of the other.

Fig. 2 illustrates the concept. Under normal operating conditions, the electric power infrastructure requires natural gas and petroleum fuels for its generators, road and rail transportation and pipelines to supply fuels to the generators, air transportation for aerial inspection of transmission lines, water for cooling and emissions control, banking and finance for fuel purchases and other financial services, and telecommunications for e-commerce and for monitoring system status and system control (i.e., supervisory control and data acquisition (SCADA) systems and energy management systems (EMSs)). During emergencies or after component failures, the electric power infrastructure will have potentially different yet critical dependencies on the same infrastructures. For example, the utility may require petroleum fuels for its emergency vehicles and emergency generators and road transportation

(and in some cases rail and air transportation) to dispatch repair crews and replacement components.

As depicted in Fig. 2, electric power is the *supported* infrastructure, and natural gas, oil, transportation, telecommunications, water, and banking and finance are *supporting* infrastructures. Although not shown, emergency and government services are also supporting infrastructures.

Interdependency

When examining the more general case of multiple infrastructures connected as a “system of systems,” we must consider interdependencies. Infrastructures are frequently connected at multiple points through a wide variety of mechanisms, such that a bidirectional relationship exists between the states of any given pair of infrastructures; that is, infrastructure i depends on j through some links, and j likewise depends on i through other links:

Interdependency: A bidirectional relationship between two infrastructures through which the state of each infrastructure influences or is correlated to the state of the other. More generally, two infrastructures are interdependent when each is dependent on the other.

The term *interdependencies* is conceptually simple; it means the connections among agents in different infrastructures in a general system of systems. In practice, however, interdependencies among infrastructures dramatically increase the overall complexity of the “system of systems.”

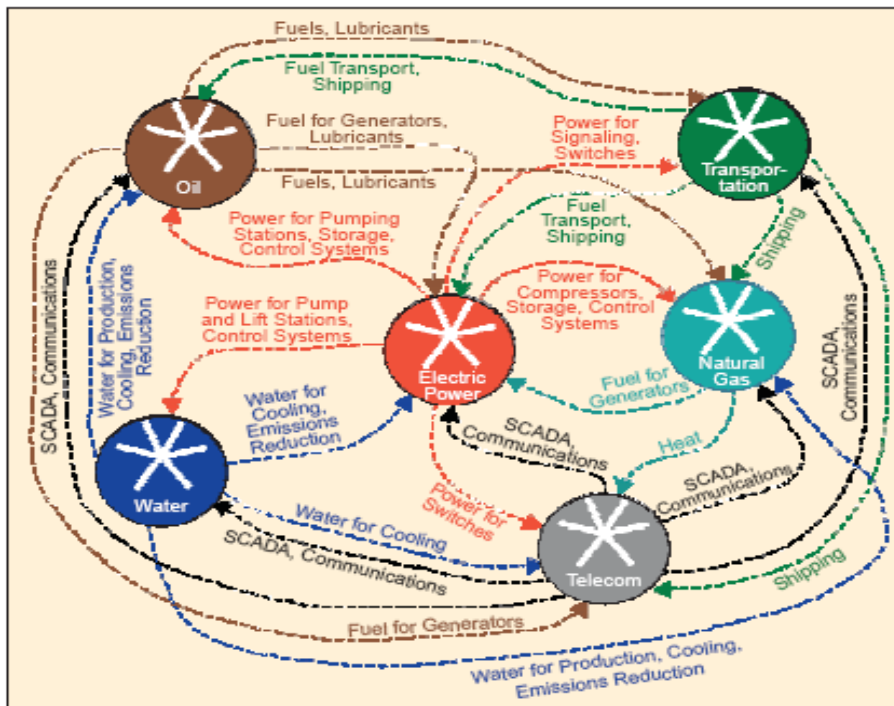


Figure 3. Examples of infrastructure interdependencies.

Fig. 3 illustrates the interdependent relationship among several infrastructures. These complex relationships are characterized by multiple connections among infrastructures, feedback and feedforward paths, and intricate, branching topologies. The connections create an intricate web that, depending on the characteristics of its linkages, can transmit shocks throughout broad swaths of an economy and across multiple infrastructures. It is clearly impossible to adequately analyze or understand the behavior of a given infrastructure in isolation from the environment or other infrastructures. Rather, we must consider multiple interconnected infrastructures and their interdependencies in a holistic manner. For this reason, we use the term *interdependencies* rather than *dependency* throughout the remainder of this article.

Dimensions of Infrastructure

Interdependencies

Using these concepts and definitions, we now explore the six dimensions shown in Fig. 1. These dimensions and their components are

descriptive and are intended to facilitate the identification, understanding, and analysis of interdependencies. They do not represent a comprehensive set of orthogonal interdependency metrics, although they provide a foundation for developing such metrics.

Types of Interdependencies

Interdependencies vary widely, and each has its own characteristics and effects on infrastructure agents. In the sections that follow, we define and examine in detail four principal classes of interdependencies: physical, cyber, geographic, and logical. Although each has distinct characteristics, these classes of interdependencies are not mutually exclusive.

Physical Interdependency

Two infrastructures are physically interdependent if the state of each is dependent on the material output(s) of the other. As its name implies, a physical interdependency arises from a physical linkage between the inputs and outputs of two agents: a commodity produced or modified by one infrastructure (an output) is required by another infrastructure for it to operate (an input). In this manner, perturbations in one infrastructure can ripple over to other infrastructures. Consequently, the risk of failure or deviation from normal operating conditions in one infrastructure can be a function of risk in a second infrastructure if the two are interdependent.

Cyber Interdependency

An infrastructure has a cyber interdependency if its state depends on information transmitted through the information infrastructure. Cyber interdependencies are relatively new and a result of the pervasive computerization and automation of infrastructures over the last several decades. To a large degree, the reliable operation of modern infrastructures depends on computerized control systems, from SCADA systems that control electric power grids to computerized systems that manage the flow of railcars and goods in the rail industry. In these cases, the infrastructures require

information transmitted and delivered by the information infrastructure. Consequently, the states of these infrastructures depend on outputs of the information infrastructure. Cyber interdependencies connect infrastructures to one another via electronic, informational links; the outputs of the information infrastructure are inputs to the other infrastructure, and the “commodity” passed between the infrastructures is information.

Geographic Interdependency

Infrastructures are geographically interdependent if a local environmental event can create state changes in all of them.

A geographic interdependency occurs when elements of multiple infrastructures are in close spatial proximity. Given this proximity, events such as an explosion or fire could create correlated disturbances or changes in these geographically interdependent infrastructures. Such correlated changes are not due to physical or cyber connections between infrastructures; rather, they arise from the influence the event exerts on all the infrastructures simultaneously. Note that more than two infrastructures can be geographically interdependent based on their physical proximity.

Implicit in our discussion is the fact that some interdependencies and their effects on infrastructure operations are caused by physical phenomena, whereas others result from human intervention and decisions. For example, if an electric power utility should fail, then the backup generators at a telecommunications switch start automatically, the result of physical interactions and phenomena without human intervention.

Logical Interdependency

Two infrastructures are logically interdependent if the state of each depends on the state of the other via a mechanism that is not a physical, cyber, or geographic connection.

Logical interdependencies may be more closely likened to a control schema that links an agent in one infrastructure to an agent in another

infrastructure without any direct physical, cyber, or geographic connection. Consider the power crisis that emerged in California in late 2000 and the logical interdependency between the electric power and financial infrastructures.

The genesis of this crisis can be traced to the deregulation legislation that was passed in 1996 to open California's electricity market to competition. Under that legislation, California's investor-owned utilities were required to sell off their power-generating assets and purchase electricity on the open market. At the same time, however, the state experienced substantial load growth, a lack of investment in new generating capacity and transmission lines, reduced generation from aging power plants, high natural gas prices, transmission and environmental constraints, a drought in the Pacific Northwest, and a volatile spot market.

This confluence of factors, plus the fact that utilities were not permitted to pass soaring wholesale power prices through to consumers, led to an unprecedented financial crisis that pushed one of the state's largest utilities to bankruptcy and another to the brink of bankruptcy. In addition to enormous financial losses, the bond ratings of these utilities were downgraded to below investment grade (or into the status of junk bonds).

This state variable of the financial market made it nearly impossible, without intervention by the national governments, for the utilities to buy power. As a result, the utilities' abilities to provide sufficient electric power (electrical state variable) in California were decreased by their bond ratings (financial state variable), and their bond ratings were affected by their inability to produce enough power. In this example, the logical interdependency is bidirectional and does not depend on any physical or cyber connection between the electric power and financial infrastructures.

Furthermore, human decisions may play the predominant role in logical interdependencies in particular. In the previous example, the decline in

financial standing of the power companies was due to human decisions. Another example is that summer vacationers may flock to the highways when gasoline prices are low, resulting in increased traffic congestion. In this case, the logical interdependency between the petroleum and transportation infrastructures is due to human decisions and actions and is not the result of a physical process.

Coupling and Response Behavior

We now examine the characteristics of the couplings among infrastructures and their effects on infrastructure responses to perturbations. The primary coupling characteristics are the degree of coupling (tightness or looseness), the coupling order, and the linearity or complexity of the interactions. The coupling characteristics and nature of the interacting agents in turn directly influence whether the infrastructures are adaptive or inflexible when perturbed or stressed.

We first classify linkages as either *tight* or *loose* depending on the relative degree of coupling. Tight coupling refers to agents or infrastructures that are highly dependent on one another. Disturbances in one agent can be closely correlated to those in another agent to which it is tightly coupled.

Disturbances tend to propagate rapidly through and across tightly coupled infrastructures. Tight coupling is characterized by time-dependent processes that have little “give” or slack. A natural-gas-fired electrical generator and the gas supply pipeline form a tightly coupled pair. In particular, if the gas-fired generator has no local gas storage and cannot switch to an alternative fuel, the generator is very tightly coupled to the gas pipeline.

Disturbances in the gas supply will have almost immediate effects on electrical generation. Loose coupling, on the other hand, implies that the infrastructures or agents are relatively independent of each other, and the state

of one is only weakly correlated to or independent of the state of the other. Slack exists in the system, and the processes are not nearly as time dependent as in a tightly coupled system. For example, a coal-fired electrical generator and the diesel-powered railroad network that supplies its coal are weakly coupled. Coal-fired generators often have two or three months' supply of coal stored locally (although financial pressures are significantly reducing traditional levels of storage).

Short-term disturbances in the rail supply system rarely affect power generation, so the state of the electrical grid is thus weakly correlated to the state of the railroad through this specific interdependency. In sum, tight and loose coupling refer to the relative degree of dependencies among the infrastructures.

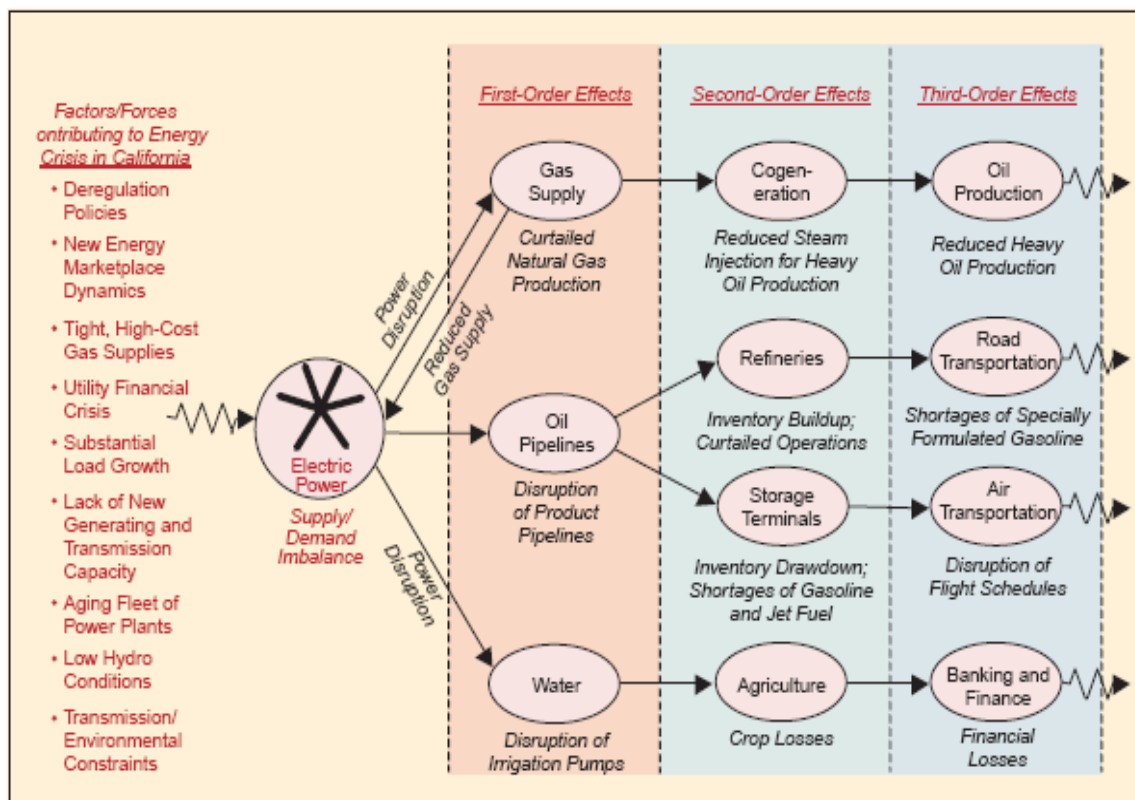


Figure 4. Examples of nth-order interdependencies and effects.

The *coupling order* indicates whether two infrastructures are directly connected to one another or indirectly coupled through one or more

intervening infrastructures. Consider infrastructures i , j , and k , where i is linked to j , which in turn is connected to k , but k is not directly linked to i .

Depending on the nature of the infrastructures and their interdependencies, changes in State_i may drive changes in State_j , which in turn affect State_k . These indirect linkages and state changes are commonly referred to as n th-order interdependencies and n th-order effects, respectively, where n is the number of linkages.

Of particular note is that feedback loops can also exist through n th-order interdependencies. If, for example, infrastructure i is coupled to j , j is coupled to k , and k is coupled through another route to i , then a feedback loop exists through the chain $i - j - k - \dots - i$.

The interactions among infrastructures can be further classified as either linear or complex, as follows:

Linear interactions are those in expected and familiar production or maintenance sequence, and those that are quite visible even if unplanned.

Complex interactions are those of unfamiliar sequences, or unplanned and unexpected sequences, and either not visible or not immediately comprehensible.

Linear interactions are generally those intended by design, with few unintended or unfamiliar feedback loops. Complex interactions are likely to exist when agents can interact with other agents outside the normal production or operational sequence, whether by design or inadvertently. Such interactions can occur in systems with branching paths, feedback loops, and jumps from one linear sequence of operations to another (possibly due to geographic interdependencies). Complex interactions are generally those not intended by design, and they can be subtle and difficult to detect.

A given infrastructure can contain numerous linear and complex interactions. When examining a given interaction, however, context becomes important. Consider a natural gas pipeline. When examined in isolation from

other infrastructures and the environment, the flow of gas in the pipeline may appear to be a linear process with predominantly linear interactions: gas flows from some source, traverses a gas conditioning plant, passes through many compressor stations and gateways, and finally arrives at the consumer's location.

However, in a broader context that includes couplings to other infrastructures and the environment, this apparently linear process can be complex. If, for instance, the electrical grid uses natural gas supplied by the pipeline as fuel and in turn produces electricity that powers the gas conditioning plants and compressor stations, then the coupled pipeline electrical grid system behaves more as a complex set of interactions than as two isolated, linear infrastructures. The more intricate and diverse the interconnections among agents in the infrastructures, the more complex the interactions become.

Many analyses of individual infrastructures proceed in a linear fashion, however. Analyses often make the crucial assumption that *supporting* infrastructures will continue to provide an uninterrupted supply of their goods and services, regardless of any disturbance in the *supported* infrastructure.

This assumption effectively decouples the supported infrastructure from its supporting infrastructures and focuses on the dependencies rather than on the interdependencies of the infrastructure in question. This simplistic approach may be valid for some analyses, but it overlooks the true complex nature of interconnected infrastructures. As such, it may lead to incorrect and potentially disastrous results. A clear understanding of context is thus vital in analyzing the couplings among infrastructures.

Finally, the characteristics of the agents comprising the infrastructures and their interdependencies influence whether a given infrastructure is adaptive or inflexible when stressed or perturbed. We previously noted that

the hallmark of a CAS is its ability to learn from past experiences and adapt to future expectations.

Numerous factors contribute to adaptability, including the availability and number of substitutes for critical processes or products, workarounds and contingency plans, backup systems, training and educational programs for operational personnel, and even human ingenuity in the face of disasters.

Other factors may render infrastructures inflexible, such as restrictive legal and regulatory regimes, health and safety standards, social concerns, organizational policies, fixed network topologies, and the high cost of providing extensive backups and workarounds. A collection of flexible agents is more likely to respond well to disturbances and continue to provide essential goods and services than is an inflexible, rigid system that is incapable of learning from past experiences.

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CRITICAL INFRASTRUCTURE PROTECTION

– CHALLENGES AND EFFORTS TO SECURE

CONTROL SYSTEMS –

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Abstract

Creșterea interconectivității între calculatoare, în special a celor conectate la Internet, continuă să revoluționeze modul în care guvernele, națiunile și comunitatea economico-financiară comunică și desfășoară activități comerciale. Însă, creșterea interconectivității expune computerele unei țări sau ale unui guvern la riscuri foarte mari. O amenințare mai mare este reprezentată de riscurile generate de dependența operațiunilor critice și a infrastructurilor care sprijină asemenea activități la adresa sistemele informaționale de control. Principalele riscuri la adresa sistemelor de control nu sunt cele fizice (așa cum se considera până nu de curând), ci atacurile cibernetice ale căror surse de proveniență pot fi foarte variate: guverne ostile, grupuri teroriste, angajați nemulțumiți etc.

Historically, security concerns about control systems were related primarily to protecting them against physical attack and preventing the misuse of refining and processing sites or distribution and holding facilities. However, more recently, there has been a growing recognition that control systems are now vulnerable to cyber attacks from numerous sources,

including hostile governments, terrorist groups, disgruntled employees, and other malicious intruders.

Dramatic increases in computer interconnectivity, especially in the use of the Internet, continue to revolutionize the way governments, nations, and much of the world communicate and conduct business. The benefits have been enormous. Vast amounts of information are now literally at our fingertips, facilitating research on virtually every topic imaginable; financial and other business transactions can be executed almost instantaneously, often 24 hours a day, and electronic mail, Internet Web sites, and computer bulletin boards allow us to communicate quickly and easily with an unlimited number of individuals and groups.

However, this widespread interconnectivity poses significant risks to the government's and nation's computer systems and, more important, to the critical operations and infrastructures they support. For example, telecommunications, power distribution systems, water supplies, public health services, national defense (including the military's warfighting capability), law enforcement, government services, and emergency services all depend on the security of their computer operations. If not properly controlled, the speed and accessibility that create the enormous benefits of the computer age may allow individuals and organizations to eavesdrop on or interfere with these operations from remote locations for mischievous or malicious purposes, including fraud or sabotage.

What are control systems?

Control systems are computer-based systems that are used within many infrastructures and industries to monitor and control sensitive processes and physical functions.

Typically, control systems collect sensor measurements and operational data from the field, process and display this information, and relay control commands to local or remote equipment. In the electric power industry,

control systems can manage and control the generation, transmission, and distribution of electric power - for example, by opening and closing circuit breakers and setting thresholds for preventive shutdowns.

Employing integrated control systems, the oil and gas industry can control the refining operations at a plant site, remotely monitor the pressure and flow of gas pipelines, and control the flow and pathways of gas transmission.

Water utilities can remotely monitor well levels and control the wells' pumps; monitor flows, tank levels, or pressure in storage tanks; monitor water quality characteristics - such as pH, turbidity, and chlorine residual; and control the addition of chemicals.

Control systems also are used in manufacturing and chemical processing. Control systems perform functions that vary from simple to complex; they can be used simply to monitor processes - for example, the environmental conditions in a small office building - or to manage most activities in a municipal water system or even a nuclear power plant.

In certain industries, such as chemical and power generation, safety systems are typically implemented in order to mitigate a potentially disastrous event if control and other systems should fail. In addition, to guard against both physical attack and system failure, organizations may establish backup control centers that include uninterruptible power supplies and backup generators.

There are two primary types of control systems. Distributed Control Systems (DCS) typically are used within a single processing or generating plant or over a small geographic area. Supervisory Control and Data Acquisition (SCADA) systems typically are used for large, geographically dispersed distribution operations. For example, a utility company may use a DCS to generate power and a SCADA system to distribute it. Figure 1 illustrates the typical components of a control system.

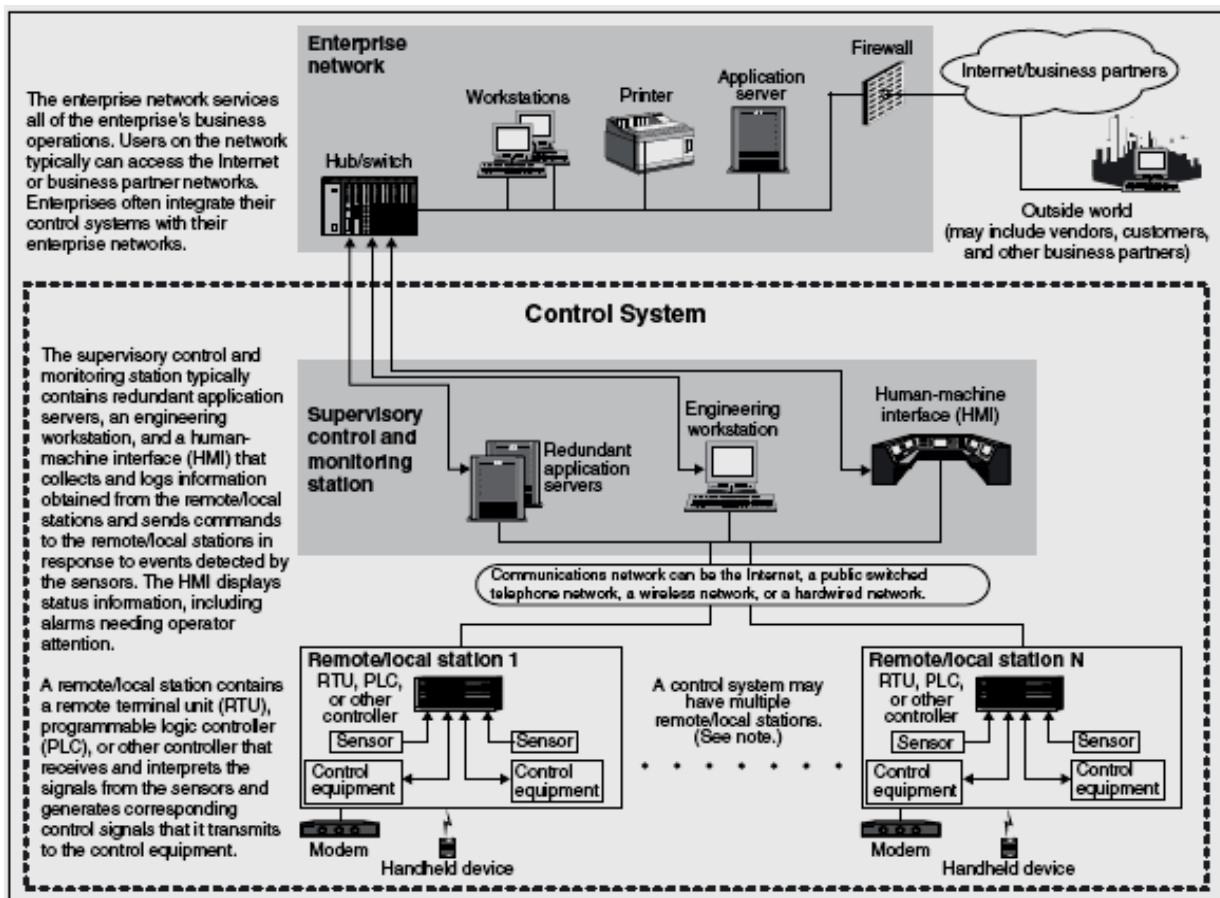


Fig. 1. Typical Components of a Control System

A control system typically is made up of a “master” or central supervisory control and monitoring station consisting of one or more human-machine interfaces where an operator can view status information about the remote/local sites and issue commands directly to the system. Typically, this station is located at a main site, along with application servers and an engineering workstation that is used to configure and troubleshoot the other components of the control system. The supervisory control and monitoring station typically is connected to local controller stations through a hard-wired network or to a remote controller station through a communications network—which could be the Internet, a public switched telephone network, or a cable or wireless (e.g., radio, microwave, or Wi-Fi7) network. Each controller station has a remote terminal unit (RTU), a programmable logic

controller (PLC), or some other controller that communicates with the supervisory control and monitoring station.

The control system also includes sensors and control equipment that connect directly with the working components of the infrastructure - for example, pipelines, water towers, or power lines. The sensor takes readings from the infrastructure equipment - such as water or pressure levels, electrical voltage or current - and sends a message to the controller. The controller may be programmed to determine a course of action and send a message to the control equipment instructing it what to do - for example, to turn off a valve or dispense a chemical. If the controller is not programmed to determine a course of action, the controller communicates with the supervisory control and monitoring station and relays instructions back to the control equipment. The control system also can be programmed to issue alarms to the operator when certain conditions are detected. Handheld devices, such as personal digital assistants, can be used to locally monitor controller stations. Experts report that technologies in controller stations are becoming more intelligent and automated and are able to communicate with the supervisory central monitoring and control station less frequently, thus requiring less human intervention.

Control Systems' Risks

Historically, security concerns about control systems were related primarily to protecting them against physical attack and preventing the misuse of refining and processing sites or distribution and holding facilities. However, more recently, there has been a growing recognition that control systems are now vulnerable to cyber attacks from numerous sources, including hostile governments, terrorist groups, disgruntled employees, and other malicious intruders.

Several factors have contributed to the escalation of risk to control systems, including (1) the adoption of standardized technologies with known

vulnerabilities, (2) the connectivity of control systems to other networks, (3) insecure remote connections, and (4) the widespread availability of technical information about control systems.

Control Systems Are Adopting Standardized Technologies with Known Vulnerabilities

In the past, proprietary hardware, software, and network protocols made it difficult to understand how control systems operated - and therefore how to hack into them. Today, however, to reduce costs and improve performance, organizations have been transitioning from proprietary systems to less expensive, standardized technologies such as Microsoft's Windows, Unix-like operating systems, and the common networking protocols used by the Internet. These widely-used, standardized technologies have commonly known vulnerabilities, and sophisticated and effective exploitation tools are widely available and relatively easy to use. As a consequence, both the number of people with the knowledge to wage attacks and the number of systems subject to attack have increased. Also, common communication protocols and the emerging use of extensible markup language (commonly referred to as XML) can make it easier for a hacker to interpret the content of communications among the components of a control system.

Control Systems are Connected to Other Networks

Enterprises often integrate their control systems with their enterprise networks. This increased connectivity has significant advantages, including providing decision makers with access to real-time information and allowing engineers to monitor and control the process control system from different points on the enterprise network. In addition, the enterprise networks are often connected to the networks of strategic partners and to the Internet. Furthermore, control systems are increasingly using wide area networks and the Internet to transmit data to their remote or local stations and individual devices. This convergence of control networks with public and enterprise

networks potentially creates further security vulnerabilities in control systems. Unless appropriate security controls are deployed in both the enterprise network and the control system network, breaches in enterprise security can affect the operation of control systems.

Insecure Connections Exacerbate Vulnerabilities

Vulnerabilities in control systems are exacerbated by insecure connections. Organizations often leave access links - such as dial-up modems to equipment and control information - open for remote diagnostics, maintenance, and examination of system status. If such links are not protected with authentication or encryption, the risk increases that hackers could use these insecure connections to break into remotely controlled systems. Also, control systems often use wireless communications systems, which are especially vulnerable to attack, or leased lines that pass through commercial telecommunications facilities. Without encryption to protect data as it flows through these insecure connections or authentication mechanisms to limit access, there is little to protect the integrity of the information being transmitted.

Information about Infrastructures and Control Systems Is Publicly Available

Public information about infrastructures and control systems is readily available to potential hackers and intruders. The availability of this infrastructure and vulnerability data was demonstrated last year by a George Mason University graduate student who, in his dissertation, reportedly mapped every business and industrial sector in the American economy to the fiber-optic network that connects them, using material that was available publicly on the Internet - and not classified. For example: in the electric power industry, open sources of information - such as product data and educational videotapes from engineering associations - can be used to understand the basics of the electrical grid.

Cyber Threats to Control Systems

There is a general consensus - and increasing concern - among government officials and experts on control systems about potential cyber threats to the control systems that govern critical infrastructures. As components of control systems increasingly make vital decisions that were once made by humans, the potential effect of a cyber attack becomes more devastating. Cyber threats could come from numerous sources ranging from hostile governments and terrorist groups to disgruntled employees and other malicious intruders. Based on interviews and discussions with representatives from throughout the American electric power industry, an organization with sufficient resources, such as a foreign intelligence service or a well-supported terrorist group, could conduct a structured attack on the electric power grid electronically, with a high degree of anonymity, and without having to set foot in the target nation.

According to the National Institute of Standards and Technology (NIST-USA), cyber attacks on energy production and distribution systems - including electric, oil, gas, and water treatment, as well as on chemical plants containing potentially hazardous substances - could endanger public health and safety, damage the environment, and have serious financial implications such as loss of production, generation, or distribution by public utilities; compromise of proprietary information; or liability issues. When backups for damaged components are not readily available (e.g., extra-high - voltage transformers for the electric power grid), such damage could have a long-lasting effect.

Control Systems Can Be Vulnerable to Cyber Attacks

Entities or individuals with malicious intent might take one or more of the following actions to successfully attack control systems:

- disrupt the operation of control systems by delaying or blocking the flow of information through control networks, thereby denying availability of the networks to control system operators;

- make unauthorized changes to programmed instructions in PLCs, RTUs, or DCS controllers, change alarm thresholds, or issue unauthorized commands to control equipment, which could potentially result in damage to equipment (if tolerances are exceeded), premature shutdown of processes (such as prematurely shutting down transmission lines), or even disabling control equipment;

- send false information to control system operators either to disguise unauthorized changes or to initiate inappropriate actions by system operators;

- modify the control system software, producing unpredictable results;

and

- interfere with the operation of safety systems.

In addition, in control systems that cover a wide geographic area, the remote sites often are not staffed and may not be physically monitored. If such remote systems are physically breached, attackers could establish a cyber connection to the control network.

Securing Control Systems Poses Significant Challenges

The control systems community faces several challenges to securing control systems against cyber threats. These challenges include (1) the limitations of current security technologies in securing control systems, (2) the perception that securing control systems may not be economically justifiable, and (3) the conflicting priorities within organizations regarding the security of control systems.

Lack of Specialized Security Technologies for Control Systems

According to industry experts, existing security technologies, as well as strong user authentication and patch management practices, are generally not implemented in control systems because control systems usually have limited

processing capabilities, operate in real time, and are typically not designed with cybersecurity in mind.

Existing security technologies such as authorization, authentication, encryption, intrusion detection, and filtering of network traffic and communications, require more bandwidth, processing power, and memory than control system components typically have. Controller stations are generally designed to do specific tasks, and they often use low-cost, resource-constrained microprocessors. In fact, some control system devices still use the Intel 8088 processor, which was introduced in 1978. Consequently, it is difficult to install current security technologies without seriously degrading the performance of the control system.

For example, complex passwords and other strong password practices are not always used to prevent unauthorized access to control systems, in part because this could hinder a rapid response to safety procedures during an emergency. As a result, according to experts, weak passwords that are easy to guess, shared, and infrequently changed are reportedly common in control systems, including the use of default passwords or even no password at all.

In addition, although modern control systems are based on standard operating systems, they are typically customized to support control system applications. Consequently, vendor-provided software patches may be either incompatible with the customized version of the operating system or difficult to implement without compromising service by shutting down “always-on” systems or affecting interdependent operations. Another constraint on deploying patches is that support agreements with control system vendors often require the vendor’s approval before the user can install patches. If a patch is installed in violation of the support agreement, the vendor will not take responsibility for potential impacts on the operations of the system. Moreover, because a control system vendor often requires that it be the sole

provider of patches, if the vendor delays in providing patches, systems remain vulnerable without recourse.

Information security organizations have noted that a gap exists between currently available security technologies and the need for additional research and development to secure control systems. Research and development in a wide range of areas could lead to more effective technologies. For example, although technologies such as robust firewalls and strong authentication can be employed to better segment control systems from external networks, research and development could help to address the application of security technologies to the control systems themselves. Other areas that have been noted for possible research and development include identifying the types of security technologies needed for different control system applications, determining acceptable performance trade-offs, and recognizing attack patterns for use in intrusion detection systems.

Industry experts have identified challenges in migrating system components to newer technologies while maintaining uninterrupted operations. Upgrading all the components of a control system can be a lengthy process, and the enhanced security features of newly installed technologies - such as their ability to interpret encrypted messages - may not be able to be fully utilized until all devices in the system have been replaced and the upgrade is complete.

Securing Control Systems May Not Be Perceived as Economically Justifiable

Experts and industry representatives have indicated that organizations may be reluctant to spend more money to secure control systems. Hardening the security of control systems would require industries to expend more resources, including acquiring more personnel, providing training for

personnel, and potentially prematurely replacing current systems, which typically have a lifespan of about 20 years.

Several vendors suggested that since there have been no reports of significant disruptions caused by cyber attacks on U.S. control systems, industry representatives believe the threat of such an attack is low. While incidents have occurred, to date there is no formalized process for collecting and analyzing information about control systems incidents, thus further contributing to the skepticism of control systems vendors. We have previously recommended that the government work with the private sector to improve the quality and quantity of information being shared among industries and government about attacks on the nation's critical infrastructures.

Until industry users of control systems have a business case to justify why additional security is needed, there may be little market incentive for the private sector to develop and implement more secure control systems.

Organizational Priorities Conflict

Finally, several experts and industry representatives indicated that the responsibility for securing control systems typically includes two separate groups: (1) IT security personnel and (2) control system engineers and operators. IT security personnel tend to focus on securing enterprise systems, while control system engineers and operators tend to be more concerned with the reliable performance of their control systems. These experts indicate that, as a result, those two groups do not always fully understand each other's requirements and so may not collaborate to implement secure control systems.

These conflicting priorities may perpetuate a lack of awareness of IT security strategies that could be deployed to mitigate the vulnerabilities of control systems without affecting their performance. Although research and development will be necessary to develop technologies to secure individual control system devices, existing IT security technologies and approaches

could be implemented as part of a secure enterprise architecture to protect the perimeters of, and access to, control system networks. Existing IT security technologies include firewalls, intrusion-detection systems, encryption, authentication, and authorization. IT security approaches include segmenting control system networks and testing continuity plans to ensure safe and continued operation. To reduce the vulnerabilities of its control system, officials from one company formed a team composed of IT staff, process control engineers, and manufacturing employees. This team worked collaboratively to research vulnerabilities and to test fixes and workarounds.

Efforts to Strengthen the Cybersecurity of Control Systems

- Research and development of new security technologies to protect control systems;
- Development of requirements and standards for control system security;
- Increased awareness of security and sharing of information about the implementation of more secure architectures and existing security technologies;
- Implementation of effective security management programs, including policies and guidance that consider control system security.

Conclusions

The systems that monitor and control the sensitive processes and physical functions of the nation's critical infrastructures are at increasing risk from threats of cyber attacks. Securing these systems poses significant challenges. At international level, numerous agencies, critical infrastructure sectors, and standards-creating bodies are leading various initiatives to address these challenges. While some coordination is occurring, the cybersecurity of critical infrastructures' control systems could benefit from greater collaboration among all entities.

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ORGANIZATION INFORMATION SECURITY RISK MANAGEMENT STRATEGY

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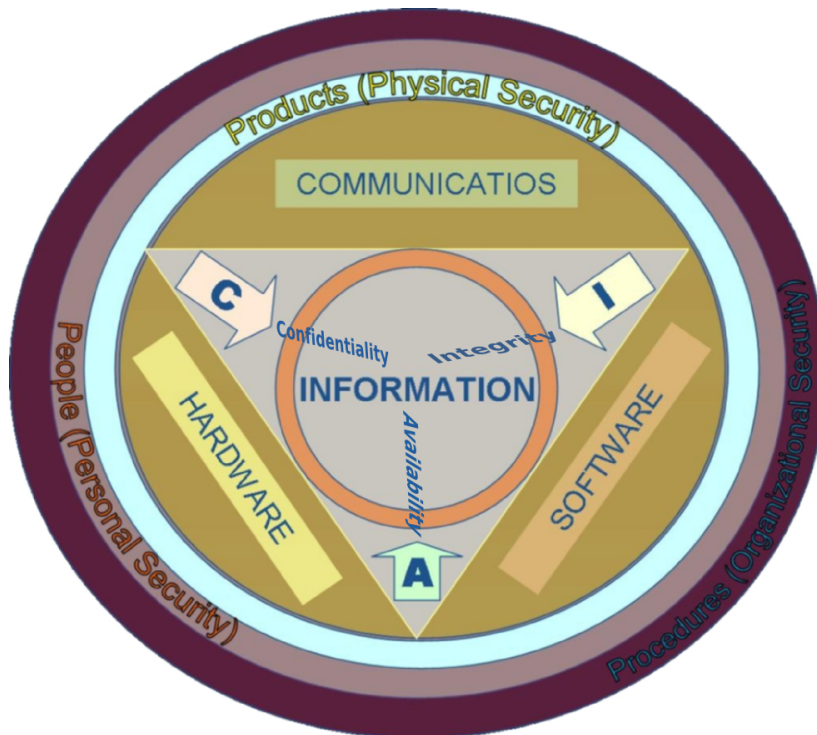
Abstract: Analizând componentele domeniului protecției informației, lucrarea detaliază elementele constitutive și definește etapele analizei riscului și managementului de risc la această categorie de activități. În continuare, se urmărește crearea unui cadru organizatoric și de aplicabilitate practică a principiilor analizei și managementului riscului într-o nouă abordare pentru Departamentul Regional de Studii pentru Managementul Resurselor de Apărare, cu intenție directă de aprofundare a protecției informației în cadrul organizației.

Introduction

Information Systems are decomposed in three main portions, hardware, software and communications with the purpose to identify and apply information security industry standards, as mechanisms of protection and prevention, at three levels or layers: physical, personal and organizational (see figure below²⁶). Essentially, for the purpose of information security, procedures or policies are implemented to tell people (administrators, users

²⁶ http://en.wikipedia.org/wiki/Image:Information_security_components_JMK.png

and operators) how to use products to ensure information security within the organizations.



Information security means protecting information and information systems from unauthorized access, use, disclosure, disruption, modification, or destruction. Information security is concerned with the confidentiality, integrity and availability of data regardless of the form the data may take: electronic, print, or other forms.

Governments, military, financial institutions, hospitals, and private businesses amass a great deal of confidential information about their employees, customers, products, research, and financial status. Most of this information is now collected, processed and stored on electronic computers and transmitted across networks to other computers. Should confidential information about a businesses customers or finances or new product line fall into the hands of a competitor, such a breach of security could lead to lost business, law suits or even bankruptcy of the business. For governments or military would be even worse by letting them in the hands of any criminal organization, adversary or individual. Protecting confidential information is

an organizational requirement, and in many cases also an ethical and legal requirement. For the individual, information security has a significant effect on privacy, which is viewed very differently in different cultures. It offers many areas for research and development, including Information Systems Auditing, Business Continuity Planning and Digital Forensics Science, to name a few.²⁷

After the implementation of the information security policies, practices, measures and applications, everything is supposed to run smoothly. Still, there are risks challenging and affecting further the organization's activities for they were not taken into account initially when the information security framework was designed. Here come the risk management activities to fill the gap.

Security is everyone's responsibility. The CISA Review Manual 2006 provides the following definition of risk management: "Risk management is the process of identifying vulnerabilities and threats to the information resources used by an organization in achieving organization objectives, and deciding what countermeasures, if any, to take in reducing risk to an acceptable level, based on the value of the information resource to the organization."²⁸

The *process* of risk management is an ongoing iterative process. It must be repeated indefinitely. The organization environment is constantly changing and new threats and vulnerabilities emerge every day. The choice of countermeasures (controls) used to manage risks must strike a balance between productivity, cost, effectiveness of the countermeasure, and the value of the informational asset being protected.

The deployment of a risk management framework for information security brings the dynamic aspects under control, as long as the organization

²⁷ http://en.wikipedia.org/wiki/Information_security

²⁸ <http://www.isaca.org/>

is still viable. It can also bring the necessary improvements to the information security framework in order to avoid further influence over the organization's activities from the currently treated risks.

The likelihood that a threat (anything - man made or act of nature - that has the potential to cause harm) will use a vulnerability (a weakness that could be used to endanger or cause harm to an informational asset) to cause harm creates a risk (the loss of an asset). When a threat becomes active, it has an impact. In the context of information security, the impact is a loss of availability, integrity, and confidentiality, and possibly other losses (lost income, loss of life, loss of real property). It is not possible to identify all risks, nor is it possible to eliminate all risks. The remaining risk is called residual risk.

Organization Description

For the organization personnel, risk taking represents a hard option among other options they might have to take. Generally, an organization exhibits aversion to risk in a high degree in order to protect itself from losing assets or resources. My organization is an educational institution and, for the reason of being as open as possible, it does not show excessive aversion to risks. This is because the personnel (especially the teaching staff) have to get in touch with so many other people that are not directly belonging to the organization. As a result, by assuming some higher level of risk in opening so much the organization's level of access to different sources (databases, books, and other references) one can see that there is a need for a better understanding of risk management in information security providing for the proper functioning of the organization.

A risk assessment should be carried out by a team of people who have knowledge of specific areas of the business. Membership of the team may vary over time as different parts of the organizational processes are assessed.

The assessment may use a subjective qualitative analysis based on informed opinion, or where reliable financial figures and historical information is available, the analysis may use quantitative analysis.

The ISO/IEC 27002:2005 (an information security standard published by the International Organization for Standardization and the International Electrotechnical Commission as ISO/IEC 17799:2005 and subsequently renumbered ISO/IEC 27002:2005 in July 2007) Code of practice for information security management recommends the following be examined during a risk assessment: security policy, organization of information security, asset management, human resources security, physical and environmental security, communications and operations management, access control, information systems acquisition, development and maintenance, information security incident management, business continuity management, and regulatory compliance.

In broad terms the risk management process consists of:

1. Identification of assets and estimating their value. Include: people, buildings, hardware, software, data (electronic, print, and other), and supplies.
2. Conduct a threat assessment. Include: Acts of nature, acts of war, accidents, and malicious acts originating from inside or outside the organization.
3. Conduct a vulnerability assessment, and, for each vulnerability calculate the probability that it will be exploited. Evaluate policies, procedures, standards, training, physical security, quality control, technical security.
4. Calculate the impact that each threat would have on each asset. Use qualitative analysis or quantitative analysis.

5. Identify, select and implement appropriate controls. Provide a proportional response. Consider productivity, cost effectiveness, and value of the asset.

6. Evaluate the effectiveness of the control measures. Ensure the controls provide the required cost effective protection without discernable loss of productivity.

For any given risk, organization leadership can choose to *accept the risk* based upon the relative low value of the asset, the relative low frequency of occurrence, and the relative low impact on the organization activity. Or, leadership may choose to *mitigate the risk* by selecting and implementing appropriate control measures to reduce the risk. In some cases, the *risk can be transferred* to another organization by buying insurance or out-sourcing to another organization. The reality of some risks may be disputed. In such cases leadership may choose to *deny the risk*. This is itself a potential risk.

Current Risk Management Approach

Currently, my organization applies risk management in a traditional fashion. It is based on rules and regulations, there is no specific plan or strategy for applying a scientific approach in managing the risks, and it takes no more than five minutes for the person in charge to shut down the network, in case some risks might be sensed, to avoid further losses.

The need to develop deeper and more detailed plans to take into consideration the management of the risks the network might be facing was not that strong for several reasons. First of them was the very main mission of the organization that was education. As in any educational organization, it is expected to have a higher degree of “freedom” that, compulsory attracts higher risks against a smoother running of the organization network. In reality, the computers of the network that belong to the students have a standard configuration that allows for a very thin layer of protection. Besides

that protection, there is nothing but the reinstalling of the operating system or of the image of the partition containing the operating system together with the main software programs a student might be interested in using during his/her staying in the organization.

Second reason was the lack of knowledge in the field of information security, both for the leadership and other personnel in the organization. For this reason, the IT team has never insisted, but very little, in getting to a strong point in providing information security. This, again, let them no other choice than acting dramatically with respect to any workstation by reinstalling the operating system as new (this is not a choice when some valuable documents, papers, references have been gathered, in time, and the user would very much prefer to keep them, instead of looking for them again).

Another reason would be the lack of interest of the personnel to let the network function as it should be. There were a series of incidents with different computers that have shown that, in different situations, applying or using tools, instruments or practices that are not according to the internal regulations (on which they have been instructed but they do not respect) the impact of that assumed risk was greater than it was thought of (although the loss was database or time fro different classes or applications and the professors have had their own backup for that).

One section of the network is the only one that has a greater attention from the leadership and this is because it represents the group of workstations that are used by the command officers to coordinate the organization functioning. This is used to convey internal documents, not open to the public or to the students. The risk management for that one has been solved easily, by cutting any connection between that side and the rest of the network (again, the easiest possible measure that does not take into account a possible extension that would make harder the operation in an isolated environment).

Essential Elements of an Information Security Risk Management Program

If one takes into account the size and importance of my organization, a risk management program in my organization should be both comprehensive and easily applicable because of the reduce number of personnel capable to develop activities in this area.

It will identify and document the components of the risk management program, including roles and responsibilities, processes, and measures of success.

The structural processes that are to be controlled in the new risk management strategy will be: leadership (command, control and communication connections), administration (connection within the administrative elements of the organization – financial, logistical, material, etc. and between these and other elements, both internal and external), and education (with both teaching staff and library, and students sides of the network).

In order to plan and work for the implementation of the information security risk management program, a team will be appointed to work on this issue. Whole team will not have more than three members. I will lead the team to ensure both impartiality (by not being a member of the IT team) and knowledge of how to lead the process on. Other members will be the deputy commandant, the head of the IT office, and the head of the secretariat office that has to supervise the correct implementation of the regulations in the organization activities. The counterintelligence officer, not being directly part of our organization will be consulted in different critical moments of our activity.

Each member of the team and the team together will gather information that is necessary to cover each of the stages included in the risk management process. Finally, the team will come out with a draft strategy for the risk

management of the information security in the organization that will be submitted for approval.

The activities and documents to be developed will follow the algorithm of the risk management process build-up:

1. Identification of assets and estimating their value. Include: people, buildings, hardware, software, data (electronic, print, and other), and supplies.

This is going to be assigned to the deputy commandant and IT office. First, they will come with a list of people involved in different activities with assigned priorities of security on them. Because of the reduced personnel, there is enough “room” to analyze each person and address any security risk that person might bring. Generally, the personnel categories will have some security levels assigned so that they differentiate among themselves with respect to different levels of access over the entire network. Highest level of access will be granted to the commandant and the leadership team.

Similarly, there will be a document containing the list of buildings, offices, access entries, destination for each room. It will be presented the current use for each room and the possible change, if necessary, in the case a better achievement or coverage for risk avoiding or mitigating on some tasks would be possible.

Finally, for this chapter, the lists with existing hardware, software, databases (electronic, print, and other), and supplies should be detailed enough in order to provide the understanding of other sources of risk factors one has to additionally take into account.

2. Conduct a threat assessment. Include: Acts of nature, acts of war, accidents, and malicious acts originating from inside or outside the organization.

Next step, after getting the complete image of the organization with everything it has in it, is to analyze each of the elements in the lists previously

mentioned and assess what threats can come out of any of those. The team for the risk management process will interact with each member of the organization for both acknowledging the existence of some risk factors and identifying the possible ways to cope with that risk factor. For acts of nature or of war, or accidents there is a clearly understood set of procedures that, in as short of a timeframe as possible will bring the organization back in operation. It involves spare rooms for the servers, spare parts for the workstations and other network components, repairing, replacing, removing and reconnecting elements of the network. As far as malicious acts are concerned, both inside and outside actors should be analyzed. The outside actors are specifically those related to the students that come for different courses provided by the organization, and try, using different methods to penetrate into network areas they are not allowed to.

3. Conduct a vulnerability assessment, and, for each of the vulnerabilities, calculate the probability that it will be exploited. Evaluate policies, procedures, standards, training, physical security, quality control, technical security.

After understanding under what sort of threats the organization is supposed to operate, there will be a deeper analysis of the vulnerabilities that might be exploited under different scenarios by the risk factors enumerated above. For example, there will be a different approach on students accessing the network from their apartments, and their accessing the network from the classrooms or the professors' offices. A compulsory scanning procedure will be set for any device used to input data into any work station, in the teaching rooms. That will provide, later, an easier access to any resource one might need to access. It will be easier for the teaching staff. The students will have a different level of access and this is where, via access control and filtering, the main part of the information security risk management is to be provided. A bit more difficult will be to impose the teaching staff the same procedures but,

any change comes with sacrifices and everybody has to understand that the change is for their own good.

4. Calculate the impact that each threat would have on each asset. Use qualitative analysis or quantitative analysis.

Using the qualitative analysis, because there is no quantitative data on level of impacts the threats have had on the organization network, the team will develop a calculation on what the impact means. It will be converted in work-time for the IT people, lost time for education during classes, lack of access to the internet and slowing down the pace of solving tasks for anybody in the organization (jobs for leadership and administration, assignments for students, etc.). As an example, for each situation when there is no access for the teaching staff to use a simple flash memory stick in order to bring a new case or problem to the students, beside those existing in our databases already, the effective time for teaching will be reduced by at least ten minutes, that is the time needed to solve the new problem that was supposed to be presented. In this case, one can qualitatively assess that such a perturbation can stop the trend of improving the teaching process. In this case, excuses are nice but ineffective for the overall activity of the organization.

5. Identify, select and implement appropriate controls. Provide a proportional response. Consider productivity, cost effectiveness, and value of the asset.

Following the analysis of the impacts each threat should have on the organization general status, the risk management team will work to identify the necessary controls that allow for a good development of the entire activity. As far as the leadership is concerned, there will not be any opposition with regards to implementing more security measures. There is a general agreement for implementation of security measures; it only has to be reanalyzed in what it means implementing a security control. The controls will be grouped in access controls (for users, both inside and outside the

organization, for different types of access), data (and databases) protection (including regular backups), and physical protection (for the workstations and the rooms where IT can be found). The most important assets to be protected and controlled are those belonging to the classified network. There is no cost effectiveness for that (actually the cost is so high that it is useless to speak about costs – the entire organization is to be affected in a totally negative way). The workstations and databases used by the teaching staff come next. The entire education process can be stopped or at least delayed by destroying a database with applications and problems. The elements of the network operated by administrative staff follow and the student workstations are last priority because they are the most numerous and easily to be replaced or reset.

6. Evaluate the effectiveness of the control measures. Ensure the controls provide the required cost effective protection without discernable loss of productivity.

In this final stage there will be an analysis development that will make the process repetitive for as long as it needs to adjust the network reaction following the new security measures implementation. There will also be set a periodic revisiting of the risk management framework for information security that is to be implemented.

A number of activities will be recorded and the effectiveness of the security measures implementation is to be calculated. It means, for example that I will quantify each break in the teaching time that appears following the lack of access to the network of a professor (coefficient 3), student (coefficient 2), other own officer (coefficient 5 for leadership, 4 for administration), or other visitor officer (short time visits, coefficient 1). This coefficient will model the effectiveness of the security measures by adjusting the formula for effectiveness provided below:

$$\text{Effectiveness} = \Sigma [(\text{No. of interventions} / \text{Total time of operation}) \times \text{Coeff. of importance}]$$

$$\text{Security provided} = \Sigma [(\text{No. of interventions} / \text{Time out of operation}) \times \text{Coeff. of importance}]$$

There will be set a table of conversion for any type of activity that is to be developed following a intervention to fix any damage of a successful threat acting against any of the vulnerabilities.

In the case there appear new vulnerabilities, the measures to adapt the entire set of procedures will be implemented immediately.

The Information Security Risk Management Strategy, as developed by the appointed risk management team, will be finalized and submitted to the commandant in an analysis session so that any question can be answered with the appropriate details and proving materials.

The data for statistics will be continuously gathered and processed so that anyone interested (and in right to question) can see and be explained the course of facts and action required to be taken.

There will also be a periodic information activity for both the leadership and the organization personnel in order to present the evolution and progress made with respect to the implementation of the information security risk management strategy. This way, another goal of the information security will be fulfilled: educating a training of the personnel in the information security field. Awareness measures will be present always, from the access moment until the exiting time.

The senior management of the organization will be explained the reasons for the implementation of a more formal and rigorous framework in providing information security risk management. These would approach the

probable extending of the organization structure, personnel, together with the continuous variation of the number of students on a regular basis.

The general concept to be introduced to the senior leadership will be the understanding that, after implementing a certain framework, it will be easier to quantify, assess, and evaluate the general status of the organization with respect to the information security protection it provides, and the way it manages the affecting risk factors (accept, mitigate, transfer, or deny the risk).

It will also bring to the knowledge of the leadership the possible alternatives. I would propose to implement the strategy as it is, without any diminishing argument. This way, that is also feasible, will let the organization with a better cover for any type of risks. Any other option can be implemented but it means accepting, *a priori* risks that might be avoided otherwise. There will be an alternative that involves fewer personnel directly involved in supervising the risk management measures. Still, it will be like an extreme option compared to the first to be proposed. This is because the initial alternative has a limited number of acting members that cannot be replaced without giving up some effectiveness inside the team.

The strategic perspective for senior management is to understand the future increasing information security needs based on the perspectives offered by the educational dynamics in the future course offered by the organization, other international activities and seminars that will take the interest for this strategy to a higher level based on the quality of the participants in the communication processes that will be developed on different occasions.

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TRENDS AND ADVANCES IN THE INFORMATION ASSURANCE ANALYSIS USING SYNTHETIC EVALUATION METRICS

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Abstract

În prezent sistemele informaționale bazate pe rețele de calculatoare sunt folosite din ce în ce mai mult pentru transferul unor date și informații esențiale pentru succesul operațiunilor militare. O problemă de mare actualitate este dezvoltarea unor metrici uniforme aplicabile care să poată surprinde cu acuratețe gradul de asigurare al transferurilor informaționale.

Obiectul prezentei lucrări este prezentarea stadiului curent al cercetării internaționale în domeniul metricilor de asigurare informațională, analiza contribuțiilor curente și a dificultăților întâmpinate în procesul de identificare și dezvoltare a acestor metrici. Scopul central al lucrării este de a furniza o bază pentru evaluarea clasificărilor existente și a propune o clasificare unitară care să permită cuantificarea gradului de asigurare informațională.

I. INTRODUCTION

Recently, there has been some effort in utilizing quantitative indicators in a more systematic, coordinated fashion to capture the state of a particular Information Technology infrastructure. Such indicators are intended to reflect the "assurance" of the IT infrastructure to reliably transfer information. These

indicators can be used to identify areas of the information infrastructure that require attention. They can also be used by an IT organization as a means of gauging the return on investment for IT Infrastructure equipment purchase.

Despite the existing work that is underway, there is currently no standard or widely accepted method of capturing and presenting the assurance levels associated with a particular IT infrastructure œ this includes end-hosts, servers, applications, routers, firewalls and the network that allows these systems to communicate. A comprehensive, standardized set of quantitative metrics and indicators would be useful in order to identify areas of the IT infrastructure that are candidates for enhancement and pro-actively implement improvements to the IT infrastructure.

There have been a number of recent industry and research initiatives to develop standardized ratings that would reflect the Information Assurance associated with a specific product or product development process. For example, the Common Criteria (CC) [5] defines a set of rating levels (EAL 1 to EAL 7) which certify a particular vendor *product's security rating*. The ratings serve as a comparative platform that the consumer can utilize when comparing security products of various vendors. There has been good progress in developing product ratings, but little effort in developing a rating or indicator for a Network Infrastructure as a whole. Development of such an indicator remains very much a challenge for a number of reasons.

A first challenge is to arrive at a suitable definition of *Information Assurance*. The definition would then be used to identify key properties of the IT infrastructure that need to be assessed in order to develop a unified indicator or IA metric. Another challenge is that Information Assurance (IA) remains a subjective domain, because the assurance level of a specific piece of IT infrastructure is assessed through intuitive considerations by experts who are familiar with the protocols, architecture and systems utilized in the network.

This paper presents a new definition of Information Assurance and then uses that definition to develop a taxonomy of IA metric groups that would serve to assess the IA rating of IT infrastructure. The intention is to develop *quantifiable measures of Information Assurance* that allow objective analysis and comparison of a particular IT infrastructure in relation to itself over time. The next step would be to develop standardized metrics that can be used to compare the IA rating of an IT infrastructure with itself over time or against other IT infrastructure [9].

II. DEFINITIONS OF INFORMATION ASSURANCE

The term "*Information Assurance*" (IA) is widely used in industry and academia, often with widely varying and divergent understanding of its meaning. There can be suggested three key elements that can constitute the basis of a comprehensive definition of IA when applied against IT infrastructure. These three elements are *Security*, *Quality of Service* and *Availability*. Figure 1 provides an overview of those three key elements and also provides examples of *metrics* or indicators for each element.

Let's see why each of these three elements is important when considering a definition of IA:

- *Security* - can be considered as the ability of a system to protect information and system resources with respect to confidentiality, integrity and authentication. Security also includes vulnerability to active attacks by malicious users, viruses, denial-of-service, access lists, non-repudiation, privacy etc. Availability is sometimes considered part of security, however it can be considered as a separate element, because its definition could also include other factors.
- *Quality of Service (QoS)* - QoS is typically used to reflect the perceived performance of a service in relation to the expected performance. For the purpose of this paper, the performance properties used to describe an IT

infrastructure's Quality of Service include consideration of such indicators as bandwidth, latency, priority over other traffic or users, data loss rate etc. The QoS of a network is a strong contributing factor to its ability to assure the delivery of data from one end of the network to the other.

- *Availability* - Availability of the IT infrastructure is used to reflect its dependability or reliability. Thus, while QoS reflects how a network or system performs, availability reflects whether the network or system can even offer the lowest of service qualities. We consider the following attributes and factors as contributing to define the availability of a system: infrastructure downtime, mean-time between failures (MTBF), self-healing properties of a network/system and the ability of the network or system to operate under catastrophic disasters.

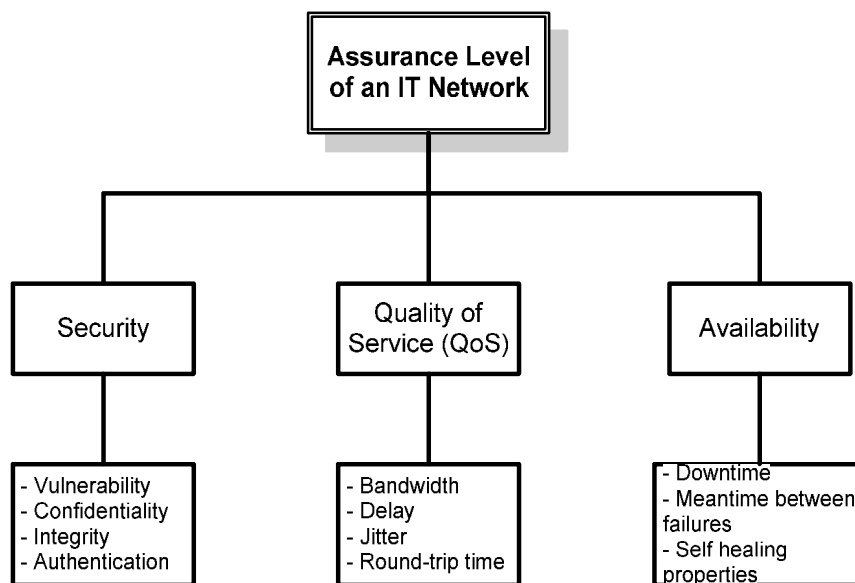


Figure 1. Elements of the Information Infrastructure Assurance.

Various definitions of IA can be found in the literature [8]. The most suitable definition of **Information Assurance** (for the purposes of this paper) could be the following: „*Information Assurance is the ability of a network or system to facilitate the timely transfer of information between two or more parties in an accurate and secure fashion*”.

In the next sections, a new taxonomy of IA metrics groups will be proposed based on the above definition. Consequently, it will then be possible to use the taxonomy to develop IA metrics that allow organizations to determine their IT infrastructure's IA level, based on the network and system's ability to meet their requirements for Security, QoS and Availability.

III. EXISTING STUDIES, TRENDS AND TOOLS

There are three distinct types of US efforts related with the area of Information Assurance Metrics that take place in the following environments: government, university and industry.

A. USA Government Research Agencies

In the late nineties, the United States Defense Advanced Research Projects Agency (DARPA) organization funded a number of exploratory research projects in the area of IA metrics.

One of the projects analyzed some of the challenges facing researchers seeking to develop a set of IA metrics [10]. There is a clear need to develop an integrated environment for IA metrics by defining their purpose, meaning, units, range of values, and inherent taxonomies. The primary initial goal is to identify IA metrics that are measurable, testable and useful and then focus on moving as many of these metrics as possible towards the quantitative side of the scale.

Another project tried to apply a fundamental science-based approach to the problem of IA metrics. The use of Kolmogorov complexity was proposed as a basis for depicting the health of a security system [6]. Using a complexity-based method to depict the health of a system has the advantage that it is a fundamental property of information and can thus be applied without detailed knowledge of the system being analyzed, but additional work is required to extend the applicability of this approach to IT Networks.

Another initiative is the US government's National Institute of Standards and Technology (NIST) has recently developed a guide to security metrics for information technology systems [11]. In this work, the authors provide guidance that an organization can utilize to measure the effectiveness of security-based controls and techniques. The authors propose a seven-step process that an organization can use to develop its own IA security metrics.

The MITRE Corporation is another government funded organization with research in the area of IA metrics. MITRE was the co-sponsor of a workshop on security metrics - Workshop on Information Security System Scoring and Ranking (WISSRR) [12]. In the workshop's papers, it was highlighted some of the challenges for the information system security engineering community as they related to the area of IA metrics [3]. It is important to clarify the IA assessment goals and scope, because the approach for a specific set of IA metrics may differ depending on the goals and scope.

Another paper was focused on the distinction between “*measures*” and “*metrics*” [1], and [2] described the approach taken by the United States Internal Revenue Service to develop security metrics as a basis of conducting an evaluation of its cyber security program. The IRS established taxonomy of metrics that consisted of 15 categories of security metrics.

B. University Research

The Information Assurance group at Mississippi State University has been conducting research in the area of IA metrics for a number of years. The findings and observations of the WISSRR 2001 workshop on security metrics were summarized [13]. Among the findings that they highlighted was the different uses that government and commercial sectors have for IA metrics. The workshop participants came to the conclusion that there does not exist a single set of IA metrics that are applicable across various systems. They also observed that the number of quantitative IA metrics were at present in short supply.

A taxonomy of IA metrics was proposed, that can serve to provide a framework for development of metrics and their inclusion in an evaluation or assessment framework. The authors suggest that there are five ways of viewing specific IA metrics: objective/subjective, quantitative/qualitative, static/dynamic, absolute/ relative and direct/indirect. The most interesting part of this paper appears to be the sections that focus on the proposed IA metrics taxonomy as this provides a basis for commentary and future work.

C. Industry - Common Criteria

There have been a number of collaborative commercial efforts to define standards for the rating and assessment of security systems. To date, most such efforts have resulted in standards that assist in rating specific vendor products. They do not yet have standards which rate complicated systems such as an IT network. This is to be expected, as it is difficult to gain widespread acceptance of a standard means of evaluating a set of products. It is expected that in the future such efforts may focus on standard means of evaluating and rating the IA of IT networks as a whole.

One such industrial effort which is gaining momentum in terms of practical deployment is the Common Criteria (CC) initiative [4]. The CC is based on a combination of several other national standards for security, including:

- TCSEC (Trusted Computer System Evaluation Criteria);
- ITSEC (Information Technology Security Evaluation Criteria);
- CTCPEC (Canadian Trusted Computer Product Evaluation Criteria) and
- FC (Federal Criteria for Information Technology Security).

In particular, the CC has defined Evaluation Assurance Levels (EAL) certification that provides the consumer with a basis on which to compare security ratings of various vendor products. Microsoft Windows 2000 and

Sun's Solaris 8.0 are among the products that have received EAL certification. The use of CC is still not widespread and at present it is unclear if CC will achieve widespread commercial adoption.

D. Industry - Tools

Multiple inputs are required in order to derive a set of indicators that capture the IA posture of an IT network. Due to the complex nature of an IT network and the many inputs, it would be useful to have a single software-based data fusion tool that would serve to receive the inputs, undertake the transformations and arrive at the quantitative indicator that would capture the IA health of the network. There are no tools currently available that can undertake the scope of IA evaluation that is proposed. However, in [7] it was described a prototype next generation IA tool that correlates and collects results from multiple IA tools into a single assessment of a network's security posture.

There has been significant progress in developing automated tools to routinely and systematically undertake measurements and tests on an IT network. Such tools would provide the input to the data fusion tools.

With regard to such automated tools, there are a wide variety of security related assessment tools. These tools probe a network for security weakness, reporting what security hazards are present. It should be mentioned that there are still no standards in the area of what type of tests to be conducted though there are many types of tests that are commonly used across a variety of tools. There are also a number of tools available that measure another aspect of IA as it was defined - the QoS performance of a network. The tools test such things as QoS performance metrics including Internet delay, round trip time, packet drops, and application quality from the users' perspective.

There are fewer tools available to measure the third aspect of IA as it was defined - availability and reliability. Availability of an IT network is in

general, harder to measure than other aspects of the network. If a network seems to be always available to its users and has never failed, how would one classify its level of availability and reliability? The tools focusing on these areas cover issues such as network segment outages, associated services affected that outage, associated services that were not impacted by that outage, data storage problems, bit error rates etc.

IV. PROPOSED TAXONOMY TO EVALUATE INFORMATION ASSURANCE OF COMPUTER NETWORKS

In this section, it is proposed a new taxonomy for IA metrics that can be applied to assess a computer network. The proposed taxonomy is based on the definition of IA presented before. The evaluation of an IT network's IA health should include an assessment of its network *availability* and *QoS* aspects in addition to aspects of *information security*. Figure 2 captures the highest levels of the IA taxonomy tree.

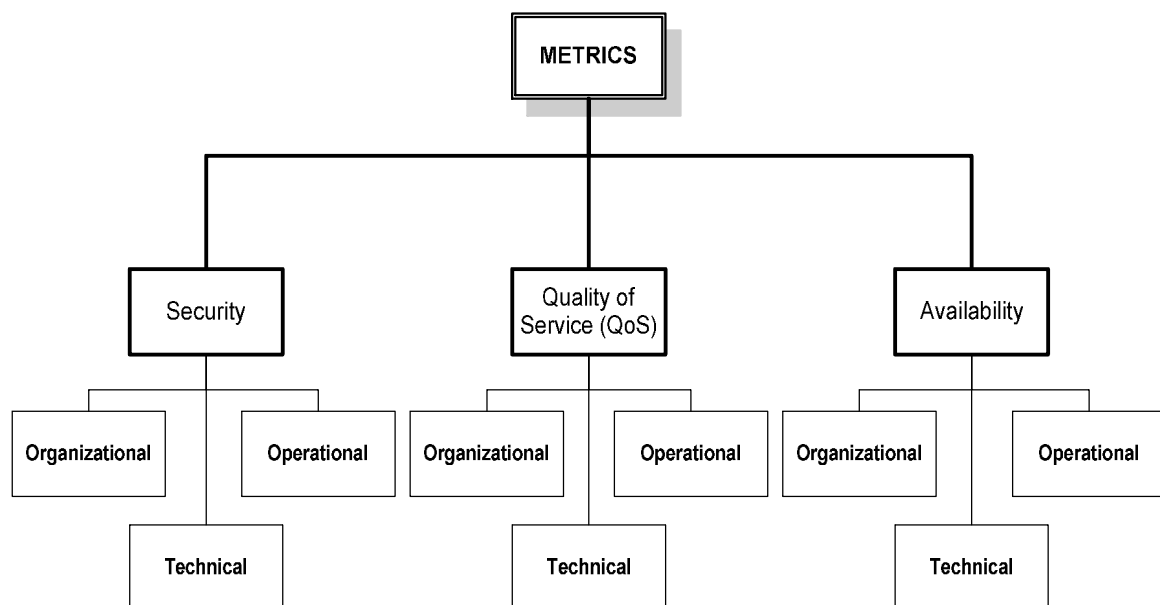


**Figure 2. Proposed Information Assurance Metrics
Taxonomy for Computer Networks.**

The metrics space is divided into three categories: Security, QoS, and Availability. Under each of these three we consider the different technical, organizational, and operational aspects. Each of these sub-categories are further divided into another level of this tree. More details can be found in the following subsections (A, B, C and D).

The top level of the taxonomy tree has been deliberately organized as in Figure 2 in order to allow the assessment of a subset of the IA aspects. If the organization only wishes to focus on the operational aspects of security, it can do so without having to undertake measurements related to QoS or technical security.

A. Sub-Categories of the Taxonomy Tree

The proposed definitions and use of the three sub-categories in the second level of the IA taxonomy tree differs slightly from those used in the NIST and WISSRR taxonomies. Below are presented the meanings for each sub-category:

- *Organizational Management*: this group of metrics evaluates an IT organization's emphasis on IA (in terms of goals and policies) and its commitment to IA (in terms of allocated resources).
- *Technical Elements*: this group of metrics evaluates how the technical components of an IA network are capable of providing IA. A subset of this group is static which provides a rating of the technical components capabilities in relation to IA. The remaining metrics under this group are dynamic as they are measured at different points in time after the IT infrastructure is deployed.
- *Operational Practices*: this group of metrics evaluates the operations of an IT organization in terms of complying with the IA goals and policies set by that organization.

In some cases, it is possible to argue that certain metrics could go under more than one category or sub-category of the taxonomy metric tree. Though it is possible to set out objective criteria that determine which part of the taxonomy tree a metric falls under.

Each of the three categories below Security, QoS and Availability is further broken up into metric sub-categories. The full IA taxonomy along with sample metrics is available in [14], but due to space limitations, only the technical elements sub-tree of the other categories will be discussed.

B. Security - Taxonomy

The security metrics attempt to quantify the process of evaluating each sub-category of characteristics for the IT network - *Organizational Management, Technical Elements, and Operational Practices* (Figures 3a, b). The figures depict the parts of the security taxonomy and captures how each of the metrics sub-categories are organized.

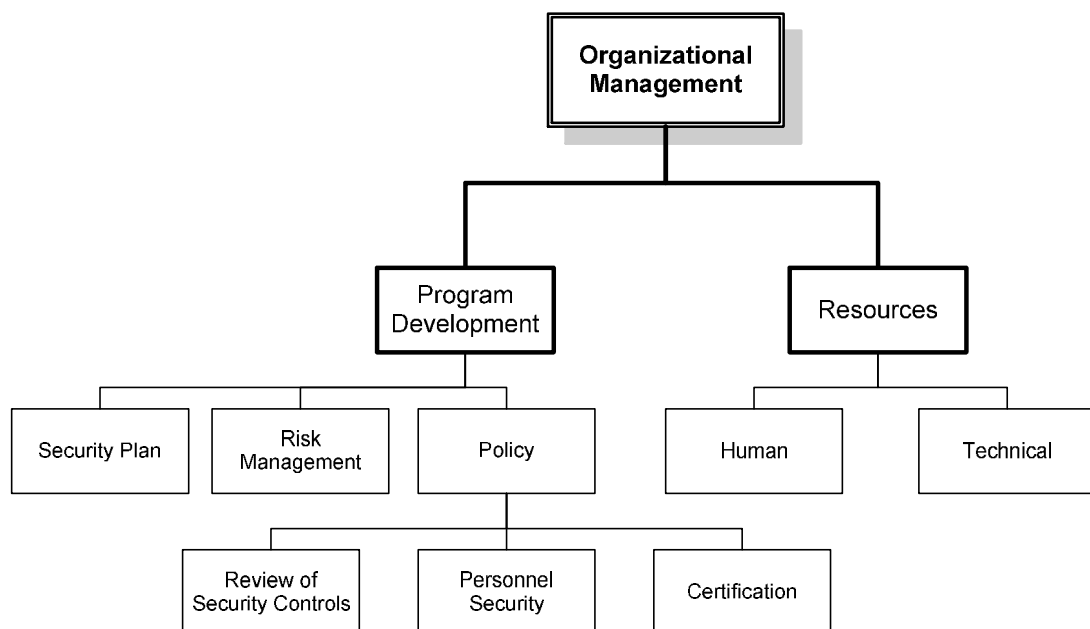


Figure 3 a. Security Metric Taxonomy: Organizational Management.

The Organizational Management Program Development metrics evaluate the development of the organization's security program:

- The Security Plan checks whether the organization has a security plan in place and how often it is updated;
- Risk Management checks whether risk is periodically assessed and how many departments have risk assessment procedures in place;
- Policy checks the organization's security policy by considering the following subgroups;
- Review of Security Controls checks the levels of personnel access controls to different resources and how often security controls are reviewed;
- Personnel Security checks the required level of personnel background checking before hiring them. This issue will have different levels of relevance according to the type of infrastructure and the organization's activities;
- Certification checks the certification level requirements set by the organization. This includes the certification required for the personnel's technical capabilities as well as the certification required.

The Resources sub-category deals with the quality and the quantity of the resources allocated to the organization's security, both human and technical:

- Human metrics evaluate the resources allocated for the developing the organization's security human resources;
- The Technical metrics evaluate the resources allocated towards the organization's security technical resources (software, hardware, and networking).

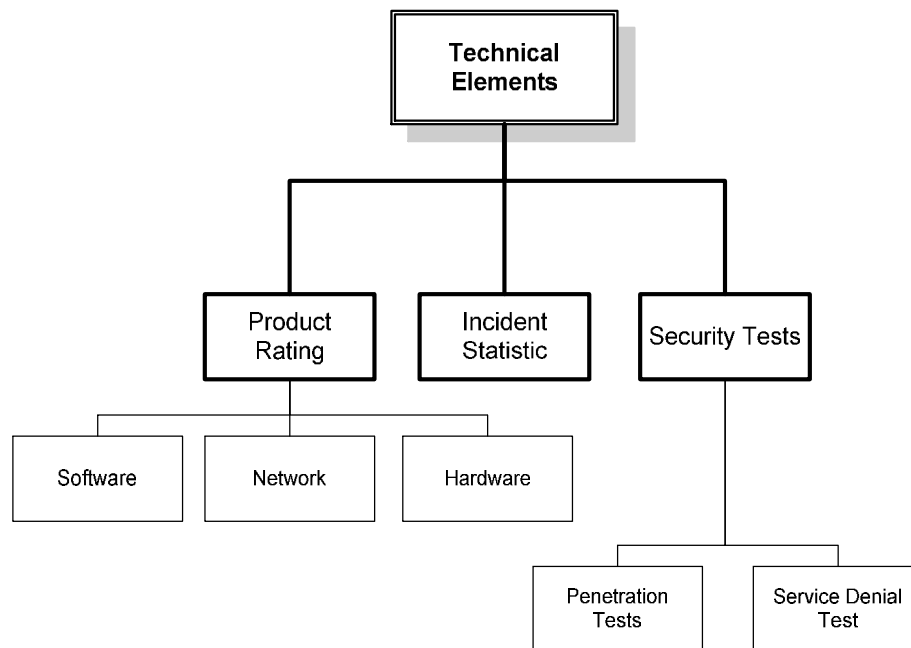


Figure 3 b. Security Metric Taxonomy: Technical Elements.

The Technical Element Product Rating sub-category is intended to assess the security rating of the products used in the infrastructure:

- Software metrics assesses the security ratings of the software products used on the network;
- Network metrics assesses the security ratings of networking equipment such as routers or switches either based on recognized standards or a pre-established set of required features;
- Hardware metrics check the security ratings of the hardware systems such as servers and desktops.

The Incident Statistics sub-category is intended to assess security incident statistics collected from the deployed systems. These statistics should be indicative of the effectiveness of the technical elements.

The Security Tests sub-category is intended to assess how the IT network copes with a variety of security-related tests:

- The Penetration Test sub-category is intended to actively test the capability of the network to keep out malicious users who do not have the requisite privileges to access or control parts of the IT network;

- The Service Denial Test sub-category is intended to assess the level of service provided by a network during active tests to bring down parts of the it due to security problems.

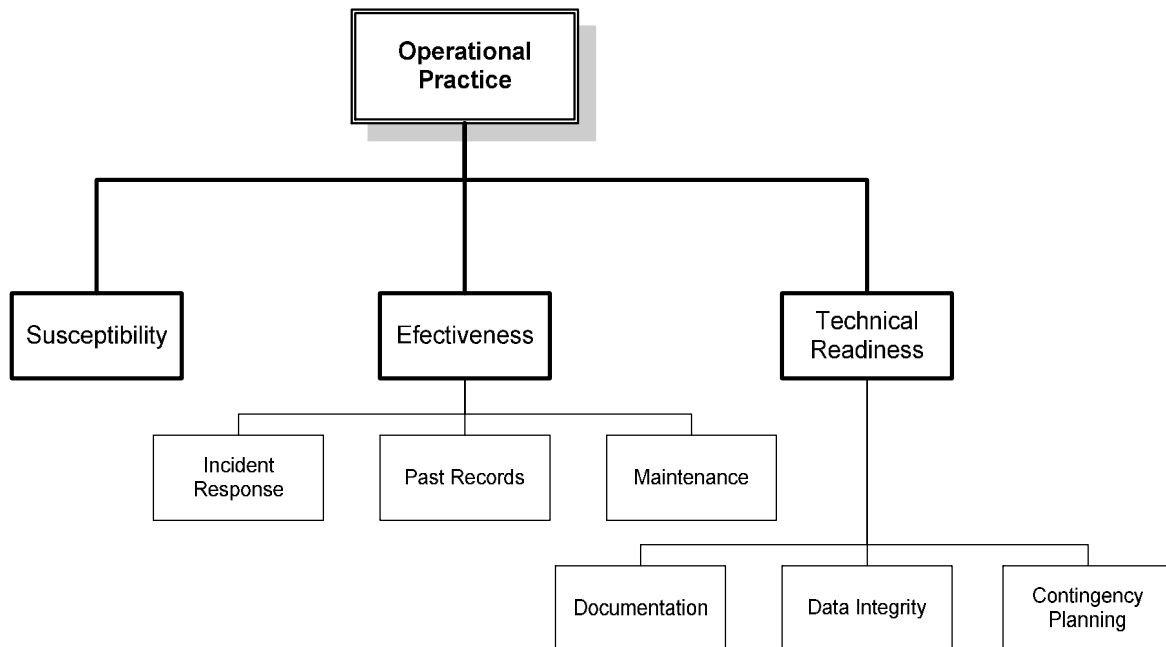


Figure 3 c. Security Metric Taxonomy: Operational Practice.

The Operational Practice Susceptibility group of metrics assesses the infrastructure security vulnerability due to its existence in a certain environment.

Effectiveness checks the effectiveness of the security operational practices:

- Incident Response checks the capabilities of responding to security incidents;
- Past Records checks the archiving process for past records of operational practices and measurements. It also evaluates the examination of system logs to check the system effectiveness;
- Maintenance checks the effectiveness of the security maintenance of software, hardware, and networking equipment.

Technical Readiness checks the technical readiness of the security operations:

- Documentation checks and evaluates documentation of the security operations;
- Data Integrity checks and evaluates regulations for insuring the integrity of the data;
- Contingency Planning checks and evaluates the contingency plans of the security operations.

C. QoS Technical Quality of Service

Technical Elements metrics are intended to assess QoS performance characteristics of the network and its associated elements. These metrics evaluate the taxonomy leaf properties in a quantitative fashion to facilitate unambiguous and clear indications of QoS network performance. Figure 4 depicts this part of the proposed IA taxonomy sub-tree.

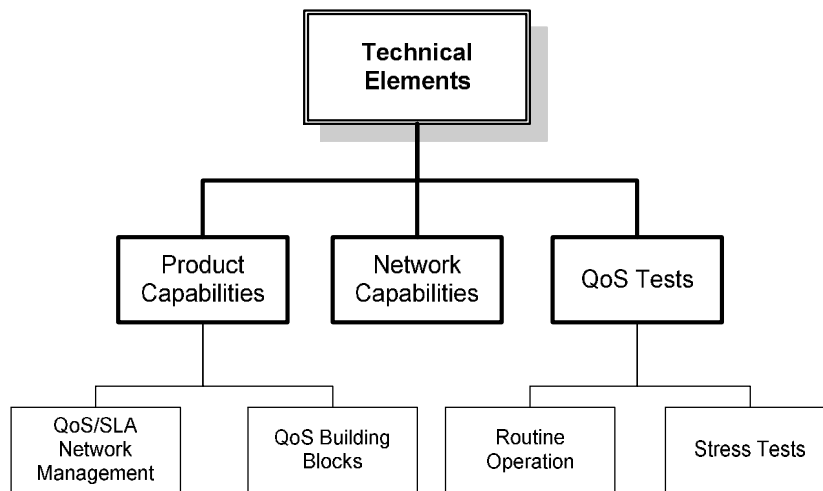


Figure 4. QoS Elements Metric Taxonomy.

The Product Capabilities sub-category is intended to assess whether products deployed in the network have the requisite features to allow the identified QoS characteristics to be achieved:

- In this regard, QoS/SLA Network Management metrics grade the QoS features of the network management software. These include such properties as configuration and monitoring, policy enforcement, and specification of service level agreement (SLA) support;
- QoS Building Blocks metrics ensure that the network devices include various required QoS building blocks such as multiple queues, priority scheduling, traffic conditioning and policing, differentiated services support, and buffer management.

The Network Capabilities sub-category is intended to assess whether the network as an end-to-end entity contains the requisite capabilities to provide QoS. A network that contains both QoS capable and non-QoS capable devices may only be able to offer a certain level of QoS.

The QoS Tests sub-category is intended to assess the extent to which the network manifests the desired level of QoS:

- Routine Operation metrics assess the characteristics of the network under normal operating traffic loads. They are intended to reflect the extent to which the actual QoS behavior compares against the required QoS characteristics. These metrics include such things as amount of data lost through congestion, end-to-end delay etc.
- Stress Tests metrics are intended to assess the network's capability to handle situations when it is stressed outside of normal operating conditions. The metrics are based on executed tests that help identify weak spots in the network.

D. Availability - Technical

The Network Availability technical metrics are intended to assess the availability characteristics of the network. Network Availability technical elements part of the IA taxonomy sub-tree is shown in Figure 5.

The Redundancy sub-category is intended to assess the degree of Network Availability that is achievable with the current network infrastructure:

- The Product metrics assess the product properties of each network device such that the required network availability is achievable. These properties include such features as high reliability, load balancing, fault detection, and protection switching;
- Network metrics determine whether the specified degree of network availability for the network as a whole is achievable. A network may have devices that can do protection switching, but the network may not be designed such that they can be used.

The Availability Tests sub-category assesses the level of Network Availability attained under active tests:

- Routine Operation metrics are intended to reflect the characteristics of the network under normal operating traffic loads. These metrics compare the actual Network Availability versus the desired Network Availability. These metrics include downtime (frequency, length, and severity), uptime, and end- user feedback;
- Stress Test metrics are intended to reflect availability characteristics of the network under active stress testing. i.e. when the network is stressed outside of normal operating conditions. Tests are executed to help identify weak spots in the network and ensure that the availability is guaranteed.

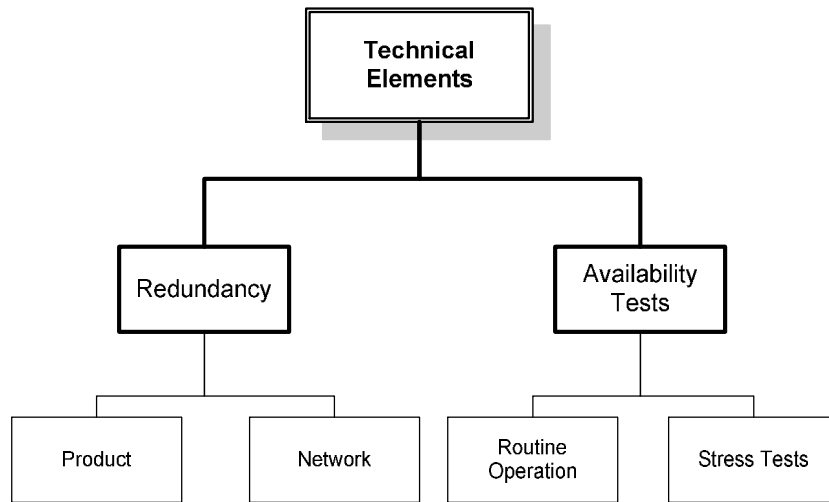


Figure 5. Availability Technical Elements Metric Taxonomy.

V. CONCLUSIONS

The survey in the area of Information Assurance Metrics indicated that it is an emerging area which should be given considerable attention in the coming years as the reliance on IT infrastructure continues to grow. Most of the research undertaken so far has focused on the security aspect of IA metrics. This paper evaluated and analyzed three previously proposed specific taxonomies and sets of IA metrics.

The taxonomies had their strengths and weaknesses, but overall none were sufficient to be used to assess the IA posture of an IT network. This paper proposed a new definition of *Information Assurance* that was based on three key attributes related to IT infrastructure:

- Security
- Quality of service and
- Availability.

The ability of an IT network to deliver information from one user to another is dependent on all three factors. Therefore, a new taxonomy and category of metrics that could be utilized for the specific purpose of capturing the Information Assurance rating of an IT network was proposed.

This taxonomy divided the Information Assurance Metrics aspects of a network into three categories: Security, QoS, and Availability. Each of these categories in turn was subdivided into three sub-categories: Organizational measures, Technical Elements, and Operational Practices.

The area of Information Assurance evaluation and assessment is a complex one. Future efforts should be concentrated to develop an IA framework along with sample metrics and measurement methodology, probably integrated in an expert system tool.

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INDICATORS OF INTEGRATED ORGANISATIONAL MANAGEMENT IN INTERCULTURAL CONTEXTS AND THEIR RELEVANCE FOR MULTINATIONAL MISSIONS’ ACCOMPLISHMENT

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Abstract:

Necesitatea unui management integrat al resurselor de apărare în contextul participării trupelor româneşti la misiuni internaţionale trebuie argumentată prin identificarea indicatorilor socio-culturali şi socio-lingvistici pe baza cărora succesul îndeplinirii respectivelor misiuni poate fi evaluat şi cuantificat. Astfel, în vederea determinării acelor indicatori care au relevanţă pentru mediul intercultural în care trupele trebuie să acţioneze, articolul de faţă îşi propune să abordeze implicaţiile pe care identitatea organizaţională din perspectivă socio-psihologică şi managerială le are asupra unei perspective integratoare de management al resurselor de apărare şi implicit asupra aspectelor de ordin intercultural. Pe de altă parte, în vederea unei abordări cât mai adecvate a ceea ce înseamnă un management organizaţional integrat în context internaţional, se vor avea în vedere factorii de ordin socio-lingvistic circumscrişi conceptului de „comunitate de vorbire” care la rândul lor se pot constitui în indicatori relevanţi ai gradului de îndeplinire a misiunilor internaţionale de către trupele româneşti participante.

In order to approach the concept of integrated defense resources management in terms of its indicators, I believe that what is first and foremost needed is an integrated perspective over organizational management. The underlying reasons for this are as follows. First of all, Romanian troops

participating in international missions come from a well- established organization, namely the Romanian military institution that, despite its unfolding transformation is grounded in tradition and core values. Second, taking part in international missions involves acknowledging and pledging allegiance to the core values upheld by international or transnational organizations such as NATO, UN, OSCE, EU or by temporary coalitions of the willing. Consequently, an identification of the socio- cultural indicators that play an important role in assessing the extent to which Romanian troops accomplish their missions abroad needs to start from an overview of the socio- psychological and management factors with a say in any kind of organization. Moreover, a correlation of these factors with socio- linguistic ones may help develop an integrated framework of analysis for the indicators needed in intercultural contexts.

Organizational identity from a socio-psychological perspective

From a sociological point of view, ‘Organizations are bounded networks of people-distinguished as members from non-members-following coordinated procedures: doing things together in inter-related and institutionalized ways’, as well as ‘(...) networks of identifications-individually and collectively- which influence strongly who does what within those procedures and how.’ (Jenkins, 1996:139)

Thus, as far as procedures are concerned, they may be explicitly or implicitly, formally or informally transmitted to members and non-members through what is sociologically known as ‘organizational knowledge’ (Jenkins, 1996:139), namely organizational symbolic universes passed on to members through organizational socialization. As for what sociology understands through ‘identifications’ the latter, actually represent what organization theory recognizes as positions, offices, jobs, etc. Hence, the latter in their turn are

also part of and passed on to individuals through organizational knowledge, similarly with procedures.

Narrowing down the above definition, organizations are viewed as institutions where (Jenkins, 1996:136):

- Individuals identified as members pursue explicit objectives that serve to identify the organizations
- There are criteria to identify members from non-members
- Labor is divided into specialized tasks and functions allocated to individuals
- There is a clearly acknowledged framework of decision-making and task allocation

In conclusion, institutions are a staple of individual decision-making and behavior and thus become ‘patterns of behavior in any particular context which have become established over time as “the way things are done”’ (Jenkins, 1996: 127).

Moreover, from a sociological point of view, organizations at large, and more specifically institutions, have relevance only if positioned and investigated within a social context. Consequently, organizations are also viewed as ‘open to and part of their social environments. Their boundaries may be permeable and osmotic; it isn’t always easy to see where they are drawn.’ (Jenkins, 1996:140)

In terms of their defining features, institutions ²⁹can be viewed as first of all the means through which individuals may identify themselves as members or non-members. Inherently, social patterns of differentiation appear in terms of inclusion, exclusion, hierarchy, stratification since organizations have to be

²⁹ However, as blurred as the boundaries between the institutions and the social environment within which they function may be, organizations are visible for outsiders through artifacts, symbols or other means through which organizational identity asserts itself.

viewed not only as networks where there is a relationship of similarity among the members, but also an array of relationships based on difference.³⁰

In conclusion, referring back to the patterns underlying individual identification with the institutions, there is one that has to be emphasized as an important feature of any institution, namely authority. Thus, as Jenkins (1996:140) points out again: ‘Organizations-small or large- are institutionalized networks of hierarchical relationships of sub and super ordination of power and authority. Organizational collectivity is, in fact, the source of the legitimacy without which authority carries no weight.’

Organization theory and underlying indicators of organizational behavior at a macro- level

The current sub-chapter is to take a look at the underlying indicators of organizational behavior at a macro- level as suggested by Steers and Black (1994), Mullins (2006) and Miner (2002). Consequently, a brief overview of what organization theory views as defining for macro- organizational behavior is to be carried out in order to complete the picture on what indicators should be taken into account when assessing the involvement of Romanian troops in international missions.

As pointed out by the already mentioned authors, the defining variables of the macro dimension of organizational behavior are **organization design, organization processes and the relationship between an organization and its external environment.**

As far as **organization design** is concerned, Mullins (2006:384) underlines the fact that ‘structure is the pattern of relationships among positions in the organization and among members of the organization.’

³⁰ Related to the identity issue as a social construct, Connerton (1989:41-47) points out that the means through which this can be achieved are collective rituals bestowing upon the abstract concept of collective identity ‘authenticity and experiential profundity’. As a result, institutions become ‘sources and sites of identification’ (Jenkins, 1996:133)

According to Drucker (1989:223), even though organizational structure does not yield performance by itself, it enables people to reach performance through the means highlighted by Child (1988:4): allocation of responsibilities, the grouping of functions, decision-making, co-ordination, control and reward. Thus, through the interplay of all these employee morale and job satisfaction are in the end at stake.

Consequently, the role of structure or organization design is to define the tasks and responsibilities, the work roles and relationships of the members of the organization, as well as the channels of communication. Moreover the objectives of structure are (Mullins, 2006: 383-385):

- The economic and efficient performance of an organization in terms of resources employment
- The monitoring of the activities carried out within the organization
- Groups' and individual members' accountability for the tasks undertaken
- Co-ordination of different parts of the organization and different areas of work
- Flexibility in order to answer to future challenges and demands
- Social satisfaction of organizational members.

As for the negative results of a deficient organizational structure, Child (1988) warns against some of these out of which two, of interest for the topic of this dissertation, are listed below:

- The low motivation and morale which my result from inappropriate decision-making on behalf of the managers, insufficient delegation of tasks, lack of clarity as to the job description and the assessment criteria, competing pressures from different parts of the organization.

- Conflict and lack of co-ordination resulting from conflicting goals, lack of clarity of objectives and priorities, inability to get people to work in teams.

In term of **organization processes** Steers and Black enumerate **leadership, communication, decision-making, power and politics**, as well as **conflict** as the ingredients with a major role in interpersonal and intergroup relations within the workplace and ultimately affecting organizational performance. In what follows, some of these variables are to be briefly described in order to gain an insight into the part they play within organizational communication patterns underlying organizational behavior.

Thus, as Mullins points out (2006: 305), **leadership**³¹ is connected with motivation, interpersonal behavior and the process of communication. Moreover, good leadership involves delegation of responsibilities to employees, as well as empowerment to make decisions contributing to increased intrinsic motivation for organization members. In addition to that, teamwork and integration of individuals and group goals are also an important result of the workings of good leaders.

As far as the variable of **communication** is concerned, the latter is to be approached by taking a look at the variable of **conflict**, which is also subsumed to organizational processes describing organizational behavior.

Due to the aims underlying the literature review provided in this sub-chapter, I am going to take a look at the variable of conflict from the perspective of the sources leading to it. What is important to highlight before resorting again to Mullins' (2006:491) insight into the issue, is that only those sources which can be considered as indicators of organizational behavior at large will be listed.

³¹ Even though there is a heated debate on the differences between leadership and management, the latter does not concern the article given the topic under investigation

Thus, the likely factors that in the end may lead to a communication breakdown and inherently to deficient organizational behavior are as follows:

- Limited resources which lead individual and groups fights over the share they need to carry out their work-related tasks
- Departmentalization and specialization leading to differing goals and the creation of internal environments specific for each department.
- The nature of work activities. Thus if a person's task depends upon the work of the others, then conflict may emerge.
- Inequitable treatment which if perceived as such may motivate a person to act towards restoring equity either by influencing the inputs or outputs or by acting on others.
- Organization design which through communication channels, authority structure and group norms may lead to conflict
- Groups, whether formal or informal through the skills they pool, as well as through the norms they create

Concerning the **relationship between an organization and its external environment**, the issue is of great importance because any organization needs to be viewed as an 'open system' (Steers and Black, 1994: 323). Consequently, not only does any organization receive input from the external environment (e.g. employees, raw materials, investment), but it also gives back output to the environment (e.g. goods, services such as defense, etc.). Consequently, for an organization to have good communication with its environment and thus ensure its growth and survival it is necessary to be able to respond to the opportunities, challenges, risks and limitations posed by the external environment (Mullins, 2006:361). As a result, factors such as the political, economic, socio-cultural, technological, legal ones must all the time be taken into consideration in the relationship of continuous exchange established between an organization and its external environment.

Thus, as Mullins (2006:364) points out ‘Organizations make contributions to the quality of life and to the well-being of the community’ through the plethora of stakeholders³² who have an interest or are affected by the goals, activities and organizational behavior (as the latter was already explained from the three-fold perspective established at the beginning of this chapter).

In conclusion, even though organization theory does not state it explicitly, I believe that in the relationship organizations establish with external environment, the output they contribute to the latter consists not only of the materials or services they provide, but also of the way their image is communicated through all three dimensions of the concept of organizational behavior³³, but especially through individual and organizational behavior. Consequently, depending on how successful this communication with external environment is, the input the Romanian military organization gets in terms of the resources it needs to employ in its current activities in theatres of operations is determined and plays a major role in the positioning within an evolving environment.

Organizational identity in terms of speech communities

Another means of establishing the indicators to be employed in assessing the accomplishment of the missions on behalf of the Romanian troops as part of various international organizations consists in taking a socio-linguistic approach at the issue of organizational identity in general.

Thus, the paradigm proposed is that of the **speech community**. As a result, in order to identify the variables describing it a clarification of the concept is to be carried out in the following paragraphs without entering into

³² In organization theory, the concept of stakeholders refers to the individuals and groups sharing similar interests or being affected by the goals, activities and behaviour of organisations. (Mullins,2006: 367)

³³ See in this respect the definition of organisational behaviour provided in **Managementul integrat al apărării din perspectiva conceptului de comportament organizațional (Integrated defence management from the perspective of the concept of organisational behaviour)**; Revista militară de management și educație, Nr. 3/2007; ISSN 1841-978X; pp. 11-14; 14-17

too many details about the disagreements among socio-linguists in this respect.

In support of the idea of including a socio-linguistic framework in the analysis and interpretation of organizational identity, Wardaugh (2002:118) points out that group identity is marked by both linguistic characteristics, as well as by other features such as social, cultural, political, etc. Moreover, in alignment with the ideas expressed by sociologists concerning the possibility for one and the same individual to belong to various groups along a lifetime, the author (2002:121) draws attention to the fact that similarly, an individual may be part of different speech communities ‘but on any particular occasion will identify with only one of them, the particular identification depending on what is especially important or contrastive in the circumstance’ and as a consequence (2002:125) ‘The variation we see in language must partly reflect a need that people have to be seen as the same as certain other people on some occasions and as different from them on other occasions’.

Thus, the inference that can be made starting from the above remarks is that the individuals within an organization identify with the organization in accordance with the general framework of organizational behavior. Moreover, they may use linguistic markers through which to highlight not only their belongingness to the organization as a whole, but also to the formal or informal groups within the organization proper. In this respect, Gumperz (1971: 114-128) draws attention to the possibility of categorizing occupational groups as speech communities as long as there are linguistic particularities that provide the latter specificity through the regular interplay between language use and social structure, in our case organizational structure. Moreover, in homogenous societies the linguistic marks delineating social differences are restricted to marginal varieties restricted to phonology,

syntax, vocabulary indicating the social models of interaction within a linguistic community.

Consequently, as Saville-Troike (1996:357)³⁴ points out, the choice made by individuals in terms of what social and communicative rules to employ becomes part of their strategy of communication. Taking this idea even further, I believe (which is to be checked through the investigation to follow in chapter four) that the same choice is telling on the strategy of communication employed within their occupational group, and extending the framework, by organizational behavior. As a result, as Platt and Platt (1975:35)³⁵ underline the speech community a person is part of at a certain moment owns its 'speech repertoire' which could be considered a defining feature of that group or community.

Thus, starting from the above insights into the input the socio-linguistic framework of speech community contributes to the better understanding of the communicative practices within organizations, a definition of the concept from the perspective of various theorists is more than necessary. As a result, in what follows this project is to be undertaken with the purpose of identifying further characteristics of a speech community which could contribute to the establishment of the instruments of investigation.

In Labov's (1972b:120-121)³⁶ opinion, the hallmark of a speech community is provided not by marked agreement over using linguistic elements but by the participation of the members of a community in accordance with a set of shared norms, which 'may be observed in overt types of evaluative behavior, and by the uniformity of abstract patterns of variation which are invariant in respect to a particular levels of usage'. As the previous chapter already pointed out and as the following sub-chapter on organizational communication patterns is to underline, there are such abstract

³⁴ In Wardaugh (2002:124)

³⁵ Idem, p. 128

³⁶ Ibidem, p.118

uniform patterns of variation within any organization, only that the precondition of identifying them overtly is not possible due to the indirect method of this dissertation of eliciting the information through questionnaires. However, it is worth remembering the invariance characteristic of these patterns when it comes to specific levels of usage because during the interpretation stage of the results of this research the above aspect is to be taken into account.

Drawing on Labov's definition of the speech community and in line with Wardaugh, Hudson (1980:28) draws attention to the fact that speech communities interact in a complex manner with one another and thus, a speech community may include parts of other speech communities in point of shared language varieties.

Spolsky (1998), in his turn, brings a valuable insight into the meanings and consequences of the presence of a speech community. Thus, according to him (1998: 27), a speech community is the place where 'patterned variations in selection from the available repertoire takes place', since as he points out people communicating with one another have the tendency to speak in a similar manner. The consequence of such a state of things is the development of what he calls (1998:30) 'powerful mechanisms for asserting and recognizing social difference' in the condition geographical or spatial isolation.

Ionescu- Ruxandoiu et al (1975:108) brings relevant information as to what variations are likely to be encountered in speech communities and about how they inform on the necessities of communication taking place in a certain moment or on the social relationships among speakers. Thus, according to them, the variations informing on the communication necessities are also called 'overlapped variations' because they refer to the differences in the types of activities carried out within the same group which impose a restricted usage of the specialized terms. On the other hand, the social

relationship between the speakers indicative of social barriers is established through greetings or modes of address. Moreover, the same authors, remark that the smaller the scope of an individual's activities, the more homogenous the social group in which s/he interacts and as a consequence the more limited the range of verbal variations.

Starting from all the conceptual delineations made by the authors already quoted or paraphrased in this sub-chapter it becomes more than obvious that the indicators that can be employed in order to assess the extent to which Romanian troops succeed in accomplishing their missions in terms of socio- linguistics are as follows: overlapped variations and „organizational knowledge” of them; linguistic marks delineating social differences through phonology, syntax, vocabulary indicating the social models of interaction within a linguistic community, as well as social belongingness; greetings and modes of address telling on organizational identity both in socio-psychological terms, and management terms as delineated in the previous sub- chapters.

Inferences for integrated defense resources management in intercultural contexts

Taking into account the information above, one must underline the necessity of unifying the indicators identified at the three levels of organizations in general, namely socio- psychological, managerial and socio-linguistic if the desideratum of integrated defense resources management is to be achieved. Moreover, in order to accomplish this, some inferences concerning the integrated defense resources management in intercultural contexts need to be further made.

Thus, the first thing that needs to be enforced when taking an integrative view of management issues at an intercultural level is the role played by cultural issues, and more specifically by organizational culture as

expressed through core values. In this respect, it is not only organizational cultural values acting as a link among members, but also the validity of these cultural values when contrasted with differing cultures, whether national or organizational. Consequently, if assessment missions' accomplishment needs to be conducted, an important indicator by which the evaluation is to be made is the congruence of the cultural values enforced both at a local level (i.e. within the Romanian armed forces as providers of defense and security services to their stakeholders) and at a regional and transnational level (i.e. within the alliances, coalitions or institutions with a role in guaranteeing fundamental rights, security and values). In the end, the argument supporting the identification of such an indicator is provided by Martin (1992). According to him, the role of core values is to, alleviate anxiety, to control the uncontrollable, to bring predictability to the uncertain, and to clarify the ambiguous'. Consequently, by defining clear- cut values managers may aim high at controlling the outcomes of the activities undertaken by their organizations.

Thus, within the context of an integrated defense resources management in the case of the troops involved in theatres of operations, defining, upholding and assessing activities through a well- defined set of values involves three major aspects: the consistency of managerial behavior with a set of values, the operationalization of these values at all levels, in all locations and commitment to the values.

Integrated organizational management in intercultural contexts: conclusions

Romanian armed forces involved in international missions have had to tackle not only the challenges related to interoperability issues, but also intercultural aspects concerning various organizational cultures pertaining to the other armies involved in joint actions, as well as cultural differences of local

populations where the troops were or have been deployed. Consequently, a renewed focus must be placed upon on a military strategy which should include an intercultural dimension of the human resource management, since the armed forces nowadays are more impactful at a global level, rather than at a national one. By such a renewed strategy the Romanian armed forces would reflect its global interests and involvement, and its aim should be that of identifying the combinations of global networking among militaries and between militaries and local populations on one hand, and local policies aimed at adapting the results of this networking at the level of the populations the Romanian armed forces need to deal with when part of international missions.

Thus, in order to come up and support such a renewed strategy, the training system at the national level should be improved in terms of intercultural awareness. Moreover, an International Management Training Group made up of people with relevant experience in theatres of operations should disseminate to all units that are to be deployed abroad the necessary information that can help them think and act globally, as part of the joint efforts, but work within the framework of different cultures. Thus, by making the necessary changes at a strategic level, the Romanian military organizational culture can evolve by refining and acknowledging as a core value the necessity and importance of intercultural management skills.

The inferences that can be made based on the information provide so far are as follows:

- Romanian armed forces' involvement requires managers and not only possessing intercultural management skills. These skills can be learnt, just like other behavioural science skills like leadership or team spirit, by including them within organizational core values.
- Romanian armed forces must n foster intercultural management expertise through education. As a consequence, assembling an

International Management Training Group as part of this educational effort is an indicator by which mission accomplishment can be assessed.

- Members of the International Management Training Group should be the ones in charge with developing sensitivity to local cultures, and consequently formulate country-specific policies that reflect cultural issues. The policies in place should be considered another indicator for intercultural management.
- Combat units are differentiated by the need to take cognizance of local cultures, but they are integrated by a common set of values, orientation and global strategy that are decided at a national and international (i.e. NATO and coalitions) level.
- Cultures however are not static. This truism applies with equal force to ethnic cultures and cultures. Armed forces functioning in an intercultural context must be permeable enough to imbibe what is useful from ethnic cultures in order to carry out their missions. They must also be sensitive enough to assess trends and changes in ethnic cultures, since ethnic cultures of emerging economies are more susceptible to change than those of mature economies. Hence, the adaptability to ethnic cultures and the acknowledgment of the changes within such cultures are important indicators of a unit's capacity to accomplish its mission.
- Intercultural management within the armed forces deployed in various theatres of operations should be characterized by the fact that operational decision making has been delegated to them.
- Local talent who have internalized BMW values and then transferred these values to the local context manage these local divisions.
- First-hand exposure to local cultures should be the indicator by which to assess and select the members of the International Management

Training Group. Thus, the group should include personnel from different countries, so that they have the opportunity of discussing and analysing issues of countries some of them may not have knowledge of. Moreover, in order to make worthwhile recommendations, the group should travel to the country in question for a short sojourn, to learn about it and then disseminate the information.

All this considered, the missions of Romanian armed forces in international endeavours can make an important step towards a higher degree of interoperability in terms of intercultural issues not only with the other co-working armed forces, but also with local populations involved in the conflicts that need to be checked.

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THE MANAGEMENT AND DEMOCRATIC CONTROL OF THE ARMED FORCES PARTICIPATING IN MULTINATIONAL OPERATIONS

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Democrația prezumă întotdeauna ca fiind implicită supremația controlului civil aspra forțelor armate, orice abatere de la această regulă ducând la caracterizarea societății fiind nedemocratică. Acest studiu analizează aspectele naționale și internaționale pe care le implică nevoia asigurării controlului democratic al forțelor armate participante la operații multinaționale. În acest scop, prima sarcină a constat în identificarea necesității și cerințelor controlului democratic. Răspunsul la această întrebare a constituit punctul de plecare pentru recunoașterea actorilor implicați, actele și acțiunile vizate, mecanismele de control și momentele la care acest control trebuie exercitat. Analiza acestor aspecte are în vedere totodată dimensiunile internă și internațională a răspunsurilor la întrebările referitoare la cine, ce și cum controlează ^[1].

I. INTRODUCTION

All societies have to reconcile the need for security provided for by the armed forces, on the one hand, and the requirement to respect democratic values, human rights and freedoms on the other hand. The lessons learned from history - even recent - of European States, but not only, have shown that the military might affect democracy and its values. The interests of the

military must therefore be subordinate to the interest of a democratic society. The control of the military is an indispensable element of a democratic government. The degree and type of such control will vary considerably according to the system of government, historical traditions and also cultural values.

The democratic control of the armed forces is a complex matter and it comprise “traditional” issues such as military expenditure or military budget and appointment of top commanders and issues which correspond to the change in the role of the armed forces, both at national and international level. Indeed, since the end of the cold war, armed forces have undeniably undergone a profound shift in both the range and focus of their role. This refocusing of defence and security policy in many States has led to more and more national participation in international peace missions.

In general, clear, transparent and effective mechanisms of control over the armed forces exist due to the involvement of democratic institutions. Among these, Parliament must have an essential role in monitoring, scrutinising and control. Given the specific characteristic of this sector (in which the use of legitimate violence is involved), the underlying question is how to balance, or better, how to optimise, on the one hand, the public good, value or end involved in the decisions or acts of the military, with, on the other hand, principles, standards and values of democracy.

Nowadays, one of the most relevant national decisions about the use of force is involvement in international peace support operations. Accordingly, the second important focus is placed on the international organisations in which the States take part and the problems of control and accountability that these international missions generate for parliamentary and/or government institutions, as well as for the relevant international bodies.

II. THE NECESSITY FOR THE DEMOCRATIC CONTROL OF ARMED FORCES

As many democratic theorists have pointed out, control of the military by democratically elected civilian authorities is an indispensable element of a democratic government. While civilian control of the military is a *sine qua non* condition for democracy, the degree and type of such control will vary according to the system of government, historical traditions and cultural values, and different perceptions of threat. Thus, in an American-style presidential system the President, in his capacity as commander-in-chief, is the primary agent of civilian control, whereas in a parliamentary system this task falls to the cabinet. Both systems are compatible with full civilian control, and in either case the legislature is, and should be, another agent enhancing civilian control for a number of reasons, not the least important among which is the fact that in all democracies, regardless of the type of government, the legislature holds the purse strings. On the other hand, the increasing complexity and the technical nature of security issues, the lack of expertise of most parliamentarians, time pressures on Parliaments, and secrecy laws which often come into play in security issues may limit or hinder parliamentary oversight. Furthermore, in countries where democracy has not yet been fully consolidated and the elected authorities still have to contend with the difficult legacies of the previous military regime, the first priority is to establish civilian control itself; whether it is exercised chiefly by the executive or the legislature is a matter of relatively secondary importance. At the same time, in identifying the reasons for motivating the necessity to control the armed forces one cannot ignore the international dimension of the analysis, as – according to contemporary public international law – the maintenance of international peace and security is the most important

objective of mankind, and the principle that States shall refrain in their international relations from the threat or use of force against the territorial integrity or political independence of any State is a fundamental principle of international law, an imperative rule. In other words, the contemporary use of the armed forces of a State against another State (or, in more general terms, outside the national territory) is an exception subject to important restrictions and limitations, the breach of which engages the international responsibility of the State concerned. The use of (armed) force is only allowed (in other words is legitimate) so that international peace and security can be re-established and the international legality (or International Rule of Law) can be restored.

The international dimension of democratic control over armed forces represents, also, in general, an international confidence-building measure, an important contribution to shaping the “democratic peace” among States. The principle that guides international regulations on these issues is the general prohibition of the use of force, with some exemptions.

Self-defence, as an exception to the prohibition on the use of force is legitimate only insofar as it represents the response to an armed attack. Any such response must be necessary and proportional to the attack. Part of the responsibility of the military is to respect these conditions. Their non-observance leads to qualifying self-defence as illegitimate, excessive, unnecessary or disproportionate use of force becoming an aggression itself, that is an international unlawful act which engages the international responsibility of the respective State. This is a clear justification for the democratic control of the armed forces.

The democratic control of the armed forces must prevent the temptation for military leaders to use “opportunities” offered by circumstances that in reality cannot justify the use of force in order to achieve certain illicit goals, either at international or at domestic level. Also, democratic

oversight must, in this sense, prevent inter alia the conclusion of “secret understandings” to direct acts of aggression against other States. According to the United Nations International Court of Justice, if use of force is to be legitimate, it has to respect the law applicable to armed conflicts, especially the principles and rules of international humanitarian law. This is yet another reason for the control of armed forces, as a breach of these rules attracts international responsibility of the State. A democratic State – which is a State where fundamental rights and freedoms are (to be) respected – cannot ignore the imperative need for the same rights and freedoms to be strictly observed by its armed forces when engaged in international military operations. This is also an imperative need in the actual context of the fight against terrorism, in which armed forces are involved. In general, the democratic control over armed forces represents a guarantee that human rights and fundamental freedoms are respected both *within* the armed forces and *by* the armed forces during their operations^[2].

The Parliamentary Assembly of the Council of Europe took a similar stance in its Recommendation 1713 (2005) on the “Democratic oversight of the security sector in member States”:

“(…)

iv. Defence

a. National security is the armed forces’ main duty. This essential function must not be diluted by assigning the armed forces auxiliary tasks, save in exceptional circumstances.

b. *The increasing importance attached to international co-operation and peacekeeping missions abroad must not be allowed to have an adverse effect on the role of Parliament in the decision-making process. Democratic legitimacy must take precedence over confidentiality.*

c. At European level, it is essential to avoid any step backwards in relation to the *democratic achievements of the Western European Union Assembly by introducing a system of collective consultation between national Parliaments on security and defence issues.*

d. In this connection, *national Parliaments should continue to have an inter-parliamentary body to which the relevant European executive body would report and with which it would hold regular institutional discussions* on all aspects of European security and defence.

e. Deployments of troops abroad should be *in accordance with the United Nations Charter, international law and international humanitarian law.* The conduct of the troops should be *subject to the jurisdiction of the International Criminal Court in The Hague.*

(...)”.^[3]

To summarise, the above analysis the international inter-related dimensions of the necessity to control the armed forces show an important number of reasons which justify it, based on the objectives of safeguarding the democratic values, rule of law and human rights and fundamental freedoms, and of maintaining the international peace and security as well as respecting contemporary international law.

III. Actors, acts, moments and procedures of control

A. General Overview

The renaissance of the debate about the old question ‘who guards the guardians,’ both in national and international spheres, needs to be tackled focusing, first of all, on *who* has the power to control the security sector. Within the security sector, the military has the task of protecting national security and defending the territory from external threats, through the legitimate use of force or the deployment of the proactive apparatus of the

State. This task, however, needs to be accomplished within the framework of the rule of law. Democracy presupposes that someone in the State has the power to control the use of force in order to avoid deviations from its constitutionally established functions and principles. Control is also used to stop this power being used to undermine democratic institutions or to disturb the legal or constitutional established order, international law or International Rule of Law. This ‘someone’ has to be, in turn, a democratically elected institution. This issue is highly relevant because the principle of democracy and the rule of law require protection by democratic mechanisms and institutions. After all, they are fundamental pillars of contemporary democracies. The democratic legitimacy of whoever controls the military is transferred to the acts and decisions of the controlled institution or sphere. That is, the monitoring organ, or the controller, has an indirectly legitimising effect on the performance of the armed forces. The subordination of defence to the command of democratically elected officials, and to the ends defined by them in accordance with the constitutional principles and the prevailing law, appears to be a *sine-qua-non* pre-condition, requirement and characteristic of democratic regimes.

Oversight may take several forms. The control can be either *ex ante*, *ex post* or both. *Ex ante* control is a form of proactive oversight. *Ex ante* tackles issues before they become problematic. *Ex post* oversight is a form of reactive oversight as issues are only addressed after they have occurred.

Parliaments mainly exercise *ex ante* control by passing laws that define and regulate the security services and their powers, and by adopting the corresponding budgetary appropriations. The participation of Parliament in the creation of the national legal framework for security represents the proactive function of Parliament, oriented towards future policies and activities of the executive. *Ex ante* control encompass granting prior authorisation of sending troops abroad. *Ex ante* control is primarily the

preserve of the executive. The executive is responsible for the day-to-day management of the armed forces (delegated to military leadership) as well as policy and strategies for the armed forces.

Ex post control qualifies the legitimacy of a measure or act previously decided and implemented and, when necessary, imposes a remedy. *Ex post* control is exercised by a range of institutions including the judiciary, ombudsman, audit offices and Parliament.

Parliament exercises *ex post* policy control which takes the form of oral and written questions or interpellation to query a specific act of policy with members of government, budgetary scrutiny and finally accountability on the basis of reports from the Board of Auditors about the implementation of the budget. Where there is a suspicion that serious misconduct may have occurred, Parliament has the authority to hold a formal inquiry. In most Western Parliaments there is a tendency to move beyond control *ex post facto* to participation in the governmental decision-making process even before the government has tabled a formal proposal^[4]. To this end, it is crucial that Parliaments receive timely information on the government's intentions and decisions regarding security issues. Parliament's case cannot be a strong one if the government only briefs it after having reached a final decision. In such situations, the Parliament is confronted with a '*fait accompli*' and has no alternative but to approve or reject the government's decision. As far as regular and long-term policy issues are concerned, Parliaments should have enough time to analyse and debate essential matters such as the defence budget, arms procurement decision-making or a defence review. One way of getting around the time pressures that routinely confront parliamentarians in carrying out their work is to develop a proactive strategy and to enhance the expertise of parliamentarians with regard to the security sector and to set a clear policy agenda.

A number of factors influence the type and characteristics of the mechanisms of control over the military in the different States, such as historical context, forms of government, legal framework, and the organs responsible for the control. At international level, in turn, the differences among international organisations that intervene in the security sphere, the various legal standards, and the modalities of the control of the acts of national troops that take part in international missions are some of the key elements for examining the international dimension of control over armed forces.

With regard to the method of exercising control, it could be said that, generally speaking, control means a degree of intervention on the decisions adopted by the controlled organ. Separating decisions and control means that there are at least two views on the same issue. It also serves to assure the compliance of an act or decision with democratic principles, standards and values. The model of control or oversight needs not to be fixed expressly and once and for all. It can, however, be progressively developed.

Democratic control over armed forces refers to the existence of (at least) an organ or institution democratically elected that reviews and supervises the decisions adopted by the organs or authorities with military competences. In this sense, for example, the concept of security itself has become broader, not simply embracing military aspects, but also other geopolitical and contingent international issues. The regional disputes for territory or space in nearby zones, the political instability of some countries linked economically with others, ethnic, religious, cultural or demographic tensions, unsatisfied nationalism, are all factors that could deeply affect national interests. This is why it was urgent to articulate new answers and solutions related to armed forces mission and decisions.

In the same way, armed forces have been forced to adapt their functioning and activities to the new international requirements of security.

From decisions focused on clear and defined threats to peace and security, they have moved to face diffuse threats such as terrorism, organised crime, biological or information attacks, among others, and to plan defence and security accordingly^[5].

Finally, the armed forces hold a relevant position as a consequence of globalisation, since States integrate in collective security and defence systems, involving them, *inter alia*, with military contributions to various international missions. For instance, one of the most significant changes in the post-Cold War period was the increase of the participation of armed forces in peacekeeping and humanitarian operations. This is one of the main functions developed by military forces in modern Europe. But this growth of the functions of the armed forces in the international sphere leads to new challenges and problems. One of them is the democratic control of those operations. A further conflict is the subordination to different commanders: on the one hand, national forces act under the command of the international organisation, but, at the same time, they are partly subordinated to the control system of their States. This double control can cause significant difficulties because each control can be organised according to a particular logic and purpose. Clarification is also needed, as to which State (or body) is internationally responsible for the acts of the armed forces in question.

These changes within military systems, caused in turn by the evolving national and international situation, result in extra powers for armed forces. As a result, they adopt new and more complex decisions. Within this group of decisions, one can identify those that have always pertained to the military institutions, such as those related to the administration of armed forces personnel (appointments, incorporations, retirements, sanctions), or those related to supply of military material. Examples of the new type of decision include decisions on participation in peacekeeping missions, or the settlement

of common defence techniques between several States or inside an international defence organisation.

B. Domestic dimension of the control

In the domestic sphere, the control and oversight of the defence sector can be carried out by the three branches of the State (executive, Parliament, and judiciary), by independent institutional actors (ombudsmen and auditors), and by the civil society and media. From a democratic point of view, control by State organs (especially by Parliament), is the most important type of control.

The democratic control of armed forces acting in international mission under the command of these organisations is of relevance, if one considers the progressive transition of military actions to the international sphere of collective security. It will be argued, in accordance with the existing literature, that the subordination of soldiers or units to the command of foreign armed forces alters or undermines the power of the Parliament or other democratic body to control the military decisions and make the servicemen and commanders accountable. When command is transferred or shared, the possibility of controlling the international performance of the troops is weaker. The access information, the decision-making, and way of executing the orders, are beyond the reach of national authorities.

1. The role of Parliaments

There is general consensus as to the paramount role of Parliament in the execution of these controlling functions over security and defence, and about the need to enhance public accountability of this sector. Both requirements are considered keystones of democracy. Regardless of the

system of government chosen by specific States, decisions concerning the use of force must be accounted for before Parliament. Parliamentary powers over the military sector comprise powers to legislate, to approve the budget, to advise, to penalise, and to approve certain issues or actions. The functions that a certain Parliament actually has, and their extent and intensity, depend on national rules. They also depend on the general checks and balances system that operates in a State, which is also applicable to the military sphere. In this sense, Parliaments review and exercise oversight over executive decisions and policy-making concerning defence and security policy. In order to achieve this control, Parliaments tend to employ three types of mechanism: debates, questions and interpellations, and inquiries.

a. Organs involved

For the control to be effective, Parliaments should have specialist staff and structures in place, to develop the monitoring functions, and the necessary resources for their correct exercise. Most Parliaments have, over the years, created special committees to deal with the various parliamentary dimensions involved in the oversight of armed forces. The institutionalisation of Defence or Security Committees can be explained by several factors, including the renaissance of the subject of democratic control of armed forces, increasing democratic efforts towards specialisation and transparency in Parliaments, the tendency towards in-depth study (thus improving decision-making by creating committees or commissions with defined spheres of action), and the general process of reforming the security sector. The latter, in turn, has three main objectives: democratisation, adaptation to the new security environment, and internationalization^[6]. The right and practice of questioning the acts of the government – a characteristic of the democratic control of Parliaments over

the executive – becomes specific and more accurate through the work of the committees.

The Committees on Defence and Security are created to advise and recommend to the plenary of the Parliament issues related to decision-making on the defence and security sector. They can be permanent (or standing), or created for a specific task (*ad-hoc*). The general key functions of Defence and Security Committees include security policy, legislation, expenditure, management and administration. Together with Committees on Defence and Security, focused on specific security sector issues, committees such as Foreign Affairs, Budget, Industry and Trade, Science and Technology, also have a role to play in issues related to the security sector, depending on the national regulations and the powers delegated to these expert groups.

Each Committee of Defence and Security exercises the powers and functions fixed by the particular legislation (i.e. rules of procedure of the chamber) or delegated by Parliament. The general powers mentioned above can be broken down as follows: a) development of legislation on defence matters, b) advice on the defence budget and monitoring of expenditure c) review of government defence policy d) consultation over international treaties, e) advice to Parliament about the use of force and deployment of troops, and f) monitoring of defence procurement. These powers can be developed through several mechanisms and activities, such as hearings, inquiries, questions to the Ministry of Defence or the government, requesting documents, requests for audits, scrutiny of transparency and efficiency in spending, examining petitions and complaints, from both military personnel and civilians^[7].

b. Acts and issues under control

i) Approval and control of the military budget

One important competence is the decision over the military budget that derives from the general budgetary power of the Parliament. Defence budgeting is the process of allocating financial resources for defence ministry equipment, infrastructure and programmes. The power to fix the military budget allows Parliament to decide to spend more on one issue than on another. In this way, it can make conditional the decisions adopted by the commanders of armed forces. The importance of this type of decision is quite evident, when one examines the high amount of the defence budget in some countries^[8]. Such data reinforces the idea that democratic legitimacy is a must in terms of the decision-making process when assigning these sums of money to defence activities.

The way of exercising decisions varies from state to state, especially with regard to the procedure for adopting the military budget. Correspondingly, the efficiency of the control will also vary. For a better-informed decision, Parliaments should have access to all the documents related to the defence budget. The degree to which Parliament is able to perform its control in this field is essentially dependant on the quality and comprehensiveness of the information it receives, and on its actual power to amend the budget. The budget proposal can consist of a document of a few pages in length containing general information about the overall sums of money allocated to different agencies, or it can span hundreds of pages of complex and very detailed information. The essential indicator of the impact of Parliament in the budgeting process is the extent to which it can influence the content of the budget through the amendment process. In broad terms, there are three models for parliamentary involvement in defence budgeting.

Budget-making Parliaments have the capacity to amend or to reject budget proposals, and the capacity to formulate alternative budget proposal. The US Congress is a notorious example of a Parliament which plays an

important role in the development of the defence budget. The President's draft budget serves only as a proposal in the strictest sense and has no compulsory character. The Congress holds the Department of Defence firmly accountable, often to a level of detail described by some as excessive micro-management. Such powers require substantial supporting infrastructure in Parliament in terms of staff, experts and money.

Budget-influencing Parliaments can amend or reject the budget, but lack the capacity to put forward their own proposals. Many Parliaments in Europe fall into this category. When ministers fail to convince the legislature of the necessity for certain expenditures, cuts of relevant items can free up additional resources to address more urgent needs elsewhere. The German Bundestag, the Netherlands and the Danish Parliaments initiate hundreds of budgetary amendments every year and consider the most intricate details of the budget.

Parliaments with little effect on budget formulation: may reduce existing items, but not include new ones nor increase the number of items. Westminster type Parliaments are representative of this model. Traditionally, they give their consent to the defence budget as a global figure and individual amendments are not easily achieved (e.g. Australia, Canada, India, New Zealand, South Africa, the United Kingdom and Zambia). However, even if these Parliaments exert little influence over the budget formulation, they play a vibrant role in auditing defence expenditures, through hearings, inquiries and public reports aimed at informing public opinion. If Parliament's recommendations and the conclusions of parliamentary debates are effectively taken into account during budget formulation, this might diminish the need for amendment activity.

Table 1: Budgetary practice of Parliaments

Approve the budget	Country
– with significant changes	Czech Republic, Denmark, Germany, Hungary, US.
– with minor changes	Austria, Finland, France, Ireland, Italy, Netherlands, Norway, Poland, Portugal, Romania, Spain, Sweden, Switzerland, Turkey.
– without changes	Canada, United Kingdom, Greece.

Source: The OECD Budgeting Database 2002 and DCAF survey 2006

Once the budget is adopted, Parliament may enforce its *ex post* oversight, including audit functions. The accounts and annual reports of the security services are an important source in aiding Parliaments to assess how money was spent in the previous budget year. Ideally, the audit process should enable Parliaments to evaluate the legality, efficiency and effectiveness with which the departments in question have used their resources.

Defence procurement is an important part of the overall defence budget, representing the process by which national security authorities acquire the equipment and services that are necessary to fulfil their mission. Given that defence contracts represent large amounts of public money, they have a political nature, long term consequences for national industry and are prone to corruption. They are increasingly attracting public attention^[9].

ii) Sending troops abroad

National participation in international peace missions has become an important foreign policy and defence issue, which is of direct concern for the Parliaments.

Some constitutions make explicit reference to authorisation for sending troops to participate in missions outside of their border. The Constitution of the Czech Republic states that armed forces can be sent only with consent of

both Chambers, with a special quorum (Art. 43(3) b), Art. 39(3)) The Croatian Constitution has the same requirement, except when their national armed forces join an international mission of an organisation of which Croatia is part with the purpose of offering humanitarian aid (Art. 7) Georgia has a similar rule that emphasises the prohibition of using armed forces for honouring international obligations without the consent of the Parliament (Art. 100 (1)), and so has Lithuania (Art. 67.20), Republic of Moldova (Art. 66 l), Norway (Art. 25(2)), Russian Federation (Art. 102 d)), Slovakia (Art. 86 l), Sweden (Chapter 10, Art. 9(1)) and Ukraine (Art. 85(23)). The Hungarian constitution awards to Parliament the power of deciding on the use of armed forces abroad in all kinds of missions (Art. 19(3) j)). Furthermore, issues related to the use of Hungarian armed forces are expressly excluded from referendums (Art. 28/C (5) h)). In the case of Sweden, the above mentioned article also requires that the sending of troops to other country be permitted under a law, which sets out the prerequisites for such action. The Turkish Constitution (Art. 92) requires prior parliamentary authorisation for sending troops abroad or permitting the stationing of foreign troops in Turkey, except in cases required by international treaties to which Turkey is a party, or by international rules of courtesy.

Decision-making on international peace support operations goes hand in hand with the rules of engagement that settle issues such as the aims of the operation, the chain of command, the duration of the mission, the level of force, the types of troops, and the financial consequences of the mission.

The degree and the instruments at the disposal of Parliaments to direct and to guide the policy of the national government on this matter differ from the traditions and constitutional provisions. The main indicator of the role of a particular Parliament in the deployment of troops abroad is the power to formally approve national participation in an operation, before national personnel are deployed to the mission. Using this indicator, the following

table ranks Parliaments within three bands of involvement in sending military troops abroad: *High*, for Parliaments with the power of prior approval, *medium*, for Parliaments whose power of prior approval is limited by significant exceptions, and *low*, for Parliaments without the power of prior approval.

Table 2: The level of parliamentary involvement in authorising national participation in international missions abroad before troops deployment, as defined by national legislation.

Level of parliamentary involvement	Country
High – power of prior approval	Austria, Denmark, Finland, Germany, Ireland, Slovakia, Spain, Sweden, Turkey.
Medium – important exceptions from prior approval	Bulgaria, Czech Republic, Hungary, Italy, Luxembourg, Netherlands, Romania.
Low – no prior approval	Belgium, France, Greece, Poland, Portugal, Slovenia, United Kingdom

Source: DCAF survey 2007

Only a few Parliaments possess the power of prior approval in all situations, regardless of the diverse nature of international missions. This is the case in Austria, Denmark, Finland, Ireland, Luxembourg, Slovakia and Sweden, where the legislation in place gives the national Parliament the authority to approve participation in all international operations.

In analysing the national legislation in place in some of the European States, several types of *exceptions* and situations that limit parliamentary involvement in authorising national participation in international missions are discernible. These exceptions and situations may potentially create a space for a democratic deficit. The three main types of such exceptions appear below:

- Some Parliaments have the legal power to approve participation in military operations, while their approval for civilian operations is either unnecessary or remains unclear. In Germany for example, Parliament has

to give prior approval for military operations, but can only *post facto* oversee civilian operations. The Spanish Parliament was routinely marginalised in decisions relating to authorised use of force, but, following the unpopular decision to participate in the war in Iraq and the terrorist attacks in Madrid that led to the change of government in the March 2004 elections, a new law was adopted to give Parliament the power to give prior approval for military missions abroad. Still, the law makes no reference to civilian operations.

- In “new” European democracies like Bulgaria, the Czech Republic, Hungary and Romania the legislation defines important exceptions from prior parliamentary approval. The decision to participate in operations which are legitimised by a treaty or an international organisation of which the country is a member, is considered to be an executive responsibility. Therefore these exceptions cover all North Atlantic Treaty Organisation and European Union operations.
- In some countries the legislation allows for exceptions from parliamentary approval in the event of limited national participation in a mission. This applies for example in Denmark, Germany and Ireland. Sometimes the decision to participate in an operation may only be taken by a parliamentary committee, if few personnel are deployed, or if the operation is not considered to be very important. Examples of this are the Foreign Affairs Committee in Finland and the Defence Committee in Spain.

At the other end of the spectrum, in countries such as Belgium, France, Greece, Poland, Portugal, Slovenia, and the United Kingdom, parliamentary approval is not necessary for national participation in any missions abroad. Although government may ask for prior parliamentary approval, it remains the prerogative of the executive to determine whether this request is appropriate. In some of the “old” European democracies, like France or

United Kingdom, members of Parliament are no longer at ease with the current state of deployment legislation or with its inconsistent interpretation. Therefore they try to compensate for the lack of power of approval by developing procedures for parliamentary information and consultation in the early stages of the decision-making process.

Even when the Parliament is excluded from the decision-making process, it may seek to hold the government accountable through the usual methods of ex post oversight such as questions, interpellations, debates, hearings and inquiries. Additionally, parliamentarians often visit the troops deployed abroad. Despite using all these oversight instruments, the information national Parliaments receive about international missions can be considered to be insufficient for an effective involvement. This increases the potential for a democratic deficit. Parliaments are dependent on their national governments to provide them with information about missions abroad. However, many other relevant actors, playing a significant role at intergovernmental level, are not very well known within national Parliaments, and it is impossible to call them to account.

The better informed Parliaments appear to be those with the power of prior approval. The competent committee, usually the one charged with defence matters, develops awareness and accumulates knowledge on the matter. Debates about national participation in international operations usually involve the presence of Minister of Defence representatives and a detailed discussion of the mission's mandate, budget and duration. Occasionally, operational implications such as rules of engagement, command and control, type of weapons and equipment to be used and risk assessment, come up for discussion. However, the mission details represent only collateral information, used to consolidate MPs' general views on the operation.

In many Parliaments there is a lack of information about the general national financial contributions to international missions. Scrutiny by most

parliaments of the funds for external operations is limited to the annual approval of this expenditure, as part of the overall national defence budget. When participation in individual operations is considered by Parliaments, an estimate of financial costs may be presented by the government, but the real cost of each mission is very difficult to calculate, given that all the costs involved for personnel, training and equipment spread over several budgetary chapters and appropriations, and over several years. In some countries the budget for international operations is made up from the budget of different ministries. In Finland for example, the budget of the Ministry of Foreign Affairs covers personnel costs, and the budget of the Ministry of Defence covers the material costs. In Spain, the funds initially forecasted for international operations in the Minister of Defence budget are supplemented from the Emergency Fond administered by the Ministry of the Economy throughout each year i.e. no parliamentary approval would be required when money is transferred from this Fund.

c. Mechanisms of control

i) Legislation

Legislation is one of the principal ways in which Parliament controls military activity. Through different kinds of rules, it defines the mission, functions, structure, and competences of armed forces, specifying the constitutional mandate; in other words, it shapes the legal framework within which the military develops its defence and security activities.

Several constitutions explicitly mention the legislative powers of the Parliament on military and defence issues. The normative delimitation of the mission of the armed forces at constitutional level can act as a limit to the exercise of the power to legislate, since Parliament must respect the

Constitution when developing the related legislation. Not all the constitutions settle the missions of armed forces, although some of them do. In other legal systems, the mission of armed forces is defined by means of parliamentary statutes. Nevertheless, and as a general feature, the legal framework of the mission and permissible activities of the armed forces, whether fixed by the Constitution or by statute, remains relatively open. This means that their powers and competences are only relatively limited. This openness means, for example, that, in Belgium, all missions abroad which conform to certain political conditions and which do not violate the general rules of public international law are permissible. The same pattern exists in France, where the only constitutional limitation is that armed forces may not be used for “conquest” and “against the freedom of any people.” Only in a few countries, such as Germany or Spain, do their constitutions make specific reference to the permissibility of certain missions.

The definition of competences through statutes, then, acts as a first filter and mechanism of control over military acts and decisions, since Parliament fixes and delineates the sphere inside which the decisions are adopted. Only decisions adopted within this legal framework will be legitimate. Those outside it are liable to challenge before the courts or corresponding channels.

ii) Direct control

The democratic control of military decisions is that exercised over decisions adopted by organs with military competences. The most important are the decisions taken by the armed forces themselves, through their commanders, and those adopted by the Head of State or the government.

Decisions and acts by the armed forces can be subjected to several types of control. Parliamentary oversight can be classified as direct and

indirect control, based on the type and impact of the interference on the decision of the organ exercising military competences.

Direct control consists of the possibility assigned to an organ democratically composed or elected to substitute the decision of the competent organ in military or defence affairs. Within this type of control, one can distinguish the following sub -sections:

1) Co-participation in the decision

Co-participation in a military decision means that the democratic body participates in the decision-making. In fact the decision is adopted jointly by the Parliament and the body with military competence e.g. decisions to send troops abroad in countries such as Czech Republic, Denmark, Germany, Hungary, Italy, Netherlands, Norway, Sweden or Turkey require parliamentary approval.

2) Control *a posteriori* of military decisions with the possibility to revoke or substitute them

This type of control implies that Parliament can review decisions by the competent organ, but only once they have been adopted. This is the case, for instance to urgent decisions. In Germany, for example, it is possible to take a decision to deploy armed forces to combat danger in cases of natural disaster (Art. 35) or internal emergency (Art. 91). In both cases, the decision can be revoked by the Bundesrat.

iii) Indirect control

Indirect control carried out by a democratic organ consists of some degree of interference in military decisions or the addition of conditions to decisions. It is possible to identify several mechanisms of indirect control.

Parliament has neither the means nor the vocation to place itself as “co-manager” of defence policy. Nor should Parliament seek to run or decide on

actions in parallel with the executive, in the matter of defence policy. However, Parliament can play an important role in defining general defence policy. Indeed, by using fully the range of means of its legislative authority, by launching sound analyses or research on topics of its choice, by performing its institutional role of proposals and reflection, not simply those of control, Parliament enjoys an effective power of influence which has proved to be significant. Furthermore, the participation of Parliament in general defence policy can also be provided for in legislation. For instance, in France, the Law on Military Programming 2003-2008 provides that every other year, a debate within Parliament must be organised in order to discuss future plans for defence policy and their implementation.

2. The role of the Executive

The role of the Executive in the control of armed forces varies in the different member States of the Council of Europe. A priori, the executive commands of the armed forces although the form of government adopted (parliamentary monarchy, presidential republic or parliamentary republic) determines the role played by either of the two branches of the executive (i.e. Head of State and government). Accordingly, this role can be more or less active, symbolic or effective, formal or substantial.

At constitutional level, mentions of the power of the executive over the military sphere are related to the position and the competences of the Head of the State, the government, and the Minister of Defence, depending on the State. Sometimes, the powers are more precisely expressed. In other cases, there are vague references, which are complemented at legislative or administrative level. The existence of a National Security Council is also regulated, on some occasions, in the Constitution, which normally works with the Ministry of Defence or the government.

In many of the states, the president, the monarch, or the government as a collective holds the position of Commander-in-Chief of the armed forces. But in some States, (most of them presidential regimes), the president of the republic has the power to conclude international treaties on defence and security, the power to declare a state of emergency and war. He or she also has the power to appoint or dismiss high commanders and to make decisions about sending troops for international peacekeeping or enforcement missions.

C. International dimension of the control

The internationalisation of the defence and security, or more specifically, the emergence of collective security and collective defence organisations, has moved the focus of attention of the control and oversight of armed forces from the national to the international level. Properly speaking, democratic control is that practiced by democratic institutions. The question is, then, whether this type of control is sought and possible within international institutions. In an extreme opinion, it has been said that no oversight of the security and intelligence services exists on the international level. In literal terms, this statement may hold true for intelligence and security services but it may require some qualification when referring to armed forces. Most of the international organisations for defence and security do not have a truly democratically elected institution (i.e. a Parliament). Often, they lack the power to control the armed forces carrying out the peacekeeping or peace enforcement operation. However, some oversight exists especially at intergovernmental level in authorising international missions and in following up their development.

Thus, to understand the general framework of the democratic oversight of the military, it is important to take into account the international dimension

of the use of force, together with the problems and deficits inherent in the design of the control mechanisms.

When deploying troops to attend international peacekeeping missions, questions of democratic accountability arise, as to “authority and responsibility for decisions to deploy military forces, select objectives, incur risk, and implement mandates in the field”. Some scholars identify five issues of democratic accountability related to the use of force under international auspices: 1) international authorisation to use military forces; 2) national authorisation to use military forces; 3) democratic civilian control of military personnel and operations; 4) civilian responsibility to the military for the safety of deployed personnel; and 5) responsibility to comply with norms governing the conduct of military and other international personnel in the field. Moved by these same concerns, some scholars have applied the notion of ‘double democratic deficit’ to name this lack of effective internal and international mechanisms of democratic control of the military in the development of international missions.

In connection with the above issues, the question of foreign command over national soldiers or units is an important and unresolved one. The subordination of soldiers or units to the command of the superior of foreign armed forces is an important issue related to the control of armed forces, unfortunately not debated in depth by scholars. Moreover, generally speaking, States do not raise constitutional questions about the transfer of the command of troops in multinational military cooperation, effectively transferring the exercise of their sovereign rights in the field of defence. In fact, constitutions do not have rules concerning this issue. Furthermore, the debate of the permissibility of subordination of armed forces to foreign command is also poor. Nevertheless, in Germany specific rules exist and debate over this topic has arisen.

A further problematic topic is the transfer of powers of command to international collective security entities. In the case of the North Atlantic Treaty Organisation, for example, this transfer of powers has been limited to certain powers of command, according to the constitutional law of some countries. The German legal system, for example, requires that a soldier needs to receive an order from his superior, which is revocable and limited in time and scope, if he is to follow the order of a foreign commander. The question about the need to approve specific legislation for a general transfer of power to foreign commander remains open.

1. Preliminary issues

In order to establish with accuracy what acts and issues should be under the democratic control of armed forces, it is necessary to analyse the various types of presence of armed forces in foreign territory. For identifying who – at international level – should exercise this control, it is important to clarify the State or international body responsible for the acts of the armed forces in foreign territory, taking into account the specific situations likely to occur, and the international legal rules and principles applicable to each situation. The identification of which State is responsible at international level is also relevant for the domestic dimension of the control, as the allocation of responsibility to a certain State gives the possibility for its internal mechanisms of control, as described above.

There are also different types of international organisations whose mission is to safeguard and contribute to international collective defence, security and peace. Each State has its own mechanisms for becoming part of international organisations, according to their legal system. Most of these organisations are created by an international treaty, and can be regional or worldwide in character. The model of the latter is the Charter of the United

Nations as a treaty for protecting, maintaining and reaching world security.

Regional agreements

The North Atlantic Treaty Organisation, the European Union and the Council of Europe member States “have committed themselves to strong principles relating to democratic governance, human rights and the rule of law”, that are the basis for norms of democratic control over the military. Adherence to these principles has accordingly become a basic requirement for membership of international organisations of democratic states ^[10] .

2. Organs involved

a. Intergovernmental Institutions

At the intergovernmental level, the control basically consists of the authorisation for collective security or defence missions by the Security Council. This means that the Security Council is still the principal provider of legitimacy of the use of force in the international sphere, also for the North Atlantic Treaty Organisation and the European Union, since these missions must be subjected to it. Provided that the armed actions are duly authorised according to the United Nations Charter such decisions are taken by the representatives of the governments in the respective international bodies, even if at domestic level the competence to take such decisions belongs or should belong to the national parliaments, thus producing *a certain* transfer of competences from the (domestic) parliamentary level to the (international) intergovernmental level. On the other hand, parliamentary control remains with the national Parliaments, to which their ministers are accountable, in respect of positions taken in international forums.

Concerning the responsibilities derived from the international use of force, it should be said that beyond the general frameworks of the respective

treaties of these international organisations, they are generally fixed through special instruments. The participating States draw up the content, plan, procedure, and duty of information.

i) United Nations-Security Council

The United Nations, as an international organisation with the purpose of maintaining international peace and security, has a broad mandate from its member States to authorise the adoption of collective measures for the prevention and removal of threats to international peace. The United Nations has developed a wide range of instruments for maintaining international peace and ensuring security.

ii) North Atlantic Treaty Organisation

The North Atlantic Treaty Organisation has a military structure responsible for planning the multinational use of force and establishes a commander system. The North Atlantic Council (NAC) is the principal decision-making body within the North Atlantic Treaty Organisation. It is formed by high-level representatives of each member country, and discusses policy or operational questions before adopting decisions.

iii) European Union

The second pillar of the European Union is the Common Foreign and Security Policy. The process of creating a European Security and Defence Policy within the Common Foreign and Security Policy started in the nineties, with the Saint-Malo Declaration of 1998, and continued through other

declarations and reports form European Councils, and the modifications introduced by the Nice Treaty.

The Treaty on European Union settles provisions on a Common Foreign and Security Policy under title V (Art. 11-28). The principles and objectives are fixed by Art. 11, and they focus on the protection of the common values, interest and integrity of the Union, the protection and promotion of international peace, security and cooperation, and the development and consolidation of democracy, the rule of law and fundamental human rights and freedoms. The European Union member States shall support it with the spirit of mutual solidarity. The European Security and Defence Policy operations have been characterised, since its inception, by a large civilian component.

Decision-making about Common Foreign and Security Policy is within the remit of the Council and shall be taken unanimously (Art. 23 Treaty on European Union). However, it may act by qualified majority in some cases (decisions based on a common strategy, decisions implementing an European Union joint action or common position, appointment of a special European Union representative).

One further problem is that Art. 46 Treaty on European Union excludes the Common Foreign and Security Policy from the jurisdiction of the European Court of Justice. The intergovernmental character of the security and defence policy, together with the lack of judicial and Parliament scrutiny, produces a deficit in the democratic control of armed forces within the European Union.

b) Inter-parliamentary dimension of the control

The existence of inter-parliamentary institutions within (or related to) international organisations in charge of international security and defence

issues does not automatically imply that they have some role to play in the control over armed forces or troops participating in international missions. Furthermore, with the notable exception of the European Parliament, they are not directly elected assemblies and they lack or have marginal control powers over the executive at international level.

Some scholars have recommended several measures to strengthen the capacity of national Parliaments to oversee multinational peace support operations, such as inter-parliamentary cooperation, adjustment of the legal framework, effective rules of procedure, and cross party-responsibility. At the international level, a solution would be to make the existing international assemblies more representative and to improve their procedures. An inter-parliamentary structure with increased competences in control and decision-making, including in the military affairs, would ensure better decision-making, and more democratic oversight.

i) United Nations General Assembly

Under the United Nations Charter, the United Nations General Assembly only makes recommendations on these issues, and approves the budget of the United Nations, under which the international missions and operations are financed (Art. 17 Charter). Exceptionally, when the Security Council was unable to adopt decisions for political reasons, the United Nations General Assembly enlarged its competence by assuming tasks belonging primarily to the Security Council (that is to assess situations that appear to be a threat to peace, a breach of peace or an act of aggression, and to make recommendations to United Nations member States for collective measures, including the use of armed forces).

ii) North Atlantic Treaty Organisation Parliamentary Assembly

The North Atlantic Treaty Organisation Parliamentary Assembly is inter-parliamentary in character and stands as a link between national Parliaments and the Alliance. It functions through committees, searching to build consensus, and adopting resolutions and recommendations that pass to the Secretary General and the North Atlantic Council. One of the aims of the North Atlantic Treaty Organisation Parliamentary Assembly is “to assist in the development of parliamentary mechanisms, practices and ‘know-how’ essential for the democratic control of armed forces”.^[11] The North Atlantic Treaty Organisation Parliamentary Assembly would like to strengthen parliamentary oversight over European Security and Defence Policy, and promotes in this respect the need for dialogue with the European Parliament and the national parliaments. It sees itself as a “visible manifestation of the Alliance's shared commitment to parliamentary democracy. Its activities enhance the collective accountability of the North Atlantic Treaty Organisation. They also contribute to the transparency of the North Atlantic Treaty Organisation and its policies and to improving public scrutiny and awareness”.^[12]

iii) European Parliament

The competences of the European Parliament in the Common Foreign and Security Policy are restricted to being informed by the Presidency and the Commission of the development of this policy, posing questions to the Council and making recommendations, and holding an annual debate on progress in its implementations (Art. 21 Treaty on European Union). Within the European Parliament, there is a Security and Defence Subcommittee.

According to the Treaty amending the Treaty on European Union and the Treaty of European Community, the European Parliament should be

regularly consulted and informed on the main aspects and fundamental choices regarding the European Security and Defence Policy. The views of the European Parliament are to be duly taken into account. Also, Protocol no. 1 on the Role of the National Parliaments in the European Union (annexed to the Treaty amending the Treaty on European Union and the Treaty of European Community, provides in its Article 10 the possibility for a “conference of the (domestic parliamentary) bodies charged with European Union affairs” to organise inter-parliamentary conferences to debate particular subjects, including European Security and Defence Policy.

b. International courts

Three international courts are relevant for this study, and will be briefly examined in the next paragraphs: the European Court of Human Rights, the International Court of Justice, and the International Criminal Court. As regards the European Court of Justice, it is to be noted that Art. 46 of the Treaty on European Union excludes the Common Foreign and Security Policy, including the European Security and Defence Policy, from its jurisdiction.

i) The European Court of Human Rights

The High Contracting Parties to the European Convention on Human Rights are subject to the judicial review of the European Court of Human Rights. The control of the European Court of Human Rights over the military is limited to violations of the Convention and its Protocols. Judgments about military issues are usually related to violations of fundamental rights of military personnel, but may also relate to the violation of fundamental rights in the context of military occupation of foreign territory, of acts committed by

armed forces in foreign territory in situations other than occupation, in situations related to peace-keeping operations or multinational coalitions. In both cases, the Court aims to strike the correct balance between national security and individual rights. Armed forces exist to protect democratic values, and have, consequently, to respect the rule of law and fundamental rights in performing its missions.

ii) United Nations International Court of Justice

The United Nations International Court of Justice was established by the Charter of the United Nations (Arts. 92-96), and is also regulated by the Statute of the Court and the Rules of the Court. The members of the Charter are *ipso facto* part of the Statute of the United Nations International Court of Justice. The competences of the Court are *inter alia* to decide upon infringements of the Charter, and to give advisory opinions on legal questions by request of the General Assembly or the Security Council, or other United Nations organs and specialised organs authorised by the General Assembly. In settling contentious cases, this court examines issues such as the legality of the use of force in specific missions, frontier disputes, arrest warrants, application of conventions, interpretation questions of a rule, etc. On the other hand, some of the advisory opinions have settled important directives concerning the application of international humanitarian law, or the legality of the threat or use by a State of nuclear weapons in armed conflicts.

iii) The International Criminal Court

The Parliamentary Assembly of the Council of Europe Recommendation 1713(2005) states that “The conduct of the troops should be subject to the jurisdiction of the International Criminal Court in The Hague”.

Accordingly, the member states of the Council of Europe that are at the same time ratifying parties of the Treaty establishing the International Criminal Court, are under its jurisdiction. The Rome Statute settles the International Criminal Court as an independent, permanent and last resort court, which has jurisdiction to judge serious international crimes, such as genocide (Art. 6), crimes against humanity (Art. 7), war crimes (Art. 8) and the crime of aggression (to be defined and included in the Rome Statute following an amendment to it). Articles 28 and 33 of the Rome Statute of the International Criminal Court deal with the responsibility of commanders and other superiors, and the responsibilities of military personnel for superior orders and prescription of law.

VI. Conclusions

The primary duty of the armed forces in a democratic society is to protect and ensure the security of society from exterior threats and to safeguard democratic values, the rule of law and the human rights and freedoms of all persons subject to that national jurisdiction.

However, the lessons learned from history - including the recent one - of European States has shown that democracy and its values can be affected by abuse when the military seizes power in a military coup or threatens civilian leaders with such conduct, or attacks the civilian leaders with such conduct or decides to impose its will by means of supporting a certain government.

It appears from the study that grounds for democratic oversight over armed forces can be found at the domestic and international level, both being inter-related.

Democratic control over armed forces represents a guarantee that human rights and fundamental freedoms be respected both within the armed forces and by the armed forces during their operation.

Military decisions have some special features (speed or urgency, efficacy, secrecy, discretion) that need to be balanced with the democratic control over them. Regarding the control of the use of force in international missions, the existence of an evolving mixed system of accountability, with procedures and actions both at national and international level, can be observed.

The growing use of military forces in international missions calls undeniably for development and reinforcement at national and international level of the variety of legal tools of control as described above in this study.

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*European Commission for Democracy through Law is known as Venice Commission

[²] See *Study on Democratic Control of Armed Forces: Civilian control of the military: Why and What?* available at [http://www.venice.coe.int/docs/2007/CDL-DEM\(2007\)005-e.asp](http://www.venice.coe.int/docs/2007/CDL-DEM(2007)005-e.asp)

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[8] In 2005, for example, the budget of the US Defense Department was raised to a total of US\$ 478.2 billions, while the United Kingdom assigned US\$ 48.3 billions and France US\$ 46.2 billions. See the data of the Stockholm International Peace Research Institute available at:

http://www.sipri.org/contents/milap/milex/mex_major_spenders.pdf.

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INDICATORS TO ASSESS INTEGRATED DEFENSE RESOURCES MANAGEMENT IMPACT ON ARMED FORCES INTERNATIONAL MISSIONS

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Abstract

The operating environments that have been developed after a wide-ranging examination of global, environmental, sociological, technological, and military dynamics will influence the course of future conflict and the strategy of Romanian military forces management, as well. By examining a number of critical trends influencing potential future operational environments and associated threats, this paper may serve as a common frame of reference and guide for civilian and military leaders responsible for the capabilities-based integrated resource management transformation process for the assessment of the results by using indicators. In this respect are recommended several indicators grouped on operational activities and financial allocation criteria.

1. Introduction

Integrated defense resource management in Romania applies innovation and change to the ideas and capabilities that animate military

forces to ensure that they are adapted to the world in which they operate. The process of innovation and change relies on an ability to foresee and anticipate the key factors that shape the world and the challenges which are intrinsic to these factors. Another aspect is to assess the results of actions using the most appropriate indicator in order to make decisions to quickly adapt in the face of surprise.

The three main domains to be assessed could be considered to be: (1) intelligence, (2) command and control and (3) precision force [1].

- *Intelligence, including surveillance and reconnaissance (ISR)*

It involves sensor and reporting technologies associated with intelligence collection, surveillance, and reconnaissance, as well as the new means by which we are able to keep track of what our own forces are doing. Because of advances in this area, the capacity to maintain real-time is expended, all weather awareness of what is occurring in and above a wide geographical area.

- *Command, control, communications, computer applications, and intelligence processing (CCCCAIP)*

It involves the technologies and techniques by which the awareness of what is occurring in a broad geographical arena into an *understanding* of what is taking place there are translated, and communication that leads to understanding quickly, surely, and accurately to combat forces. It also implies processes of identification, mission assignment and force allocation take place. In other words, it is the realm in which the understanding of a battlespace to missions and assignments designed to alter, control, and dominate that battlespace are converted.

- *Precision force (PF)*

It is about to be precision-guided weaponry, and it certainly includes this category of weapons. It is a broader concept, however, that emphasizes speed, accuracy, and precision in the use of force and therefore encompasses all our

forces, the infantry as well as strategic bombers, and includes things like information warfare. This is the area in which the knowledge generated from the overlap of the first two areas leads to action.

It is important not to miss the power generated by the interaction of ISR, *CCCCAIP* and PF, because the developments in each of the areas as discrete and separate are tended to be seen. It is because “multidisciplinary technologies across dimensions will have a revolutionary impact on how we live by 2025, but will accentuate the disparity between “haves” and “have-nots.” Research requires consistent effort and resources. It cannot be turned on and off effectively or in a timely manner” [5].

2. International missions and their trends

The international environment is composed of a large number of variables that are relevant to military operations and some which are not, but having the potential to cause conflict and war and define potential to influence the course of human events in the future. Trends may be subject to shocks that accelerate or wholly change the direction of the military challenges.

As NATO member, Romania has its own duty in the wider global security environment. “The joint force will also encounter a number of new and emerging challenges, the outlines of which are just becoming clear from our vantage in 2007. These include the development by states of anti-access strategies and capabilities, the potential emergence of new terrorist ideologies, and groups or states bent on the disruption of global trade and finance. The future joint force will likely be confronted by persistent cyber-conflict and the potential disruption of global information networks. The proliferation of weapons of mass destruction, failing nuclear and energy states or mega-cities will challenge the joint force to impose levels of order on highly disordered situations. A final emerging challenge is the potential growth and

development of a global anti-American coalition of opportunistic states, transnational terrorist groups or supernational organizations” [5].

The nature of today’s global security environment makes coalitions and interagency partnerships even more important than before and needs to account on multinational partnerships. Now, countries think about the entire spectrum of conflict vice strictly combat operations, and it has become vital to develop relationships by bringing other elements of national power [3].

3. Recommended indicators

1.1. Operational indicators

The operational indicators might be seen from the four following dimensions: (1) human geography, (2) governance and legitimacy, (3) globalization of economics and resources, and (4) science, technology, and engineering [5].

Human geography indicators

These indicators need to emphasize the quantity, characteristics, and distribution of human military and civil populations, such as:

- The number of people dislocated for international missions;
- The characteristics of people dislocated for international missions: age, gender, education, profession, health, culture, urbanization, faith, and ethnicity;
- The structure of people dislocated for international missions: military and civil.

The impact of the intercultural encounters is also important to be assessed because it is not always positive. “In very underdeveloped countries with a large, unemployed youth bulge, Western cultural influence results in disaffection and resentment—both of which fuel crime, terrorism, and drug usage. External cultural infusion leads to a weakening of cultural cohesiveness, producing a backlash of negative attitudes and actions” [5].

Governance and legitimacy

It relates to the nature of international actors in the international environment, including who owns or can make use of natural and human resources and who can command loyalty and claim legitimacy to act throughout the world. “Today, there is a wide and diverse array of actors capable of exercising power in some way on the international stage, and the traditional notion of the sovereignty and primacy of the nation-state is under challenge. Some states are delegating parts of their sovereignty upwards to international and supranational organizations, while aspects of sovereignty are draining away downward to sub subnational groups and identity of sovereignty of states both upward and downward. (...) For example in Europe, states such as Belarus and Russia may join together to form a larger state or union. Regional supranational organizations represent a pooling of sovereignty to achieve greater collective power. As members, nations have the potential to become increasingly powerful, capable of concerted diplomatic, information, military, and economic actions. These organizations can constrain or facilitate America’s ability to act or react.” (...) The globalization of information and trade will complicate the perception of legitimacy as populations become increasingly aware of their status relative to other similar countries. Some governments will lose legitimacy and fail based on loss of public confidence and/or dissatisfaction with status as “have-nots.”

[5]

In this respect the main indicators might be:

- The number of actors that are capable to lead internationally;
- The characteristics of actors that are capable to lead internationally.

Globalization of economics and resources

This dimension referring to globalization economics and resources needs to take into consideration the climate change driven by global warming will

have wide-ranging economic and resource impacts, and examples of the impacts are:

- “The economic impacts will range from those associated with resource availability, to increased health care costs, and the potential failure of the insurance industry, the world's largest economic sector” [2].
- “Climate change will have multiple effects upon food production. Crop ecologists estimate that for every 1.8°F rise in temperature above historical norms, grain production will drop 10 percent. Food production, cultivation and animal husbandry patterns will be affected and some regions will be unable to grow current food staples, such as rice and green vegetables; fish stocks will diminish or migrate” [6].

The challenges in resources availability are going to influence the energy demands that will grow as a result of increased heating, cooling, industrial, and transportation needs and carbon dioxide emissions, as well. “The current world economy is characterized by the notion of *globalization*, which denotes the ability to trade, conduct commerce, and move goods and services across international boundaries. Globalization has brought with it a degree of prosperity that has never been seen before. It also brings with it economic dislocation as centers of high-cost production are closed and moved to areas with lower labor and production costs. Because globalization results in both “winners” and “losers,” the degree to which economic globalization will continue is unclear” [5].

Having in view the above mentioned issues the main indicators might be:

- The weight in GDP of national resources used in international missions;
- The structure of national resources used in international missions;
- The weight in GDP of imported resources used in international missions.

Science, technology and engineering

“The key strategic implications of science, technology and engineering (ST&E) will be shaped by and dependent on its global availability. (...) Thus, military scientists and researchers will have to have pervasive, sustained, and trusting relationships with the commercial sector, at home and abroad” [5].

In this respect the recommended indicators are:

- The number of registered national inventions and innovations to be applied projects used in international missions;
- The weight in GDP of national science, technology, and engineering applied projects used in international missions;
- The weight in GDP of imported equipment and know-how used in international missions.

1.2. Financial indicators

The main financial indicators needed to be used to assess the international missions are related to the Romanian Ministry of Defense and might be: (1) Overseas Contingency Operations Transfer Funds, (2) Operation and maintenance and (3) Overseas Humanitarian, Disaster, and Civic Aid [4].

Overseas contingency operations transfer funds

The Overseas Contingency Operations Transfer Fund allows the operational requirements meet in support of contingency operations without disrupting approved program execution or force readiness. This established fund, as a “no year” transfer account, provides added flexibility by allowing for the transfer of funds to the international missions based on actual experience as events unfold during the year and are adjusted to the dynamic changes in operational requirements and better allocate funds based on more current and up-to-date information.

Some other indicators are related to the operational programs fields of action such as [4]:

- The Air Operations program finances the cost to maintain aircraft and to train pilots to achieve and maintain flying proficiency in support of the national military strategy. The portion of the Air Operation program is commonly referred to as the “flying hour program”, based on pilot training syllabuses, which are used to estimate the number of training hours needed to achieve and to maintain aircrew skill levels. The major program changes are primarily due to increases in the cost of the flying hour program for consumables and depot level repairables due to aging aircraft.
- The Land Forces program includes funding to train and sustain active Army and Marine Corps ground combat forces. The Army’s program includes units assigned to heavy, airborne, air assault and light division; corps combat units. The Marine Corp program includes divisions, service support groups, helicopter groups, and light anti-aircraft missile battalions that constitute the Marine air-ground team and Marine security forces.
- The Ship Operations programs include plan operating rates as well as depot maintenance and support.

Other indicators might stress the structure of costs in percentage out of total contingency costs, as for example: Afghanistan, Kosovo, Iraq.

Operation and maintenance

The main indicators are going to show the costs and budget allocations available for: maintenance; transportation; training and education; recruiting, advertising, and examining; base operations support and command, control, communications and intelligence.

“The Mobilization program provides for airlift and sealift capability to deploy combat forces and materiel in contingencies by providing funding to maintain an inventory of immediately available supplies and equipment to sustain the forces as outlined in the National Military Strategy” [4] as the followings:

- The Depot Maintenance allocation finances the overhaul, repair, and maintenance of aircraft, missiles, ships, submarines, combat vehicles and other equipment costs. Depot maintenance efforts are performed at both public and private (contractor) facilities. These efforts provide maintenance necessary to sustain the operational readiness of combat forces, to ensure the safe and efficient operation of weapon systems, and to renovate assets that are being transferred from active forces to the reserve components.
- The transportation allocation provides financial resources for the movement of materiel between contractors’ plants, military logistics centers, and field activities throughout the world.
- The training and education allocation finances the operation of training centers, and scholarship programs, which are necessary to acquire and maintain a trained force of personnel able to effectively support military units, ships, aircraft, and installed weapon systems, and are resources to finance base support activities and facility sustainment, as well.
- The recruiting, advertising, and examining allocation is to support the recruiting commands and stations for international missions.
- The base operations support fund provides the resources to operate the bases, installations, camps, posts, and stations to sustain mission capability, ensure quality-of-life, and enhance work force productivity, and fund personnel and infrastructure support.

- The command, control, communications and intelligence allocation finances base level and worldwide communication networks for voice, data, and imagery traffic to ensure responsive support to the forces.

Overseas humanitarian, disaster, and civic aid

The overseas humanitarian, disaster and civic aid budget allocation includes three segments: the Humanitarian Demining Program, the Humanitarian Assistance Program, and Foreign Disaster Relief Assistance [4]. In broad terms, these finance resources support the national military forces in meeting two key requirements:

- to maintain a robust international presence aimed at contributing to the international security environment in a manner that deters would-be aggressors, strengthens friends and allies, and promotes peace and stability in regions of tension;
- to respond effectively when called upon to assist the victims of storms, earthquakes, and other natural or manmade disasters.

These actions enhance readiness across a number of operational areas including: command, control, communication and intelligence; civil affairs; and logistical support.

4. Conclusions

A system of indicators are useful to define the core competencies which stem from the speed, global range, precision, flexibility, unparalleled access, and awareness afforded by the military forces that contribute internationally to the global safety and security.

The above recommended indicators, resulted from the research and mentioned references, are seen as being a small contribution to the Romanian

system of indicators creation and this paper is subject of debates and completion.

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THE TERRORISM – A THREAT FOR MODERN SOCIETY

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Abstract

Principala trăsătură a activității teroriste internaționale din ultimii doi ani o reprezintă creșterea fără precedent a fenomenului. Numărul total de incidente în 2005 a atins aproape 5000 (mai exact 4924 de incidente), cu aproape 85% mai mult decât vârful „precedent”, anii 2004 (2646) și 2002(2649), reprezentând un record absolut în istoria terorismului.

Papa vede terorismul ca „o decizie crudă și perversă care sfidează dreptul sacru la viață și subminează însăși fundamentele societății civile... Dacă împreună putem reuși să eliminăm din sufletele noastre orice urmă de ranchiună, rezistând oricărei forme de intoleranță și opunându-ne oricărei manifestări de violență, vom respinge valul de fanatism feroce care pune în pericol viețile atâtor semeni și zădărnicește progresul spre o pace mondială”^[37]

În lumina acestor idei, lucrarea de față își propune să realizeze o scurtă analiza a terorismului în societatea contemporană.

Being a specific phenomenon of social-political life, nowadays terrorism represents a serious danger, threatening with the enlargement of the

^[37] Pope Benedict XVI, COLOGNE, 21 August 2005

conflict areas, causing human losses and material and moral prejudices to the whole world.

The main method used by terrorists to impose their conditions to local authorities remains the terror, as in old times. This method is represented by a lot of violent acts using fire weapons, different types of explosive disposals, taking hostages or taking over means of public transportation and so on.

For the time being, the danger of terrorism is acknowledged, put in theory and well studied, taking into consideration different aspects, by various categories of political analysts, philosophers, sociologists, statisticians, legal consultants and military people.

These people must provide a unanimous accepted definition of terrorism to deter the terrorist organization in finding a way to justify their actions, using this definition. It is very important that this definition of terrorism not to include in this type of actions "guerillas war" (solitaire fighters or members of singular groups) and in the same time to stop them from self-proclaiming fighters for independence or freedom.

It is necessary to point out that many states may define some actions as terrorists ones while similar acts carried out by other entities are accepted as non-terrorists.

The term of terrorism is derived from latin word "terror" which means physical violence, fear, deliberated provoked terror using public violent acts or means capable of provoking a common danger.

The terrorism means to organize, finance and equip some people special trained for carrying out specific violent actions and threat with violence, using systematic and persistent violence.

We consider *terrorism* being a method of solving problems that uses violent means, between groups with different interests, criminal organizations or people, for implementing political, economic, religious, ethnic or other types of demands. Their goal is to frighten and convince people and public

society to put pressure on local authorities and governments in order to satisfy terrorist organizations' demands. The terrorist acts are different from common crimes because of their goals and consequences, namely provoking panic, disorder and terror inside of pointed collectivities, causing many victims and damages.

Taking into consideration terrorist phenomenon evolution till now, some specialists say that terrorism will extend its area of actions, develop, improve its methods of actions if oppressions against it, famine, economical, political and social unfairness are become bigger. Terrorists acts will be more sophisticated and carry out causing more violence then previous ones, becoming kind of perpetuum-mobile, if one replies with violence to violence. It is considered that anti-terrorist coalition forces ought to emphasize on prophylaxis, prevention and counteracting, but, in the same time, an international legislative system in this field should be implemented^[38].

As a general rule, the terrorists are people from social national minorities who behave as independent nation or state. Anyway, the terrorist organizations can not act inside a totally hostile environment. They need facilities, logistic and financial support, the possibility to recruit new members, safe operational bases etc. Usually these needs are satisfied by one certain part of the people who're sympathizing with the leadership of organization or by states which have the same political goals.

It is said that the current terrorism is a conflict of civilizations, sustained by controversial book „The Clash of Civilization” written by American writer Samuel P. Huntington. He said: „As long as Islam stays Islam (which it will happen) and Occident stays Occident (which is less sure to be), this fundamental conflict between two great civilization and way of life will keep on defining their relationship. This has happened because

[³⁸] Cf. Gl.bg.(r) prof. univ. dr. Costică Țenu, Col. (r) prof. univ. cons. dr. Lucian Stăncilă – *Arta militară în actualitate*, Ed. U.N.Ap., București 2004, pg. 249;

Islamists would be sure of their culture superiority and obsessed by their power inferiority”.

The most dangerous menace^[39] to civilized world, lower than nuclear threat, is the terrorist one. In the last decades, extremists actions and reactions have proliferated because of civilization extension on the whole planet and because everybody has access to information, technology and culture. They are symmetric with the extremism from globalization and they intend to stop and destabilize the civilized world offensive against fragmentation, promiscuity, poverty and violence.

In these days, the terrorism has developed, improved and adapted to the new circumstances of present times. We can speak about types of terrorism, identifying suicidal and criminal activities of terrorists groups from all over the world, which achieve their goals in the name of a cause or because an unsatisfied wishes.

The experts have identified at least nine types of terrorism: nationalistic terrorism, fundamentalist Islamic terrorism (the most dangerous), terrorism supported by one state, gauche terrorism, cyber-terrorism, narcotic-terrorism, bio-terrorism, ad-terrorism and air- terrorism ^[40].

Military people perceive the terrorism as one type of low-intensity conflict, being at the other side of armed conflict spectrum. In this respect, the military people focus on sponsor states and on terrorist groups in a strategic perspective, and on guys and terrorist acts in a tactical perspective. The idea of looking at terrorism as a new way of carrying war appeared after the military conflicts from Vietnam and Afghanistan etc.

For modern society, the main terrorist threats are as follows :^[41]

^[39] Cf. Dr. Constantin Moștofle, Dr. Gheorghe Văduva - *Tendențe în lupta armată*, Ed. U.N.Ap., București 2004, pg. 16;

^[40] Cf. Col (r) prof. Gabriel Dulea - *Psihologia terorii și teroarea psihologică în situații de criză*, Ed. U.N.Ap. București 2006,

^[41] Cf. Gl. dr. Mircea Mureșan, Gl. bg. (r) dr. Gheorghe Văduva – *Războiul viitorului, viitorul războiului*, Ed. U.N.Ap., București 2004, pg. 455-457;

- possibility of using nuclear, chemical, radiological and biological means, substances or weapons, or weapons of mass destruction (WMD);
- preparing and carrying out attacks on nuclear facilities from different countries or against chemical factories, biological laboratories etc., to get nuclear, chemical or biological weapons or to detonate these types of weapons or substances at that place, in closed or open spaces, in crowded areas or other places (inside trains, buses, automobiles, plains, ships, depots, near nuclear facilities and so on) , to cause spectacular catastrophes, in the name of some ideas, ideologies, principles considered to be holy or assuming a role to punish or to dismay;
- proliferation of punitive or revenge actions on the guys or states which start the campaign against terrorism and on states belonging to anti-terrorism coalition;
- continuation of individual, small, organized or large terrorist acts against western democracies, specially USA and their allies;
- continuing carrying out assassinations and actions against those who oppose to this chaos generated by system incompatibilities favorable to organized mass crime, people and drug traffic, illicit winnings;
- possible carrying out attacks on environment protection systems, dams and using toxic and radioactive offal to produce ecological catastrophes;
- continuation and diversification of political assassinations, to deepen disagreements between large entities, power centers and proliferations of friction situations;
- attack of schools, research institutes, laboratories, economical facilities with national or international importance, infrastructure issues, to produce panic and terror, and to obtain a part of means necessary to carry out terrorist attacks;
- violent attack of value systems and culture institutions;

- creation of diversions or disorders to provoke uncertainty, tensions, instabilities or even violent counter-attacks to deepen anomie situation of social systems and gaps between people or systems ;

- continuation and enhancement of attacks using bombs, plastic explosives and home made explosive devices on people in transportation means, crowded places, on civilian and military infrastructure facilities or compounds (highways, bridges, aerodromes, ports or port facilities, railway stations, depots, embassies, international organization headquarters) and, if is possible, with mass media agents being present;

- deepen social anomie and proliferation criminal and psychopathic terrorism;

- maintenance or growing ethnic terrorist attacks to destroy the idea of living together; propagation ferocious selfhood and aggressiveness used to ethnic purification for ethnic, ideological and religious separatism;

- terrorist acts in cyber-space and its infrastructures to create serious perturbations in communication systems, destroying command and control systems, banking systems, to introduce viruses inside date bases, creation of a general chaos state in information systems.

Taking into consideration the disastrous consequences of terrorism to society, numerous states have adopted political, diplomatic, economic and military measures to prevent it.

Among the military ones there are, on one hand, discouraging, through military means, the terrorist phenomena, achieving a dialog a good international cooperation, throughout political factors, between national and international military institutions, NATO's involvement, in close cooperation with others countries' military structures, secret services and other structures, in the searching and annihilation process, with military means, of the terrorist phenomena risk generating factors. On the other hand, by immediately striking terrorist vital cores, centers, logistical or operational basses or any

other terrorist supporting structures; conceiving, developing and consolidating informational system or other structure which will closely watch terrorist phenomena and create conditions to easily strike and annihilate; creating modular special forces structures able to combat, on field, through direct action, terrorist groups or even individual acting terrorists; creating and developing flexible medium and long term anti-terrorist strategies, capable to prevent both human and material protection as preemptive strike of terrorist structure and bases.

The modern war against terrorism will be carried out by NATO, coalitions or other forces (under UN command) in a space where strategic initiative has been achieved (Iraq or Afghanistan). “Americans show the Occident can operate in the same space as terrorist, the war zone, conserving their advance over the maneuver”.[⁴²] Still, Donald Rumsfeld wrote on the February 9th 2004 *Le monde* that if a new 11 September will occur in US and the Allies won’t have enough resources to launch a campaign. Beside from punctual striking the enemy, a psychological campaign is needed in order to convince muslims population that such a fight against terrorism and islamic fundamentalism is justified. Hence, a newly extremely interesting tendency arise, that changes even more military action’s physiognomy, meaning that the actual fight will always be preceded and accompanied by a powerful psychological and media action.

Accordingly to specialists’ opinion, after 1989, along with the turbulence created after the crash of communist regimes, a movement of international terrorism pole to Eastern Europe took place, thus Romania had become one of the main destinations for paramilitary organizations. The most terrorist organizations comes from Middle East, some of them more notorious than other, according with number of victims and attacks made.

[⁴²] Cf. Jeran-Cristoph Bechon, *France-Amerique: un an apres*, în „Defense Nationale“, nr. 5/2005, p. 146;

Although they committed no crimes, the arab terrorist conducted activities in Romania. Beside those coming in peace, many of so called “business-man” and “students” remained in Romania, whose activities raise a lot of questions. Recent actions that revealed more or less active terrorist organizations on Romanian territory came to prove this theory.

The secret services and Police actions in order to capture some members of terrorist organizations or to make some plans of those impossible, to upgrade frontiers control actions, doesn't represent a real guarantee that the terrorist organizations not succeeded to keep infiltrate in Romanian area, a real dangerous fact. In this new international situation, the secret services believe that Romania is and will still be assaulted by terrorist organizations who want to expend their European operations area.

It is hard to understand that those organizations activated some times on Rumanian area, the terrorist attacks are a real proof. So, in 1973, the specialists of Antiterrorists Special Unit (USLA) discovered an important explosive stock of “Black September “ organization. Those explosives should have been detonated on Israel Embassy in Bucharest.

At 4th of December 1984, an Palestinian student citizen of Jordanian State, Ahmad Mohammed Aii Al- Hers, shut to death the Jordanian diploma Azmi Al-Mufti, in Bucharest. The investigations conclude that Al-Hers was Abu Nidal Organization member and he received that gun and ammunition from Mustafa Said Hasan Al-Khardali, another member of the same organization in Romania.

At 26th of May 1985, an VBIED exploded at Bucharest University , in Grozavesti neighborhood, two USLA officers died trying to destroy that IED. This attack was made by Rumanian part of “Muslims Brothers” , four members being involved: Hassan Adil Al-Ali, Tarek Awad – Iraq citizens, Haytham Rahrneh, alis “The Doc”, syrian citizen and Ibrahim Aii Ahmad

Dawood, Jordanian citizen. Those four planned to assassinate some Syrian citizens they considered like enemies of “Muslims Brothers”.

At 20th of August 1991, the Indian ambassador at Bucharest, Julio Francis Ribeiro, was shot by some members of Babbar Khalsa Organization of Khalistan Liberation Front - an organization who fight to create an independent Sikh state in Punjab area. Five terrorists who come from Swiss, managed and effectuated a commando training in Romania and choose as target the Indian ambassador because he was the last Punjab Police Chief. An Romanian officer from USLA, who guard the Indian ambassador, killed one of terrorists, Jugraj Singh and was hardly wounded by a second one, Jagwinder Singh. The Balwinder and Singh Group escaped, but the fifth member was kept and convicted to eight years of prison.

At the end of 1996 was found the presence in Romania of Ali Safwan, Hezbollah member, who was part of commando group who hijacked in 1995 a fly of TWA Company from Athena to Rome.

In 1998, before the Romanian National Day, an IED was discovered under the Izvor Bridge in Bucharest. The attack wasn't claimed by any terrorist organization.

In 2000, in Craiova took place the first terrorist bomb attack in the history of Romanian Railways Company. In the toilette of one of the carriages was discovered a bomb which had been deactivated 15 minutes before the explosion time.

In 2006 the authorities discovered two gas tanks with a handmade trigger mechanism in the car of a Romanian citizen chased by the intelligence services. They had been planned to be detonated in Timisoara^[43].

All these examples indicate that Romania could be the target of some direct or indirect attacks set up by different terrorist organizations.

^[43] Cf. GL.bg.(r) prof. univ. dr. Costică Țenu, Col. (r) prof. univ. cons. dr. Lucian Stăncilă – *Arta militară în actualitate*, Ed. U.N.Ap., București 2004, pg. 250-252;

The vulnerabilities of Romanian state are not few at all and besides the inconsistent economy and the prolonged economical transition increase the uncertainty and the un-safety. Some of these vulnerabilities are amplified by the position of the Romanian state, as NATO member and strategic partner of the United States of America and distributed over the political, diplomatic, economic and military environment.

The most significant vulnerabilities are those regarding Romanian military units which execute missions outside the Romanian borders. Due to the hostility of the locals groups and population the terrorist acts are very frequent and difficult to be prevented.

There are also other vulnerabilities, generated by different reforms, by military personnel reductions, economic crisis, interest groups and corruption.

The army, which is the most exposed institution to conventional threats, is less vulnerable regarding terrorist attacks. Still, among the vulnerabilities which target military institution, as well, are as follows: ^[44]

- high surface on which the military buildings are placed; their position in remoted areas or in crowded ones, or in any other area that do not allow a proper protection; thus these structures can be easily attacked and even pinned down by terrorist groups;
- military personnel: active, civilians, or enlisted military live in regular, unprotected districts which makes them vulnerable to attacks;
- military infrastructures as well as the personnel serving on airfields, harbors, shooting range, on training grounds are not securitized enough;
- supplying/logistic systems, the relation military-civilian, PR systems are difficult to secure, thus becoming more penetrable.

Romania, a new NATO member, has already a serious contribution in stating the organization strategy's new dimension, by participating with troops

^[44] Cf. Gl. dr. Mircea Mureșan, Gl. bg. (r) dr. Gheorghe Văduva – *Războiul viitorului, viitorul războiului*, Ed. U.N.Ap., București 2004, pg. 477-478;

in the conflict areas, as well as through political, economical, financial, informational support of the offensive against terrorism.

One must notice the co-operation between our country and NATO, US and EU and other international organisms (ONU, OSCE). Romania continues to act against terrorism, as well as an active player in the anti-terrorist coalition and as NATO member. Romania's activity as a SEEGROUP member, SEEGROUP being an organization which operates inside NATO Initiative for South-East Europe is conducted according with the new strategic vision. As a chairman of this institution, in 2002, Romania initiated a compendium containing all the measures taken by the states in this area against terrorism. In the same period Romania implemented a national strategy to prevent and fight against terrorism, connecting its specific structures to the international antiterrorist campaign.

The future Romanian contribution to fighting against terrorism is going to be more consistent as a NATO member. The new status allows Romania to actively participate in decision making and consolidate its capacity of providing stability and security both inside and outside of the North-Atlantic space. The missions against terrorism could contain [⁴⁵]:

- participate in exposure and annihilation of terrorist networks, organizations and groups in Caucaz and Black Sea area and also in Central Europe;
- participate, within the NATO, OSCE and/or ONU missions, in stabilizing the situation and preventing the appearance of new terrorist groups in conflict areas, especially Tha Balkans and Transnistria;
- fighting against terrorism directly or cooperating with NATO, SEEBRIG and BLACKSEAFOR members;

[⁴⁵] Cf. Gl. dr. Mircea Mureșan, Gl. bg. (r) dr. Gheorghe Văduva – *Războiul viitorului, viitorul războiului*, Ed. U.N.Ap., București 2004, pg. 480-482;

- participate in fighting against terrorism in the sites which domestic troops are already fighting in;
- increase the efforts for prevention and fighting against the internal terrorism.

Our country actively participate in elaborating and applying the strategy against terrorism as a member of the coalition against terrorism. As the actions of different terrorist groups are diverse and unpredictable other missions are also possible, especially for discovering and exposing legal or illegal networks and organizations that might initiate terrorist acts.

The terrorism is the longest and most complex threat against peace, stability, democratic institutions, society and individuals. It accompanied the human society from the beginning, as an output of its existence and evolution. Yet there were always ways to work around and mitigate its effects. Even if it couldn't be stopped ever since, the terrorism has not been considered war until the very end of 20st century.

Starting with 2001, after 9/11, the meaning of terrorism inherently contained the idea of “war” as the terrorist attacks turned into global threats that need large scale countermeasures.

The war against terrorism became, in the beginning of 21st century a reality. It is a different kind of war, kept not only using military actions but also using other complex measures.

That is why our civilization must find the resources, the means and the procedures in order to eradicate this phenomenon from our lives or at least to keep it under control. Such an objective cannot be ever achieved if there is no permanent and total international cooperation.

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THE LEVEL OF MEDICAL SUPPORT – IMPORTANT INDICATOR IN THE COMPLETION OF INTERNATIONAL ARMY MISSIONS

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Abstract

Asigurarea medicală este un proces complex care include prevenirea îmbolnăvirilor, limitarea vătămarilor corporale și ale membrilor, evacuarea răniților și bolnavilor, spitalizarea și tratamentul pacienților pentru păstrarea capacității de luptă a efectivelor militare angajate. Asigurarea unui nivel optim al suportului medical este un indicator important în îndeplinirea cu succes a misiunilor militare internaționale. A fost adoptat un concept multinivel al sprijinului medical care se întinde de la primul ajutor de bază la îngrijirea medicală de nivel terțiar definitivă. Misiunile militare internaționale sunt caracterizate prin trăsături unice care au un impact fundamental asupra asigurării sprijinului medical, cum ar fi complexitatea politică și natura dinamică a operațiunilor, variații geografice, demografice, culturale și lingvistice în ariile misiunii, modelele specifice epidemiologice și ale bolii care prevalează și participarea multi-națională în misiunile militare internaționale, cu diferite standarde naționale de antrenare, proceduri operaționale, echipament și rezerve. Această lucrare schițează considerații de planificare în determinarea activelor medicale necesare pentru a sprijini o misiune militară internațională și dă linii de ghidaj operaționale detaliate pentru fiecare nivel de sprijin medical. Aceasta

trebuie să promoveze înțelegerea conceptului de sprijin medical și importanța sa în îndeplinirea misiunilor.

The NATO requirement to deal with all types of threats and the constitutional responsibilities call for the Romanian Armed Forces to develop capabilities which would enable them to conduct operations on the national territory, within the NATO area of responsibility, as well as in a wider strategic environment which is constantly influenced by several factors requiring change.

As the Alliance has adopted a „more comprehensive approach”, covering the entire range of missions from crisis prevention to humanitarian operations and high intensity war, the Romanian Armed Forces must be able to respond promptly and effectively.

In this context, an important indicator in the completion of international army missions is the insurance of an optimal level of medical support. The maximalist approach mobilizes considerable resources in the form of personnel, equipment, and evacuation assets, whereas the minimalist approach relies on basic and existing medical resources.

Medical facilities of Romanian armed forces are generally deployed to support U.N. peacekeepers and international staff. Occasionally, the mandate for a mission may extend to include humanitarian assistance to the local population. If this mission has not been specified in the mandate, official U.N. policy is that there is no obligation to provide or take responsibility for medical services to the local population¹, although this is sometimes rendered according to the dictates of international humanitarian law and the ethical code of the medical profession².

It has adopted a multilevel concept of medical support that ranges from basic first aid to definitive tertiary level medical care. Before establishing the international army mission, a technical survey is conducted in the potential mission area with the purpose of determining the main medical threats, as

well as the medical facilities and resources required to support such an operation.

International army missions are characterised by unique features that impact fundamentally on the provision of medical support. These include:

- Political complexity and dynamic nature of operations;
- Geographic, demographic, cultural and linguistic variations within mission areas;
- Specific prevailing epidemiological and disease patterns;
- Multi-national participation in international army missions, with varying national standards of training, operational procedures, equipment and supplies.

Political complexity and dynamic nature of operations

The level of care and the number of medical units depend on the overall troop strength and the type of activity, with high-risk operations such as peace enforcement and demining³ making greater demands on the medical system.

Geographic, demographic, cultural and linguistic variations within mission areas

In considering geographical factors such as terrain and road conditions, the primary concern is the accessibility of patients to timely medical care. In particular, distances to secondary and tertiary medical facilities have to be considered and play an important part in determining the deployment of medical units and the requirement for ambulances and aircraft for evacuation. Climate can also influence medical planning, particularly if bad weather, flooding, or snow can disrupt normal evacuation channels.

Specific prevailing epidemiological and disease patterns

The primary role of deployed medical units is to meet the daily health care needs of personnel in the field. As such, they have to manage and treat minor ailments generally encountered in a primary health care practice as well as endemic infectious diseases in the mission area⁴. It is important to note that accidents are the major cause of fatalities and serious injuries in most missions⁵, although injuries from direct acts of hostility and land mines can be encountered. Therefore, it is necessary for any medical unit to be able to manage severe trauma and mass casualty situations. This may require deployment of a field surgical unit, radiology facility, laboratory, and blood bank. Surgeons would be required to handle a wide range of surgical procedures, including burns, orthopedic. It is also important to have dental facilities⁶ and an operational field hygiene and vector control unit⁷.

Multi-national participation in international army missions, with varying national standards of training, operational procedures, equipment and supplies

There is a need for standardized guidelines for the different levels of medical support in operations. This is particularly important in the present situation, in which forces comprise personnel, units, and facilities from different nations. Medical units from different countries vary in their composition, treatment capability, and terminology.

Adopting a common classification is important for the following reasons:

- it ensures that deployed medical units are able to meet the operational standards and treatment capabilities required of them, particularly in areas such as personnel, medical equipment and logistics, evacuation assets, and other resources;
- it allows interoperability and cooperation between medical units of different countries, providing integrated medical support for the entire mission;

- it facilitates planning and administration of medical support for different missions;
- it allows direct comparison of epidemiological data from different missions, and if the classification is adopted on a wider scale, it can be used to study data from war and conflicts in general.

Medical support plans

Medical support plans must be designed for each mission to meet specific operational demands. These must remain flexible to adapt to changing demands and circumstances. These plans must be acceptable to the respective Mission Headquarters and the participating Troop Contributing Countries.

Basic Level

This refers to immediate first aid provided to the patient by the nearest person at the site of injury ("buddy aid") or by a trained paramedic or nurse. It is expected that all military have basic knowledge of first aid, including core skills such as cardiopulmonary resuscitation, wound dressing, control of hemorrhage, immobilization of fractures, and casualty evacuation. Equipment required includes first aid kits and personal field dressings.

Level 1 Medical Support

This is the first level of structured medical support in which primary health care and emergency treatment are provided by a medical team. This is the first level where a doctor is available. These services are generally provided by the medical section of a military unit and include daily patient consultations and triage, resuscitation, and stabilization of patients before

evacuation. In addition, level I teams would be expected to oversee hygiene and preventive medicine practices for the deployed forces.

The facility should maintain the capacity to treat at least 20 ambulatory patients per day and have short-term ward facilities for about 5 patients. Level 1 unit generally deploys in tents or containers, but they can make use of existing buildings if these are available. They are located close to the mission or regional headquarters but must also be readily portable to support combat units.

Level 1 unit must have the operational ability to split into two independent medical teams or to deploy a forward medical team. Forward medical teams comprise between two and four medical personnel and provide basic health care for outposts and secondary deployment sites. These can be further equipped to provide medical care during air evacuation or search-and-rescue missions.

Level 2 Medical Support

This is the next level of medical care and the first level where surgical expertise and facilities are available.

Level 2 units provide advanced life support, basic surgery, intensive care, and limited patient holding capacity, in addition to primary health care, to military within a mission area. It is supported by ancillary laboratory and radiology facilities, a dental unit, and hospital support elements.

Medical staff should include general and orthopedic surgeons, an anesthetist, an internist, a dentist, and intensive care and operating room personnel. The hospital should have the capacity to perform at least 4 surgical operations, 5 to 10 dental procedures, and 40 patient consultations per day, with ward facilities for up to 20 patients. It should also maintain the ability to deploy at least two forward medical teams at any time.

Level 3 Medical Support

This is the highest level of medical care provided by a deployed medical unit. It combines the capabilities of Level One and Two units, with the additional capability of providing specialized in-patient treatment and surgery, as well as extensive diagnostic services. It is important to note that a Level Three unit is rarely deployed, and that this level of support is generally obtained from existing civilian or military hospitals within the mission area or in a neighboring country.

This level comprises a multidisciplinary general hospital, which provides emergency and definitive medical and surgical treatment, intensive care, specialist medical and dental services, and inpatient ward facilities. Level 3 facilities should have high standards of laboratory, radiology, and pharmaceutical services.

Level 4 Medical Support

A Level Four medical facility provides definitive medical care and specialist medical treatment unavailable or impractical to provide for within a Mission area. This includes specialist surgical and medical procedures, reconstruction, rehabilitation and convalescence. Such treatment is highly specialized and costly, and may be required for a long duration. It is neither practical nor cost-effective to deploy such a unit within the mission area. Such services are generally sought in the host country, a neighboring country, or in the troop contributing country itself.

Forward Medical Team

A Forward Medical Team (FMT) is a small, highly mobile medical unit of about 3 men that is configured and equipped to provide short-term medical support in the field. This is generally constituted as and when required from existing medical units within the mission area (including personnel,

equipment and supplies), but may be a separate entity requested from troop contributing countries and deployed with an independent mission.

Tasks of Forward Medical Team are:

1. To provide primary healthcare and emergency medical services at a medical post supporting an isolated military contingent of about 100-150 personnel.
2. To provide first line medical support for short-term field operations in areas without immediate access to medical facilities.
3. To provide continuous medical care during land and/or air evacuation of casualties particularly for seriously ill or unstable casualties and where evacuation distances are long or where delays are anticipated. This includes medical evacuation out of the Mission area into a nearby country or medical repatriation, if indicated.
4. To provide a medical team for search and rescue missions. All equipment and supplies need to be portable and configured for use in confined spaces like ambulances and helicopters.

Conclusion

This paper outlines the planning considerations in determining medical assets required to support an international army mission and provides detailed operational guidelines for each level of medical support. This should promote understanding of the medical support concept and its importance in the completion of international military missions.

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NON-CONVENTIONAL ELEMENTS

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Romania, aggressive economical and cultural attitude-paradigm in the national security strategy.

Between all the elements and the processes, which define the strategy of the national security, we find also the expression "...the respect of basic interests of Romania" Romania is a country which developed a unique experience in the European modern history.

The critical moments of our history demonstrated that Rumanian people can organise better and can surpasses all the problems by changing his attitude, and can reach great successes.

Question is: which means we can use to develop our nation?

Our legendary specific feature of peaceful nation must be reevaluated and replaced with an aggressive attitude in our cultural and economic activities (actions). This process of changing attitude we must be reflected also in our national strategy of security.

The ways to obtain that are a persistent (consequent) education and rapid mode of organization in the international economical and cultural (connection) relationships with the other countries from the world.

Romania must open many cultural and economical centres in the most important cities of the world, and priority are those countries which had in the past any kind of relationships (like Arabian countries, China, Vietnam, by their ex-students or businessman; some African countries and of course all Latin countries).

This kind of actions will increase the Rumanian influence in the globalization process.

Every ex-student of Arabian or African countries is a good interface between Romania and their countries, an open window to business opportunities or cultural events.

This actions and another similar will and must conquer again the commercial markets that we loose after 1989. Obvious, this changing process will need a support of a new vision in the national strategy of security. This process, follow the American type of strategy in security which is based on the concept of defence outside the American territory.

Our country will be more stabile and will offers to its citizens a better life based on the principle: "a better government is essentially to assure the national security".

I consider that is a good paradigm in this actual world context. For changing, people's attitude, is necessary a very (extremely) hard work, complex and of long standing. This approach is based on an unfailing premise: the success. Having some immediate successes by using an efficacious organization, may be that positive shock which will give new perspective to our people. We are speaking here of revaluation, with implication in our present and future life. This directly implications are: economic welfare (including for our partners), stability, international recognition, more influence in global decisions, another level in national security.

Romania is a big system in a continue change. All countries have a dynamic of changing and adjustment of the new technology, new games for power. In this general change is important for us to be assimilated with "the ones which are building". We observe there are nations which use their advantages like: demographic rise, natural resources, geostrategycal position, to occupy important places in globalisation decisions.

There are countries without important resources, without strategycal positions, but with an attitude and actions witch make them to be important actors in the political world secure (ex: Holland). We are now at a point from where we have to reorientate our national security strategy for making high dimensions actions. So, we are investing now a few of our "security energy" to obtain great benefits in the future. We will solve the binominal of Rumanians implications in global activities: national-global binominal.

By global actions we can consolidate our state to be a guarantee of the stability and continuity on Terra, now in the 21-ist century.

It's important to us because new ways be open in front of Romanian nation. After many years Rumanian people will be priced at his real value and will be part of the powerful nations. All the great nations is the one who expands outside its border to offer the others civilization and progress.

SECURITY SOCIAL STABILITY OR INDIVIDUAL PSYCHOLOGICAL COMFORT

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I. The genesis and evolution of the security concept

We can consider the fact that, even from the moment when the first homo- sapiens searched and discovered the meaning of a shelter (trees, caves, etc) from the view of the increased survival advantages against the variety of menaces which he was confronting, we can talk of the genesis of the security concept.

The evolution of the security concept ,which came from the Latin „securitas – securitatis” and mean „to be at safety from any danger; the peace and comfort feeling provided by the lack of any threat”, during the human history endured continuous mutations and transformations, mankind developing and assigning new values and functions to it.

During the transition from the incipient primitive commune toward the slave system, we appreciate that the security concept it is referring to:

- *the protection of the single individual against all threats;*

- *the protection of all the members of the community against all threats;*
- *the protection of the single individual against all threats;*
- *personal physical protection and maintaining at power through force measures against other human beings;*
- *the use of bodyguards.*

During the transition from the slave system toward the late feudalism, we can appreciate, that the security concept it is referring to:

- *the protection of the large human groups, one against the other;*
- *the fight or conflict between two leaders, becomes automatically the fight between two people;*
- *the protection of the rulers was insured by mercenaries, strongholds or castles;*
- *the incipient cores of the permanent army were made of the leaders personal bodyguards ;*
- *new permanent founded institutions were tasked with defending the order in the state - police, town guards or urban militia;*
- *the close protection of the ruler, was included in the police tasks, which had also the means of preventing the hostile threats throughout identifying, searching and eventually annihilating the potential enemies;*
- *it were develop the measures and means used by the state institutions for protection against all threats: spies, covered agents, delations were incentivised, actions if leaving were taken, etc.*

II. Modern security systems of the ruling state institutions.

The goal of successful guard and protection activities.

Totalitarian and extremism were not limited only to the borders of those states, but they tagged the whole modern society.

Without structural changes, the new guard and protection services have sued to the latest technical-science discoveries, have enlarges the area of investigation in new complementary domains, such as sociology, psychology, military and political analyses, prognosis, etc.

The goal of the security systems is to countermeasure human type threats:

- *Individual persons;*
- *Groups ;*
- *Organizational – institutionalized.*

For the achievement any security system is necessary to follow these actional steps:

- *Identifying the threat:*
- *The so called identity of the menace;*
- *Analyzing the nature of threat;*
- *Alarming the guard systems of close protection at the buildings and persons.*
- *Delaying – stopping the enemy of fulfilling successfully its target in due time(that means installing automatic doors, blocking fences, secure escape routes for the VIP and staff);*
- *Retorsion - intervention: the complete elimination of the threat.*

The security systems have 2 ways of acting:

- *Prevention;*
- *Discouragement – specific actions taken in order to make the target as hard to be hit as possible by the enemy.*

The security systems are framed on 3 concentric protection rings:

- *Ring 1 – which permit free access, under type SIGINT and HUMINT covered surveillance;*
- *Ring 2 – which permit restraint access in delimited area under badges permits, or other identity control measures;*
- *Ring 3 – denied access for all staff except family members.*

The security systems are composed by specific measures and means technical and human type:

- *Institutions specialized in gathering, data processing, analyzing and probing specific intelligence;*
- *Permanent or temporary protective teams;*
- *Teams for guarding and securing the inner and exterior perimeter of designated buildings;*
- *Tactical intervention teams – SWAT;*
- *Auxiliary transport and logistic departments;*
- *Special med-evac teams;*
- *Tactical command centre.*

III. CONSIDERATIONS ABOUT THE NEW GLOBAL SECURITY CONCEPT

Globalization had and still has a strong impact over the national security of the nations worldwide. Security considered strictly under military

analysis is absolute, notably mutations have been made in the domain of institutional and actional structures.

Causative changes:

- *The multiple forces unleashed by the post- Cold War systemic changes, from bipolarize to multipolarize;*
- *The action of the globalization phenomenon brought mentality changes but also modified the natural environment dramatically.*

In the COLD WAR period, the security paradigm was defined by stability, more accent was put on the survival and orientation of superpowers, to promote and implement their own values and interests in a bipolar system, and nevertheless the nuclear deterrence strategy had the most significant role in this security system.

The globalization processes had altered considerably the way of observing security. The non-physical data regarding security, the various forms of threats and the importance of maintaining the identity, are just a few important effects of post –COLD WAR international security, which are tainting the internal and international politics.

The effects of globalization are :

- *Mixing-up of the internal and external problems, in a way that the national government acts in a defined space by the crossing of internal and international interests. The threats become over-national, but the military threat minimizes;*
- *Supplementary over-pressure is put onto the governments, which have to find a proper answer;*
- *The STATE is interacting with non-state and over-state actors, facts that determine a higher rate of the complexity of the international relations;*

- *The globalization make the so called „balance of power” to have an unpredictable, complex and nonlinear figure;*
- *The nature of making war is altered and makes the models of strategic and rational deterrence to be obsolete and less relevant, especially regarding the new actors of world politics.*

Therewith, the spreading of intelligence and technology increase exponentially the danger of new threats of international nature such as the dissemination of the mass destruction weapons, the fission materials necessary for production and globalization makes that all the technology to be easy available.

At the other extremity of the globalization-security specter can be placed the extremist and fundamentalist networks, which have the capacity of organizing at transnational level and to use terrorist tactics hardened by the globalization of technology and intelligence.

We appreciate that factors with major connotation on to the international security environment can be:

Globalization:

- *The dependence of states on regional, areas and global stability;*
- *The networks of the informational era amplify and disseminate the impact of the events;*
- *The contradictory role of the mass-media over the public opinion perceptions regarding the major events.*

The war on terrorism:

- *The higher complexity and disproportionality as effects;*
- *The easy access to hightech and no conventional rearmament proliferation with power to hit NATO;*

- *The proliferation of the NBC weapons and of the carrying vectors at non state and new state actors.*

Geographical discrepancies:

- *Between the growing countries and the rich countries those are widening;*
- *Generates massive migrations inclusive transcontinental;*
- *Amplify the ethnic and religious tensions ;*
- *Dramatically diminish the level and quality of life.*

Environmental factors:

- *The unfair dissemination of resources;*
- *The politic control of the access to resources;*
- *The dependence of fossil fuels;*
- *Overpollution of wide sectors;*
- *The increasing needs of food and water;*
- *The global alteration of some environmental factors(the climate)*

Non efficient ruled states:

- *The fragmentation of reasons related to economic, ethnic-religious, separatist movements;*
- *Precarious internal security, low border control;*
- *Generates national and transnational organized crime;*
- *Generates resources for international terrorist acts;*
- *They can form true „evil axes”.*

Radical ideologies:

- *Generates extremism and reluctance to changes/transformations;*

- *They use any necessary means to achieve the goals;*
- *Throughout dictatorial leadership produce and determine changes at intern and international level.*

Unsolved(frozen) conflicts:

- *Generates hotbeds with various degrees of danger;*
- *They can be reactivated with a higher amplitude;*
- *Can be used as means of negotiation in international politics;*
- *Can be turned into geo-economic processes.*

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CALITATEA RESURSELOR UMANE, INDICATOR IMPORTANT ÎN APRECIEREA IMPACTULUI MANAGEMENTULUI INTEGRAT AL RESURSELOR DE APĂRARE ASUPRA ÎNDEPLINIRII MISIUNILOR INTERNAȚIONALE

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Abstract:

Cea mai importantă resursă a unei companii este capitalul uman. Departamentul Resurselor Umane (RU) este responsabil pentru activități precum angajarea, educarea, recompensarea și printre altele și concedierea. Companiile sunt conștiente de importanța unui capital uman experimentat, bine informat și educat, drept urmare departamentul RU vine cu o contribuție majoră la dezvoltarea capacității de resurse umane a organizației și, prin urmare, la dezvoltarea capacității strategice a acesteia, prin revizuirea sistematică a obiectivelor strategice ale firmei și prin elaborarea unor planuri de natură să asigure existența resurselor umane necesare pentru atingerea acestor obiective.

Over the past decade, human resources (HR) functions, large and small, have been expected to play an ever-expanding role in the strategic direction of their organizations. Whereas at one time HR was seen primarily as an enforcer of policies, it is now considered among top performing organizations

to be a key strategic partner in driving and supporting critical business objectives. HR's ability to contribute to the organization's bottom line involves more than aligning its talent management accountabilities with the mission and vision of the organization. It means continually evaluating and strengthening these accountabilities to ensure value, meaningful impact and competitive advantages. Given this changing role and the fact that HR costs are major expenses in all organizations, improvements in HR program effectiveness and efficiency should be a strategic priority for organizations of all types, including private sector companies; local, state, national, and international government bodies.

A number of important indicators are now available to help HR organizations quantify their worth and support their role in driving the business.

HR professionals have long understood their value in helping line organizations achieve their goals by offering critical service in the area of recruitment and retention, compensation and benefits, assessment and evaluation, training, performance management, organizational development and succession planning.

Indicators are also available for deciding whether outsourcing any or all of these services makes economic sense. Any HR function, large or small, should be taking advantage of these and other resources to establish relevant indicators to quantify the value of their HR services and link these indicators to their organization's objectives. The establishment of indicators is a fundamental first step in demonstrating HR's contribution to the organization's bottom line.

Although HR managers may be responsible for designing employee recruitment and selection systems in many firms, all managers need to

understand and use this system. After all, attracting and hiring the right kind and level of talent are critical elements of business effectiveness. The ability to attract and hire effective employees is also a key element of a successful management career.

Finding qualified and motivated employees is a key concern for small institutes, reporting they have difficulty finding the qualified employees.

How do employees evaluate the effectiveness of different recruitment sources? One way is to look at how long employees recruited from different source stay with the institution. Studies show that employees who know more about the organization and have realistic expectations about the job tend to stay longer than other applicants.

Next, I will present nine indicators which should be followed in order to appreciate the quality of the human resources

Human dignity

The basic premise of all human relations is the dignity and worth of human. People are not like other factors of production. All employees must balance individual concerns in their lives with demand of their jobs. Certainly there are times in the boss subordinate relationship when the both boss and subordinate must do very unpleasant jobs. Treating each other with human dignity is an important part of a successful workplace.

Empathy

To treat each other with dignity, empathy is required. Empathy is the ability to put yourself in someone else's place and to understand that person's point of view, needs, and reason for his or her actions. Lack of empathy is a primary cause of conflict in organizations. Empathy is the chief quality that mediators of labor disputes must have. Empathy is an important element in leadership, and its absence can create barriers to communication.

The empathy indicator is particularly important in interpersonal communication, conflict resolution, union relations, discrimination, and intercultural relations.

Individual differences and diversity

The concept of individual differences indicates that people are not all the same. These differences have an important impact on organizations in the selection of applicants for employment and their motivation in various jobs. Individual differences need to be considered in three contexts: (1) differences among individuals in terms of job potential (e.g., abilities to learn a job), (2) the effects of training on individuals, and (3) differences in job performances after training. All are the concern of managers who are responsible for the performance of their employees.

Each person is different, but similar in many ways, including the need for respect, recognition, socialization, and trust. It is individual differences that really make the management of human relationship a challenge. Some people have more need for recognition; other wants more respect; still others want greater promotion opportunities.

The workforce is more ethnically, gender, and educationally diverse than ever before. The average age of the workforce is also increasing. These are dramatic shifts that have an impact on management and leadership style. They point to the art as well as the science of managing human relationships.

The whole person

If something at home is bothering an employee, it might be desirable from the organization's view point to have him or her leave the concern at home, but it is often not possible to separate people from their problems that easily. We bring with us our personal and family problems and crises. The

whole person refers to the interrelationships of the mind and the body and the total effect these interrelationships have on the individual.

Communication

In modern organizations, all functions depend on communication. Communication is the way in which information and understanding are transmitted; it unifies group behavior and provides the basis for group cooperation. Without effective communication procedures, no business can survive, much less prosper. Managers who cannot communicate effectively with employees cannot motivate them or exercise leadership. If workers cannot communicate well with management, they cannot perform their jobs properly or receive adequate recognition for their work. If communication in an organization is not good, then there is no way in which the human relations in that organization can satisfy the people who work there.

Organizational communication is any communication that takes place within a total organization – usually formal and written messages, as opposed to informal, interpersonal communication. Many of the human relations problems that we encounter today have their origin in organizational communication or miscommunication.

Motivation

Although human relations is a vast complicated subject composed of and influenced by many variables, it can be described simply as the total response of individuals to various motivating forces. In other words, people in organizations relate to each other in the ways that they do because they are driven by psychological, social, emotional, and economic forces that have the power to motivate them to behave in particular ways.

Every person has unique needs and abilities, motivation levels and job satisfaction depend on the fit between their needs and abilities and the characteristics of the job and the organization. A poor fit between individual characteristics and the work environment may lead to reduce levels of motivation. Work adjustment theory proposes that:

- A job design that one employee finds challenging and motivating may not motivate another employee. For example, a mentally disabled employee may find a repetitive job at a fast food restaurant highly motivating and challenging, but a collage graduate may find the same job boring.
- Not all employees want to be involved in decision making. Employees with low needs for involvement may fit poorly on a self managed team because they may resist managing other team members and taking responsibility for team decisions.

Leadership

In a very real sense, the history of the human relations movement is the history of modern business leadership. A leader's fundamental responsibility in any kind of organization is to get work done through the combined cooperative efforts of others.

A leader must communicate with and motivate his or her subordinates in a just and satisfactory manner or the work will not get done. The human relations function is not, of course, the only responsibility a leader has. Leaders are also responsible for setting direction, dealing with external constituencies, and securing the financial and market success of the firm. Leaders must have good employee human relations to handle these other functions well.

Teamwork

Teamwork is working together and identifies and solves group related work problems. Teamwork has become a fashionable buzzword in recent years and for good reason. A spirit of cooperation and collegiality pervade effective organizations. By definition, an organization means teamwork toward common goals and objectives. Teamwork is essential in athletic teams, businesses, and musical groups, as well as in the civil religious, and other kinds of organizations.

However, teamwork can be carried too far, lessening the degree of individual motivation. There should always be opportunities for individual growth as well as team development. Not everything has to be or should be done as a team. There needs to be a balance between teamwork and individual effort.

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INTERNATIONAL MILITARY MISSIONS LEGALITY- A SINE QUA NON CONDITION FOR SYNTHETIC INDICATORS' ASSESSMENT

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Abstract

Importanța cu totul deosebită acordată cuantificării (evaluării) acțiunilor militare și în mod special celor cu participare multinațională prin utilizarea indicatorilor sintetici, este în opinia mea consecința firească a evoluției extrem de rapide a societății pe toate planurile concomitent cu diminuarea resurselor și cu creșterea constrângerilor financiare.

Rezultatele acestei evaluări sunt relevante numai în măsura în care acțiunea (misiunea) respectivă este perfect legală pentru că astfel atât ea cât și indicatorii care au cuantificat-o își pierd semnificația, pentru că fiind ilegale, eficiența lor s-ar putea transforma în reversul ei.

Frecvențele trimiteri la **Legea nr. 42 din 15 martie 2004 privind participarea forțelor armate la misiuni în afara teritoriului statului român, vin să sublinieze convingerea mea că este** remarcabil faptul că pentru asemenea misiuni România dispune de o reglementare neechivocă.

The main preoccupation for the effectiveness and efficiency of every activity regardless of its magnitude is, in my opinion, the natural consequence of the society's rapid development as well as the resource limitations and financial restraints. If we add the impact of the world crisis upon all fields of human activities, the concern for maximizing results and decreasing expenses

becomes even more necessary in order to sustain the market economy which is now in dire straits. However, neither efficiency nor effectiveness are abstract terms, for they need quantifying and correcting in order to make them real parameters of the objectives established according to the planned expenses. The research so far has highlighted that establishing these indicators, particularly the synthetic ones, go hand in hand with the planning expectations. It has been shown that setting up these indicators is difficult and has to be subjected to reputed experts' approval. I do not attempt to develop indicators-related aspects since they are not my field of expertise; instead, I will approach the placement of each activity and its assessment in the legal framework that must guide every human (individual, collectivity, community, nation or organization) enterprise; otherwise, the enterprise itself as well as its quantifying indicators lose their significance for the illegal aspects may turn it into its counterpart.

Before elaborating on these aspects, I consider it appropriate to refer to some legal fundamentals as they are presented in various literature sources.

Legislation

Legislation (or "statutory law") is law which has been promulgated (or "enacted") by a legislature or other governing body. The term may refer to a single law, or the collective body of enacted law, while "statute" is also used to refer to a single law. Before an item of legislation becomes law it may be known as a bill, which is typically also known as "legislation" while it remains under active consideration. Legislation can have many purposes: to regulate, to authorize, to provide (funds), to sanction, to grant, to declare or to restrict.

In some jurisdictions legislation must be confirmed by the executive branch of government before it enters into force as law.

Under the Westminster system, an item of legislation is known as an Act of Parliament after enactment.

Legislation is usually proposed by a member of the legislature (e.g. a member of Congress or Parliament), or by the executive, whereupon it is debated by members of the legislature and is often amended before passage. Most large legislatures enact only a small fraction of the bills proposed in a given session. Whether a given bill will be proposed and enter into force is generally a matter of the legislative priorities of government.

Those who have the formal power to *create* legislation are known as legislators, while the judicial branch of government may have the formal power to *interpret* legislation (see statutory interpretation).⁴⁶

Legality

The principle of legality is the legal ideal that requires all law to be clear, ascertainable and non-retrospective. It requires decision makers to resolve disputes by applying legal rules that have been declared beforehand, and not to alter the legal situation retrospectively by discretionary departures from established law. It is closely related to legal formalism and the rule of law and can be traced from the writings of Feuerbach, Dicey and Montesquieu.

The principle has particular relevance in criminal and administrative law. In criminal law it can be seen in the general prohibition on the imposition of criminal sanctions for acts or omissions that were not criminal at the time of their commission or omission. The principle is also thought to be violated

⁴⁶ <http://en.wikipedia.org/wiki/Legislation>

when the sanctions for a particular crime are increased with retrospective effect.

In administrative law it can be seen in the desire for state officials to be bound by and apply the law rather than acting upon whim. As such advocates of the principle are normally against discretionary powers.

The principle can be varyingly expressed in Latin phrases such as *Nullum crimen, nulla poena sine praevia lege poenali* (No crime can be committed, nor punishment imposed without a pre-existing penal law), *nulla poena sine lege* (no penalty without law) and *nullum crimen sine lege* (no crime without law).

International Law

Legality, in its criminal aspect, a principle of international human rights law, and is incorporated into the Universal Declaration of Human Rights, the International Covenant on Civil and Political Rights and the European Convention on Human Rights. However the imposition of penalties for offences illegal under international law or criminal according to "the general principles of law recognized by civilized nations" are normally excluded from its ambit. As such the trial and punishment for genocide, war crimes and crimes against humanity does not breach international law.

Constitutional Law

The principle of legality can be affected in differing ways by different constitutional models. In Britain under the doctrine of Parliamentary sovereignty, the legislature can (in theory) pass such retrospective laws as it sees fit, though article 7 of the international convention on human rights, which has legal force in Britain, forbids conviction for a crime which was not

illegal at the time it was committed. Article 7 has already had an effect in a number of cases in the British courts.

In contrast many written constitutions prohibit the creation of retrospective (normally criminal) laws. However the possibility of statutes being struck down creates its own problems. It is clearly more difficult to ascertain what is a valid statute when any number of statutes may have constitutional question marks hanging over them. When a statute is declared unconstitutional, the actions of public authorities and private individuals which were legal under the invalidated statute, are retrospectively tainted with illegality. Such a result could not occur under parliamentary sovereignty (or at least not before Factortame) as a statute was law and its validity could not be questioned in any court⁴⁷

Legality is the general law principle according to which state authorities, public institutions and all citizens must obey the law, and their conduct must follow it. This principle states the supremacy of law in every social activity.⁴⁸

The general principle of law is stipulated in the Constitution, which says that “obeying the Constitution, its supremacy and its laws is mandatory”.⁴⁹

One can easily notice that legality is the result of following legislation regardless of its array and field. Also, it is clear that an organization so well organized, structured and hierarchical such as the military one must found its activity on the legal provisions, thus ensuring its legal character. Any breach of this status, regardless of situation or time, has extremely serious

⁴⁷ <http://en.wikipedia.org/wiki/Legality>

⁴⁸ http://www.rubinian.com/dictionar_detalii.php?id=538

⁴⁹ <http://www.euroavocatura.ro/dictionar/1566/Legalitate>

consequences. In this respect, it is illustrative the illegal way in which the military was used in December 1989, whose result is well known already.

The legality of military interventions, including the Alliance, is even more necessary in the case of international missions due to the numerous factors that affect the military conduct as well every military's behavior in the theater of operations. In this respect, the lessons learned are significant for they offer most relevant conclusions.

Mention should be made that Romania has an unequivocal regulation, that is, **Law no. 42 of 15 March 2004 regarding the participation of the armed forces in the missions outside the Romanian state's territory** published in the Official Gazette, part I, no. 242 of 18 March 2004.

According to Art. 2 of this law, the armed forces may participate in the following missions abroad: collective defense, peace support, humanitarian, coalitions, joint exercises, individual, ceremonies, whereas Art. 3 specifically stipulates: **Armed Forces may participate in the missions stipulated in Art. 2, in accordance with the legal provisions and the obligations undertaken by Romania in terms of treaties, agreements and other international documents of which it is a party.**

The exceptional importance of these missions is highlighted in Art. 7(1): Deploying armed forces outside the Romanian state's territory on the missions stipulated in Art. 2 is approved, upon the prime minister's proposal, by the President of Romania, after consulting the Country's Supreme Defense Council. The President informs the Parliament upon the decision within 5

days from adopting it, and if the Parliament is on vacation, upon the commencement of the ordinary or extraordinary session, as the case may be.⁵⁰

Therefore, it is clear that our armed forces' engagement outside the national territory takes place after the decision made by Romania's highest leadership level, even if we are NATO members.

Similarly, for legal purposes, Art. 12 stipulates: (1) Should the Romanian detachment's commander receive an order or a guideline from the mission's superior hierarchical authorities, which contravenes to the international legal or combat norms, he shall refuse to execute them. (2) In the case presented in paragraph (1), the Romanian detachment's commander shall immediately inform the Romanian hierarchical superiors and follow their instructions.

Some experts argue (and I fully agree) that Law no. 42/2004 aims at increasing decisional efficiency in the sense of increasing the operational nature of the armed forces' in international missions. In pursuing this objective, the normative act delineates a decisional system based on 3 fundamental principles:

1. legal stipulation of the circumstances under which armed forces may participate in missions outside the national territory;
2. planning financial resources necessary to train the troops for missions;
3. increasing the role of the President of Romania in making the decision of sending forces outside the national territory as well as increasing the Parliament's control.

⁵⁰ Law no. 42 of 15 March 2004 regarding the participation of the armed forces in the missions outside the Romanian state's territory published in the Official Gazette, part I, no. 242 of 18 March 2004.

The main elements contributing to defining some missions is its triggering legal act. Apart from it, other details can be mentioned according to each particular situation. Every mission of Romanian armed forces must be funded on an obligation assumed by means of an international treaty approved by Romania's Parliament.⁵¹

Finally, I reiterate the critical obligation of every political and military decision-maker in order to ensure the legal character of all international military actions. This enhances its effectiveness and efficiency assessed by using modern indicators-based tools for I argue that respecting the legal character of international military missions is the pre-requisite of the assessment of synthetic indicators.

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⁵¹ LTC CONSTANTIN ZANFIR **LEX** The military legal advisers' magazine, no. 1 / 2005

IMPACT OF THE INTEGRATED MANAGEMENT OF THE DEFENSE RESOURCES UPON THE FULFILLMENT OF THE INTERNATIONAL MISSIONS OF THE TROOPS AND ITS QUANTIFICATION RESORTING TO SYNTHETIC INDICATORS

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Abstract: Articolul îşi propune să analizeze bazele teroretice ale managementului în scopul implementării unor metode manageriale viabile şi complete, de la planificare la control. România parcurge în această etapă o perioadă complexă de profesionalizare a armatei, în condiţiile în care integrarea în NATO solicită o implicare directă încadrul misiunilor internaţionale. Rezultatul eficienţei metodelor manageriale adoptate se evaluează prin indicatorii sintetici economico-financiari devenituri, cheltuieli, profit şi pierderi.

Management is, according to the definitions in the specialized literature, the art to manage and to administrate an organization. Through management there are settled the procedures for organizing the activities, there are settled the missions, the purposes, the objectives, the activities and the attributions that should contribute to rendering the institution more efficient. Rendering the institution more efficient is, in fact, the purpose, and it has to be the result of the management.

Management is carried out through the collaboration of all factors responsible with the strategy elaboration and implies the initiation of new activities, the modification of the organizational structure and the circulation of the staff. An adequate management, which unfolds in the framework of a well organized system, will ensure the success of the organization.

Theoretically, management comprises the following activities: planning, organization, leadership and control.

Through planning, there are settled aims, objectives and missions on the basis of the elaboration of the strategic and operational plans. Donald Schon stated, with respect to the planning process that "it implies a rational standpoint, although there exists the possibility for the plans not to be adequate. The formulation of the objectives ensures a direction and a stimulus in order to act." Through planning there have to be clearly settled performance, costs, terms and resources.

Organization implies the repartition of the attributions, of the activities and of the tasks. Organization refers to the aspect of the work. The responsibility and the authority are specific rules of the institutions for the military staff's professional formation. The professional standards and the continuous professional formation are criteria of the efficient organization.

Leadership stands for the process of instructing the organization members and for the motivations justifying the accomplishment of the activities. Unfolding activities with major risks, the rapidity of the action development, the ability to perceive all factors of risk determine a management system in continuous modification.

Control stands for the activity of comparison between the activity unfolding and the settled plans and the performance documented standards. The activity of the management has to be permanently oriented towards the fulfillment of the objectives settled through the strategic and operational plans.

Planning and control stand for a unified system. The information that come during the activity unfolding have relevance upon the planning efficiency.

Control identifies the deviations from the strategic and operational plans, it may determine a modification of the plan or it may generate corrective actions or, at the same time, following an analysis, it may demonstrate the existence of a weak, inefficient management, or a series of technical difficulties.

The management of the defense resources unfolds within a well determined legal frame.

Law nr.42 from the 15th of March 2004 with respect to the participation of the army forces to missions outside the territory of the Romanian State regulates the conditions and the missions for the participation of the Romanian troops. The law creates the legislative frame of the integrated management of the defense resources, that is: planning and sending in mission the forces, technical agreements/conventions and authority transfer, selection, enrolment and several rights of the staff, financial aspects.

The Law of the National Defense of Romania settles that: „The resources of the national defense are constituted from the totality of the human, financial, material resources, as well as of other nature, whom the State ensure and employ to the purpose of supporting the defense efforts of the country"

Law nr. 473 from the 4th of November 2004 with respect to the defense planning specifies the basic fields of the planning:

- a) planning of the force;
- b) planning of the arms;
- c) planning of the resources;
- d) logistic planning;
- e) planning for command, control, communications;

f) planning for civil emergencies.

"In the framework of the process of defense planning, there are included the programs, the actions and the measures initiated by Romania in the framework of the contribution to the security and collective defense within NATO, as well as of the contribution afferent to the European Union, in the context of the bilateral and multilateral military cooperation with other States and of the fulfillment of the obligations assumed through the participation in the activity of several international organizations and regimes." (Art.2)

"In view of realizing the provisions of the National Defense Strategy, of implementing the guiding lines of the defense policy settled through the Governing program and in compliance with the provisions of the Strategic Concept of NATO, the Ministry of the National Defense elaborates the White Charta of the Defense, through which there are settled: the objectives of the defense policy, the measures and the actions for their fulfillment, the missions and the specific requirements for the Romanian army, the natural, human, material, financial resources and of other nature which are to be ensured every year, to the purpose of generating the military capabilities necessary for the fulfillment of the army missions." (Art.6, alin.1)

"The White Charta of the Defense has a coverage horizon for a medium period of 4 years and contains provisions in the long term for carrying out the national and collective objectives of security and defense." (Art.6, alin.2).

"On the basis of the National Defense Strategy, of the White Charta of the Defense and of the Ministerial Direction NATO, the Ministry of the National Defense elaborates the Military Strategy, which comprises: the evaluation of the international security environment from the strategic-military standpoint, the identification of the potential military risks and threats, the definition of the national military objectives, the determination of the strategic and operational concepts for the fulfillment of these objectives and of the army missions" (Art.7, paragraph.1).

The main international operations / missions in which there participated the Romanian troops were: operations of responses to crises and conflicts, operations for maintaining the peace and for ensuring the international stability, humanitarian assistance, operations of search – saving, operations for distributing food, special military operations, of fight against terrorism, insurance of the application of the security, stability and trust measures throughout different geographical areas, support, help and military assistance for organizing in certain States the national military troops, participation in international operations for the control of the armament of any type: traditional, conventional and informational, participation in common military actions of practical and theoretical instruction, participating in patrolling, recognition, safeguard and protection missions of the official personalities, escort, traffic control etc.

The participation in military missions in new geographical and social areas have contributed to the international recognition of the performance of the Romanian troops: highly qualitative professional training, professionalism, credibility, capacity of organization, work force, enthusiasm, spirit of sacrifice, initiative etc.

The integrated management of the defense resources is evaluated through the realizations on the level of the income and expense, in relation to the number and to the importance of the international missions of the Romanian troops. Avoiding the losses in the framework of the human and financial resources stands for a desideratum of the integrated management of the defense resources within international missions.

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NATURE OF THE FUTURE CONFLICTS AND THEIR PREVENTION

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Abstract: Războiul poate fi caracterizat ca o etapă critică de contradicție între actorii de pe scena politică, sub forma unei lupte armate violente. Presupunerea că războiul își are rădăcinile în caracteristicile naturii umane sau socială este mai răspândită decât punctele de vedere pacifiste alternative. Problema demografică și accentuarea polarizării populației sărace înspre zonele bogate, militarizarea fără limite și atitudinile rezultate din această situație pot provoca noi conflicte. Trebuie luate măsuri pentru prevenirea acestora.

I. POLITICO-ECONOMIC CAUSES OF THE WARS

2000 years ago, Thucydides wrote about the Peloponnesian war (431-404 b.C) „What made this war inevitable had been the rise in power of Athens and the fear it had brought about in Sparta”.

Studying the wars, many historians, analysts and sociologists reached similar conclusions with respect to the political and economic causes for the war outburst.

A major characteristic is the conflict of interests. Most of the time, these interests are of a political nature, however being motivated by or rooted in

economics, with respect to the distribution of the human resources, to the industrial potential or to the territorial division.

There are no purely economic or purely political wars. The wars originate in a conflict of interests. Why do people and nations fight, to what purpose? Reformulating G. Laswell's question: who, financing a war, has something to win, where and when? The different causes of the war, with roots in various material worlds, may be grouped according to several typologies.

The causes of the conflicts in the material world originate in the occupation of the territories that dispose of natural, economic resources and also of the territories with industrial, technological power, or of those strongly militarized.

Social conflicts reside in the fight for grasping the internal power, within the inter-ethnic relations.

Social-cultural conflicts are based on the cultural-religious identity or on the fear of losing it, on tolerant and intolerant ideologies

The current conflicts take no longer place between the inimical armies of two States, but most of the time between government troops that represent different interests in the framework of the same State. The motivations are religious, ethnic or, more rarely, of an economic nature. At the same time, this is one of the causes because of whom the balance of the military-civilian forces has changed for the last years, the number of losses within the civilian population representing 90% of the total.

The attempts at redefining the security environment enhanced the major factors that may influence the future coordinates of the peace and security and at the same time they may constitute causes for the future conflicts. Human nature constitutes a main cause of the war.

In the first place there is about the demographical issue and the accentuated polarization of society in small regions of wellness and wide

regions of poverty. As the economic and demographical evolutions mutually influence themselves, the domination of the key sources for the future, those „islands" of wellness will undergo an increasing pressure. The increasing pressure exercised by those eager to live a better life, also called the „militant migration", also produces an anti-emigration reaction resulting in the accession of the parties of the right extreme.

A second factor is connected to the fact that the global system slowly reaches the limits of human activity, configured by the norms and by the constraints for protecting the environment.

Within the range of action of the same factor, there also inscribes the intensification of the competition for strategic resources, a condition for ensuring the permanent industrial performance and henceforth a legitimate issue of security. The hunger for energy, the diminution of the production in the Sea of North seem to generate and to be at the same time the result of a war for the delimitation of the spheres of influence as regards the oil and the natural gases. The explosion of the area, due to the present and future games in the context of the degree of risk that is currently displayed by the mosaïque of nations, faiths and political beliefs may require an international intervention, maybe in guise of the new type of operations for the crisis management and because of humanitarian reasons.

The militarization without boundaries, the unlimited access to the enormous quantities of weapons, inherited as a consequence of the Cold War, as well as the mentalities and the attitudes produced by the military confrontations which belong to the past stand **a third factor** in which there originate the new dangers. In this case, the most complex threat comes from the trade with nuclear weapons on the black market. On the buyers' list, there might be included the States aspiring to the title of nuclear force; however impeded in their actions by the international community, also the anti-terrorist groups and the deviationist cults and social movements.

The inventory of the possible causes of the future conflicts demonstrate for the beginning the change in their nature and perhaps in their form of development. Because of the variegated, complex, unpredictable and multidirectional character of the new threats, there becomes impossible to adopt and to apply the measures for the prevention of the conflicts.

NORMS OF INTERNATIONAL LAW WITH RESPECT TO THE MEASURES FOR PREVENTING THE CONFLICTS IN THE INTERNATIONAL MISSIONS IN WHICH THERE ARE INVOLVED ROMANIAN TROOPS

A. *Measures with reference to the conflict*; they represent those measures taken either when there is still possible to avoid the aggravation of the issues under dispute and the conflict of interests, or after their outburst. Within this category, there belong those connected to the peace realization and to the peace construction.

1. To realize peace implies to search for a negotiated solution of the situations perceived as conflict of interests between the parts and comprises as modalities of accomplishment:

a) *Imposition of a solution through constraint* (through violence or through force);

a.1. *Sanctions with the use of the army force*

a.2. *Sanctions without the use of the army force*

b) *Judicial solving of the conflict*;

b.1. *International arbitration*

b.2. *International justice*

c) *Politico-diplomatic solving*

c.1. *Traditional methods*

c.2. *Alternative methods*

a.1. *Sanctions with the use of the army force*

The article 42 in Chapter VII of the Charta of UN, legitimates a system of collective sanctions against the threats to peace, against the violation of peace, against the acts of aggression. The Council of Security has the right to undertake any action that is considered necessary through the use of the air, terrestrial and naval forces: demonstrations, blocking measures, other operations. Further on, art.51 stipulates that the exercise of the right to individual or collective self defence, emerged as reaction to an aggression, has the character of sanction.

a.2. *Sanctions without the use of the army force* as an answer to inimical or illicit acts of another State or of other States. These are: retorsion, reprisals, embargo, boycott, peaceful maritime blockage.

Retorsion consists in measures of repression taken by a State against the non-friendly acts, contrary to the international customs, accomplished by another State: breaking the diplomatic relations; stopping the commerce; lack of acknowledgment of the State whence there comes the non-friendly act; reducing the imports from such a State.

Reprisals imply measures of constraint taken by a State against another State to the purpose of determining the latter to make up for the damage resulted from illicit acts or omissions contrary to the international law, accomplished by the respective State, or to the purpose of preventing the repetition of such acts. Here, there may be included the sequester upon goods pertaining to the nationals of another State, the interruption of the commercial, posting, telegraphic relations; the expulsion of the nationals of another State; the refusal to apply, to observe treaties. An example would be the blockage by the U.S.A. of the Iranian goods following the taking as

hostages the diplomatic staff within the American embassy from Teheran (1979-1980).

Embargo stands for a form of reprisals through whom a State retains the commercial ships of another State, in the harbours or within its territorial sea, together with their load. It is also used for retaining the goods of any kind destined to the State against whom it is applied. There may be mentioned: the technical embargo and the retreat of the clause of the most favored nation, following the measures of repression in Poland (1981), the embargo on cereals against the Union of the Soviet Socialist Republics, following their intervention in Afghanistan; the measures approved by the Council of Security against Iraq in 1991 and against Serbia; the embargo upon the weapons destined to Argentina decided by the countries of the European Community in the conflict upon the Malvine Islands in 1982.

Boycott consists in the interruption of the commercial relations among the states, of the railway, maritime, radio communications. The example consists in the measures decided by the General Reunion and by the Council of Security against the South-African Republic in order to determine this one to put an end to the apartheid policy, or the ones against Iraq.

Peaceful maritime blockage aims at a State's impeding, with its military naval forces, of any communications with the harbors and with the seaside of another State, without being in a state of war with the latter one.

b.1. *International arbitration* consists in solving a conflict between the states by a person or by a commission, appointed by the parts, and whose decision, according to the previous agreement between the parts, is compulsory (though the Permanent Court of Arbitration from Hague).

b.2. *International justice*, through the International Court of Justice, as main organ of UN. The causes deduced in front of the Court referred to: the

issue of liability of the States (litigation between England and Albany with respect to the mishap in the narrows of Corfu 1947-1949;

- of status of the population and diplomatic protection (rights of the American citizens in Morocco 1950-1952);
- territorial conflicts (Denmark and Holland against the Federal Republic of Germany with respect to the delimitation of the continental plateau in the Sea of North 1968-1969; Libya and Malta with respect to the continental plateau of the Mediterranean Sea 1985. Libya versus Chad in 1990; Eastern Timor and Portugal versus Australia, 1991);
- passage through passengers (conflict with respect to the passage through the Great Belt, Finland versus Denmark in 1991);
- ex-treachery, human rights.

c.1. *Traditional methods* as the negotiations (talks), the good offices and the mediation, the international inquiry and the international counseling, are a category of the measures of politico-diplomatic nature.

Negotiations stand for one of the most used means of solving, as they are close at hand for every State, as they are the cheapest and as in their development the parts come in direct contact, which places them on equal discussion bases, giving them the possibility to directly express their opinions and to defend their interests.

The good offices and the mediation are actions undertaken by a third party (State or organization) at request or out of one's own initiative, to the purpose of helping the parts through negotiation. The action of the third party, destined to create the favorable conditions so that the States in litigation should contribute to solving the conflict through negotiation, constitutes good offices. The mediation is the participation of the same third party to the organization of the negotiations, whom it usually leads, examining the

substance of the conflict and submitting proposals for its solving. An example in this direction is the success of C.E. in mediating the politic conflict in uprising between Hungary and Slovakia upon the extremely sensitive issue of the barrage on Danube (that threatens to aggravate the issues with respect to the Hungarian minority in Slovakia);

International inquiry aims at the exact settlement of the facts and to the clarification of the circumstances that led to the apparition of the conflict. *International counselling* makes the passage from the politico-diplomatic means to the jurisdictional ones, from whom they differ through the fact that the submitted solution is not compulsory. The conciliation commissions combine the elements of enquiry and the elements of conciliation.

c.2. *Alternative methods*, unlike the former ones, concentrate upon the process of the interaction rather than on the content of the negotiated positions. There is deemed that there should be used the resources of a diplomacy of the second rank, of the non-government type, destined to settle a stage previous to the negotiations in which to be encouraged the „analytic" progresses of the parts in conflict.

2. Peace accomplishment stands for the process of creation of the connections among people, it attempts at alluding or at reducing the conflicts through „contacts plus the readiness to forget, contacts plus aiming at superior goals, contacts plus measures for reinforcing the trust and contacts plus education for mutual understanding". This is a process which supports the „diplomacy of the development" and in which there are used methods and means of an attitudinal, socio-economic, political nature (monitoring of the elections) or those destined to reinforcing the democratization process and to protecting the human rights.

B. Another category of *measures* which may be used are those *with respect to the possibilities of action*. In order to prevent the uprising of a conflict there may be taken into consideration the force that the parts in conflict may possess, as well as the factors which constrain or allow its use.

1. Measures of a non-military nature suppose interventions of the politico-diplomatic nature, legal, economic, informative-educational, normative-ideological. In this respect there may be resorted to: the threat with the retreat of the diplomatic missions of a country or of a group of States; the disapproval by the Council of Security of certain attitudes; decisions pronounced by the International Court of Justice. against a certain country; application of the economic boycott", exposition of the acts of infringement of the international laws to the opprobrium of the international public opinion.

2. In the range of the measures of a non-military nature, there are included: nuclear discouragement; system of collective security; system of collective defense; measures for reinforcing the trust and the security (C.S.B.M.); peace imposing and maintaining. The forces for imposing the peace are used in the situation in which the violence is still manifest, the mission being comparable to that of a military campaign. In order to maintain the peace, the forces are used in the situation in which there has been reached an agreement for ceasing the fire and when the main parts in conflict claim the help in maintaining a yet unstable peace.

C. *Measures with respect to the process of decision* suppose and aim at: reducing the risk of erroneous perception; creating a less strenuous process for taking the decisions; the search for more efficient strategies for preventing the conflicts.(after a scheme by Luc Reyhler).

ECONOMIC AND POLITIC FACTORS: SOURCE OF PEACE

What could be done in order to promote the dialogue and the tolerance, the equality and the justice, living only in compliance with the normal standards of a just social administration? Peace is not only the absence of the war, a short period between two conflicts; it is a desideratum for whose accomplishment humankind fights on all peaceful paths possible.

The most efficient path for fighting against war is to act in favor of peace, justice, dialogue, mutual understanding. This is a continuous process that requires for every generation to join the best minds and forces for the cause of the peace, in order to promote and enjoy peace.

Through the realities and the criteria that have to be taken into consideration from the politico-military standpoint for the success of an action of stabilization and normalization of the situation in a possible conflict there could/should be found:

- restoring the control of violence through armistices and agreements for ceasing the fire, temporary, to the purpose of reacquiring the legitimacy on the basis of the policy of civilian society;
- protecting the victims and determining the unitary observance of the humanitarian international standards and of the human rights;
- choosing an adequate policy for the use of the military force, under the conditions of a military intervention;
- promoting the alternative policies, in its essence the emendation of any solution based on the political purposes of belligerent party and the substantiation of other sources of power that should be represented to the talks;
- identifying the local supporters of the ideas of peace and creating the safe areas (safety regions, humanitarian corridors, areas of air interdiction) as key elements in closing the war;

- substituting the international community with the non-government organizations as regards the tasks the former cannot comply with;
- increasing the capability of the security institutions in managing the new forms of violence;
- observing the principles for maintaining the peace „consensus" – legitimacy of the international military forces; „impartiality" – to make no discrimination; „use of the force" – controlled use of the violent means or coercion in direct proportion to the purpose.

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**TRANSFERUL DE TEHNOLOGIE MILITARĂ ÎNTRE ALIAȚI,
INDICATOR CU MARE PONDERE IN CUANTIFICAREA
IMPACTULUI MANAGEMENTULUI INTEGRAT AL RESURSELOR
DE APĂRARE ASUPRA EFICIENȚEI MISIUNILOR
INTERNAȚIONALE.**

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Abstract

Una dintre condițiile decisive de asigurare a interoperabilității cu armatele țărilor membre NATO, este dotarea tehnică asemănătoare a lor, iar aceasta se poate realiza, în primul rând, prin transferul de tehnologie militară.

Necesitatea acțiunii în comun cu maximă eficiență devine primordială în misiunile militare internaționale, unde transferul de tehnologie devine în fapt transfer de tehnică, muniție și carburanți în momentele cele mai dificile ale luptei când unul sau mai mulți dintre aliați nu își mai pot asigura cele necesare din sursele proprii urmare a blocării acestora de către inamic, a epuizării muniției din cauza intensității luptei etc.

Opinăm că transferul de tehnologie este o realitate a lumii contemporane și o necesitate în cadrul NATO pentru a fi posibilă acțiunea în comun a armatelor țărilor care compun Alianța Nord-Atlantică.

One of the fundamental conditions for joint efforts of the armed forces belonging to alliances or coalitions is their mutual access to equipment, ammunition when needed. Such situations are frequent and the underlying causes are the great losses inflicted in the battlefield, the impossibility to

access own supplies as a consequence of enemy actions, lack of ammunition as a result of fight intensity, etc

What we actually witness is technology transfer among allies during the integration process or as a result of adhoc decisions.

The technology that can be transferred is, in my opinion, expresses numerically as a percentage indicator that assesses the efficiency of the military actions.

A short remark needs to be made concerning the level of interoperability, compatibility, communality and interchangeability in terms of endowment and procedures. In this respect, I wish to insist upon the idea that the transfer of technology can be made at any of the four levels, and not only at the last one, as we may believe. The underlying reason for making this statement is given by the fact that it is very difficult to reach interchangeability. Thus, from this point of view, none of the NATO member countries succeeded due to the great differences in terms of endowment between the uS and the other NATO member countries. For an improvement of this situation the performance of national defense industries needs to be increased. In this respect, some specialists believe that ‘For other states than the USA the command and control digitization process could take decades because of the financial efforts and of the difficulties in advanced military technology transfer. In the future, the potential members of a coalition headed by the USA are expected not to be able to fully bridge the technological gap, which is to negatively influence cooperation in the theatre of operations’.⁵²

The USA advanced technological head start was attributed to the revolution in the military that led technical, doctrine, operational, organizational changes. The following factors can be identified as underlying them: strategic changes that require capable forces able to respond quickly

⁵² http://leader.viitorul.org/public/595/ro/tehnologie_si_inteligenta_in_conflictele_militare.pdf

and efficiently to an array of conflicts; technological advance based on civil information technology; a decrease in the number of military and defense budget cutbacks that led from quantity to quality; population training in order to increase tolerance to losses.

In terms of percentages, defense industry is a small part of a nation's industry. However, its role is a major one due to its high technology, long-term outlook and impact on civil environment. Consequently, military state of the art technology influences the level of civil production. All this are arguments supporting the idea that the defense industry plays a major role in overall industry at a national level.

The more performing the defense industry, the more achievable and important technology transfer. However, even among allies, there are limitations in this transfer, most of them rendered by factors such as economy.

Defense market shrinkage to the national defense can have a major impact upon budget planning. Therefore, all the more necessary military technology transfer.

Compared to other defense industries, especially those belonging to an alliance, the national industry is at a disadvantage, especially because of the protection mechanisms of the allies. Thus, defense industries need to keep up with market economy. Therefore there agreements of industrial cooperation or even mergers in order to meet the high technological standards as well as the objectives ensuing from the planned cooperations with the partner countries. However, it is a fact that even in the case of cooperation in the field of armament, armament export is still restricted. In this respect, the SIPRI is a well known example and it maps the most important military technology transfers in the last five years. The USA is the greatest armament producer and exporter with a quota of 45% of the overall world armament expenditures and with exports estimated at 14 billion out of 45.6 billion totaled worldwide in terms of armament exports in 2006. Preferred destinations of USA exports

are South Korea, The United Arab Emirates, and Greece. The second armament exporter is Russia with destination countries such as China (45% of the overall armament exports), India, Venezuela and Algeria, closely followed by France, Great Britain and Israel⁵³.

The USA exports both to NATO and non- NATO countries which upholds the idea that economic interests come first. Pressure has been made to compensate for research and development costs by exporting directly instead of endowing the military forces.

However, at present, technological domains from many defense industries are on the verge of extinction because of the request decrease at a national level. Defense production depends on certain features with a say in establishing collaborations. Moreover, since the states monopolizes requests, there are few specialized technology providers. Moreover cooperation may lead to similar requests from beneficiaries and hence to competition among providers.

Globalization has had a major impact in Europe in defense industry after the Cold War due to the limited deployment capabilities of some of the allies.

However, defense expenditures of some of the NATO member countries total approximately 60% of the sum allocated by the USA for similar purposes.

In conclusion, defense industries and markets are changing.

Defense industry is being restructured and commercially reoriented through joint ventures, takeovers, strategic partnerships, etc.

Latest research in the field of armament commerce points out that the latter is under the influence of geopolitics, state expansion, of the changes in

⁵³ <http://www.capital.ro/articol/china-si-india-se-intrec-in-cursa-importurilor-de-arme-110094.html>

military technology and innovations. Thus, the final conclusion is that the discontinuities and stratification of the expansion process are at a global level.

Even our country is an exporter of armament. According to some experts 'Commerce or international armament transfer carried out by Romania even during socialist times is considered technology transfer and it refers to private or state owned export- import of military equipment, spare parts and services, etc. armament is considered light armament, whether individual or collective including antitank and antiaircraft missiles; major, sophisticated armament such as planes, tactical- operational missiles, armored vehicles, ships, etc.; different types of ammunition; transportation, communications, radar, etc; equipment for ports, overhaul military bases, airdromes; spare parts for armament and battle technique; licenses for certain armament and spare parts, etc.'⁵⁴

The globalization of armament and battle technique production and commerce involves a globalization of responsible usage. While the community trying to control nuclear weapons proliferation decries the likely disappearance of treaties keeping in check world armament commerce, its supporters are striving achieve non- proliferation. Political consensus concerning limiting armament sales during the Cold War was replaced by norms that only partially meet agreement. Nowadays, armament commerce is influenced by market requests, political and security interests and mostly by economic interests. In conclusion, technology transfer is a fact and a necessity within NATO if the common endeavors of the allies are to be successful.

⁵⁴ http://www.armyacademy.ro/buletin/2_2000/articol18.html

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THE CONCEPT OF MODULARITY AND FORCE MANAGEMENT

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Abstract

Mediile de securitate și de conflict de astăzi precum și cele previzionate pentru viitor sunt unele care solicită armatei să facă față constrângerilor cu privire la cantitatea de forțe, limitărilor cu privire la forțele disponibile, constrângerile de natură financiară și limitărilor cu privire la transportul strategic reclamat pentru a transporta capabilitățile necesare în teatrul de operații. În baza acestui set de observații cu privire la cerințele și constrângerile forței, armata ar trebui să dezvolte un concept al modularității care să permită detașarea funcțiilor și capabilităților de la o unitate de bază și să dimensioneze asemenea funcții și capabilități pentru desfășurarea lor în cadrul unei forțe destinată proiecției într-un teatru de operații. Această forță, de asemenea, trebuie să fie interschimbabilă, să aibă capacitatea de a se dezvolta și redimensiona pentru a îndeplini misiunile și nevoile care sunt în schimbare.

Modularity is a critical component of the Army's Transformation and the interest concerning the design of modular structures is not a new one. It has been examined and, in some terms, even adopted by several modern Armies in order to meet the changing missions and needs in today's security and conflict environments and those of the envisioned future.

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The Army Strategic Planning Guidance, 2006-2023 (ASPG) repeatedly uses the term “modular” and describes it as a core aspect of the restructure of today’s United States Army. The ASPG suggests that “Modular, capabilities-based forces will better support Combatant Commander requirements by more effectively enabling the delivery of the right Army capabilities at the right place and time.”[1] In the same idea, the 2005 Army Modernization Plan highlights modular forces as a “bold and comprehensive initiative that is intended to provide Army units that are more relevant to the combatant commanders in today’s environment and possess greater versatility in fulfilling the demands of frequent deployments, a wide range of missions, and true joint interdependency.”[2]

Based on previous consideration, the Modularity could be defined as “a methodology of force design, which permits detaching functions and capabilities from a parent unit and tailoring such functions and capabilities for deployment within a force projection force in order to provide the commanders with a force that is interchangeable, expandable and tailorable to meet changing missions and needs.

The concept of modularity should be seen through the lens of three different sets of actors; the planners, the users, and the force developers or sustainers. Each of these communities focus on modularity through a different lens, with different metrics of success and with different challenges.

The Force Management community, the planners, has, perhaps, the greatest challenge with regard to modularity of any of the communities. The first of these significant challenges is in how to pay for the modular force, the second is in how to sustain its essential nature. The trade literature is literally rife with discussion about how the Army can manage to pay for ongoing operations, transformation and modularity all simultaneously. More specifically, as the Army is forced to wean itself from the use of budget, the

difficulty will be in how to fund modularity in a relatively flat Army top-line budget.

One reality discovered during the current operations in Iraq and Afghanistan, is how much we learn about what we really need to fight only when we are actually in a fight. As units deploy, they discover new requirements, whether they be a need to counter IEDs or the fact that support units are fighting in ways not imagined previously and for which they are not resourced. These drive a series of actions, including the delivery, in theater, of material responding to Operational Needs Statements. Lessons learned from this in-theater fielding are used to refine modernization plans for follow-on or non-deploying forces.

In general, this type of modernization should have a smaller impact on training and organization than would the activities of a major re-fit, re-equip, re-organize cycle. Nevertheless it will have an impact. Further, it will cause additional ‘variance from the norm’ as deploying units receive equipment that is not made available to non-deploying units within each cycle.

A warfighter – a user, either receives the modular structures to command and control or exists within one of them. Regarding modularity the military experts suggest that the Army expects to gain improvements in three key capabilities by utilizing the modular force design.

The first is in the area of deployability, the modularity facilitating the packing and rapid deployment of the force. From the strict perspective of numbers of vehicles and people moved, the modular design refers to getting a military structure somewhere in a set amount of time, and the lift that will require, than it is about what that structure is capable of doing upon its arrival.

From a user’s point of view, however, the integrated design of the basic structure is a clear aid to deployability. In deploying a current force, the first thing that has to occur is to organize the respective force in order to be able to carry out military actions. Attaching, detaching, marrying up units and

integrating them are all distracters from, and contribute to the lengthening of, a deployment process. Given that, at least the basic structure (brigade/battalion) should be mostly self contained to greatly ease the coordination tasks of deployment.

Close combat and close combat support units will not necessarily be deployed totally. Rather, they will be force packaged to provide the tailored support necessary for the specific design of the deploying combat force mix. Military experts' perspective seems to be that based on the modular design it will be able to deploy a smaller, more tailored, and therefore less lift-demanding force to achieve the same level of effort or capability.

The second area in which the Army expects to gain improvements is in the area of lethality. In this area it is hard, at times, to distinguish between increases in lethality that can be attributed to unit design and those that can be attributed to unit equipment.

Modularity is occurring hand-in-hand with modernization. According to some specialists the increase in lethality will be due to increased information, surveillance and reconnaissance capabilities and better linkages to joint fires. Other points of view claim that lethality is given by "strategic speed" that the Army is attempting to improve it by modularity and transformation. However, strategic Speed is largely irrelevant in irregular warfare. While the unit's lethality may be relevant in combat operations against enemy armored and infantry formations, some believe that this type of lethality is not a major consideration in stability and security operations, and in the conduct of a counterinsurgency campaign – the type of campaigns being waged in Iraq and Afghanistan.

Finally, as a result of modularity, the Army should achieve increases in "Jointness". With regard to the modular structures themselves, it is difficult to separate design from equipment. However in achieving the goal of Jointness the redesign of the brigade headquarters and division headquarters takes a

central role in the modularity process. In current-force brigade and division headquarters it has been long assumed that augmentation could provide the ability for the HQ to function both within the Joint community and as a Joint HQ. But augmentation was in the form of ad hoc ‘add-ons’ to the force. The new modular HQ designs will be designed to be “Joint Capable” both in their manning and in their equipping. This is a change in design philosophy that more closely represents the recent historical record of Army operations and the Army’s desire to be more joint capable and expeditionary.

Within the Army, the Modularity should be linked to the Army Force Generation Model. From a planner’s perspective this would seem to be the crucial aspect of modularity. Understanding what forces will be available, when, at what state of readiness, and with what capabilities is the key of planning process. Modularity, tied to the Army Force Generation, provides these planners with the same basic planning structure.

The purpose of force generation could be described as to provide commanders and authorities with steady state supply of modular, trained, ready, cohesive and rapidly deployable Army forces with capabilities to meet requirements for continuous full-spectrum operations.

Conceptually, in the design of Romanian Army there is a basic “tactical” building block. The basic building block is represented by Brigade, and all other supporting arms could come in any shape or size. Divisions are merely a headquarters to which more than one brigade (itself consisting of more than one battalion) could be attached.

The basic concept behind this design is simple; a Headquarters has a certain span of control, generally expressed in terms of the number of brigades for which it could provide command, control, and support. The division also had a certain availability of, increasingly standardized, organic assets with which it could reinforce the efforts of subordinate units. Formations with similar functional tasks are designed with similar functional

designs. In some designs the basic brigade is incapable of independent action without significant augmentation from division assets. The reality is that for a Brigade to fight, it has to be augmented with artillery, logistics, and other support from the Division. The tendency is to make the Brigades relatively self-contained entities, including organic Air Defense, Military Intelligence, Support and Transportation assets.

In other words, although the idea is to create a system of interchangeable parts that can be assembled based on organic capabilities and thereby provide a tailored force package, the capabilities to be modularized are primarily the combat support and combat service support activities that occurred at division levels. This could be done in many different ways, mostly differing in whether a unit would contain a variety of small capabilities and deploy as a unit, or whether it would contain a single set of capabilities and deploy individual detachments each capable of delivering a small quantity of that capability to a supported unit.

Based on this kind of thinking, a whole host of studies and analysis should be conducted, attempting to apply modular principles to all types of tactical organizations. What characterizes these studies is their attempt to show how supporting units can best be modularly tailored to provide support to combat units – brigades and divisions.

Concerning the concept of modularity there are two ideas. The first idea says that modularity is designed to make units interchangeable and tailorable, based on a need to enhance “the Army's ability to rapidly respond to a wide range of global contingencies with a force possessing needed functions and capabilities, while deploying a minimum of troops and equipment. The second one is to make the units self-contained and sustainable based on the need to provide combatant commanders with lethal, agile and versatile forces, with boots on the ground, ready-to-fight-on-arrival characteristics and endurance for sustained land combat. Further, today, it is almost impossible to

talk about Army modularity without talking about Army Force Generation...the need to maintain a sustainable long-term rotation of forces in Iraq and Afghanistan. It is this need for a sustainable rotation policy -- a force generation model -- which can be seen as one primary driver behind modularity. There is some debate about the driving force, with many arguing that it is driven by a force generation/rotation methodology and others that it is merely a fundamental redesign of our tactical and operational formations, upon which, perhaps, the ARFORGEN was based.

Conclusion

Modularity should be considered one component of the overall Army efforts at Transformation and a modular force is clearly a valid and perhaps even necessary choice for our Army at this time. This is true especially as we are able to pack more capability into smaller units, and to leverage our increases in command and control abilities to allow for more dispersed and independent operations.

As such, it will be pulled into the eddies of decisions and processes that surround it. The financing and fielding of future structures, management of the of the Army Force Generation model across time and across components, not to mention responding to changes in the strategic environment and the demands that that will place on our units and our structure, will all have secondary impacts on the modular force. What will be needed is a sense of discipline in funding, acquisition, fielding, and training that ensures that the modules remain relatively alike in form and function.

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NATO's INTEGRATED DEFENSE RESOURCE MANAGEMENT FUNDING MILITARY OPERATIONS

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Abstract

Parcurgem în prezent o perioadă de tranziție spre o supercivilizație tehnologică, globalizarea făcându-și simțită prezența printr-un proces accelerat și continuu în toate domeniile. Națiunile își interconectează economiile naționale la sisteme regionale și globale, acest lucru generând la nivelul politicului, schimbarea percepției nevoii de securitate. “Deoarece sistemul internațional global nu este dominat de ordine, ci de anarhie, iar statele trebuie să se bazeze pe propriile forțe pentru autoprotecție, securitatea națională devine o prioritate primordială. Evoluția fenomenului militar contemporan relevă că, în general, capacitatea de apărare a unei țări nu se mai întemeiază în mod exclusiv numai pe puterea organismului militar, rolul hotărator jucându-l potențialul economic, resursele economice la dispoziție și nu în ultimul rând resursele economice naționale, care reprezintă potențialul material, natural, financiar și uman la dispoziție”.[1]

În scopul asigurării nevoilor apărării, națiunile mobilizează și valorifică un întreg ansamblu de resurse materiale și umane. Adaptându-se tendințelor pe plan mondial, Armata României și-a creat un sistem de management integrat al resurselor pentru apărare, și a introdus planificarea multianuală, programarea și bugetarea, sistem compatibil și interoperabil cu cele existente în statele membre NATO. Actualul sistem de management al resurselor de apărare se bazează pe o reformă de sistem integrată în sistemul global de management al organismului militar, făcând publice activitățile desfășurate, obiectivele urmărite, precum și modul de gestionare integrată a resurselor destinate apărării

1. Without appropriate resources tailored to its missions, a military force cannot function and an integrated defense resources management system, implementing a planning, programming and budgeting system fully compatible and interoperable with NATO, is trying to give an appropriate solution to the problem. During the time, military expenditures have been permanent and interconnected sources of worry within the NATO and within the political systems of its members. Defense ministers oftentimes at least silently agree that their governments are not spending adequately on national and collective defense, but they have the benefit of only limited power to squeeze out more resources from their national budgets.

For sure, national welfare is not only calculated in security terms and security itself is not simply a military concept. As political leaders straighten out competing demands for defense, diplomacy, intelligence, pensions, health, education, environmental protection, tax reductions and other claims on public funds, resources accessible for military organization become even scarcer. Everywhere in the world, insufficiency is the effective circumstance under which defense planners work. Properly run of the military facilities must count on functioning with the resources that their leaders are possible to allocate them, than the resources that they would ideally want to have in hand. Defense planning and budgeting is therefore a highly complex and challenging exercise in matching the size and the capabilities of national militaries to the resources that are, or realistically will be, made available to purchase these capabilities and to the missions that military leaders will be asked to undertake.[2]

2. Several NATO countries are dealing with important political troubles in setting up defense priorities nowadays that will figure the strategic setting over the next years. “The United Kingdom, for example, is committed to retaining a nuclear deterrent after the current Trident system grows obsolete. The initial costs of doing so are estimated to be £20 billion, but those costs

could well double over the lifetime of the system (Ian Sample). Moreover, rising equipment and personnel costs in the UK, as elsewhere, have to be funded from very tight defense budgets that are unlikely to rise substantially and could eventually begin to fall, given new demands on public resources that demographic trends will only intensify (Hartley). The British are also looking to purchase a range of other expensive systems including the Typhoon, the Joint Strike Fighter, two new aircraft carriers, etc. For its part, the French Defense Ministry is pushing for the construction of a second new aircraft carrier, although some political analysts suggest that there is not sufficient political will to sustain such a costly project (Tran). In the United States, a number of huge American defense systems currently on the drawing board are now considered vulnerable because of inexorably mounting fiscal pressures, sharply rising costs and the prodigious outlays linked to American deployments in Iraq and Afghanistan.”[2]

Certainly, what make the current budget environment so frightening, are the rapidly evolving strategic environment and the doubts that this has inserted into the defense resource management and planning processes. Even though during the Cold War have been seen all kind of tensions occurring out of defense spending matters, the planning process was filled with a certain degree of predictability due to the relative stasis of the strategic environment. Not unpredictably, some of the greatest budgetary pressures started in the producing of major doctrinal changes, as happened when NATO “moved from a strategy premised on mutually assured destruction (MAD) to one based on flexible response in the 1960s.”[4] In that case, Alliance’s new position resulted in a new weight on costly conventional forces needed to reduce dependence on a nuclear power, no longer fully credible. That new position, nevertheless, settled free new worry within the NATO as some member nations struggled to match their structure of the conventional forces to the new policy - a costly intention that many politicians were reluctant to

endorse. Today, the strategic environment is shifting at a far faster rate, the Cold War ended in Europe, aggressive conflicts in South-eastern Europe, the 9/11 attacks and the increase of terrorist threats, and the Middle East and Afghanistan wars, have each contributed not only to a changing of national defense necessities, but of allied requirements as a whole.

3. In 1999, a new Strategic Concept was developed and already, nowadays, many military and political analysts feel the need of a new one. Changes in the strategic environment are so deep and accelerated, national and NATO planners are extremely hard-pressed to maintain pace, particularly because defense budgets are so stretched for so many reasons. These budgetary pressures are going to place an ever-growing premium on laying out priorities and developing efficiencies in the defense sector so that acceptable levels of security can be achieved in the face of potentially declining, or at least static, resources. It is worth underlining out here that military alliances can radically boost cost-effectiveness simply by spreading the security burden. “The cost-reducing potential of Alliance membership, for example, is increasingly discussed among traditionally neutral countries that are finding it difficult to muster resources for their own national defense. The irony is that NATO members themselves are still not fully exploiting their Alliance's potential to foster multinational resource efficiencies. NATO, for example, has never managed to standardize equipment in ways that would yield far greater procurement savings as well as improved military effectiveness.”[3]

4. NATO nations and military partners are in the middle of “dumping” old-fashioned force structures that were at first displayed to prevent a land-based incursion from Eastern Europe to structures that accentuate deployable, light, mobile, expeditionary and sustainable forces with a reach that goes well beyond Europe. NATO has created a new command, Allied Command Transformation, to encourage military innovation among NATO members

and partners that might facilitate this broad reconfiguration of forces. NATO transformation would be financially scary enough were forces not on active deployment in conflict-ridden regions. NATO member forces today are deployed on an array of missions under national, NATO, EU and UN flags, all these missions are huge “resource consumers”, some of which might otherwise be used to finance Alliance’s transformation. NATO Secretary General Jaap de Hoop Scheffer noted that In Afghanistan or Iraq, forces are deployed on highly costly military operations that are piling on enormous budgetary burden, although, in most cases, countries have appropriated extra funds specifically to cover these mission costs. Repairing or replacing damaged equipment, responding to unanticipated equipment requirements, and higher than anticipated fuel and payroll bills are nonetheless stretching already tight defense budgets. For newer NATO members, as Romania, all these deployments have been particularly difficult. “They have exposed capabilities shortcomings while seriously straining already taut national defense budgets. The SFOR, KFOR and ISAF missions, however, have effectively served as a training laboratory for new members on resource management in deployment conditions. The lessons have been hard earned but extraordinarily valuable.” [3]

5. In NATO, nations are contributing in different ways to the three NATO run budgets: the military budget, the civil budget and the NATO Security Investment Program. Each of these is endorsed by individual contributions from each nation, on before decided ratios related to per capita GDP, national economy’s size and some other factors. The military budget covers the operational costs, and a range of NATO commands in Europe and North America and is NATO's largest. The NATO civil budget covers the running costs of the NATO Secretariat, including staff and administrative costs and also it underwrites the Partnership for Peace, the Euro-Atlantic Partnership Council, the Mediterranean Dialogue and a range of other

programs. NATO Security Investment Programme assists selected military installations and construction projects.

Mission funding has been a growing source of tensions within NATO in recent years. In 2005 NATO revised its approach to funding non-article 5 NATO led operations. It provided a set of principles that would inform funding for any given mission, although the primary mechanism remains the "costs lies where costs fall" rule. "This also applies to partner countries participating in these missions, although it does not rule out the possibility of bilateral or multilateral aid for these countries. Costs not attributed to specific national militaries can be funded out of the NATO budget. The new concept also covers theatre level enabling capabilities that were once funded nationally. These costs are borne by the military budget and the Security Investment Programme, cover all manner of engineering support, fuel storage and other infrastructure costs, and are shared by all member states under standard cost sharing formula." [2] Unnecessary to say, NATO budgets themselves are not characteristically the most relevant source of allied financial burden sharing worries, merely because these do not involve large amount of money. National defense spending priorities, capabilities issues and the enthusiasm to deploy and sustain forces in the field are the real source of tension among NATO nations. As a level of irregularity has emerged in force deployments, with certain allied countries taking on the dangerous missions and others generally refraining from doing so - a course that is politically unsustainable and one that seriously jeopardizes NATO's cohesion.

In the future, NATO's members will obviously have to create new efficiencies to guarantee transformation costs. Common funding, shared purchasing, mission specialization, open and visible defense markets and a state of the art procurement planning co-ordination are vectors through which NATO might be able to take on these costs without posing enormous burdens on national budgets. Common equipment procurement, for example, would

allow governments to benefit from scale economies that would help decrease costs. Mission specialization allows smaller countries, not to develop a broad range of capabilities which they can't have the funds for and which do not necessarily boost their security or that of the Alliance. Ideal for NATO would be a central procurement organization based on a common budget, competing in a fully integrated pan-NATO market. Supplementary and expensive research and redundant manufacturing would be removed, costs would be cut off and interoperability improved. Moreover, NATO nations would take on a scale of specialization as smaller countries, particularly, would feel sufficiently confident in their allies not to duplicate the full range of capabilities of their far larger partners. Furthermore, members would focus in those military capabilities in which they might have an advantage and offer those military services in trade for different allies' specialized military services.

6. Certain general activities can serve as laboratories through which deeper collaboration might be attempted. A milestone in NATO's transformation was that the NATO Response Force (NRF) had become operational. But how it will be funded poses a set of problems which illustrate impasses that both Europe and North America tackle. At present if a country's forces are serving a rotation on the NRF when it is called upon for deployment, the costs will fall only on those countries that are on rotation. Countries that deploy troops on risky missions will thus not only stand the real risks to those soldiers; they will also bear deployment costs, sustaining soldiers in the field, and the costs of replacing damaged and destroyed equipment. This matter could put allied cohesion at risk. "If the NRF is deployed, only those nations who are in the force at the time of its deployment have to pay. [...] If you are not in the NRF at that time, you don't pay. You're lucky. To me, this is almost a lottery, not a funding arrangement for an Alliance built on solidarity" (Jaap de Hoop Scheffer). The Secretary

General has proposed developing a common funding mechanism for a trial period for short-term NRF deployments in order to assess the potential positive effects on the force generation process. It is meaning noting here that NATO, EU, UN, and peacekeeping operations are funded in diverse ways.

„For nearly 50 years, the Alliance never deployed forces on active combat or peacekeeping/enforcement missions. The past decade, however, has represented a sea change. With NATO forces actively deployed in several regions and with NATO members engaged in other military operations including those in Iraq, budgetary stresses have increased significantly. The American budgetary dilemmas, as a result of the Iraq conflict described above, reveal the financial difficulties these stresses can potentially inflict on long-term military investment. But all NATO governments are confronting very serious budgetary tensions today (Darling). We are not living in an epoch of peace and global harmony, although the promises of such a world seemed very real a decade ago. Our militaries should be prepared to take on the real threats to our national and collective security.”[2]

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FROM SYSTEM TO MISSION

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*„The first task of our public life is to thrive towards the hope for values
rather than towards the certainty of destruction and to do that
we must start by preserving the chances for peace, refusing to help
the forces of war, no matter the color they chose as disguise“
(Albert Camus)*

Lucrarea se vrea a fi o punte de la ideea dezvoltată de ceea ce este sistem în forme și organizare, cu trimiteri la organizația militară și la ceea ce înseamnă ea, particularizând pe una din aplicațiile concrete reprezentată de misiunile executate în cadrul sistemului militar. Sunt prezentate implicațiile pe care le determină organizarea sistemică asupra operațiilor militare de stabilitate și determinările cauzale dintre acestea. Dacă începutul este unul mai mult teoretic și noțional, partea a doua este un desfășurător al unor aspect de exercitare a managementului structurilor militare de nivel tactic, așa cum se petrec ele în fapt.

Introduction

The science of management is turning into one of the most important sciences, by providing rational methods and very safe ones of addressing issues.

Within a reality representation, the system as concept reveals mostly, the interaction, the correlation, the relations between elements of a whole, its organization, and in some ways the notion of system is the opposite of chaos. The science of management sees nature as a hierarchy of systems that are inclusive and surpassing of themselves, that signify all the actions performed in order to achieve one goal. However, creating a system doesn't necessarily mean a clear-cut, overall disorder removal in the respective part of the environment, but a reduction of disorder on a smaller or larger scale. Mircea Malița, in one of his works pointed out that "systems can be controlled either directly by the human being or by means of the human being"⁵⁵. The intention of the general theory of systems is to reveal properties, principles and laws that apply to systems in general, independent from their variety or the nature of their components. The main consequence of theory is the introduction of a new scientific vision – the systemic one – due to the methodological virtues of the conceptual triad "system-structure-function", within the research of totalities (organized ensembles).

1. The System and the Dynamics of Its Organization

The system can be defined, at a general level, as an ensemble of elements that are connected in an organized manner and among which dynamic relations can be established. As far as the social field is concerned, the notion of system represents an allotment of functions and tasks, a specific type of organization, thus conceived for people to be able to make the best decisions for the achievement of their goals.

Generally speaking, a system is the ensemble of interconnected elements, that actively or potentially interact and that can be identified in any given field, be it physical, social or conceptual. A quick analysis of the

⁵⁵ Mircea, Malița, *Aurul cenușiu*, București, Editura Dacia, 1971, p.102

aforementioned we can draw the conclusion that the system is an ensemble of interactive elements, that make an organized whole, with specific properties and functions, different from those of the element in its composition, a distinct and relatively autonomous entity that can be found in any given field (physical, biological, social, etc.)⁵⁶

The elements of the system are structural totalities, subsystems, where the laws of the whole are not identical to those of its components. The complement of the concept of system is that of environment, where elements from outside of the system are included and they influence or are influenced by it.

The organization and functioning of a system must ensure both the achievement of tasks under optimum circumstances and the compliance of people's requests that make these tasks complete; the system, as a whole, has the duty to replace old components, introduce and assimilate new ones, to ensure their optimum interweaving, thriving for constant improvement. The functioning of a system imposes a separation of what is objective and what it could conceive, elaborate and deliberate. The functional approach of any given system is the result of objective mechanisms, or of mechanisms that result from actions conceived in the economic, administrative, cultural field, a.s.o. the functioning of the system must take into consideration the behavior of the system in action, including the action within that system, the role of instrument, that is the system finality. An essential feature of any system is that it connects with all of its components. The way the system receives environmental influences, works with them and transfers them onto the same environment they came from makes the system find itself in action.⁵⁷

⁵⁶ Mircea, Stoica,(coord.), *Managementul organizațiilor militare*, Buletinul Învățământului Militar, anul III, nr. 3-4, București, 1996, p.56

⁵⁷ Neculai, Bălan, Dumitru, Iacob, (coord.), *Teoria organizațiilor*, Buletinul Învățământului Militar, anul III, nr. 1-2, București, 1996, p.27

3. Military Organization's Specifics

Military organizations have specifics that make them different from other social collectivities, and, according to the category of officers, differences appear within them as well – soldiers, warrant officers, non-commissioned officers or soldiers. Therefore, some aspects that define organizational culture, the climate and cohesion of military organizations must be underlined.

First of all, the values of the military are generally similar to those of the society as a whole, but according to the specific of the military organization they get nuances and interpretations, evaluations and effects. Relationships in the military are rigorously stated, oriented and controlled so that they fully comply with the objective demands of the military institution, considering the opportunity of actions in relation with the reality of the battle field, the convergence of efforts, unconditioned subordination, prompt execution of orders, and the cohesion of units all in compliance with the demands of military discipline.

There is a high degree of formality and standardization, the activity of components and their interaction being controlled by means of rules and procedures, by strong hierarchization. Communication and interaction are strictly established. Hierarchy is the main source of power with people being selected according to their fulfillment of tasks.

A series of values and attitudes are very important in the group's activity, such as: hierarchy, authority, discipline (obedience), loyalty for the commandant-in-chief, group interest, cooperation, competence, corps spirit a.s.o. rules have the role of conserving these values, therefore of imposing them to individuals. Practice has proved that performance in terms of instruction is obtained under specific circumstances of the organizational

environment that favor human potential valorization and the competition between individuals, groups and collectives⁵⁸.

As a consequence of the changes occurred in national and international contexts and the considerable diminish of conflict occurrence, specific to the Cold War era, the type and content of missions have changed and the emphasis lies on rules of engagement, reorganization of structure, downsizing of troops and improvement of equipment. It is considered that the quantitative aspect of forces is less important and that modern weapons and equipment are needed, and training at professional level is perceived as paramount in importance.

The reform of the Romanian Army for the future of our security environment has provided the Romanian Army with the following objectives:

- Operationalization of the structures that are designed for collective defense within the Alliance at NATO standards and the improvement of the decision making process, according to signed agreements;
- Improvement of human resource management;
- Improvement of financial resources management;
- Fast initiation of process of modernization according to available financial resources, for the increase of NATO interoperability and for consolidation of Romania's position within the Alliance;
- Elimination of bureaucratic blockages;
- Improvement of social protection of personnel;
- Improvement of benefits, infrastructure and medical assistance.⁵⁹

⁵⁸ Gl. bg. Mihai, Chiriță, *Marile unități din forțele terestre în operațiile de stabilitate și sprijin, a IV-a Conferința doctrinară a forțelor terestre*, București, 2006, p.32

⁵⁹ S.M.G./P.F.-3.15, *Manualul pregătirii și executării misiunilor militare în afara teritoriului statului român de către contingentele naționale*, Buzău, 2005, pp.22-30.

4. Systemic and Actional Characteristics of Tactical Microstructures in International Missions

Conflict amplitude has changed dramatically over the past few years by the very asymmetries of confrontations and by the use of specific technology in military issues. The challenges of the regional or international security environment have great effect on the character, nature and content of the Romanian Army's missions. Given these elements, forces capable of getting organized and reorganized rapidly and efficiently in view of various mission, that can be dispersed and spread, are needed. Therefore, the military have to be extremely flexible and able to perform different types of operations, specific to stability, support and conflict operations.

From the very beginning of Romanian participation in this type of missions, the units sent have constantly improved their operation procedures, nowadays the professionalism of our units being unanimously acknowledged, but most of all their ability to adapt to the social environment specific to the various types of populations to be found in theatres of operations. Stability and support operations occur usually on a multinational background, this is why it is highly necessary to have all doctrines and basis concepts concerning these operations synchronized, coming up with a common language, developing common work procedures for the success of these missions.

Romania's military strategy underlines that "participating in multinational peace-support operations stands for one of the strategic missions of the military for the state of peace". A series of principles lie at the basis of stability and support operations: basic, operational and the ones that condition cooperation relationships. Therefore, the basis principles are; legitimacy, active and continuous support provided by the Security Council, full engagement of the countries participating with troops, establishment of a

clear and tangible mandate, the force impartiality and objectivity, as well as neutrality⁶⁰.

Given the fact that usually stability and support operations are conducted together with international organizations, non-governmental organizations and private-volunteer organizations, the command relations will have some peculiarities, the structure of command having to ensure integration as efficiently as possible of all military components possibilities. The command of operations can be defined as the military process used by the commandant to impose his will and intent, assisted in doing so by his staff that organizes, conducts and coordinates all the assigned tasks. These two components, command and control, put together, form the C2 concept, necessary for the planning, coordination and conduct of operations.⁶¹

The infantry platoon/company performs stability and support operations based on operation plans drafted by superiors and on their mandate, within the infantry national battalion, most of the times, or part of force task-forces with an international component. Generally speaking, the actions part of stability and support operations are conducted in a difficult, ever-changing environment, governed by rules different from classic conventional military actions. Commandants and subunits must adapt easily to the frequent change of situations and to be able to handle the new challenges that may occur during these types of operations.

The forces nominated to take part in missions abroad have to fulfill the next stages: force generation, mission accomplishment, and recovery. The mission accomplishment phase includes: dislocation, engagement and redeployed.

- *Generating force* (training before departure) deals with the next aspects: personnel selection, training and logistics support. All the activities

⁶⁰ S.M.G./L-2, *Doctrina întrunită pentru mișcare și transport*, București, 2006, p.16.

⁶¹ L-14/1, *Instrucțiuni privind operațiunile de mișcare și transport ale unităților și marilor unități*, București, 2005, p.20.

have to be well synchronized so that the unit could have the requested operational capability in an established amount of time.

Unit's tasks are various with the following main objectives:

- Operational planning;
- Force defense system;
- Mission special training;
- Equipment functioning;
- Supplies packaging;
- Technique embarkation;
- National territory transportation (according to a detailed plan drafted in advance);

Ground transportation on national territory or in theatres of operation is performed with own capabilities as well as with military and civilian support means. The railway will be used for long distances and for huge amounts of equipment and materials.⁶² Naval transportation it is the main means for resources and personnel to be dislocated. Air transportation ensures all personnel movement and partly the resources' as well.

The next steps after unit arrival are reception, staging, onward movement and integration - RSO&I of the battalion in the theater of operations. In this stage, the collective cooperation between NSE and HNS is essential.

Reception is the process of arrival, unload, sort and local transportation of personnel, equipment and resources arrived in POD. This action will be performed in the Marshalling Area. In the same location food supplies, medical assistance and accommodation are to be ensured. *Staging* consists of assembling and organizing personnel, supply, equipment and materials arrived in the Marshalling Area for the purpose of movement. In this same

⁶² L-14/1, Instrucțiuni privind operațiunile de mișcare și transport ale unităților și marilor unități, București, 2005, p.21

area food supplies, medical assistance and accommodation are to be ensured. *Onward moving* means to reposition the unit in a location from which it can fulfill its tasks. These actions imply movement from reception and staging areas to tactical assembly area.⁶³ *Integration* is the process that ensures the battalion's structure as it was planned for the mission in order to be engaged as a unique structure in tactical assembly area. This means that the unit is operationally ready and the transfer of authority has been performed. The Task Force Command Headquarters exerts operational control and delivers all mission orders. Depending on the existing situation the operationally-ready and the transfer of authority can be performed in one of the aforementioned areas. *Engaging* means that the unit will take an active part in the operation, with all its capabilities, according to Romania's memorandum and under Task Force Command Headquarters' control. Should the mission be accomplished earlier than the initial estimated time, right after decisive operations, the unit will redeployed after force withdrawal and transition.

Redeployment essentially means almost the same thing as deployment that is moving logistics and troops from one area to another, after fulfillment of the mission. Redeployment has to four stages: pre redeployment actions in POEs, strategically movement into PODs, movement to unit peace time location.

Once the mission is accomplished the unit will proceed to the established assembly areas or straight to redeployment assembly areas. This is the place where the TOA takes place. The activities performed in these areas prepare the unit for movement⁶⁴. Displacement within a theatre of operations can be performed directly from the Redeployment Assembly Area (RAA) towards Marshalling Areas correspondent to Points of Exit

⁶³ FM 100-17-3, Reception, Staging, Onward Movement and Integration, 1999, p.14

⁶⁴ FM 3-93, The Army in Theater Operations, 2005, p.5.

(POEs) or by passing Staging Areas, depending on the distance that has to be covered, the level of force retracing or the conditions provided by the theatre of operations. In embarking points Host Nation Support elements, movement coordination structures and cooperation with HNS elements stand in the foreground. Activities in embarking points mostly deal with: container embarkment, customs inspection, personnel embarkment, passenger and goods lists check-up.

Strategic displacement can be performed by air or sea and it lasts from the first departure (take off) until last transport of the unit reaches ground. When PODs are reached, the units start the reception process, followed by the peace-settlement of the unit, depending on the arrival of transportation and the means that the unit has available. The reception is the process of strategic materials and personnel incoming, local transportation, supply personnel with food, medical care, accommodation, a.s.o.

The regeneration of the forces phase has to do with granting a period of recovery, the normal program of instruction or military education is in store, stocks are filled in, and equipment is technically reviewed.

In conflicts, foes study one another's action doctrine, searching for ways to counteract all advantage the adversary might have and trying to make the best of its own advantages, in order to place the other party at critical points. Military strategies used in recent conflicts prove the wish to keep under control the negative effects of constraints exerted by the reduction of the battlefield on the armed forces' command and control capabilities. The purpose of force constriction is to create critical moments that would determine the foe to give up military action. Besides directed physical actions other actions are performed in order to mislead the opponent and to affect its will and motivation. Once these critical moments are created they are directed towards the foe's command and control system, until its power to resist be assimilated, or until the losses force it to stop all military actions.

Stability and support operations are, usually, nonlinear and isolated and are deployed according to principles specific to armed fighting, depending on the situation created. Commandants adjust the operational framework, the operational art and factors to the situation in hand. They decide upon decisive operations, the battle field modeling operations, or the ones that are necessary for the success of the mission. When commanders visualize such an operation, they keep in mind the fact that foes have to be defined differently (for instance the foe may comprise illegal groups, famine, disease, disasters), and will come up with the role that civilians have in constituting the centre of gravity.

From the principle of stating objectives comes the necessity to establish the success factors specific to every mission, the optimum ways to get to the foe's center of gravity, depending on the limitations and constraints imposed by the political or by the military to all military actions, as well as to identify the causes that could affect the centers of gravity, be it of the own force or of that of the opponent's. It is possible, for instance, that during a peace-support operation, the parties involved in the conflict attack the military in the forces that try to intervene, to come between, changing their operational centers of gravity into force groups whose actions are meant to change the mission.

The UN humanitarian mission in Somalia – UNOSOM I reached a dead end in November of 1992, because of the impossibility of Somalia's opposing tribes to reach an agreement concerning UN and NGO humanitarian assistance. Consequently, in December, 4th 1992, The UN Security Council authorized the use of any means for the international force protection, as it initiated a peace-enforcement operation "Operation Restore Hope", deployed between December 1992 and May 1993, under US guidance.

This is a typical mandate exchange during a mission, as a result of the change in the opponent's attitude and centre of gravity, at operational level.

Operation safety is performed based on the right to self-defense against hostile actions. The task-force commandant must not allow any sort of threat against his troops. The uncertain nature of some circumstances and conditions in stability and support operations, together with any military action's potential to generate fast changes make it mandatory for security to be of utmost importance for the protection of the forces.

In stability and support operations the sources that may influence the perceptions and decisions of the commandant include: the media, information sources, public opinion's reactions. The impeccable planning and deploying of psychological operations and an efficient information management, all contribute to the legitimacy of effort made by a coalition in an area of operations as well as to the maintaining at low levels the emerging possible threats.

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THE REGENERATION OF MILITARY STRUCTURES INVOLVED IN MILITARY ACTIONS ABROAD

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Îndeplinirea misiunilor complexe ce revin Armatei României în calitate de stat membru al ONU, NATO, UE și OSCE, dar și ca țară generatoare de securitate în plan regional și global, impune regenerarea unor structuri militare adecvate.

I. The Romanian Army Commitments in Missions Abroad.

According to the provisions of the law concerning the participation of military forces in missions abroad, there are some set actions in which the Romanian Army is appointed to participate: *collective defense actions; peace-support actions; humanitarian actions; coalition-type actions; common, individual or ceremonial exercises.*⁽⁶⁵⁾

By means of the Romanian Army's commitments for missions abroad and the participation in multinational operations, Romania has in view the promotion of its own interests at international level. In this respect, we must emphasize the fact that Romania promotes its own values and national interests according to the following directions: the development of the Intensified Partnership with the United States of America (the operations

⁶⁵ Law 42 / 2004, concerning the participation of the armed forces in missions outside the Romanian State, art. 2.

"Enduring Freedom" and "Ana Training"); the development of the bilateral relations with the countries which are NATO members (the operations "Enduring Freedom" and "Joint Guardian"); the consolidation of the relations with the member countries of the European Union, on a bi - and multilateral level, with its neighbor countries, as well as with those countries maintaining a traditional relationship with Romania (the Multinational Force for Peace from the South - Western Europe, the Group for Naval Cooperation at the Black Sea, the Multinational Brigade for Stand-By Rapid Action); active involvement in the process of realization of the European Policy of Security and Defense (EPSD), through the engagement of a negotiated "force group"; the promotion of an active policy on the bilateral or international level in order to ensure security and stability in the South - Eastern Europe, in the whole region of the Danube River and the Black Sea as well as in the Southern Caucasus (the Romanian - Hungarian Mixed Battalion, "Tisa" Engineers Multinational Battalion); and the diplomatic support to participate in operations meant to enforce peace and in humanitarian operations, in the coalition against terrorism ("Enduring Freedom").

This range of missions of the Romanian Army explains the fact that Romanian soldiers were massively involved in operations, in the Western Balkans, in Afghanistan and Iraq, as well as in multinational structures and in an international environment if a crisis or a conflict arises.

II. General Considerations on the Concept of Military Structures' Regeneration

The notion of regeneration is a very complex one involving, on one hand, the evaluation of the activities from related fields (personnel and logistics) and, on the other hand, its harmonization into an integrated, functional system, which meets the standards of the military structure.

The system of regeneration of the military structures is made out of the totality of the administrative structures and of the functional relations set between them, having as a main goal the permanent renewal of the structures with human and material resources, at least until the minimum level necessary for the carrying out of the missions is reached.

In NATO's view, regeneration represents *"an activity carried out in due time, on the entire or part of the structure and infrastructure, including the compliance with the pre-established levels of effectives, equipment and supplies."*⁽⁶⁶⁾

Romanian theoreticians define the process as representing *"the totality of measures and actions/activities carried out by military administrative structures in order to have damage control at the operational level and which could allow them to continue with the carrying out of the missions."*⁽⁶⁷⁾

The process of regeneration must be looked at from two perspectives: the regeneration of the human resource and of the material goods, as well as the regeneration of the military structures.

Regulations state that *"the regeneration of the military structures that suffered damage during the carrying out of the military missions in crisis situations and at war represents the gradual process through which these structures are filled-in and rendered operational"*⁽⁶⁸⁾ or *"the gradual process through which these structures are filled-in and made operational until reaching the projected operational capacity or at least until reaching the superior operational capacity."*⁽⁶⁹⁾

⁶⁶ http://www.nato.int/docu/stan_ag/aap006/fr_f_c.pdf, ## 2%

⁶⁷ Col. prof. Gheorghe Udeanu, PhD (coordinator), *The Fundamentals of all National and Multinational Military Actions*, Bucharest, AISM Publishing House, 2003, p. 263;

⁶⁸ The Ministry of National Defense, the General Staff, "Instructions Concerning the Generation and Regeneration of the Military Forces / Structures in Crisis Situations and at War", Bucharest, 2003;

⁶⁹ The Ministry of National Defense, the Land Forces Staff, "The Conception of Generation and Regeneration of the Land Forces", Bucharest, 2005.

As a result, we may distinguish from the aforementioned definitions the main features of the military structure system of regeneration:

- it is a conscious voluntary and permanent process, carried out by the military administrative structures;
- it has the aim to bring the military structures to the initial levels from all respects (human, material, financial, logistic);
- this process must be carried out in due time;
- it can deal with either parts or with the structure as a whole;
- it is organized and planned;
- the declared objective of the regeneration of the military structures is the maintenance or the recreation of the projected operational capacity belonging to the units already in the theatres of operations or those that are to be deployed.

At the same time, the regeneration of the military structures is planned, organized and developed according to the following principles:

- *the continuity principle* - according to this principle the regeneration of the military structures represents a complex process, planned and permanently developed, in an unitary conception;
- *the opportunity principle* - supposes the permanent knowledge at all military structures levels, of the detailed situation concerning the human resources, the existing and the supplied materials;
- *the competence principle* - according to this principle, the chiefs / commanders of the administrative structures must provide at the right place and in time the human and material resources necessary to the process of regenerating the military structure;
- *the effectiveness principle* - supposes the adoption of the most efficient measures and the right planning of activities belonging to the field of the human resources and to logistics;

- *the selection principle* - supposes the clear establishment of the aptitude and competence criteria in the process of recruiting the personnel, as well as the quality and performance criteria referring to material resources, necessary in order to fill-in the military structures, according to the personnel requirement of the functions that must be fulfilled and to the functional requirements specific to the technique, to equipments and materials;
- *the functionality principle* - according to this principle, the military structures subject to the regeneration process must be able to carry out their role and the war missions for which they were created.

In fact, the regeneration of the military structures is a complex process, based on the following dimensions: *human* (the regeneration of the physical and psychological capacities, the instruction and reintegration into headquarters, large units and units containing persons whose capacity to fight was temporarily affected); *material* (the evolution of the fight technique, of the military equipments, of the means of transportation up to normal functioning parameters or the replacement of the faulty means of fighting); *organizational* (the conception and application of an insurance system meant for human, material, financial and informational resources, necessary to carry out the regeneration of the military structures affected during the execution of the specific missions); *normative* (the adoption of adequate technical and juridical norms in order to carry out the process of adaptation of the military structures according to the planned functional parameters); *social* (the regeneration, in the context of the professional military, has a special impact on the population that will provide the human resources reserve with the future military personnel and voluntary soldiers, as well as on the reservists from all personnel categories).

III. The Military Structures' Regeneration in the Present-Day Environment

The military theoreticians and analysts state that the future actions that will involve the Romanian forces are characterized by an increased importance of the social, diplomatic, juridical and informational components, but also of the economic components. This fact imposes the treatment of these actions in a unitary and unanimous manner.

The armies of the NATO member countries, but also of other countries, are made out of military structures employed as active manning and instructed in order to be able to respond in an effective and adequate way to the requests of international missions.

Operations abroad impose the fulfillment of the operative compatibility between the military forces belonging to different states, each having its own structure, training, instruction, tradition and culture.

The multinational character of the military forces carrying out international missions under UN, NATO, EU and EOSC mandate, represent a new variable in the management of the military operations which, beside the communication issue, extends to procedures, regulations and mentalities, requesting a corresponding instruction effort.

In all modern states, there is a constant preoccupation for the responsibility factors in order to modernize the regeneration system meant for the military structures.

At the same time, the regeneration of the military structures that suffered damage during some missions abroad represents an activity belonging to the administrative military structures with a view to regenerate the physical and mental capacity, to carry out the instruction and reintegration into headquarters, and units of the manning whose capacity to fight was temporarily affected, but also to bring the fighting technique, the equipments

and materials to normal functioning parameters, including the use of other human and material resources made available by legal structures.

That's why, in this respect, it must take action according to the following essential directions:

- the creation of a coherent system of selection, professional training and differentiated promotion according to the categories of personnel. In the case of NATO member states, this is to be done according to the standards of this political and military organization;

- the modernization of the system of regeneration meant for the military structures, according to the asymmetric structure of nowadays dangers concerning the internal, regional and global security;

- the passage from the mass army made by conscription, to the professional army, based on volunteering. In this context we think of the problem of creating a voluntary reserve that implies social, juridical, psycho-social, cultural, economical and political aspects.

IV. The Impact of the Improvement of the Military Standards on the Regeneration of the Military Structures Involved in International Missions

The improvement of military standards has a strong impact on the regeneration of the military structures, and this fact ensures the recruiting and maintenance of competent, adaptable and confident personnel in order to fulfill on a medium and long term the operational requirements of the military structures.

The introduction of the professional army also implies some structural changes.

The first structural change concerns the diminution of the army force volume. The reduction of the military mass, as well as the passage from the

army made by the conscription to the professional army imposes the necessity of a permanent personnel supply for all combat and administrative points, the majority of these belonging to the “unicity” category, through the volunteering method. The lack of a specialist in the key - moments of the operations may lead to severe deregulations of carrying out the commander’s order, fact that may have unforeseeable consequences. The increase of every soldier’s importance requests us to focus our attention on the combat and on the administrative structures concerning the supply and protection and the adoption of some adequate measures. The effects of this transformation may be diminished through the supply with equipment and modern combat technique and through the supply of the qualified personnel which is able to deserve it.

The second transformation is directly derived from the first. Having replaced people with modern means of combat, the armed forces managed to use a reduced number of soldiers having rigorously defined functions.

And, last but not least, the third structural transformation consists in an ageing of the military force, as a result of the increase in the proportion of the career personnel and of the introduction of an army characterized by a great technological density. This effect may lead in time to some difficulties concerning the execution of some missions abroad.

V. Methods of Regenerating the Romanian Military Structures Involved in Missions Abroad

The armies of the NATO member countries are made out of military structures employed as active effectives and of the structures that are filled with reservists, these ones being instructed so as to be able to comply in an effective and adequate way to the requests determined of international missions. These forces have a multinational character, being modular,

adaptable, mobile, and available, made out of professional soldiers, provided with modern equipment, but, at the same time, instructed and trained to perform in various combat actions, characterized by different intensity, duration and nature, during complex critical situations, abroad. In conclusion, we may appreciate the fact that most of the countries involved in the carrying out of missions as part of an international coalition, as the one fighting against international - Iraq terrorism, are made out only of professional soldiers.

In practice, the Romanian military structures are maintained in the theatres of operations for six months; after this period they are changed; they go back to the country in order to be regenerated. These are replaced with a similar structure, which was trained and instructed in order to be deployed in the theatre of operations. After the structure returns from the theatre of operations, the stages of medical consult and recovery are carried out; then, a process of reinsertion of the personnel and of adaptation to the former conditions is begun. After all these, the personnel will become subject to a training program, necessary for the re - adjustment to the national military environment. This training program focuses on the re-activation of the abilities necessary in order to act in an environment where classic forms of combat will be carried out, in an independent manner, as well as within the military squad. In general, activities will be carried out in order to: find out the changes in the field of legislation, regulations and structures; solve the specific logistics issues, the planning and fulfillment of the activities concerning the general and special training. Simultaneously with the training of the personnel, the means of combat and other materials necessary in the theatre will be updated according to the functional and technical planned parameters. The combat technique will also be adapted in order to be able to face the conditions in the theatre of operations. In this sense we must consider the climate and relief conditions of the theatre in which the operation is to be carried out.

The regeneration of the structure will be carried out, when the situation requires it, even before the period of rotation of the effectives. If the structures lose personnel, weaponry or minor technique, these may be supplemented with the reserve existent in the country, of course if the situation requires this and if the costs of the replacement before term are justified.

The management of the regeneration process and supplementing the structures acting in the theatres of operations is carried out by the General Staff. The force categories belonging to the military and to headquarters coordinate the activity of regenerating the subordinate structures, according to a plan drafted according to "The doctrine for manning support in joint operations". According to the aforementioned plan, the operative units and the generation - regeneration military structures will supply the requested personnel to those forces which suffered important losses.

CONCLUSIONS AND SUGGESTIONS

In the context of the affiliation to the most powerful political and military organization, and according to the in - law treaties, Romania must act together with its other allied parties from the political point of view and contribute from the military point of view to the solving of crises and conflicts, according to the common interest. In fact, the presence of the Romanian troops in the most dangerous areas of the planet is no more a new thing for us, but a common fact.

The military structures involved in missions outside the national territory must be provided with a modern and mobile organization, an active military personnel and well - instructed and highly motivated reservists in order to carry out in a simultaneous or successive way a wide range of missions specific to the theatre of operations. They must as well be equipped

with modern means of combat and weaponry, according to the weather and geographical conditions from the location of the actions.

Normally, the military structures carrying out missions abroad must recover after the departure from the theaters of operations, or, in specialty terms, they should be regenerated both from the human point of view and from the material point of view, as well. In this context it is necessary to adapt the Romanian regeneration process to the one practiced by our allies.

In this respect, in order to build a viable system of regeneration for the military structures participating in missions abroad, it is necessary to elaborate some regulations (laws, decisions, orders), of social nature (norms concerning the rights and obligations of the military and civilian personnel forming these structures), and of logistic nature (norms and duration of use). An important role in the adoption of these norms could be *“the lessons learnt”* from the experience of our army and of the allied countries participating in military actions in different theatres of operations, in order to meet the requirements from the battlefield.

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THE INFORMATION - FUNDAMENTAL INDICATOR FOR EVALUATING INTEGRATED DEFENSE RESOURCES MANAGEMENT IMPACT UPON THE ACCOMPLISHMENT OF INTERNATIONALS MISSIONS

Maior drd. Ilie PĂUN

Abstract

În cel de-al treilea mileniu suntem martorii și participanții activi ai unei perioade deosebite din evoluția omenirii, caracterizată prin producerea unora dintre cele mai importante mutații din întreaga sa istorie datorate, în esență, apariției și dezvoltării societății bazate pe informație, societate în care se ignoră orice frontieră și se diluează, treptat, toate constrângerile de ordin spațial și temporal.

Resursa informațională a devenit una din principalele categorii de resurse ale războiului modern, iar tehnologia informației și sistemele moderne de comunicații, mijloacele care asigură posibilitatea informării, în timp real, influențând opinia publică, modelând acțiunea politicului și producând accentuată a palierelor artei militare.

INTRODUCTION

The rate of change in the business world will inevitably get very fast. To survive in this environment, we and our organization must learn to be flexible and responsive to your customers' needs. Knowing about computers and using them appropriately is no longer an option. We'll be dead if we don't.

All organizations must manage information, just as all businesses must make a profit, but for a chief executive to tell us to improve our information management , like telling us to improve profits , is no help at all. What we need is more specific direction on the route to those overall goals.

However well we manage information, without profits our business will fail. But without information decisions are impossible, and profitability depends upon good decision-making throughout the organization. Decision-making is central to every manager's role. Decisions are impossible without information and managers are constantly seeking more and better information to support their decision-making, hence the growth of information system – a term which today is often taken to mean networks of computers , but strictly speaking should also include non-computerized channels of communication such as regular meeting , the in-and out-trays full of memos and reports , and of course the phone. To survive, every organization collect information, communicate it internally and process it so that managers can make decisions quickly and effectively in pursuit of organizational objectives in a changing, competitive environment. The information system is the nervous system which allows an organization to respond to opportunities and avoid threats; to be effective it must reach into the furthest extremities of the organization.

1. INFORMATION TYPE AND CHANNELS

We can categorize information according to its market value.

Broadly, there are three types of information:

-  Information for sale, such as software which can be used, or news which informs, or a video or novel which entertains. This is usually privately owned, and access to it is sold by the owner at the market price. Often it has a limited shelf-life, its value declining with time.

- ✚ b) Information given freely, such as train and passenger jet timetables which has been made available by the owners, because it is in their interests to do so. Advertisements and promotional material fall into this category. Although the information itself is freely available, third parties such as publishers and database operators can often charge for access to such information.
- ✚ c) Information for internal use by organizations, which is never intended to be sold, and is only of legitimate value to the user, such as production schedules, sales forecasts, budgets and minutes of meetings.

All organizations use these types of information. Organizations cannot function for long without it. It is their life blood, essential for decision-making and control. It allows them to anticipate changes in an increasingly changeable business environment and to respond effectively to their clients and customers. Information on actual performance must be compared with planned performance and, in the event of a difference, appropriate action must be decided upon. Also, to maintain efficiency, information on outputs must be compared with information on inputs, so that appropriate action can be taken to the ratio.

We do know that its value depends upon factors such the following:

- ✚ Relevance;
- ✚ Completeness;
- ✚ Accuracy;
- ✚ Clarity;
- ✚ Timeliness

Because these factors affect its usefulness in decision-making, and have a direct bearing on the organization's ability to respond to market needs. Today the consumer is king that is truer now than it has ever been before.

Managers make their decisions in support of the objectives of their organization. But the types of decision taken — and the information needs — are different at different levels in the organization. According to R. N. Anthony of Harvard:

- ✚ Senior managers must carry out the strategic planning. They must develop overall goals and methods of achieving them.
- ✚ Middle managers have the job of management control. They must ensure these overall goals are achieved effectively and efficiently
- ✚ Junior managers are responsible for task or operational control.

They must ensure specific tasks are carried out effectively and efficiently. Quality, flexibility and responsiveness are the strategic issues of today. Organizations that don't understand this new discipline are declining and will eventually disappear, as other more flexible organization take over their role by offering better perceived value.

To succeed in the new era of global competition, organizations need relevant, timely and accurate information on:

- ✚ Market research, to be responsive.
- ✚ Quality control, to produce high quality.
- ✚ Progress, to deliver on time.
- ✚ Budgets and costs, to offer good value.
- ✚ Design, to offer variety.
- ✚ Sales, to match demand.

An information system is needed to co-ordinate and control the flow of information in an organization, like the nervous system animal. Paperwork systems used to be satisfactory, but like the dinosaurs are becoming extinct because they are too cumbersome to survive in today's world markets. For organizations of any size, a computer network is now virtually essential.

Also, the shape of the information system must reflect the chains of command and channels of communication shown on the organization chart.

II. DECISION SUPPORT FOR COMMAND AND CONTROL

Flexibility is the keyword when preparing for the uncertain future tasks for the civilian and military defense. Support tools relying on general principles will greatly facilitate flexible co-ordination and co-operation between different civilian and military organizations, and also between different command levels. Further motivations for general solutions include reduced costs for technical development and training, as well as faster and better decision-making. Most technical systems that support military activities are however designed with specific work tasks in mind, and are consequently rather inflexible. There are, admittedly, large differences between for instance fire fighting, disaster relief, calculating missile trajectories, and navigating large battle-ships. Still, there is much in common in the work of *managing* these various tasks. We use the term C2 (Command and Control) to capture these common features in management of civilian and military, rescue and defense operations.

DISCCO (Decision Support for Command and Control) is a set of network-based services including *Command Support Tools* helping commanders in the human, cooperative and continuous process of evolving, evaluating, and executing solutions to their tasks. The command tools provide the means to formulate and visualize tasks, plans and assessments, but also the means to formulate and visualize changes of the dynamic organization, regarding roles, mandates, and obligations. Also included in DISCCO are *Decision Support Tools* that, based on AI and simulation techniques, improve the human process by integrating automatic and semi-automatic generation and evaluation of plans. The tools provided by DISCCO interact with a *Common Situation Model* capturing the recursive structure of the situation, including the dynamic organization and the goals of own, allied, neutral, and hostile resources. Hence, DISCCO will provide a more

comprehensive situation description than has previously been possible to achieve. The iterative and dynamic decision-making process supported by DISCCO is constituted by a successive development of the tasks, specifying what to accomplish, but also the solutions, specifying how to accomplish it. The potential plans are assessed by predicting the future consequences given that they are executed, and comparing these consequences to the goals of the task. Since this process disregards the actual details of the tasks, it will be useful through all phases of the operation, through all command levels, and through all the different organizations and activities that are involved. Taking this general approach, DISCCO may be used both for civilian and military purposes.

A definition for C2

To exercise authority and direction effectively in combat and other military operations, commanders must have situational awareness. Use of information technology to make a commander's situational awareness better also creates the potential to improve the effectiveness with which the commander directs and controls his forces.

As argued in [Wallenius, 2002], the work of commanders and staffs could be seen as a breakdown of abstraction. Tasks assigned on a higher level of abstraction are implemented by assigning tasks to resources on a lower level of abstraction. To optimize the use of the subordinated resources, different alternatives regarding this solution should be regarded before the decision is made. Extending the definition given in [Wallenius, 2002], we propose the following definition of C2, from this point of view:

C2 is the act of fulfilling a task assigned to an organization, in terms of designing, evaluating, approving, and executing, a solution on a lower level of abstraction. Hence, a solution is constituted by its subtasks, and by a subordinated organization of available resources, to fulfill these subtasks.

According to this definition, the design of organization is a substantial part of solving the task. Hence it emphasizes that the future military organization will be dynamic and flexible. Depending on the situation and current tasks, new units will be assembled to meet the requirements. Also, novel chain-of-command structures may arise, allowing for different, multiple, or virtual, organizations. [Borchert and Jones, 1999], e.g., investigate such multiple organization trees that change over the different phases of the mission.

Also emphasized in the definition, is that C2 is an art of decision-making. There are different descriptive and prescriptive models representing how decision-making should be performed, and is performed in practice [Klein, 1989] [Schmitt and Klein, 1999] [NATO, 1998] [Montgomery, 1992]. The suggested generic decision-making process in Figure 1 aims at representing these different models from a conceptual perspective.

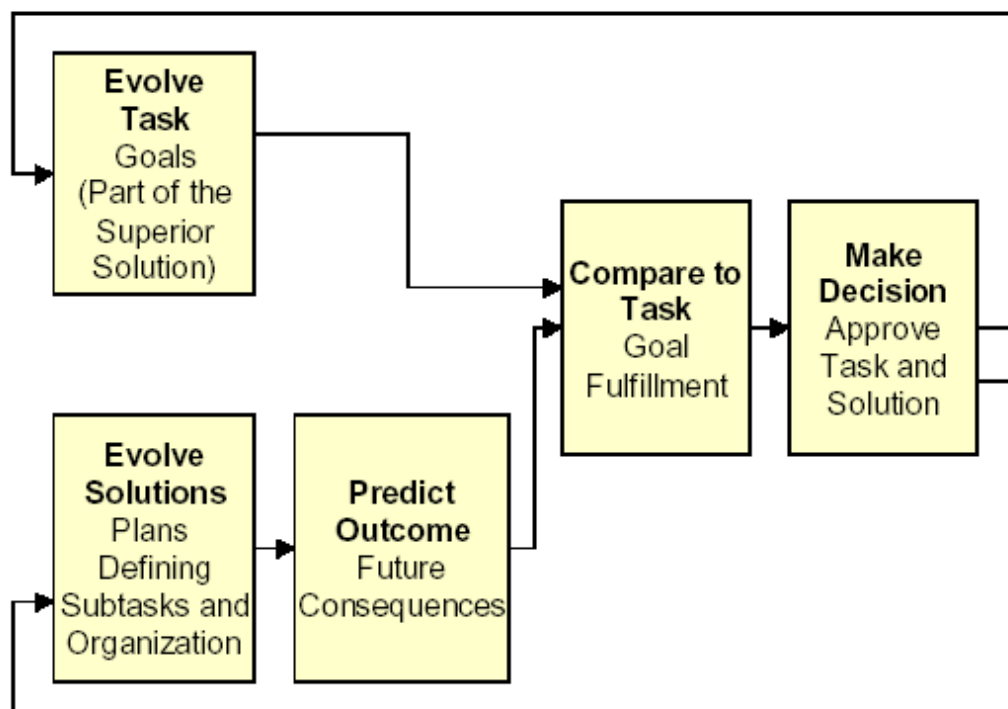


Figure 1 The generic decision-making process

From this point of view, decision-making always involves defining the goals of a task as well as developing one or several solutions to this task. The development of solutions includes iteration between, on the one hand, suggesting improved solutions, and on the other hand, assessing these solutions. The assessment is performed by predicting the outcome, and by comparing this assumed outcome to the goals. The actual decisions are made when the task, or one of the solutions, is either approved or disapproved.

III NETWORK-CENTRIC WARFARE

The Network Centric vision is to enhance operational capabilities by using the power of modern information technology to provide each warfighter with a more comprehensive, timely, and mission-focused view of the battlespace so that better decisions can be made faster, maintaining unity of command through distributed collaboration and self-synchronization. This vision builds upon the success achieved in both the military and commercial worlds in leveraging the Internet and related technologies to achieve greater efficiency and effectiveness across large and complex enterprises. Extension of these successes to the battlespace enterprise is a natural progression.

- Network centric operations are military operations that exploit information and networking technology to integrate widely dispersed human decision makers, situational and targeting sensors, and forces and weapons into a highly adaptive, comprehensive system to achieve unprecedented mission effectiveness.
- Operational Benefits
 - Increased Speed of Command
 - Operate Inside the Enemy's "OODA Loop"
 - Achieve Capability for Sustained High OPTEMPO

- Distributed Self-Synchronization
 - Unity of Command Without the Burden of Centralized Control
 - Ability to Take Individual Initiative Within a Force-Wide Decision Context
 - Flexibility and Adaptability to the Operational Situation
- Decision Superiority
 - Effective Use of All Available Information
 - Effective and Efficient Use of Force Assets and Capabilities

In NCW, the Network is the *center of gravity*: the focus on which all elements of combat power depend.

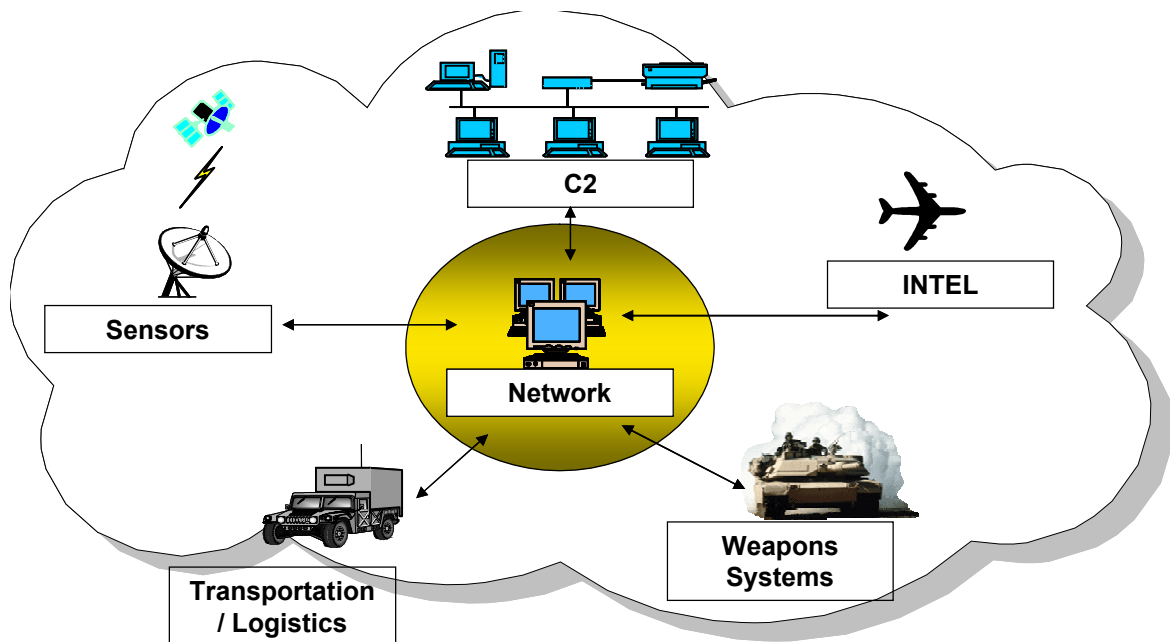


Figure 4 Network is the *center of gravity*

We are building an information –centric force and networks are increasingly the operational center of gravity.

- However, our networks are vulnerable now and barring significant attention, will become increasingly vulnerable. So we must have an IA strategy that is dynamic, able to keep pace with our evolving net-centric environment.

We need a strategy that enables us to develop and field:

- The tools that PROTECT our center of gravity.
- The operation construct that enables us to DEFEND that center of gravity along with the ABILITY to see or have SITUATIONAL AWARENESS of that center of gravity
- The PROCESSES that sustain the viability of that center of gravity.
- And most important the EMPOWERED IA WORKFORCE upon whom that center of gravity is totally reliant.

The information systems include everything from tactical radios to pay systems to satellite communications to intelligence collection systems. We have a huge customer base and require to partner with just about everyone else.

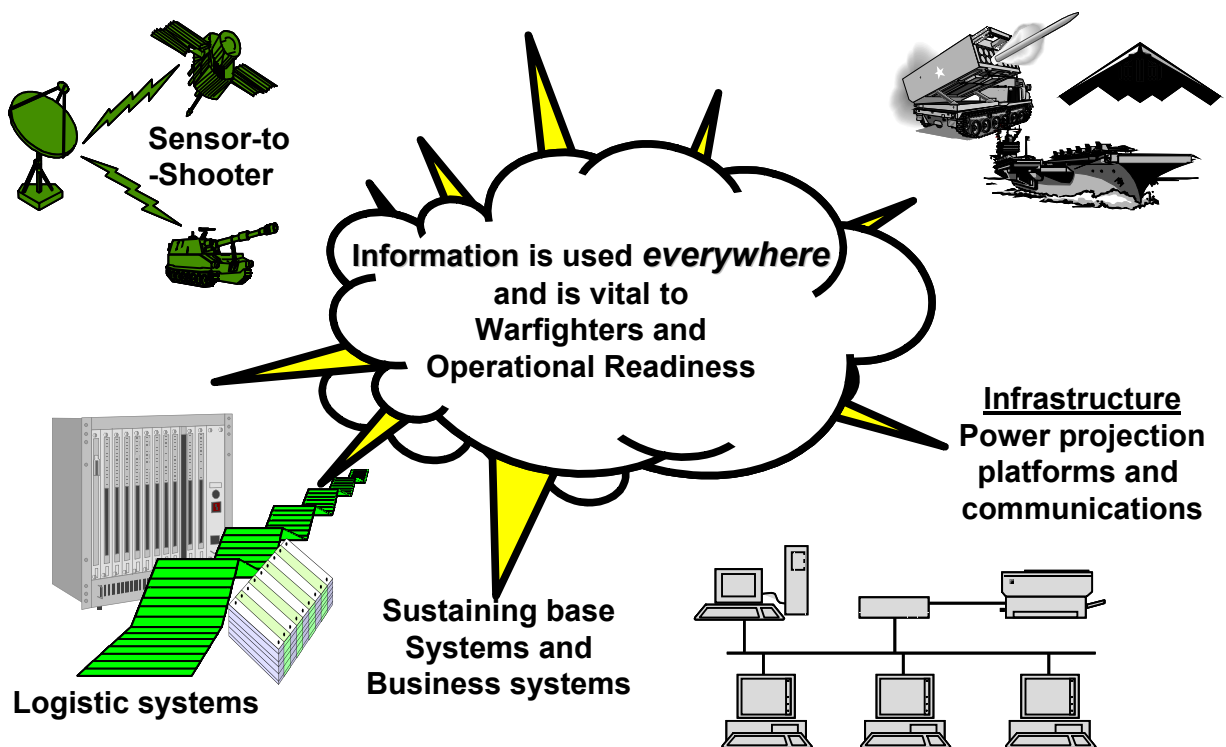


Figure 5 Information everywhere

NCO is more than a better, faster, more coordinated way of putting ordnance on target:

- It must encompass the entire spectrum from peace to war
- It must enable human beings to make appropriate decisions
- It must enable decision making at all levels in the hierarchy

New metrics of performance and effectiveness reflect transformed military operations

- Outcome is a critical new measure
- Human performance models, metrics and testing are integral to assessing overall systems' performance
 - Sailor / soldier performance is part of system performance
 - If the warfighter can't do his job, it is a system failure

Humans resolve ambiguity, Humans decide – Machines calculate

Scope of Network Centric Operations

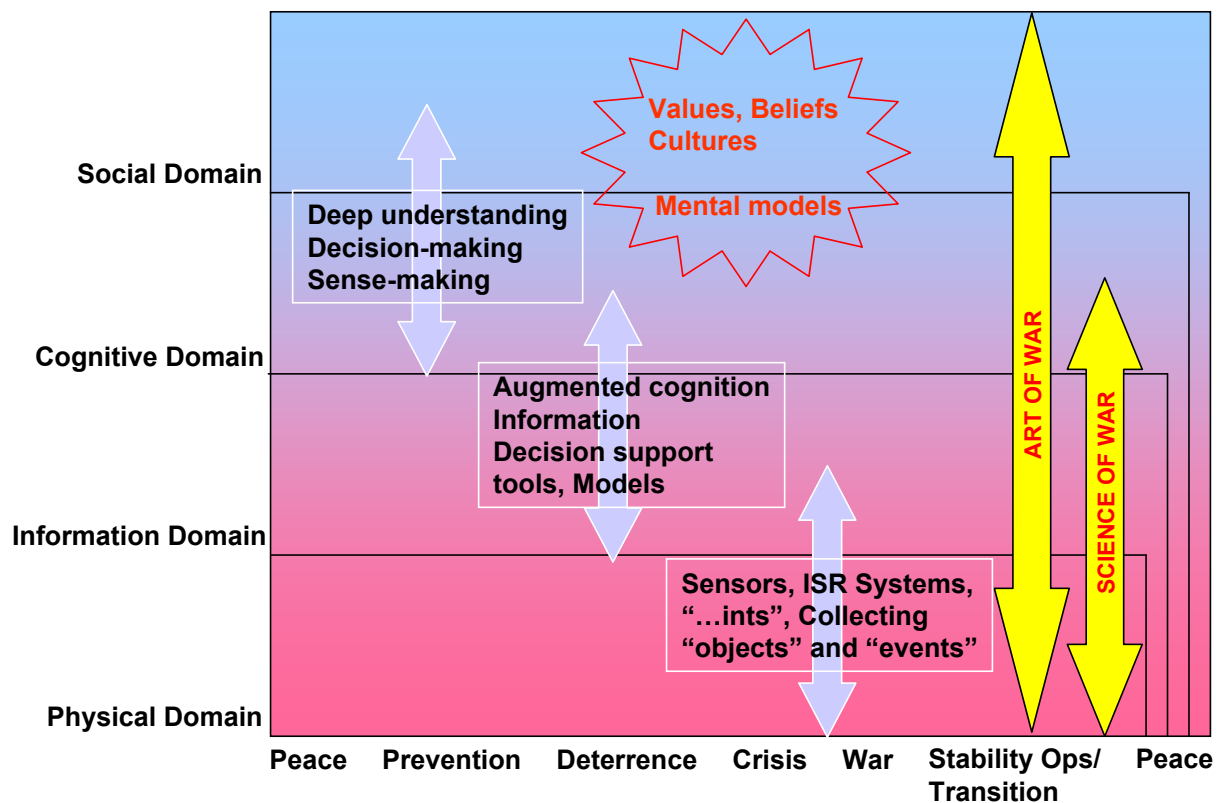


Figure 7 Scope of Network Centric Operations

Knowledge Warriors

- These Knowledge Warriors are active – even proactive – users of information provided in the form of multiple screens
- They “drive” the wall – they are not passive recipients of the information
 - They know what information they want, when and in what format
 - They know when to drill down for details, and when to stand back to see the big picture
 - They are good at making inferences – interpolating or extrapolating the information as appropriate
- For Network Centric Operations to work optimally, we shall need first class ***Knowledge Warriors, supported by first class Knowledge Managers***
- Knowledge Warriors are the Commanders and Decision Makers at whatever level they are operating. They are first and foremost warfighters who have a deep understanding of the whole situation from a broad systems perspective.
- Knowledge Managers are those who support and feed information to the Knowledge Warriors – they may be operators or specialists in Information Management or Knowledge Management

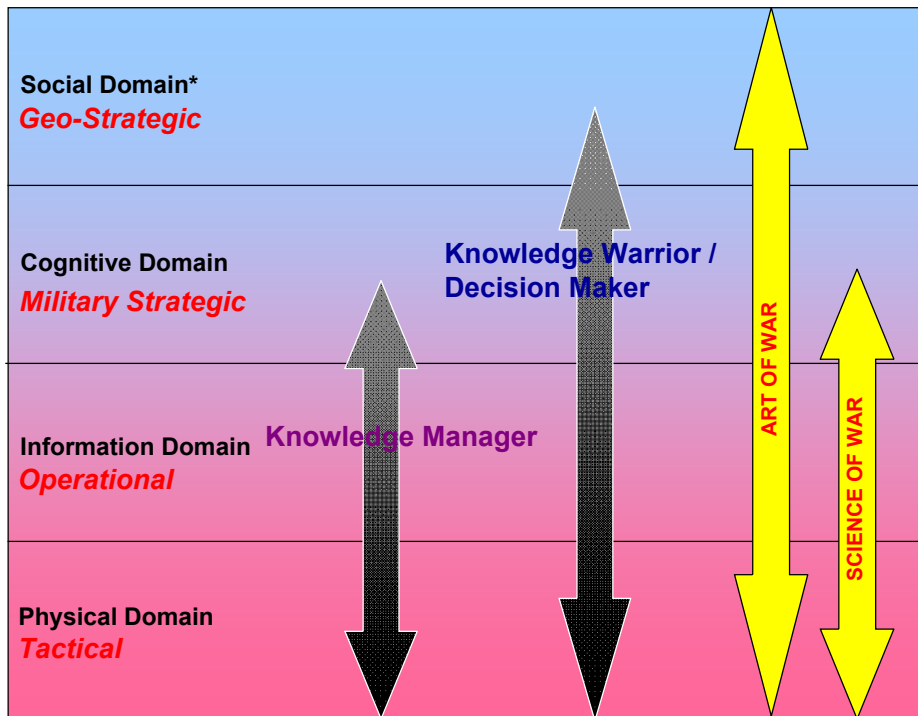


Figure 8 Connection of 4 domains, future war and warrior

Evolution of Data to Information to Knowledge

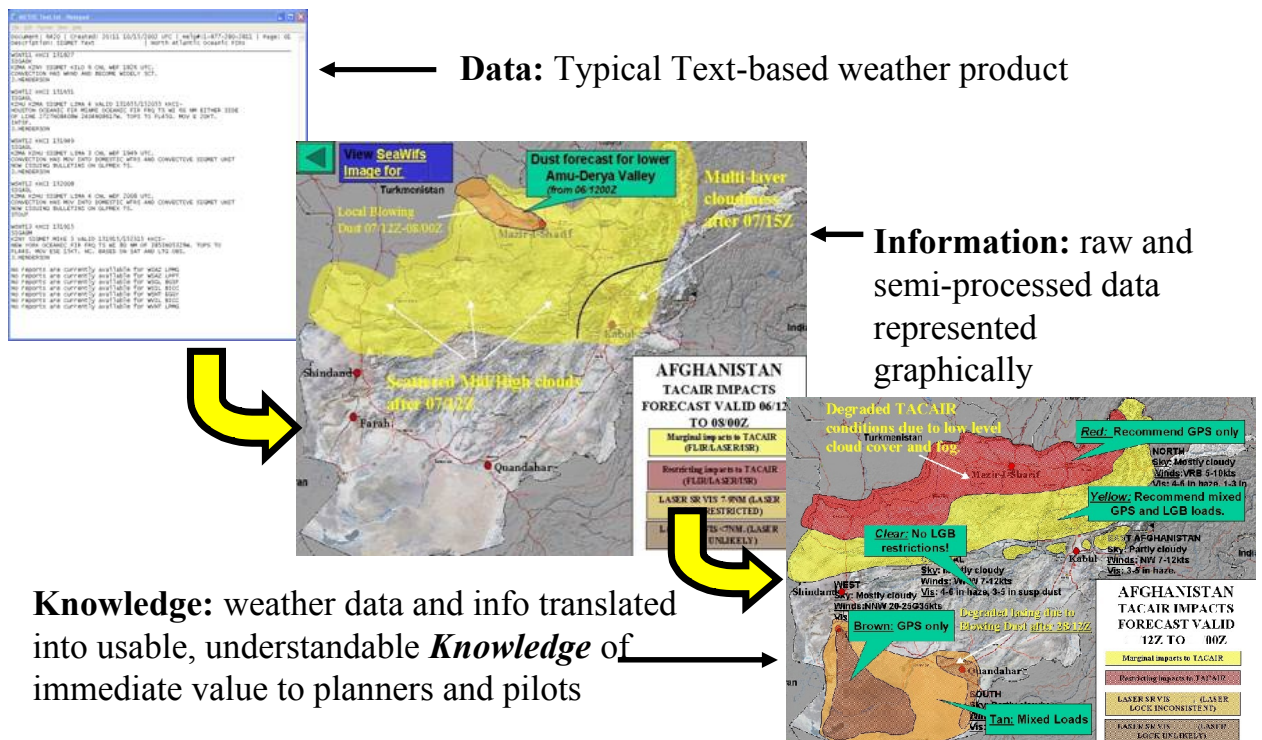


Figure 9 Evolution of Data to Information to Knowledge

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THE DECREASE OF BUREAUCRACY, AN IMPORTANT INDICATOR IN ACCOMPLISHING THE INTERNATIONAL MISSIONS.

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Abstract

Critica adusa birocratiei este deja ceva obișnuit iar majoritatea criticilor acesteia nu încearcă decât să o desființeze fără a găsi totuși ceva cu care să o înlocuiască. Aceștia afirmă că: trebuie eliminat ce este în exces sau superfluu; dacă ne acoperim de hârtii nu înseamnă că munca noastră este și eficientă; avem nevoie să ținem o evidență a activităților noastre, este necesar să îndeplinim anumite formalități dar să nu profităm de acest lucru doar ca să ne justificăm existența. DA, toate aceste lucruri sunt adevărate, și atunci, care este soluția? O posibilă rezolvare ar fi modelele hibride sau după cum au mai spus unii specialiști „birocrăția ușoară”, „soft bureaucracy”. Acest tip de birocrăție impune reguli angajatului dar îi lasă în același timp și libertatea inițiativei pentru că în cadrul activității desfășurate eficiența este foarte importantă. Reducerea birocrăției obținută prin descentralizare, împuternicirea angajatului și stimularea inițiativei acestuia va duce la îmbunătățirea activității sale prin creșterea eficienței.

Do we need bureaucracy?

Bureaucracy is without any doubt “the primary institutional characteristic of highly complex and differentiated societies”⁷⁰; bureaucracy “epitomizes the modern era” and this is probably why so many social and organizational writers have focused on finding out the inherent weaknesses and perversities of a too prevalent and path breaking model and analysis. Bureaucracy is criticized all the time and it is blamed for every shortcoming of an organization. Yet, there are voices who propose alternative models of bureaucratic management which use democratic values thus creating the hybrid models.

The negative feedback loops existing within bureaucracies have been emphasized so many times that it has become evident that bureaucratic organizations produce ‘functional’ restraints and thereby impinge upon their members’ actions in a way that leads to outcomes which are unacceptable to everyone concerned. This paper will try to address, very modestly, these problems. It will talk a little about the “hybridization thesis”, where it will suggest that if the core political and moral principles of bureaucracy have not been fundamentally changed, we can witness a significant softening of the administrative principles and systems. This is what we call “soft bureaucracy”⁷¹, the bureaucracy that regulates the employees’ activity and at the same time allows them the freedom of initiative.

Organizational survival cannot be summarized only through the needs of “security”, “stability”, and “continuity”, how bureaucracy can be balanced and mitigated, how it can be even transformed under such or such conditions,

⁷⁰ Landau 1972: 167

⁷¹ Courpasson 2000b

and not considered as inevitable. Weber's idea was that in a social context such as an organization, the process of bureaucratization entailed by the rationalization process resulted in a diminution of freedom, initiative and individual power.

These constraints pose a deep problem to managerial revolutionaries. However, for some of these critics, the objective is not democracy but **efficiency**: "Employee empowerment does not mean every decision in the organization must be made democratically or through consensus"⁷². The change of organizational systems of power through empowerment is intended to foster effectiveness, not democracy. However, matters are not so simple, and we all have to find alternatives to conventional bureaucracies, because there are new issues which have to be dealt with, because the attributes of bureaucracy are not too adaptive when massive change, environmental dynamism and considerable uncertainty are the norm.

Certain organizations try to base their efficiency and legitimacy on a different model of commitment of organization members, supported by a strategy of decentralization of authority, the granting of empowerment. When they ask what is wrong with bureaucracy at a more fundamental level, they find out that bureaucracy is synonymous with inefficient business administration, pettifogging legalism, and red tape. A way to avoid such a thing is to orient individuals towards more decentralized and local memberships, and share more sectional interests than to be committed to the organization as a whole.

The post bureaucratic organization has very significant similarities to democracy. Its ruling concept is that "everyone takes responsibility for the

⁷² Osborne and Plastrik 1997:227

success of the whole”⁷³ . Therefore, such organizations must develop informed consensus amongst their members, rather than relying on authority and hierarchical supervision. The development of agreement has to be situated in interactive settings where the gathering of information increases collective power. Politics is characterized by the use of influence and persuasion rather than power exercised through commandments. Trust is a crucial resource in such settings because everyone must believe that the others are seeking mutual benefit rather than maximizing personal gain. Leadership is not exercised through complex systems of rules but via guidelines for action which take the form of principles, “expressing the reasons behind the rules”⁷⁴ . Internal social processes decide who decides, the decision making power not being derived from official rank but from the nature of the problems at hand.

In short, we argue that the most salient implications of the post-bureaucratic trend are: the relationships between individual members, and between members and their organization, the nature of power and authority, the conception of equity instead of equality and above all, the existence of flexible and permanent dialogues about the rules of action.

“Why should bureaucracies temper their centralized and hierarchical format?” The answer could be: a stronger collective authority system, and not a single person having power and authority, might minimize the impact of human error”⁷⁵ . Ashcraft imagines a regime based on three major features:

- “(1) The absence of an ultimate authority, the circularity of power;
- (2) The ability of each member to participate directly or through representation in all decisions that affect him or her directly;

⁷³ Heckscher 1994: 24

⁷⁴ Heckscher 1994: 26

⁷⁵ Ashcraft 2001: 1315;1994: 117

(3) The ability of members, individually or collectively, to make and implement decisions that affect no one other than the decision-maker or decision-makers”.

Thus, democracy is founded on a circular form of power because “anyone who has authority over others is subject to the collective authority of these others; hence its circularity”⁷⁶ .

If we want efficiency and campaign quality⁷⁷ that means that once the militaries are deployed they should be able to operate for an extended period of time across the entire spectrum of conflict. Such a thing can be obtained proving the soldier with great protection and enhanced capabilities. The Army’s enduring mission is to protect and defend vital security interests and to provide support to civil authorities in response to domestic emergencies. This requires an expeditionary, campaign-quality and armed forces capable of dominating across the full spectrum of conflict, at any time, in any environment and against any adversary—for extended periods of time. Decreasing bureaucracy, shortening the length of any circuit between our forces in the theatres of operation and our country helps to improve campaign quality. For example:

The (re)supply chain which sometimes is too long and too bureaucratic. Let us take the ammunition re-supply case. Whenever there is ammunition re-supply need in the theatre, the demand for ammunition is made towards the echelon the troops belong to and they direct it to Operational Command. The Operational Command sends it to the Service. They send it to the General Staff which forwards it to the Joint Logistic Command. These are the ones entitled to contact the depots, acquire ammunition and send it back to the theatre. As you can see, the whole circuit is too long and time wasting; it

⁷⁶ Ackoff 1994: 118

would be more efficient to have one single structure to take care of the entire process; it should have the decision capacity and power for all the (re)supplying demands. They should know what materials are used during a mission, what are the needs for certain types of operations and they should know where to find the consumables at short notice (having their own depot would be a good but maybe too expensive solution).

Disposal is another issue. Having to dispose an Armored Personnel Carrier or any Light Armored Vehicle takes a very long time and there is a lot of paperwork to be done. All these things delay the replacement of the destroyed item and make the soldier's activity more difficult. There have been some discussions lately that the task force commanders could take out from the inventory the destroyed beyond repair items.

To conclude we can only say that decentralization, empowerment, freedom of initiative all of these words mean a decrease of bureaucracy and an increase of efficiency.

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INFORMATION SECURITY IN NETWORK CENTRIC WARFARE (NCW) - THROUGH SPECIALIZED SOFTWARE - SIGNIFICANT INDICATOR IN INTERNATIONAL MISSIONS.

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Abstract

Articolul își propune să prezinte Conceptul Războiului Bazat pe Rețea (RBR) care corespunde, în mare măsură, prin forma și prin conținutul său, începutului unei noi etape în dezvoltarea societății omenești. RBR este un concept de avangardă conflictuală informațională și tehnologică, cu desfășurări globale, accesibil, deocamdată, numai entităților care dispun de sisteme performante de investigare, analiză și cunoaștere, de tehnologii de vârf (*high-tech*), de tehnologia informației (*IT*) și de structurile hardware și software necesare folosirii acestora. *Gestionarea și securitatea rețelelor* reprezintă mijlocul principal pentru realizarea vitezei de transport a datelor, protecția informației și cunoașterea reală a situației. RBR cere integrarea orizontală prin partajarea informației la toate nivelurile (strategic, operativ și tactic). Securitatea informațiilor în războiul bazat pe rețea - prin software specializat – este un indicator semnificativ în misiunile internaționale ale forțelor armate.

I. Network Centric Warfare (NCW) concept.

Romanian Armed Forces discovered the advantages of employing information technology and exploiting information superiority. Thus, a new paradigm has been birthed; one in which global reach can be established

through extensive networks and dominance can be maintained through information superiority: **Network Centric Warfare (NCW) concept**.

NCW concept is the idea of exercising information superiority to dominate the battlefield through closely linking (networking) all knowledgeable entities on the battlefield. Establishing this extensive network of entities (sensors, decision-makers, and weapons) will result in the ability of a military force to do more, quicker, better, and farther, too. It is anticipated that the NCW concept will achieve increased shared awareness, speed of command, operational tempo, lethality, survivability and self-synchronization; NCW will assist Romanian Armed Forces involved in international missions military forces to achieve a complete dominance of the battlefield through information superiority. Even with rapid advances in and successful implementations of technology, it must not be discounted that humans have and will continue to play a primary and vital role in warfighting.

Employing empowerment techniques has recently become a popular method of developing and inspiring effective leaders and managers in all types of organizations. To empower someone is to give them authority, choice, and confidence in matters that elicit competence, motivation, and energy. Empowered individuals are said to be more effective players within organizations, because they are invited to contribute directly to the organization's performance

II. Characteristics of NCW

First of all, it must be noted that NCW is a concept. It is more a state of mind than a current reality at this point. No one really knows how to implement it yet, though the services are fervently attempting to learn more about the essence of this concept by conducting experimental exercises. Applying lessons learned from the civilian sector coupled with current

knowledge of the nature of war still has military professionals seeking an understanding of the full potential of NCW.

Nevertheless, changing it from an idea to a real operational doctrine requires substantial changes in the military way of thinking; the culture, organization, C2 structure, concepts of operation, organizational forms, force structure, and other issues need to be revisited. To reach its fullest potential, NCW must be deeply rooted into the operational art, meaning that new technologies cannot simply be applied to current equipment, doctrine, tactics, and organizations of warfare. There must be a co-evolution of organization, doctrine, and technology in the warfighting "ecosystem" to ensure its success. This will lead to the emergence of new tactics, techniques, and procedures to conduct network-centric operations .

NCW adapts to the nature of war. It does not seek to control or change the environment, but to work productively within it. Only the principles of mass and maneuver need to be revisited, as they will occur in a different manner, but the other factors of warfighting will remain the same (i.e., environmental context, spectrum of war, etc.). NCW improves the ability to operate within similar complex environments by reducing the amount of tension between the factors of complexities. Warfare has always been characterized by the complexities of war (friction, fog, disorder, etc.). Production of the near real-time picture reduces uncertainty tremendously, so that better battlespace awareness helps commanders shape the battle to their advantage. NCW does have the potential to improve overall warfighting performance, but leaders must remember that it is not a panacea.

III. Actual environment

Organizations of all types (business, academia, government, etc.) are facing risks resulting from their ever-increasing reliance on the information infrastructure. Decision and policy makers managing these risks are

challenged by a lack of information intelligence concerning the risks and consequences of cyber events. They need to understand the implications of cyber security risks and solutions related to their information infrastructure and business. Risk management investment decisions should involve:

- (i) a comprehensive approach to cyber security risk management,
- (ii) credible appropriate data needed to support intelligent decisions, and
- (iii) assessment of the impacts resulting from the various investment alternatives. Sound, rational IT/business decisions require a comprehensive understanding of the dynamics of information intelligence and the likely effects of cyber security investment choices.

As our Romanian Armed Forces dependence on the cyber infrastructure grows ever larger, more complex and more distributed, the systems that compose it become more prone to failures and/or exploitation. Intelligence is information valued for its currency and relevance rather than its detail or accuracy. Information explosion describes the pervasive abundance of (public/private) information and the effects of such. Gathering, analyzing, and making use of information constitutes a business- / sociopolitical- / military-intelligence gathering activity and ultimately poses significant advantages and liabilities to the survivability of "our" society. The combination of increased vulnerability, increased stakes and increased threats make cyber security and information intelligence (CSII) one of the most important emerging challenges in the evolution of modern **"cyberspace mechanization."**

III. 1 The heart of the cyber infrastructure is software.

The aim of this article is to discuss novel theoretical and empirical research focused on (the many) different aspects of software security/dependability, because as we know, the heart of the cyber infrastructure is software. We need to cover a wide range of methodologies,

techniques, and tools to: 1) assure, measure, estimate and predict software security/dependability, and 2) analyze and evaluate the impact of such applications on software security/dependability.

We can better understand the needs (requirements), stakes and the context of the ever evolving cyber world; where software forms the **core and security/dependability are crucial properties** that must be built-in or baked on and maintained. Secure systems must be dependable and dependable systems fail if they are not secure. We look to software engineering to help provide us the products and methods to accomplish our Romanian Armed Forces goals.

IV. MATRIX SOFTWARE - DATA MINING FOR COUNTERTERRORISM PURPOSES

IV.1 MATRIX Defined

The Multistate Anti-Terrorism Information Exchange (MATRIX) pilot project leverages proven technology to assist criminal investigations by implementing factual data analysis from existing data sources and integrating disparate data from many types of Web-enabled storage systems.

This technology could help Romanian Armed Forces involved in international missions to identify, develop, and analyze terrorist activity and other crimes for investigative leads. Information accessible includes criminal history records, driver's license data, vehicle registration records, and incarceration/corrections records, including digitized photographs, with significant amounts of public data records.

This capability will save countless investigative hours and drastically improve the opportunity to successfully resolve investigations. The ultimate goal is to expand this capability to all states.

The information available through this pilot project has been accessible to law enforcement for many years but now can be accessed in a manner that allows them to react to threats quickly. Much of the information is available to the public upon request, and some may be accessed through the Internet. Some states have public records laws that provide criminal history records to the public. There is no new collection effort involved. No criminal intelligence databases are being connected.

The laws governing access to public record information in each state address what data is made available. Database applications and exchange of information through this pilot project are structured to be in compliance with the laws of each participating state and by policy; the participating state representatives agreed the MATRIX project capabilities could only be used in pursuit of criminal investigative matters.

Using FACTS, an investigator can conduct a query using incomplete information, such as a portion of a vehicle license number. FACTS will search the system and assemble information matching the partial description. FACTS is a unique and innovative investigative toolset that helps solve critical crime problems by enabling law enforcement to take incomplete witness accounts and develop leads in seconds, versus manually intensive efforts traditionally requiring days, weeks, or months.

With FACTS, once investigative criteria are established that permit a database query, law enforcement can now easily search voluminous dynamically combined records from disparate datasets available in the data reference repository with a single query, returning immediate results in easy-to-view and meaningful formats.

IV.2 Data Sources for MATRIX software

IV.2.1 EXCLUDED DATA

The reference repository does not contain the following:

- Telemarketing calling lists;
- Direct mail mailing lists;
- Airline reservations or travel records;
- Frequent flyer/hotel stay program membership or activity;
- Magazine subscriptions lists or reading lists;
- Telephone calling logs or records;
- Credit card or debit numbers;
- Purchases (e.g., retail store, Internet, or even gas stations);
- Mortgage or car payments;
- Bank account numbers or account balances;
- The costs of a home addition;
- Birth certificates;
- Marriage licenses;
- Divorce decrees;

Utility bill payments (i.e., gas, electric, phone, heating oil, cable or satellite TV)

Therefore, such data is not provided to law enforcement. Under state law, when such data is required to further a law enforcement investigation, law enforcement must obtain a judicial order (i.e., subpoena) and serve it directly on the organization having or owning such data.

IV.2.2 INCLUDED DATA

The data reference repository for the FACTS application contains public records from thousands of locations (i.e., county courthouses and other public records locations) on U.S. individuals and businesses. Examples include:

- FAA pilot licenses and aircraft ownership;
- Property ownership;
- Coast Guard registered vessels;

- State sexual offenders lists;
- Federal terrorists watch lists;
- Corporation filings;
- Uniform Commercial Code filings (i.e., UCCs or business liens);
- Bankruptcy filings;
- State-issued professional licenses;

In addition, commercial sources are used where they are generally available to the public or legally permissible under federal law; for example, telephone directory assistance. MATRIX also includes data files that historically have been available to law enforcement for decades. The following files have been provided by some of the participating states where available.

- Criminal History information;
- Department of Corrections information and photo images;
- Sexual Offender information;
- Driver's License information and photo images;
- Motor Vehicle Registration information;
- Safeguards;

IV.2.3 Factual Analysis Criminal Threat Solution (FACTS)

FACTS contains information from criminal history, driver's license, vehicle registration, and incarceration/corrections (including digitized photographs) databases, as well as significant amounts of public and commercial data. *Seisint* software provides public and commercial records. *Seisint* is an information management and technology company. *Seisint* stores billions of records that can be searched, analyzed, and compiled quickly. *Seisint* assists a number of businesses and industries, including law enforcement.

The information available through the MATRIX project has been accessible to law enforcement for many years. Much of the information is available to the general public. Some of the same information is available on the Internet through sources such as US Search, Intelius, and NetDetective. Some US states have public record laws that provide criminal history records to the public. It is information from existing sources that is now being combined and made accessible to law enforcement personnel in an automated manner that allows them to react quickly to threats. In order to maintain the integrity of information, any information must be independently verified with the original source from which the data was extrapolated before any official action (e.g., warrant or arrest) is taken. User agencies and individual users are responsible for compliance with respect to use and further dissemination of such information and the purging and updating of the data.

By using FACTS, an investigator can conduct a query using incomplete information, such as a portion of a vehicle license number and description or a name and date of birth, and assemble data that may match. This type of rapid, partial data searching is crucial in investigations where a life may be at risk (e.g., missing children) and/or risk of flight is apparent. During the pilot phase, a number of key statistics were tracked and monitored, including the following:

Between July 2003 and April 2005, there have been 1,866,202 queries to the FACTS application. As of April 8, 2005, there were 963 law enforcement users accessing FACTS. FACTS assisted a variety of investigations. On average, cases pertained to the following:

- Fraud - 22.6%;
- Robbery - 18.8%;
- Sex Crime Investigations - 8.6%;
- Larceny and Theft - 8.3%;
- Extortion/Blackmail - 7.0%

- Burglary/Breaking and Entering - 6.8%;
- Stolen Property - 6.2%;
- Terrorism/National Security - 2.6%;
- Other - 19.1% (e.g., assault, arson, narcotics, homicide);

Because of the volume of queries to FACTS and the number of users accessing the system to support criminal and terrorism investigations, the MATRIX Project experienced significant operational successes

CONCLUSIONS

The NCW concept applies to the entire spectrum of warfare. It has the enormous potential to improve battle space awareness, speed of command, and force responsiveness at all levels, including operations other than war. NCW also assists in meeting the full operational potential of the force. It will allow a military force to get the most out of its people and equipment, resulting in improved collaboration, speed of command, and employment of advanced technologies. Prior to MATRIX, investigators would compile investigative information manually via multiple independent databases, requiring numerous phone calls or visits to several different records offices, expending vital time. The MATRIX Pilot Project made this same information available in seconds.

The MATRIX pilot project utilizes the **Factual Analysis Criminal Threat Solution (FACTS)** application that provides law enforcement a technological, investigative tool allowing query-based searches of available state and public records in the data reference repository.

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VIEWS ON THE RMS'S (REVOLUTION IN MILITARY AFFAIR) IMPACT OVER THE EFFECT-BASED OPERATIONS

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Defense and security fields in Europe and North America evolved starting with the '90s influenced by the rising new threats to security and multiplying of old ones. NATO has been playing a major part in reducing the security threats to its member countries and in promoting international stability and security. At the end of the '90s EU also has started developing its own defense and security dimension as a reaction to immediate or longer term threats and as a means of consolidating its economic and political stance on the international arena. Since NATO and ESDP share common areas of action - defense and security – and members, a quest for synergies have started ever since EU launched its policy in this field. The fluid nature of threats, the increasing interdependencies highlight that the interests of both organizations and of their members is to build upon institutional convergences and avoid competition.

NATO's continuous policy and military transformation is needed as a direct response to the more and more complex challenges and threats arisen in the geopolitical and geostrategic field, especially in the last year, This process is permanently sustained by the growing necessity for the Alliance's forces to be multinational and Joint, deployable where and when needed and coherently

interoperable. Thus, it's necessary for NATO to have capabilities that would allow it to extend the number and the type of operations which it could be involved/needed in, in an enlarged geographic area.

The European's states security interests do not generate conflict situations, the security environment being positively influenced by the European and Euro Atlantic integration processes, by the ever growing regional collaboration and by the expansion of the states community that are all cherishing and promoting the democratic and free economy values. The risks of a traditionally military confrontation on the European continent are significantly diminished.

However instability and crises phenomena at a sub regional level, fragmenting or isolation tendencies of some states, still exists. Countries from Central, East and South-East Europe are confronting economical, social and political difficulties associated to the transition process to a society based on democratic and free market principle, which may generate plenty of risks to others states' security.

The technical-science revolution and others multiple causes (economic, political, juridical, social, ecological etc) are making the actual type of war and its essence – the armed confrontation – to gradually disappear from the inter-state relations.

The industrial society's dominant image lasting for more than a 100 years is changing due the [appearance](#) of the so-called “informational society”. Its effects on the way of war are less and less predictable in the actual military strategy. The development of the information's technology will change so much the future confrontations' nature, that new strategy and doctrines, derived from other military structure, and ways of conducting the wars will emerge. The progresses from the IT area will determine fundamental changes in the ways of approaching, organizing and conducting of any type of conflict. The human, financial and material resource's efficient management, their

collaboration's necessity in an integrated system, are nowadays becoming majors tasks of the specific military branches research studies. Thus, modern conceptual approaches such as revolution in military affairs or the defense resources' integrated management, will be part of the new military vocabulary, but it will also be part of the Romanian military system's transformation process.

The Revolution in Military Affair had become a key concept in the strategic-military American's doctrine past the age of. Actually, its "antecedents" are to be found in the Soviet's tactical revolution, who were trying to define the mutation that were taking place in their defense concepts, military organization as well as in their doctrines once the nuclear weapons and rockets had appeared. The soviets were emphasizing more on the technological development, on the fight's technical components, on weapons and less on the possibility to adapt the doctrine of using the weapons and technique to the technological innovations.

The Revolution in Military Affair american's concept appeared in a strategically context shaped by a double revolution - the informational and globalization ones, from the necessity to adapt the american military strategy to the new security environment. Actually, in order to be able to speak about a revolution, a fundamental change in doctrine and in organizing is needed. That is why, we can't talk about a RMA unless is preceded by a social transformation, because, although in its title, the concept captures the "military" term, it is not a phenomena reserved for the military elite, but it is based on the hole society in which it's evolving. Strictly speaking, the "revolution" term is applying to the technological changes, its latest discoveries littering revolutionizing the world, implicit the war. Toffler said: *"A military revolution, in the fullest sense, occurs only when a new civilization arises to challenge the old"*. Thus, he speak of

“subrevolution”^[78]- meaning that all we do is to add more elements, create other combinations of old elements in a new scenario.

The Revolution in Military Affair has gone through many cycles and stages, which had depend on the greatest discoveries of science and its’ implementation in the military domain, the appearance of the sophisticated machines which determined substantial mutation in thinking and fighting the wars.

The latest discoveries in the weapons field, gathering intelligence through satellite, infrared weapon control, microwaves and GPS, high tech weapons’ production and using, the integrated weapons systems, had managed to create a new image of the battle field and it can be predicted that, in the future, this technological changes will act instantaneous. The Revolution in Military Affair has as a *sine qua non* condition a profound institutional change, and that means, in a fundamental, pragmatically way, professionalizing and modulating the forces, integrating the latest IT technologies in all the existing weapon systems. In this context the armies have to be modified at all levels, simultaneous, from the technology and culture to organizing, strategy, tactics, training, doctrine and logistic levels.

This state of fact made General John Shalikashvili, the Chairman of the Joint Chiefs of Staff, to publish in 1996 his vision of how the U.S. military will prepare to meet the challenges of an uncertain future, a document entitled Joint Vision (JV 2010), in which he emphasizes that, in revolutionizing the way the wars are fought, what matters the most is the technology, but the personnel’s skills, operational structure’s capabilities and the operational concepts’ viability are also very important. The greatest tendencies, according to General John Shalikashvili, are: the long distance strike’s precision along with its vectors; a wide variety of effects, from neutralizing to destroying the protected target; technologies that will assure

^[78] Cf. Alvin și Heidi Toffler, **Război și antirăzboi**, Editura Antet, 2000, p. 42

stealth and a good covering for its own forces; informational and system joint systems.

This document identifies four "new" operational concepts. The four new operational concepts are: precision engagement, dominant maneuver, full dimensional engagement, and focused logistics. Each of these four concepts translate in to theory a reality dominated by the technological impact, the weapons and information and communication system evolution and open new direction for the operational strategy and the warfare.

The dominant maneuver's aims are to identify, choose and sort the targets, to find the enemy's cores and to precisely strike, as many time as needed, combining the informational action (informational war) with the space, aerial, naval and land operations, fast deploy of forces and especially needed materials, correctly choosing de type of actions that suits the best simultaneous striking of the enemy's hot spots and achieving the estimated success^[79].

Thus, by promoting and applying the key ideas drown form the exercise, a new horizon for military theory and practice was opened, as theses ideas were continued and transformed in action and reaction capabilities for the joint forces. To that respect, the politics were correlated with forces and support strategies accordingly to the levels reached by the science and technology and de communication systems quality.

In some military thorists, a revolution in military affaires can be defined as "the impact of one or more revolutionizing technologies and of some adequate doctrines, capable to fully put in use these technological edge over the war zone and the face of the war in all its complexity."^[80]

Cyber revolution, stimulated by the communication acute globalization and encouraged by the shrinking, in [geometrical progression](#), of the time

^[79] Cf. Mureșan, M., Stăncilă, L., Enache, D., *Tendențe în evoluția teoriei și practicii războiului*, Editura Universității Naționale de Apărare Carol I, București, 2006, p.30

^[80] Cf. Frunzeti, T., *Soluționarea crizelor internaționale*, Editura Institutul European, Iași, 2006, p.90.

space between the design and manufacture phases, led to an important leap in this area.

Following this idea it's estimated that Revolution in Military Affair would substantial transform the forces, the means and, evidently in operational strategy. In a first phase, the decisions will be made in hours, minutes and even seconds, the enemy's vital centers will be promptly, instantaneous and from a long range stricken, the dominant maneuver will connect in a fluid space, a search-inform-strike integrated system (a system of systems) which will disable the enemy's efficient response action. This is the technological effect in the immediate the Revolution in Military Affair strategic space, to whom, on actionable plan, it corresponds the unbalanced war, usually non-contact^[81].

For the Romanian Army, implementing the Revolution in Military Affair concept is of a great importance. Our army is adapting and remodeling its strategy according to the euro-atlantic coordinates, redefining and updating its strategic concepts, along with implementing/embracing the new ones.^[82]

The Revolution in Military Affair trade mark is drawn as a triad: technology-doctrine-organizing, their synergy is defining a new manner of conducting the war, giving to the initiator a considerable edge over its enemy. From a doctrinal point a view, the accent is put on multinational and **interarm** interoperability, while on organizational level, the key word are force deploying, mobility, modularity and decentralization. The armies have to incorporate small and very mobile units, rigged with high tech equipments that will enable them to know and control the war zone.

The military affaires concept focuses on balancing the military doctrine with the technical-scientific revolution. But, on the same time, every new scientific discovery applicable to the military domain, needs, in order

^[81] Cf. Mureșan, M., Stăncilă, L., Enache, D., Op. Cit., p.36

^[82] Ibidem, p.37

develop, a high performance, proactive and dynamic management system. In our opinion, the defense resource's integrated management has to be able to manage the tasks emerged from the newest the Revolution in Military Affairs, so that by seeking the most efficient solutions, adopting the most feasible projects will clearly demonstrate the indissoluble bond between these two concepts. As NATO and EU members, along with the asymmetrical, dissymmetry and atypical war challenges, we have to adapt our doctrine and resource management to the Revolution in Military Affairs results and products.

In the attempt to reveal the causality relations between these two concepts, we can assume as a work base the triangle the Revolution in Military Affairs - the network centering warfare (NCW) - The effect-based operation (EBO).

The main NCW doctrine fundamentals are:

- political;
- economical;
- technological;
- informational.

The main action in the war zone will be, accordingly to NCW, joint, combined and specialized. NCW does not mean a plus of information, but a very strict structuring of the informational stream and information's protection.

The joint and combined actions' principles are:

- informational supremacy;
- technological supremacy;
- equality between war and peace structure;
- flexibility;
- synergy;

- modularity;
- prevention;
- fast and decisive action;
- selective, limited and on focused/centered engaging.

More specific: The Revolution in Military Affair has opened the way for approaching the NCW concept. By following the algorithmic's logic, NCW leads, himself, to the associated concept: Effect-based operation EBO, the late focuses mainly on the Intelligence Preparation of the Battlespace (IPB)^[83]. IPB as an intrinsic network element, delivers to the military decision makers the information gathered from its many sensors, placed in the target area, along with correlating and disseminating them. From our point of view, EBO are closely related with RBR due to the fact that they use the same war platforms, are both dependent on intelligence and its circuit, using both lethal and non-lethal weapons, but above all, they have a common goal: to observe, strike and defeat the enemy.

The implemented domestic transformations are closely related to the developing of security medium and the Romania status as NATO and EU member. These aspects cause the structural and conceptual adaptations of military institution.

To consolidate the Romanian role and to develop an appropriate strategic profile inside NATO and EU, contributing to the stability of regional and international security situation, The Romanian Ministry of Defense keeps on doing the military structure reform, for developing a trustable, efficient and modern defense capabilities. It is very important also to improve the democratic civilian oversight and control of the army, implementing principles and values of a genuine democracy.

^[83] Cf. Cristea Dumitru, Ion Roceanu, Războiul Bazat pe Rețea Provocarea Erei Informaționale în spațiul de luptă, Editura Universității Naționale de Apărare „Carol I”, București, 2005, p.111.

The Romanian status of being a NATO member implied the harmonization of its national defense policy with the evolution within NATO structure. An important participation in developing the concepts from The Alliance will consolidate our country image inside the organization. An active role inside NATO represents an essential condition for sustaining the national interests and integration of Romanian security issues in NATO decision-making process. Taking into consideration these principles, the Romanian military system / structure has to be on the line drawn by the new revolution in military issues applying continuous the exigent necessities of defense resources integrated management.

The base of the Romanian defense policy is strategic objective to be full integrated in European and Euro-Atlantic security organizations. This policy is realized by approaching the relations with western countries, by consolidating bilateral and multilateral cooperation cu countries situated in vicinity of Romania and implementing the standards imposed by the new technologies and doctrines used by NATO members. The revolution in military issues has generated the apparition and uses other new concepts such as Network Centric Warfare or Effects Based to Approach Operation, concepts which produce new way of tackle with them, taking into consideration doctrines and efficient use of the resources.

We consider that the main goal of scientific research in the field of security issues and defense policy is to elaborate analysis, studies, programs, expert, documentaries and scenarios. These are necessary for adopting appropriate political-military decisions, for developing a security and defense culture, for good dialogs between Romanian and international science persons to be full integrated in Euro-Atlantic security structures. The revolution in military issues is mainly characterized by application of the new information

and intelligence technologies^[84]. This is had to be sustained by an efficient and integrated management of defense resources, having the declared goal the relational optimization of the components of these two concepts.

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[⁸⁴] Cf. Frunzeti, T., *Soluționarea crizelor internaționale*, Editura Institutul European, Iași, 2006, p.90.

MANAGEMENT OF THE REACTION TO NON-CONVENTIONAL ACTIONS

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Abstract

Acțiunile non-convenționale, deși existente din primele momente ale luptei omului pentru existență și folosite chiar fără să se știe ce sunt, abia încep să primească atenția cuvenită în aceste vremuri. Din ce în ce mai mulți cercetători, la acest început de secol XXI se apleacă asupra subiectului, sperând să descifreze mecanismul și posibilitățile non-convenționalului și, mai mult ca oricând, domeniul militar devine din ce în ce mai interesat de acesta.

Non-convenționalul îmbracă multe forme și se regăsește în multe domenii: politic, diplomatic, economic, cultural și multe altele, chiar militar. Întrucât prin natura sa, acțiunea non-convențională este foarte discretă, contracararea sa este deseori foarte dificilă, iar uneori chiar imposibilă. În același timp, dacă o ripostă este posibilă, atunci aceasta trebuie coordonată, ceea ce înseamnă că trebuie să existe un mecanism care să se ocupe de managementul acesteia.

Managementul se bazează pe cinci funcții, fiecare din ele foarte importantă: prevederea, organizarea, coordonarea, antrenamentul și controlul.

Prevederea, ca funcție a managementului, este suma proceselor prin care sunt stabilite obiectivele pe termen scurt, mediu și lung, sunt formulate căi de acțiune și este determinat necesarul de resurse.

Prevederea se bazează pe studii de diagnoză și prognoză, prima referindu-se la identificarea punctelor slabe și tari din acțiunile trecute, ca și la identificarea cauzelor acestora, pe când a doua se referă la tendințe.

Pentru prevederea acțiunilor non-convenționale este esențială o minte deschisă, capabilă să se pună în locul unui agresor, astfel identificând posibilitățile pe care acesta le-ar avea să provoace daune. Trebuie notat că, în această fază, este posibil să se descopere că deja au fost executate unele acțiuni non-convenționale, caz în care se continuă cu reacția stabilită, dar cu particularitățile date de acțiunile desfășurate.

Organizarea, ca funcție a managementului, constă în ansamblul acțiunilor pentru folosirea eficientă a resurselor umane, materiale, financiare și informaționale existente.

În esență, organizarea este un proces de diviziune a muncii, stabilind responsabilități și autorități.

Deși, uneori, nu există posibilitatea de a reacționa la o acțiune non-convențională, este obligatoriu să fie fundamentată o reacție coerentă a tuturor forțelor naționale, pe domeniile lor de activitate, pentru acele acțiuni care pot fi prevăzute și contracarate, astfel încât acțiunea lor concertată să se manifeste într-o apărare națională împotriva agresiunii.

Coordonarea implică un ansamblu de activități de natură informațională, luare de decizii și comandă și control, prin care managerul intervine pentru a asigura unitatea procesului și corectarea discrepanțelor.

Pentru o reacție națională unitară, toate forțele responsabile trebuie să acționeze în tandem, ceea ce înseamnă că trebuie să existe un coordonator al acestei reacții. Pentru România, acesta ar trebui să fie Consiliul Suprem de Apărare a Țării (CSAT).

Antrenarea, spre deosebire de modul de acțiune în situații convenționale, are un efect diferit în cazul acțiunilor neconvenționale. Paradoxal, se poate spune că odată cu creșterea gradului de antrenare a forțelor, crește și vulnerabilitatea lor la acțiunile non-convenționale, prin faptul că modul lor de reacție devine previzibil, condiționat.

Soluția, totuși, nu este renunțarea la antrenare, ci antrenarea în mod diferit. Este necesară continuarea antrenării executanților în modul clasic, demonstrat ca potrivit, în timp ce liderii trebuie antrenați să gândească liber, fără constrângeri, flexibil, putând să ofere soluții non-convenționale la acțiuni non-convenționale.

Controlul se referă la monitorizarea activităților, proceselor, relațiilor, pentru ca acestea să se desfășoare conform planului. Controlul și coordonarea sunt legate inextricabil, succedându-se permanent.

Reacția la acțiunile non-convenționale este un teritoriu încă insuficient explorat. Se fac tentative în unele țări de a pune bazele unei doctrine a reacției naționale. Cert este însă că atâta timp cât nu se face nimic în această direcție, riscurile pentru securitatea țării sunt mai mari decât ne putem imagina.

Although they existed from the first time one human fought another, non-conventional actions are just beginning to receive the attention they should have had a long time ago. People used non-conventional even without knowing it, and there was no attempt for a very long time to study the mechanics of these types of actions.

Now, in the beginning of the twenty-first century, more and more researchers lean onto the non-conventional action, hoping to unlock the possibilities offered by this unexplored resource, and, more than anything, research in the field of military applications is starting to be one of the top priorities.

Non-conventional embraces numerous forms: diplomatic, political, economical, cultural, and many others, even military. Since the non-conventional way of action has a very discreet manifestation, countering it proves to be very difficult, and many times impossible. At the same time, if there is a possible response to a non-conventional action, the countermeasures have to be coordinated, meaning there has to be in place a mechanism of management of that reaction.

Management is based on five functions, all of them very important: foreseeing, organizing, coordination, training and control.

Foreseeing

As a function of the management process, foreseeing is the sum of the processes through which the objectives are established, on a short, medium and long term, ways of action are formulated and the necessary of resources is determined.

Practically, foreseeing consists of policy, strategy, tactics, plan and program. Although they refer to the same elements, as objectives, ways of action and resources, have a different time frame, detail and fundament.

Policy establishes the general lines of action and the unitary principles of action.

Strategy relates to a medium to long time frame and has a lower fundamentation degree, while tactics refer to a short time frame, while at the same time having a deeper degree of fundamentation.

The plan is based on the objectives established through policy, strategy and tactics, and the program goes into details in time – decades, weeks, days, hours – and space for the planned objectives.

Foreseeing is based on the studies of diagnosis and prognosis, the first one referring to identification of the weaknesses and strong points in the past actions, as well as of the causes for those points, while prognosis refers to the tendencies.

Foreseeing a non-conventional action is one of the most difficult tasks. Due to its nature, non-conventional requires an out of the box thinking, giving way to practically any possibility of action, and therefore requiring as well an out of the box thinking for the countermeasures.

In order to be able to foresee possible non-conventional actions one must keep an open mind and put himself in the place of a potential attacker: what are the possibilities to inflict damages to someone's country, using all means available, regardless they are considered as legal or not, conventional or not, classic or not. On the other hand, all aspects have to be considered, as non-conventional actions can have any domain of manifestation, as mentioned before: from diplomatic to military, economic to cultural and so on.

After defining the profile of the potential attacker and the possible means of attack, it becomes possible to find out the potential threats and also an estimation of the time they can be launched.

It is worth noting that at this point of the analysis one may have the surprise to find out that an action of this kind is actually in progress, therefore foreseeing becoming outdated. That leaves only the option to proceed with the

response as planned, but taking into consideration the actions already discovered, while at the same time limiting the consequences or eliminating them.

Organizing

Organizing, as a function of management, is the ensemble of the actions taken in order to efficiently use the human, financial, material and informational resources that are available.

As a function of management, organizing must be seen as a specific form of human practice. It is not a purpose in itself, it always has an object, according to which it has a certain content.

Essentially, organizing is a process of work division, establishing responsibilities and authority.

Having a clear image of the threats and the possible way of using them leads to the beginning of the response process, i.e. organizing the countermeasures.

Sometimes there are no possible countermeasures to non-conventional actions, even if they are known; the only thing possible is to lessen the effects.

However, for the identified non-conventional actions that can be foreseen and countered, it is mandatory to organize a coherent response involving all the forces in their field of activity, so that their concurrent action leads to a national, full-scale defense against the non-conventional aggression.

Coordination

As a process, coordination implies an ensemble of activities of informational, decision-making and command-control nature, by which the managers intervene to ensure the unity of the process, preventing the appearance of discrepancies in the common action, of the components participating in the accomplishment of the objectives.

Coordination is a dynamic organizing, meaning that the processes established through organizing are not exhaustive, small discrepancies can appear all the time so there has to be a factor that brings back on line the main processes.

When dealing with non-conventional actions all national forces have to be involved in the response, each of them having a specific part in the bigger picture of countering the non-conventional actions, limiting the effects and eliminating the consequences. More forces mean there has to be one leader that will coordinate all the efforts; most likely, in Romania this leader will be the Country's Supreme Defense Council (CSAT), which will have the attribute of administrating the tasks, gathering the data, drawing the conclusions and using the feedback to keep all the countermeasures on track.

Training

When dealing with non-conventional actions, it becomes clear that there can not be a conventional training for the reaction. Actually, the success of non-conventional is based exactly on the fact that the response is, usually, conventional, and therefore inefficient. Reacting in a conventional way guarantees that the aggressor already knows what the reaction will be, so he can adapt his means in order to obtain the best effect. Paradoxically, we can say that the better trained the forces are, the more they will go into patterns and become more predictable, that is to say, more vulnerable.

The solution, however, is not to train less, but to train different.

Training is specific for each of the forces involved in the response to non-conventional actions. While it is easy and productive to use a proven model for the training of the low-level members, that is, the people who execute, it proves to be far more efficient to train leaders to think out of the box, find alternate solutions to everyday problems and avoid patterns. This

way, they will have a more flexible thinking, open to identifying new threats and to finding new approaches for dealing with those new threats.

Control

Control refers to monitoring the activities, processes, relationships, in order to ensure they develop according to the plan and to correct differences from the plan.

As we can see, control and coordination are interrelated, as the results of control are used to coordinate the actions, and after coordination the way they are applied and the result have to be controlled, and so on, in a perpetual cycle.

The reaction to non-conventional actions requires a non-conventional approach in all the aspects; that includes also control, as there is no linear development of the actions, opposed to conventional aggressions. As a result, control is supposed to be more active and pro-active, with a heightened presence in all stages of the reaction. Opposed to a classic approach, in the reaction to non-conventional actions control starts from the phase when the non-conventional actions have not even yet started, checking the signs of possible actions, as well as the readiness of the own forces for the response to those actions.

Once a threat or potential threat is identified, control is required to keep track of the development of the situation, as well as the reaction and the effect of the reaction to the threat.

Reaction to non-conventional actions is an uncharted, yet, territory. Even though there are attempts to establish a doctrine of the reaction in the United States of America and Israel, for the moment there is not any unitary system to link all the forces into a coherent response to a non-conventional action. Of course, there are the special forces in most of the countries, there

are the secret services also, non-conventional actions have been studied and there were attempts to integrate them into conventional warfare as well as into other domains. But in the end, the main fact remains: for the moment, it is still a great mystery to most of the people, in and outside the structures responsible for a nation's security, and as long as there is nothing done, the risks for the security of a country are greater than we can imagine.

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THE ASSIMILATION OF CHANGE AS AN INDICATOR OF INTERNATIONAL MISSIONS' MANAGEMENT FLEXIBILITY

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Abstract

În actualul mediu de securitate descries de acronimul VUCA (engl. *volatility, uncertainty, complexity, ambiguity*) se impune tot mai mult asumarea rolurilor sociale de către liderii militari. Motivarea și împuternicirea subordonaților trebuie să depășească nivelul de deziderate, în vreme ce dezvoltarea aptitudinilor de a adopta decizii rapide, flexibile și în condiții de risc și incertitudine reprezintă apanajul liderului military modern, a cărui principală atribuție este aplicarea unui stil managerial și de leadership care să asigure integrarea schimbării în cultura organizației militare, cu precădere în conducerea trupelor implicate în misiuni internaționale.

Introduction

Change is a phenomenon affecting all walks of social life, including the military. Major changes mark the transfer from one type of social order to another, from one social system to another. Transformation in the field of decision-making is fundamental to ensure its achievement in other fields of interest or activity. At the same time, decision-making transformation is a

condition without which change in other areas would be difficult, chaotic, and even impossible.

In our opinion, the achievements in Romania's Armed Forces are but the beginning of its continuation for it poses the political and military decision-makers with the international overall picture, including the specificity of the NATO missions and their implications. We would like to point out that our emphasis on the importance of military decision transformation is sustained by our strong belief that an efficient decision-making process is the condition of successful transformation in general, particularly when transformation is accompanied by transition, when mentality change depends primarily on the decision-makers.

The main factor affecting the current environment's transformation from an economic, political, social, military or cultural point of view is globalization, with everything it implies at the level of organizational structure and leadership tools, namely: delayering, teamwork, subordinates' empowerment, delegation and technology influence – all of which being used to build agile and flexible organizations, able to function under the new circumstances.

Efficient management is a condition of organizational existence in general and of the military organization's existence in particular, for the latter is, after all, a special type of organization.

We consider it useful to state that decision-making is a leadership tool and duty at every organizational level. From an organizational perspective, a decision-maker's act has direct consequences at least upon one other individual's decisions and actions.

In the current political-military context, one cannot speak about decision-making without considering terms such as command and control interoperability, technology transfer, defense industries cooperation and/or migration. NATO standards should not be applied only in tangible fields such

as finance and material resources, but rather in unquantifiable areas of human resources, which are more difficult to manage, especially in building interpersonal relations that enhance communication and teamwork.

In an attempt to provide a comprehensive and realistic picture of the present stage of the Romanian military reform, one must identify and examine the factors that hamper the Euro-Atlantic integration, among which an important role is played by previous difficulties encountered in: procurement, procedures, linguistic barriers etc. Internal hardships – limited budget, political incoherence or system inertia – accompanied by external difficulties cannot be overcome unless available resources are well managed and performance criteria are applied at decisional levels.

Theoretical approaches to change

Since I strongly believe that a phenomenon needs first be understood theoretically before being put in practice, I suggest briefly discussing a range of change theories whose purpose is to delineate the set of terms and concepts associated to change.

Change in general is determined by “the growth of technology and the speed of innovations in all walks of life” (Cook 1995) as well as “organizational de-layering, self-managed teams, business process re-engineering and IT home-based working – all driving the creation of leaner, more flexible organizations in a globalized environment” (Teare and Monk 2002).

As far as change classification is concerned, Roffe (1999) identifies three categories: incremental change, which progresses unnoticeably but leads to significant transformations, discontinuous, which does not follow a familiar pattern but rather uses exploration methods, and radical, which involves profound alterations. As one may notice, this classification is based on an

inner perspective, which emphasizes on the organization and its internal processes.

On the other hand, Kitchen and Daly (2002) view the organizational change process as being highly determined by the business environment, which consists of “factors such as consumer demand, government legislation or the general state of the economy”. Furthermore, they distinguish between “continuous change”, which assumes “gradual shifts” in the elements mentioned above, and “discontinuous change”, which is “far more dramatic, the sort of thing that alters completely the business landscape, the nature of whole industries and economies”. As a typical example of “discontinuous change”, Kitchen and Daly (2002) mention “the transformation of former Eastern European bloc countries to Western style democratic capitalism in the 1990s”.

As a consequence of the perceptions and classifications of change previously mentioned, management literature has focused on the impact of change upon leadership and management behaviour as “leadership is a critical success tactic in managing change and organisational well-being” (Kelemen 1995), whereas “change management requires an understanding of the business climate as well as the organisation’s own internal dynamics” (Kitchen and Daly 2002).

Usefulness of embedding change in organizational culture and leadership

Bechtel and Squires (2001) suggest a holistic approach consisting of “Six Dimensions of Change”, namely:

- (1) addressing people issues
- (2) the vision and ‘running the business’

- (3) leadership development
- (4) communications
- (5) individual and team development
- (6) culture.

Although these aspects appear to be addressed separately, one can easily notice that each and all of them are linked to the organization's human resources. This is not surprising considering that "most of us, when faced with change at work, are naturally concerned about 'self' and the impact the change will have on us personally – our job security, the ability to pay our bills, and also about what it may mean for our careers within an organization" (Bechtel and Squires 2001).

Starting from the assumption that leadership is what makes the organization go round, we may conclude that the aforementioned approach offers an appropriate understanding of the duties which the organization's leaders should do in order to facilitate change within their organizations.

In spite of the fact that this framework has been developed in relation with a civilian organization, I argue that it is equally relevant to the current state of the Romanian military organization. The rationale underpinning this idea is the ever increasing role that the military leaders should play, in my opinion, in the progress and modernization of the military affairs in their widest sense. Apart from continuing to perform their traditional, that is, combat and belligerent roles, the military leaders should assume social roles, too. I am referring here to the real leadership duties such as subordinates' motivation, empowerment and appraisal, whose main purpose is to give them a sense of respect and importance within the organizational context.

Under the current circumstances of the VUCA (*volatility, uncertainty, complexity, ambiguity*) environment, the military leader is the one who should learn and be able to display visionary and decision-making skills, for he/she is the one who leads his/her people in death and life situations. Unless the urge

for change is acknowledged and credited, it is impossible to imagine a cohesive and motivated team, whose members are willing to embark on the new missions with enthusiasm and determination.

Conclusions

One of the most significant Romanian decision-makers' achievements is our country's accession in the NATO and EU, although this is but the first step towards Romania's real integration in the Euro-Atlantic bodies. Given the permanent changes occurred in the economic, strategic, military and political arena, Romanian decision-makers face constant and growing challenges that impose the need to achieve interoperability, compatibility, commonality, and interchangeability. What is important, from my point of view, is that NATO standards should not be applied only to the tangible field of financial and material resources – visible and easy to quantify – but also to the intangible, unquantifiable, and more difficult to manage field of the human resources, paying particular attention to building interpersonal relationships that enhance communication and team spirit. Notwithstanding that, at the first glance, this “humanization” of the traditionally hierarchical military relations may jeopardize the discipline and strictness of the act of command, the lessons learned have demonstrated that the synergy generated by the institutional/institutionalized relations and the interpersonal relations significantly increases the success of any action, including the military missions. Given the complexity and interdependence of these responsibilities, today's leaders can no longer afford to make decisions intuitively and empirically; instead, they have to have professional and personal skills to help them make optimal and quick decisions under uncertainty conditions. Also, military leaders must assume social roles and prove subtle and unquantifiable traits such as cultural competence, communication skills and flexibility.

Otherwise, the future of international missions remains questionable, and the troops' morale and performance low. In this respect, lessons learned play an essential part in assessing the efficiency and effectiveness of previously made decisions, and help decision-makers take appropriate future decisions.

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PSYCHOTRONICS. CONTENT AND PERSPECTIVES

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1. Concepts, terms, definitions

In the parapsi literature different authors have defined some terms used in presenting or discussing specific aspects which can help us explain them: the **classical parapsychology and the young psychotronics**. The term paranormal is synonym with parapsychology. The paranormal applies to the phenomenon synonym to parapsychology, something stressing the area of imaginary and miracles.

The term of paranormalogy was introduced by Rech (1969) to define the science of the paranormal phenomena but did not develop (Bonin 1976) **compared to the term parapsychology** which represents a branch of psychology dealing with the human behaviour incriminated in a process which cannot be explained or described in terms of the current physical and chemical principles.

Psi is the general term defining a person's extra sensorial communication with the environment, including the extra sensorial perception psychokinesis (Deale, Wite, 1977). Its generality was achieved by B.P. Wiesner and then R.H. Thoules (1942) who used it either as a noun or an

adjective to identify paranormal processes. We can consider two main **psi** categories: psi-gamma (paranormal knowledge, extra sensorial perception) and psi-kappa (paranormal action, psycho-kinesis). In our opinion, the goal of this term (different from Thalbourne's interpretation 1982) is that to mark the participation of psychic mechanisms either to produce a phenomenon or to receive it. The psi phenomena refer to body-environment interactions which cannot be explained by some authors but which represent the reductionist application of the sensorial and motor channels. Psychotronics represents the term including the theory of faraway interactions linked to an energy form still "unclear", form which belongs to the living matter, between subject and objects (including the living ones) in doctor Rejdak's opinion (1975). Psychotronics is an independent science which deals holistically with the interactions between bodies and the environment (internal and external) and the energy processes which represent the base of these mutual relationships (links). The interactions are achieved among others through forces and agents that don't totally belong to the modern science structure. In Rejdak's opinion (1976), the study of mutual relationships between the **matter's constituents** (substance – energy – information) contributes to a new understanding of man's energy ability, of the vital processes and of matter.

In 1989, The National Association of Psychotronic Research, defining its scientific activity, presented psychotronics as a disciplinary scientific domain studying the faraway interactions between living bodies, respectively between them and the environment and also the energy and informational phenomena linked to the environment and also the energy and informational phenomena linked to these actions.

While parapsychology is considered by some authors as a subject dealing with the paranormal phenomena scientific study, psychotronics is the interdisciplinary scientific domain dealing with the faraway interactions between living systems, respectively the informational one linked to these

interactions. Psychotronics is an independent science between the philosophico-psychological concept of parapsychology and the physico-psychological one about the world, definitions which A. Patrut considers insufficient to stress some differences in the presence of phenomenology, taxonomy, terminology, work methods and the goal of research (1990). Contemporary parapsychology classifies the paranormal phenomena or psi in cognitive and physical corresponding to the two known classes: ESP – extra sensorial perception; PK – psychokinesis. Psychotronics divides the paranormal phenomena into three categories: faraway interactions within the living matter, faraway interactions between living and not living matter, faraway interactions between living matter and the informational field of the environment (notion somewhat unclear and questionable).

2. Psychotronics historical moments

William Crookes, the famous English scientist, founded the modern metapsychics and twenty-five years later, Max Dessoir replaces the old term metapsychics with **parapsychology**.

“Towards the end of the 20th century are formed the first organisms organized in studying parapsychology. In 1882, professor Henry Sidgwick founded the famous “Society for Psychical Research” (SPR) in England. In 1884, the American SPR appeared, then the Boston Society and the International Metapsychic Institute in Paris. In 1924, doctor Eugen Osty was appointed director of the International Metapsychic Institute in Paris and is launched **the parapsychology scientific era**.⁸⁵ In 1939, Valentina and Simeon Kirlian obtain by mistake the photograph of a human hand in a high voltage and frequency electrical field (discovering a wonderful bright **aura around** the hand). On 28 January 1971, Stanley Krippner, the president of the

⁸⁵ Emil Streinu, *Psychotronic espionage and the concept of mental fight, “Carol I” National Defence University Publishing Dept., Bucharest, 2006, p.17*

American Association for Parapsychological Researches, went to the USSR invited by the Science Academy Psychological Institute in Moscow to gather evidence about the researches in **telepathy, clairvoyance, precognition and psycho-kinesis**. The host was Eduard Naumov, the famous scientist, who, after the visit, was condemned to two years in Siberia by the Court in Moscow for having divulged the secrets of Kirlian photograph to the Americans.

Between 1968-1970, the international community learnt from different sources that the USSR and the East European countries were studying the paranormal phenomena (at Novorosinsk University, Nijinitaghil Pedagogic Institute, Sofia Parapsychology and Sugestology Institute). There were prominent personalities in this field such as: Leonid Vasiliev, Ghienadi Serghiev, Eduard Naumov, George Lozanov, V. Iniusin – becoming living legends in the history of parapsychology. Famous paranormal persons were investigated such as: Djuna Davitasvili (KGB general), Melia Mihaelova, Nina Kulagina or Vanga Dimitrova.

There was a new book in the US “Psychic discoveries behind the Iron Curtain” (by S. Ostrander and L. Shroeder), Englewood Cliffs, New Jersey, Prenticehall 1971.

In 1973, at the International Congress in Prague, the term parapsychology is replaced with **psychotronic** (suggested by prof. Zdenek Rjdak), adopted firstly in order to mislead people but with the purpose of expanding and developing the paranormal domain. Adolf Hitler and Stalin greatly appreciated the parapsychology researches. Nikita Hruscirov had an evil fascination by using paranormal techniques. In 1924, A. Lunaciarski, people commissary for education established the Soviet Committee for the Study of the Paranormal, still functioning these days. At the Sankt Petersburg University, prof. Valentin Vasiliev dedicated his entire activity and life to the

study of paranormal phenomena and was fascinated with “the faraway suggestion” and the “zombie-woodo effect”.

“It’s the possibility to be able to influence the human psychic from a distance without the consent of the target subject and most interestingly, without the subject being subject to any conditionings. He succeeds in ordering moves the subject executes unaware of the fact that he obeys orders. This fact opens new perspectives on telepathy which is the ideal technique to manipulate isolate individuals or well established groups”⁸⁶.

The Army and particularly GRU are suddenly interested in this subject and support the researches in view of building mental suggestion and faraway orders devices. Today there are proofs about the existence of these devices and of the fact that they are used in **“psychotronic aggressions”**.

The Americans too launched the program MKULTRA of psychic manipulation by using LSD hallucinogens. They developed PAVLITA psychotronic generators and the effect of the electromagnetic radiations with frequencies lower than 1000 MHz which go all the way to the internal organs and affect the brain.

Between 1975-1977, the Soviets used varied frequency radiations on the US embassy in Moscow. As a result, two ambassadors and two other clerks got cancer. After that, Walter Stoessel, the US ambassador and doctor Robert Becker suggested a new building for the US embassy.

“In 1981, in his book “Excalibur Briefing”, Thomas Bearden, former US army intel officer, introduces the concepts of **“virtual state”** and **“objects of thinking”**”⁸⁷.

The press in the US stated that the US military makes experiments using nuclear weapons and high energy particles of psychotronic waves which

⁸⁶ Ibidem, p.25

⁸⁷ Ibidem, p.27

would ensure **“the domination of spirit over matter” – a psychotronic bomb remotely detonated.**

The typical American pragmatism led to a drastic change in attitude towards the prejudices and today paranormal phenomena are studied in great American universities such as: Stanford in California, Harvard in Boston, Duke in Durham, North Carolina.

The motives of this change are:

- First of all curiosity, trait specific to the scientific research but also the people's growing interest for this subject;
- Secondly, the economic component, because paranormal sells well, always and everywhere, even in Romania;
- The therapeutic component starting from the use of plant extracts and also hypnosis through suggestion till the identification of psychosomatic diseases which can be treated with plants.
- The military component is the most important. The researches in North Korea, China, USSR, Cechoslovakia and Bulgaria forced the USA to enter the competition. The psychotronic aggression are part of the asymmetrical aggressions as stated in NATO regulations;
- The growing interest of the terrorist groups and organizations towards psychotronics and the use of specific techniques to prepare and launch the terrorist attacks (see 9/11 2001 and the brain washing of those acting against the twin towers in New York);
- The most important thing is knowing this domain which will unravel the mystery leading to new methods and means to counterattack the psychotronic aggressions.

3. The psychotronic Golgota

The current society is heading towards a controlled society. Due to the informational control abilities all becomes number, information including the

most intimate thoughts. An example is the trial John St. Clair Akwei against the US National Security Agency (NSA) in Fort George Maryland (civil trial no. 92-1449).

John St. Clair Akwei learnt that there were NSA espionage programs from October 1990 to May 1991 whose purpose was to follow and control the American citizens. NSA and the Department of Defense patented digital devices that can analyze from a distance any object with an electrical activity, organic or anorganic.

NSA SIGINT program uses the brain's electromagnetic stimulation in the case of remote neuronal monitoring (RNM) and electronic brain link (EBL). This type of brain stimulation started through the MKULTRA program at the beginning of the 50's. It includes the radiation neuronal control and investigation (un-ionized electromagnetic fields) and also the bioelectrical research. NSA has patented electrical devices which analyze human as well as plants' and animals' electrical activity from a distance. Some examples of unclassified patents from the 80's are:

- US 3951134 – device and method to monitor and alter the brain waves from a distance;
- US 5507291 – method and device to determine from a distance a person's emotional state;
- US 548142 – device to monitor a body's magnetic field;
- US 3837331 – system and method to control a living body's neuronal system;
- US 5213562 – method to modify the mental, emotional and physical states;
- US 3835833 – method to obtain the neurophysiological effects;
- US 5356368 – method and device to induce the wanted conscience states.

These are patents used in the 80's for the CIA research programs for Mind Control. You can imagine what could happen with these patented programs if terrorists get them.

4. Tendencies

The American army has a new **weapon capable to inflict pain remotely** by “expanding” a plasma bubble (electrically charged gas). The energy projectiles weapons will be delivered to the troops starting with 2008 and will reach targets 2 km away.

The infrasound cannon or “the bas cannon” or “the sonic cannon”, invented a few decades ago, has been improved and can now destroy concrete buildings 10 km away from a fixed platform and 8 km from a mobile platform. There are also very powerful oscillation generators with frequency equal to that of the fighter's heart beat. After resonating with the combatants' heart frequency, the sonic generator's frequency decreases gradually to zero leading to the death of the respective person by cardiac arrest. There are numerous researches to develop mind control non-lethal weapons with infrasounds, microwaves and radio-frequency emitter based on the antenna effect of the human body to 70-100 MHZ frequencies.

The most evil researches are about certain geophysical events: floods, earthquakes, eclipses, comets, hunger and even the Earth revolving unnaturally. Some American specialists state that Earth slows down and changes the frequency of its rotations. “Inversing the Earth's magnetic poles can lead to the acceleration of the terrestrial time as we approach “ground zero” and we will notice that the 24 hours represent now 16 hours, the difference increases a lot. This theory states that time will cease to exist eventually”⁸⁸.

⁸⁸ Ibidem, p. 289.

NASA SIGIND program has patented technical equipment which can analyze remotely the human electrical activity. “The brain map” generated by the NSA computers ensures the ongoing surveillance of all electrical processes in the brain. NSA records and decodes “the brain maps” of hundreds of thousands of persons for national security. The brain stimulation is also used by the military for the brain-computer connections (for combat aircrafts).

Targeting the electronic surveillance, the electrical activity developed by the speaking control in the brain can render a person’s thoughts almost verbally. RNM can send uncoded signals to the auditory cortex in the brain, facilitating the direct audio communication with the brain (without the help of the ears). NSA agents can use this method secretly making the subjects ill by sending hallucinatory sensations to them, specific to the paranoid people. This remote neuronal network in Fort Meade is the most sophisticated and recent espionage and civilian surveillance method. It can send to the auditory cortex whole sentences, tridimensional and subliminal sounds and to the visual cortex RNM images and can alter a person’s perceptions, states and move control.

“The contact (bidirectional brain-electronic connection) is achieved by remotely monitoring the brain’s audio-visual information at the same time with transmitting the sound to the auditory cortex (avoiding the ears) and fading images to the visual cortex (avoiding the optical nerves and the eyes). The images are bidimensional screens in the brain the bidimensional brain control being one of the most powerful weapons of the CIA-NSA favourite communication system”⁸⁹.

⁸⁹ <http://www.romfest.org/rost/aug.2004/golgota.shtml>

5. Conclusions

21st century wars have left behind the times when soldiers killed one another with all sorts of weapons; there are now much more frightening confrontation methods. It's already known the new **action and mental confrontation environment** used both in the military and civilian life. The psychotronic confrontation is very modern and developing rapidly, the psychotronic war is fought with combatants trained to develop their extra-sensorial abilities.

The paranormal is real, PSI represents the manipulation of the biophysical body connection between the person and the body considered as a system determined by the environment. Man can be regarded as an almost perfect informational system. The psychic energy, once used in curses, is a terrible reality. There is the possibility to see faraway places and also the past and future. In such a context, reality is stranger than fiction. It's time we paid more attention to developing this new mental ability where the target's brain is more important than its clothes (military or civilian).

SPECIFIC INDICATORS FOR INTERNATIONAL MISSIONS CRISIS

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Abstract

Articolul își propune să analizeze principalii indicatori ai managementul informațiilor militare în situații de criză. Se prezintă cinci indicatori specifici situațiilor de criză în misiunile internaționale: indicatori ai nivelului infracțiunilor și acțiunilor justiției, indicatori de risc pentru minorități, indicatori de avertizare timpurie a unor posibile crize la nivel de țară, indicatori ai conflictelor armate și indicatori de performanță post-conflict.

I. Measuring indicators for international missions' crisis

Measuring indicators for international missions' crisis and the perspective of state security is controversial because attempts to do so often depend on data that is provided by states themselves, and, of course, it is not always in a state's interest to report accurately.

This is particularly the case when dealing with armed conflicts. The international missions representatives argue, in part, that because of the unreliability of the available data, developing a matrix that measures security is not a desirable task. One of the major reasons why data may be unreliable is that much of it comes directly from governments. In order for an index to provide an accurate description of state security, it has to be somewhat detailed. The international missions representatives argue that, if an index is

too simple, it can actually provide false information because it has no way of accurately reflecting factors that may have had an influence on the data or argues, it is important to include not only states that are insecure; it is also important to indicate how secure a state is.

Traditional concepts of security usually considered security from the state perspective; however, it is becoming more widely accepted that the human-security perspective provides a more effective tool, in some instances, for measuring security. This is largely because this perspective takes into consideration that “threats to people’s safety come from states While such threat may not come from the state that the individual inhabits, themselves.”

Those factors that characterize security for the individual (economic prosperity, human rights, civil liberties, freedom of movement) are largely a result of state policies and actions. Therefore, in order to fully understand a security perspective that can provide useful and accurate data for the state, human security must make up part of the assessment.

At this point, it is important to identify what we are discussing when we talk about security and how we define a threat or a security issue within the study of international relations. The answer to what makes something an international security issue can be found in the traditional military-political understanding of security. In this context, security is about survival. It is when an issue is presented as posing an existential threat to a designated referent object (traditionally, but not necessarily, the specifically to the military and political understanding, this is also applicable to the notion of human security. From this perspective, security remains, **at the core, about survival.**

II. Specific indicators for international missions crisis

I have identified five specific indicators for international missions crisis:

1. Crime and Justice Indicators

2. Minorities At Risk Indicators

3. Country Early Warning Indicators

4. Armed Conflict Database Indicators

5. Post-Conflict Performance Indicators

1. Crime and Justice Indicators

1.1. **Intentional Homicide** refers to death deliberately inflicted on a person by another person, including infanticide.

1.2. **Non-intentional Homicide** refers to death not deliberately inflicted on a person by another person. This includes the crime of manslaughter, but excludes traffic accidents that result in the death of persons.

1.3. **Assault** refers to physical attack against the body of another person, including battery but excluding indecent assault.

1.4. **Rape** refers to sexual intercourse without valid consent.

1.5. **Theft** refers to the removal of property without the property owner's consent.

1.6. **Robbery** refers to the theft of property from a person, overcoming resistance by force or threat of force.

1.7. **Burglary** refers to unlawful entry into someone else's premises with an intention to commit crime.

1.8. **Fraud** refers to the acquisition of the property of another by deception.

1.9. **Embezzlement** refers to the wrongful appropriation of another's property that is already in one's possession.

1.10. **Drug-Related Crimes** refer to intentional acts that may involve the cultivation, production, manufacture, extraction, preparation, offering for sale, distribution, purchase, sale, delivery on any terms whatsoever, brokerage, dispatch, dispatch in transit, transport, importation and exportation of drugs and psychotropic substances.

1.11. **Bribery and Corruption** refers to requesting and/or accepting a material or personal benefit, or promise thereof, in connection with the

performance of a public function for an action that may or may not be a violation of law and/or promising as well as giving material or personal benefit to a public officer in exchange for a requested favor.

1.12. **Other** refers to **serious types of crime** that are completely different from those listed above, and that are regarded as serious and frequent enough to require a separate category in the criminal statistics of a specific country (e.g., arson, kidnapping, conspiracy or membership in a criminal association).

1.13. **Crimes Recorded by the Police** refer to the number of penal code offences or their equivalent, i.e., various special law offences, but excluding minor traffic and other petty offences, brought to the attention of the police or other law enforcement agencies and recorded by one of those agencies.

1.14. **Police or Law Enforcement** sector refers to public agencies whose principal functions are the prevention, detection, and investigation of crime and the apprehension of alleged offenders.

1.15. **Prosecutor** refers to a government official whose duty is to initiate and maintain criminal proceedings on behalf of the state against persons accused of committing a criminal offence.

1.16. **Persons Prosecuted** refers to alleged offenders prosecuted by means of an official charge, initiated by the public prosecutor or the law enforcement agency responsible for prosecution.

1.17. **Persons Convicted** refers to persons found guilty by any legal body duly authorized to do so under national law, whether the conviction was later upheld or not.

1.18. **Judges and Magistrates** refers to both full- and part-time officials authorized to hear civil, criminal, and other cases, including appeals courts, and authorized to make dispositions in a court of law.

1.19. **Prisons** refer to all publicly and privately financed institutions where persons are deprived of their liberty. These institutions could include, but are not limited to, penal, correctional, or psychiatric facilities.

1.20. **Admissions to Prisons** refer to the number of such events throughout the year and not the number of people admitted on a particular day of the year

2. Minorities At Risk Indicators

2.1. Group Characteristics and Status

- a. Group Locator Codes
- b. Group Population
- c. Group-Type Identifiers
- d. Bases of Group Identity

2.2. Ancestral Language Scores

2.3. Indicators of Ethno-cultural

2.4 Distinctiveness

2.4.1 “New” Group Concentration Indicators

2.4.2 “Old” Group Concentration Indicators

2.4.3 Length of Residence Indicators

2.4.4 Group Presence in Adjoining Countries

2.4.5 Lost-Autonomy Indicators

2.4.6 Group “Categories”

2.4.7 Group Discrimination

2.5. Inter-group Differentials

2.5.1. Cultural Differentials

2.5.2. Political Differentials (Political Inequalities)

2.5.3. Economic Differentials (Economic Inequalities)

2.6. Collective Disadvantages

2.6.1. Phase I Demographic Traits (1980s)

2.6.2. Phase II Demographic Traits (1990s)

2.6.3. Political Discrimination

2.6.4. Economic Disadvantages

2.6.5. Cultural Discrimination

2.6.6 . Group Organization

2.7. Indicators of Group Cohesion, 1980s-1995

2.7.1. Group Identity Cohesion, 1980-1995

2.7.2. Group Organizational Cohesion, 1990-1995

- b. Group Organizations, 1990-1995
- c. Group Administrative Autonomy, 1990-1995
- d. Group Mobilization, 1980s-1995
- e. Group Organizational Cohesion, 1996-2000

2.7.3. Group Support for Conventional or Militant Organizations, 1996-2000

2.7.4. New Organizations, 1996-2001

2.7.5. Group Collective Interests

- a. Autonomy Grievances
- b. Political (Non-Autonomy) Grievances
- c. Economic Grievances
- d. Cultural Grievances
- e. Advantaged-Minority Codes

2.7.6. Challenges to Advantaged Positions

2.7.7. Group Conflict Behavior, 1940s-1998

- a. Intra-group Factional Conflict, 1990-1998
- b. Inter-group Communal Conflict, 1940s-2000
- c. Group Protest Activities
- d. Anti-Regime Rebellion
- e. Government Repression of Group, 1996-2000
- f. International Contagion and Diffusion
- g. Polity Characteristics

3. Country Early Warning Indicators

3.1. Political and Institutional Stability

- a. Confidence in the President

- b. Confidence in the Parliament
- c. Confidence in the Government
- d. Confidence in the Courts of Justice/Prosecution
- e. Confidence in Municipal Governments/Administrations
- f. Perception of Possibility of Joining EU in 5 years
- g. Trustworthiness of Media Reporting About Political Issues

3.2. Economic Stability

- a. Unemployment, Registered With Employment Bureau
- b. Unemployed, not Registered
- c. Safety of Present Job
- d. Living Standard
- e. Readiness to Leave Country to Live in Another Country
- f. Trustworthiness of Media Reporting About Economic Issues

3.3. Interethnic Relations

- a. Perception of Current Interethnic Relations
- b. Perceptions of Media Contributing to Ethnic

3.4 Tension

- c. Perceptions of Politicians Contributing to Ethnic Tension
- d. Support Future Public Protests, Strikes, Demonstrations Against Incidents/ Actions Related to Ethnic Questions
- e. Trustworthiness of Media Reporting About Ethnic Issues

3.5. Personal and Public Security

- a. Crime Rate
- b. Confidence in the Police
- c. Confidence in the Army
- d. Public Perception of the Situation in Terms of Personal Security
- e. Public Trust in Security Structures and Their Reforms

4. Armed Conflict Database Indicators

4.1 Type of Conflict:

4.1.1 International armed border and territorial conflict: Involving governments in armed conflict over sovereignty and territory.

4.1.2. Internal armed conflicts: Taking place between government forces and organized groups that control sufficient territory to sustain concerted military operations. These conflicts can sometimes spill across international borders without being considered international conflicts between state parties.

4.1.3. Terrorism: Attacks involving one or more factions in significant armed opposition to a state. The intensity of violence in such attacks varies. Violence directly attributable to organized crime is not included.

4.2 Political Status:

4.2.1. Active: Covers current conflicts, which may vary from low-intensity (or intermittent) encounters to high-intensity (or constant) combat.

4.2.2. Cease-fire: Agreed by recognized leaders of disputants, but does not resolve the conflict. Does not suggest that all conflict has stopped.

4.2.3. Peace Accord: Formal resolution of conflict ratified by recognized leaders of disputants. In some cases, conflict may still persist. Examines whether the combatants are currently in conflict or in negotiations. The current status is displayed in a fact box.

4.2.4. Dormant: Applies to terrorist conflicts.

5. Post-Conflict Performance Indicators

5.1. Security and Reconciliation

- a. Public Security
- b. Reconciliation
- c. Disarmament, Demobilization, and Reintegration

5.2. Economic Recovery

- a. Management of Inflation, External Debt, and Adequacy of the Budget

- b. Trade Policy, Foreign Exchange, and Price Regimes
- c. Management and Sustainability of Post-Conflict Reconstruction

Program

5.3. Social Exclusion and Social-Sector Development

- a. Reintegration of Displaced Populations
- b. Education
- c. Health

5.4. Public-Sector Management and Institutions

- a. Budgetary and Financial Management, and Efficiency of Revenue Mobilization

- b. Re-establishing Public Administration and Rule-Based Governance
- c. Transparency, Accountability, and Corruption in the Public Sector

Conclusions

As globalization has worked to connect states and traditionally understood borders have given way to a more cyber-border system, states have become more dependent on one another. As a result, when security issues are addressed, they can no longer ignore the transnational implications that a particular security threat may pose. Security threats such as transnational terrorism, transnational crime, trafficking, poverty, and migration are all borderless in nature.

Consequently, a study of security must look not only at individual states but also regions and ultimately at the balance of security in the entire international system.

Measuring security and constructing a matrix that can accurately reflect perceived security can therefore seem like a daunting task. However, developing a detailed matrix that can look at all aspects that can affect the security of an individual as well as the security of a state can be useful in determining where funding and logistical support are required and where

weaknesses may be in order to avoid the eruption of conflict or full-scale war. As globalization has tied countries to one another, a security threat to one can have potentially devastating effects on a broader scale.

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INTELLIGENCE INFORMATION MANAGEMENT IN CRISIS SITUATION

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Ministerul Apărării

Abstract

Articolul își propune să analizeze managementul informațiilor militare în situații de criză. Acesta cuprinde totalitatea datelor și informațiilor din mediul de securitate pe baza căruia, se asigură nivelul optim de cunoaștere la nivelul factorilor de decizie politici și politico-militari, a parametrilor de stare ai sistemului de răspuns și caracteristicilor mediului de securitate din zonele de interes. Utilizarea informațiilor militare se face în scopul pregătirii, fundamentării și implementării deciziei factorilor de conducere, precum și pentru coordonarea punerii în aplicare a măsurilor destinate prevenirii, limitării și soluționării crizelor.

I. Disasters prevention

Disasters are usually a result of organizations failing to prevent a crisis from getting worse, says Peter Power, Managing Director at Visor Consultants Limited. ‘There cannot be a crisis next week.

My schedule is already full’, said Henry Kissinger in June 1969 at a time when the US faced many potential crises. Humorous yes, but is there some truth in what he said? How many potential disasters are already on your corporate radar screen that you are too busy to notice? There you are, convinced that you have planned for just about everything. Your risk analysis is complete and all your information and data processing seems watertight.

You are confident that you are as prepared as you can be for most eventualities. Even the chairman has shown an interest. But what if fate delivers you a low ball and you have a crisis that really is out of the blue? How would you cope?

There is a worrying tendency, especially in the US, that assumes any ‘out of the blue’ crisis means just that: aircraft leaving the sky and deliberately hitting tall buildings – and we have all seen many post-9/11 business continuity plans that now focus exclusively on this threat to the exclusion of all others.

Whilst it is true that our notion of terrorism as a form of limited violence was shattered by the terrible events in 2001, previous attacks by equally less predictable terrorist organizations – like the Aum sect in Japan, responsible for the Tokyo subway nerve gas attack and fanatical groups in the Middle East – had already challenged our previous assumptions about terrorism. It was, and will always be, a threat that is surprisingly hard to define.

Almost by definition, terrorism will continually seek to change its face. But enough has already been written on this subject and before we also slide towards overindulging our concern with just one type of threat, let us return to the subject of this article: **can you really handle any crisis?**

My own belief is that crisis prevention is considerably more effective than disaster recovery, but many organizations are encouraged by some consultants to spend a disproportionate amount of time and money on recovery options, without first looking at reducing risks, as well as preparing for the unforeseen.

II. Containing a crisis is more effective than recovering from a disaster.

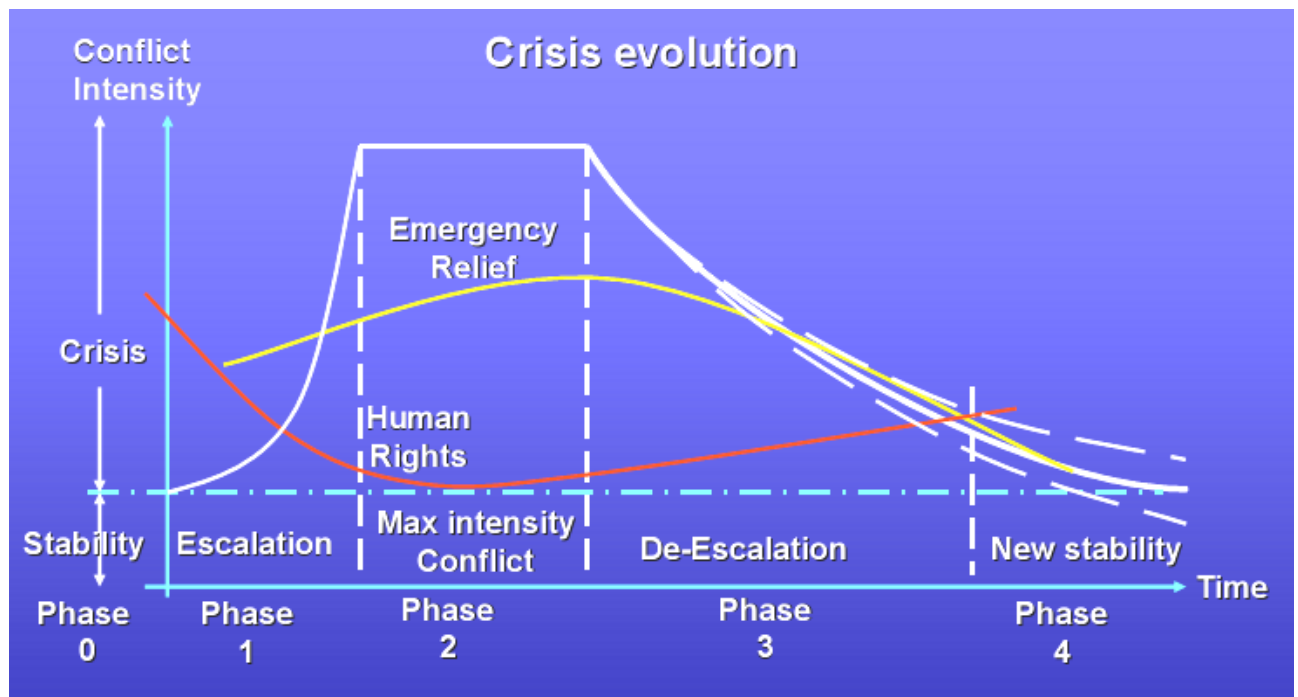


Figure 1 Crisis evolution

Manage your risks properly and recognize that the key to successful crisis management is to realize that containing a crisis is more effective than recovering from a disaster. Oddly enough, many organizations have disaster recovery plans, but not enough have crisis management options. Perhaps that is because you can more easily measure recovery? This leads to the last point: When setting up any measurement criteria, seek out what is important and then work out how to measure it (for example, measuring the likely damage to reputation).

At the beginning of the **Vietnam War**, the US Army had numerous fire-fights with the Vietnamese Army and quickly realized that the number of enemy dead invariably far exceeded their own. This was easy to measure and thus could be used to calculate who would win the war, and how soon. However, in doing this the US Army, like many before it, made the mistake of finding **something to measure** and then making it important, rather than the other way around.

For the Vietnamese Army, leaving the dead in the field was irrelevant when you had endless reserves, control over domestic media coverage and a will to win. The truth is that almost all crises follow a path from normality to possible disaster.

Crisis management can recognize and interrupt this if applied diligently and on time. In the case of a bomb explosion without warning, this path will be sudden; but such a scenario is an exception, as many incidents can be termed ‘quiet catastrophes’ that build up, often unnoticed (small errors that are not checked soon become big problems).

This can include scenarios such as power failure, intermittent system faults, road closures, sabotage, protestors, corrupt data, or building-related issues such as faulty air conditioning. Sometimes organizations have first been alerted to a crisis because the press called to tell them – in which case they might already be halfway down the path to disaster where trying to take the ‘media high ground’ is even more imperative. Indeed, the issue of presentation and media image is so important that we have seen some companies ultimately fail even though their efforts on site were as good as they could be, but they somehow failed to give the right message to the world’s media.

When speaking to the press, try and avoid the five ‘d’s’:

- **d**enying everything;
- **d**oing nothing;
- **d**iverting to someone else;
- **d**iminishing the incident;
- **d**rip-feeding at your own pace.

It is often the case that organizations have not necessarily taken the wrong actions in terms of crisis management but probably took the right ones too late – by which time the crisis itself sets the pace and you might end up following events rather than getting in front and stopping the spread.

By calculating an assessment of the crisis situation and its likely development – coupled with what should be the ideal reaction to control, contain and resolve it – it is possible to draw a basic model to illustrate the point that few crises instantly jump from normality to disaster. It is therefore possible to assess the impact of the crisis and its likely rise/fall, and then link this directly to the best reaction to contain it, to reassure stakeholders, and so on. In this way a crisis management structure can quickly be set up, but populated only according to present and anticipated requirements. For example, there is a ‘stage 1’ crisis that puts some people on standby whilst others are engaged in ‘fire fighting’. Subsequently, the incident can be either downgraded or upgraded to a ‘stage 2’ crisis, where levels may be fully staffed on a shift basis. The outline structure, however, remains the same. But setting all this out in a few pages may ignore a particularly vital feature. Unfortunately, too many crisis planners often overlook human emotion.

Too many practitioners see the processes they are dealing with as highly systematic, cerebral and conscious: you know what you are doing and you can explain the process to others. Emotion is seen as something that clutters up the calm processing of information and is nearly always factored out of the equation. That is one reason why my own company specializes in crisis management, since when your own schedule is full and human emotion is ignored you can be sure that a crisis is soon to follow.

II.1 Chains of evidence

Contrary to popular perception, most e-business and information security crimes and abuses that are reported today are internally inspired and range from theft of information to sabotage. As a result, the work of the computer forensics expert is a far more complex operation than most people appreciate. Computer forensics enables the systematic and careful identification of evidence in computer-related crime and abuse cases. This

may range from tracing the tracks of a hacker through an organization's IT systems, to tracing the originator of apparently anonymous defamatory emails, to recovering evidence of fraud. But, as with any investigation, it is vital to know where to look to find the evidence required and how not to destroy that very evidence in the process. This requires skill, knowledge and a lot of experience – especially as all forensic investigations must respect the laws governing the rights of the individual in each country and must always be handled with sensitivity. A computer forensics investigation can reveal practically everything, from the character of the user, to their interests, activities, financial health, acquaintances and more. It is all there to be recovered from applications, email systems, Internet browsers and free space. Their life, outlook, intelligence and interactions are held – as individual as any fingerprint – on the computer they use.

There is no limit to the accountability that can be uncovered: private business transactions, communications with accomplices, fraud indicators and much more are frequently mined from systems. Attempts to hide or erase this evidence are often unsuccessful, and a 'golden nugget' that proves a crime can be unearthed by an expert. The evidence that a forensics investigation will seek to uncover will vary; but activity such as Internet abuse during working hours is a good example of a well-known business problem. Amongst the more prevalent cases tend to be problems involving employees who divulge critical corporate information to third parties, fraud and the diversion of sales to rival companies for generous kickbacks. Cases of anonymous harassment and defamation are increasing along with the use of email and the Internet, and hacking cases involving Trojan horses, denial of service attacks and network intrusions also feature highly in the typical forensics workload.

Industrial espionage is also still a problem, and the discovery of 'key loggers' is increasing with improved user awareness. A small hardware device or software utility such as this can easily be installed and go unnoticed.

These simple tools can help a competitor or criminal to steal passwords and user IDs in an instant. Without the correct security procedures, the victim won't know a thing about it until it's too late. But it is not only employees that forensics investigations focus on. So few companies have adequate security vetting procedures, that industrial espionage has become a global concern. Every computer, on practically every desk, is an open doorway to the company's network and all of its data and essential information, such as its payroll, projects, R&D, finance, patents and customer details. Everything is potentially there for the taking by professionals posing as cleaners, tradesmen, maintenance crews, fitters and even, sometimes, as clients. Cases of arson have been brought to trial using computer forensic techniques, and bandwidth problems in large corporations have been found to be a result of network abuse by personnel downloading massive video files (sometimes full-length, hi-resolution feature films), MP3 music files, or simply spending all day listening to global radio over the Internet. Petty jealousy is also an increasing problem in many organizations: better cars, larger offices, fatter salaries and unpopular promotions can provoke the worst kind of unreasonable behavior. The result is that sabotage is a growing problem, with people systematically and knowingly breaking systems.

II.2 Gathering the evidence

The process of gathering evidence requires proper incident management training. Investigators must follow the correct procedures or the evidence may be compromised and become inadmissible. Simply booting a PC will change at least 70 of its parameters. In addition, documentation of the steps taken in a forensic investigation is vital, and a case can be built on suspicious activity. Why does the suspect work so often at weekends? Why does he/she never take leave? Is there a regular pattern of people who always work long hours, often late into the evening? The ideal is to take copies of the

entire hard drives of the suspect systems for examination with forensic software, but this is not always possible and a strict procedure for identifying and securing potential evidence is required.

There is also an array of pitfalls to be avoided when attempting to secure reliable evidence: it must not be damaged, destroyed or compromised in any way, and steps must be taken to ensure that the investigation:

- does not change any of the time and date stamps of files;
 - does not change the contents of the data itself;
 - maintains a complete and comprehensive audit trail of the steps taken;
- understands what operations the computer performs when it is turned on or off.

Computer forensics is a growing area that is earning increasingly wider recognition; and as systems and networks increase in complexity, it is becoming more and more specialized. It is also the area for specialist companies who have the resources, knowledge and experience to really make a difference. There is a growing awareness of the requirements for handling computer evidence in the country due to an established and accepted code of practice and the number of cases passing through the Courts. However, the chain of evidence is frequently not confined to one country and may cover many different countries and several continents, requiring forensic specialists to understand international law. It is also important to remember that it is only possible to uncover what is actually there. This may seem like an obvious point to make, but computer forensics cannot promise or perform miracles, and the most obvious pieces of evidence, such as a letter written to an accomplice, logging dates, times and transactions, found in the free space on a disk is a highly unusual occurrence.

A really good forensics team can tell, in an instant, whether a business has good grounds for further investigation or not. They will know from their

initial examination whether something looks wrong and out of place. Such a decision can often save a company many thousands of pounds and a lot of wasted time. As the discipline develops, forensics is spreading into whole new areas. Specialist teams are not only being tasked with handling criminal incidents but also with developing and implementing blocking, prevention and tracking techniques in companies and throughout organizations. But the fact is that most hacking cases are not pursued as far as they should be – companies simply rebuild their systems and get on with business, due to fear of the expense and loss of time that prosecution might involve. Forensic specialists are increasingly advising on the viability of potential courses of action, and are increasingly being called upon to help pinpoint sources of danger and devise procedures that prevent repeat attacks. Theft of company information and intellectual property is still the largest area of corporate crime, and computer forensics is certain to grow in importance as the volume of e-commerce transactions increases and as access to company networks and corporate information needs to be more reliably protected and ever-more tightly controlled.

II.3 Challenge for intelligence in the market state

The United States will face some fearsome snakes, some of which will be closed to view and so require old world methods. Yet the dominant feature of the new world is how much information is out there. Intelligence is no longer just in the secrets business, it is in the information business. The implications of the shift are dramatic. The explosion of information means that policy officials will be more, not less, reliant on information brokers. If collection is easier, selection will be harder. There will also be more brokers and more competition among them.

Intelligence analysts will be one set of brokers, but others, the competition, will range from CNN, to Bloomberg and Oxford Analytic, to journalists and academics.

The more open world is blurring the distinction between collection and analysis. The best looker is not a spy-master, much less an impersonal satellite, but someone steeped in the substance at hand - in short, an analyst. Yet analysts now get rewarded for being generalists, not deep specialists, and in some areas, such as economics, intelligence cannot compete with the private sector. Analysts, though, are cheap in comparison with satellites, and hiring more people from outside, even for brief tours, would deepen the intelligence community's expertise.

In the circumstances of the high Cold War, there were powerful arguments for targeting intelligence tightly on the Soviet Union; for giving pride of place to secrets, especially those collected by satellites and other technical means; for centralizing intelligence; and for separating it from the stakes of policy agencies. None of these arguments, however, is compelling today.

With one target and one preeminent consumer - in form the President but in fact the National Security Council, encompassing the State and Defense departments and the NSC staff - there was a certain logic to the way intelligence was, and is, organized. It was structured according to the different ways intelligence is collected - the National Security Agency for intercepting signals; SIGINT, the CIA's clandestine service, for spying; HUMINT; and so on. These "INTs," or "stovepipes" in the language of insiders, could each concentrate on the distinct contribution it could make to understanding the Soviet Union. In the process, though, those "INTs" became formidable baronies in their own right.

Now, however, the old structure just has to be wrong. No business would organize this way. Now, there are many targets and many consumers,

though there are some consistent alignments among targets, customers and collectors. In these circumstances, a firm would organize by lines of business, establishing a distributed network or a loose confederation in which different parts of intelligence would endeavor to build very close links to the customers each served. The existing Director of Central Intelligence centers - for counterterrorism, counternarcotics, and the like - are suggestive models. They do organize by problem or line of policy. They primarily integrate within the world of intelligence, though they provide a focal point for connecting to policy. And the distributed network would be "virtual," not bricks and mortar, because while some problems, such as North Korea or terrorism, will be enduring, others will rise and recede quickly.

In a world of too much information, policy-makers will want to "pull" up what they need, not have information "pushed" upon them; they will want to pull up puzzle solutions when they need them, not receive a torrent of information whether they ask for it or not. Yet solving the puzzle is often important enough that getting policy officials to pay attention is not a problem.

Mysteries are more abundant now, and the franchise of framing strategic mysteries is very different from solving puzzles. Analysts need access to secrets, but their crucial partnerships are those with colleagues outside intelligence and outside government, in the academic and think-tank worlds, in nongovernmental organizations and in private business. Intelligence needs to be opened wide, not cosseted in secret compartments. This franchise is based on the recognition that intelligence's business is information, not secrets, and that its product is experts, not paper.

In a world where both structures and U.S. interests are up for grabs, policy-makers would be better served by intelligence brokers close at hand, down the hall, not out at Langley. Perhaps the CIA should be dispersed, its

analytic pieces assigned to the State, Treasury and Commerce departments and elsewhere across official Washington.

The last part of the challenge for intelligence in the market state will be to reach out to new partners, especially in dealing with hard targets such as terrorism. It will mean conceiving of intelligence strategically, as a means of helping others see a set of issues the way the United States does and so facilitating the building of coalitions. While U.S. intelligence has been creative, in fact, in sharing intelligence - for instance, in U.N. peacekeeping operations - in principle, sharing has been a grudging act, letting a few trusted friends see some of the crown jewels if they had something to contribute in return. Building relationships will still be an important reason for sharing, but in the future, the partners will be much more varied - not just intelligence agencies but NGOs, not just foreign offices but foreign companies. And the sharing will be two-way, not one. In the world of the market state, a world that is not fully open everywhere but is not very closed anywhere, humanitarian NGOs will know more about many African countries than the CIA, and oil companies will be just as expert on Indonesia.

The market state ultimately will invoke the dilemma of how much intelligence can be broadened to serve shared international purposes, given its very national origins. After all, intelligence has been thought of as the way to get a leg up on other nations, not bring them into coalitions of the willing. The campaign against terrorism, for instance, will bring together the willing and the reluctant. Countries and groups that are no friends of the United States may be brought into an anti-terrorism coalition, and intelligence cooperation - including laying out the case against particular terrorists - will be part and parcel of assembling and sustaining such a coalition. In time, the coalition might give real force to an international norm against terrorism.

But in the process, virtually all the distinctions on which U.S. intelligence has been based would be strained. Intelligence and law

enforcement would be forced together. Distinctions between "home" and "abroad" would be hard to sustain as terrorist networks reach across borders and even include American citizens. U.S. collaborators would run well beyond trusted friends, to those who are neither friends nor states. Finally, the intensity of cooperation required would leave the intelligence community hard-pressed not to reveal something of its capacity, if not its sources and methods.

III. Supporting Elements for NATO Crisis Management

The NATO Crisis Response System (NCRS), the NATO Intelligence and Warning System (NIWS), NATO's Operational Planning System and NATO Civil Emergency Planning Crisis Management Arrangements are designed to underpin the Alliance's crisis management role and response capability in a complementary and synergistic fashion, as part of an overall NATO Crisis Management Process.

The practices and procedures which are used form the Alliance's crisis management arrangements. Facilities, including communications, in support of the process are provided by the NATO Situation Centre (SITCEN), which operates on a permanent 24-hour basis. Exercises to test and develop crisis management procedures are held at regular intervals in conjunction with national capitals and NATO [Strategic Commanders](#). Crisis management arrangements, procedures and facilities, as well as the preparation and conduct of crisis management exercises, are coordinated by the Council Operations and Exercise Committee ([COEC](#)), which also coordinates crisis management activities with Partner countries.

The Council Operations Section supports NATO crisis management by the development and improvement of procedures, organization and facilities to support the needs of the Council and Defence Planning Committee, and to facilitate consultation in periods of tension and crisis.

The Peacekeeping Section supports the crisis management process by providing conceptual and technical strategic planning and advice on peace-support operations. The Peacekeeping Staff also support other aspects of NATO's work in the field of crisis response operations, including the development of Alliance peacekeeping policy, the development of CIMIC (Civil-Military Cooperation) policy, and support for the NATO-Russia Council (NRC) and Political Military Steering Committees (PMSC) Ad Hoc Groups on Peacekeeping. This section also maintains close relations with other international organizations including the OSCE and UN.

The Situation Centre, known as the SITCEN, has three specific roles:

- to assist the North Atlantic Council, the Defence Planning Committee and the Military Committee in fulfilling their respective functions in the field of consultation;
- to serve as a focal point within the Alliance for the receipt, exchange, and dissemination of political, military, and economic intelligence and information;
- to act as a link with similar facilities of member nations and of the major NATO Commands.

III.1 A Communication Centre or “COMCEN” supports the Situation Centre.

At the earliest opportunity, the Partners and then non-Partner nations are invited and consulted to offer forces. These contributions are often in important areas of Allied shortfall such as medical, engineering and technical specialists.

The intention behind participation by Non-NATO Troops Contributing Nations (NNTCN) is to create a truly multinational framework and to better demonstrate international support and **legitimacy**. The NNTCN are also given the opportunity to comment on operations plans, and their views are taken

into account. This allows partner and non-partner nations to contribute to the provision of political guidance and oversight of operations, and contributes to what is called as “Decision Shaping”.

Non-NATO Nations close to the conflict area can also offer Host Nation Support in the form of basing, transit and over-flight rights. This kind of support is, in many situations, crucial.

In response to a potential or developing crisis, to acting on time it is essential to have a variety of different measures or possible responses in place, so that they do not have to be developed on an ad-hoc basis for each new situation. In deciding what to do about a given situation, the Council/DPC has a wide range of measures, and Allies have agreed from which to choose. These measures have been substantially revised since the end of the Cold War to seek to ensure that they are relevant for the contemporary crisis environment.

Measures include:

- (1) diplomatic, economic and military preventive measures,
- (2) a large variety of military response options and
- (3) a spectrum of precautionary measures.

Examples of the preventive measures could include: messages, trade restrictions, expressions of support for threatened states, closure of ports and airports and special programs in favor of threatened states. Examples of military response options could include: cancellation of military cooperation, confidential military consultations, request inspections and evaluation visits, surveillance, increased readiness and activation of forces. There are also a variety of contingency operation plans, which can be drawn on for detailed operational planning if required.

In addition to these lists of measures, NATO also has a system for assuring preparedness and timely response in crisis for civil and military commands, agencies and headquarters, and national military units and agencies.

IV. Indicators of Romanian Armed Forces strategy for cyber security and information intelligence

Romanian Armed Forces have already prepared the National Crises Response System (Figure no. 2).

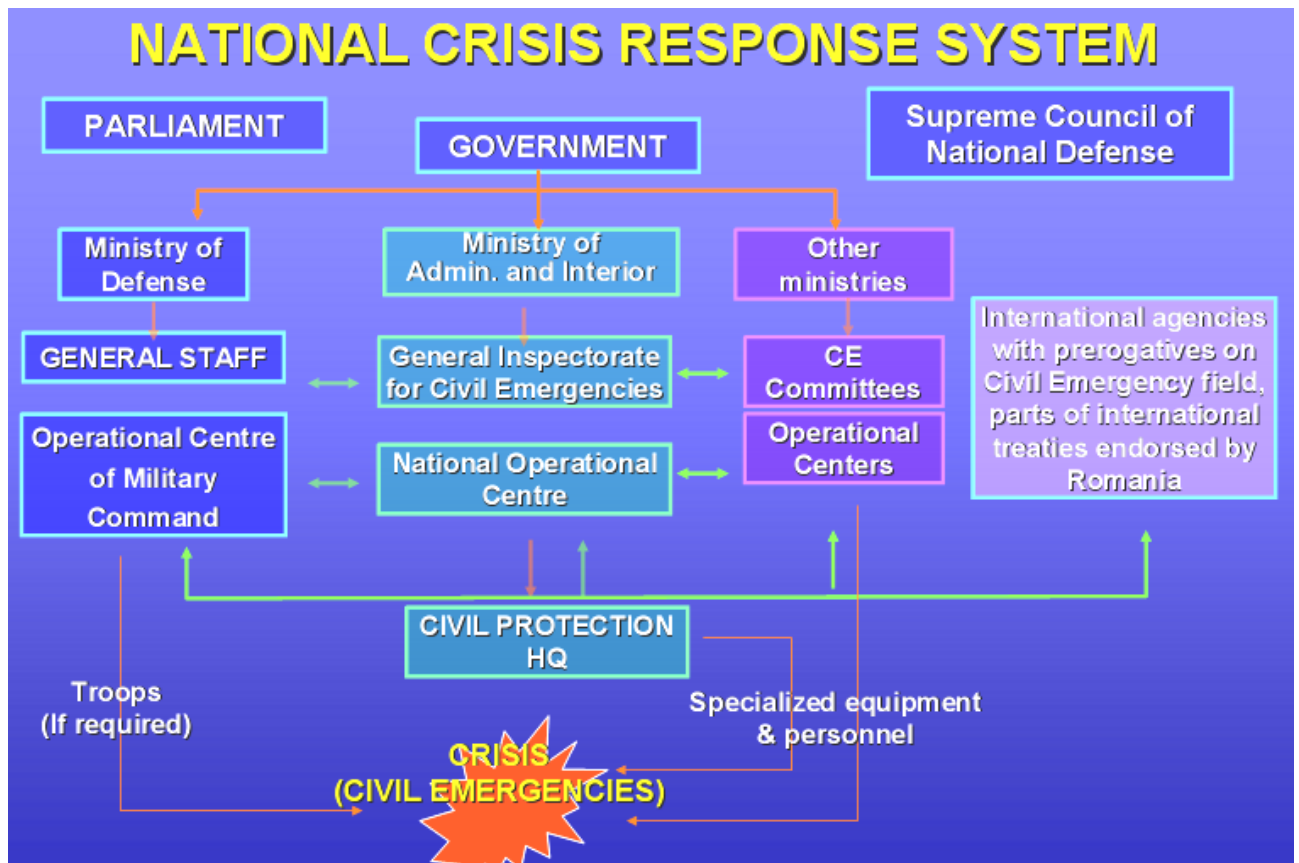


Figure no. 2 The National Crises Response System

Romanian Armed Forces strategy for cyber security and information intelligence could be founded on sound principles and technologies, including and not limited to these indicators:

- Better precision in understanding existing and emerging vulnerabilities and threats;
- Advances in insider threat detection, deterrence, mitigation and elimination;

- Game-changing ventures, innovations and conundrums (e.g., quantum computing, QKD, phishing, malware market, botnet/DOS);
- Assuring security, survivability and dependability of our critical infrastructures;
- Assuring the availability of time-critical scaleable secure systems, information provenance and security with privacy;
- Observable/ measurable/ certifiable security claims, rather than hypothesized causes;
- Methods that enable us to specify security requirements, formulate security claims, and certify security properties;
- Assurance against known and unknown (though perhaps pre-modeled) threats;
- Mission fulfillment, whether or not security violations have taken place (rather than chasing all violations indiscriminately).

Conclusions

In the circumstances of an age of information, perhaps it is time for intelligence to "split the franchise" and dramatically change how it is organized. Today's tactical puzzles where secrets matter are both fewer and more varied than the Cold War's Soviet puzzles, but they are still important. For solving puzzles, analysts need to be close to the collectors of secrets.

We must shift our focus away from winning battles, towards a strategy for winning the war by elevating trust in the mission and its underlying critical infrastructures.

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STRATEGIC VISION FOR THE ARMAMENTS FIELD AS NATO AND EU MEMBER STATE

Lieutenant colonel eng. Vasile ȘERBĂNESCU*

Abstract

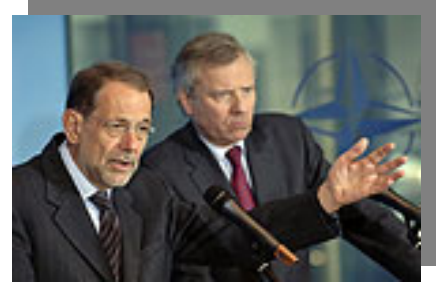
Viziunea strategică în sfera activităților complexe din domeniul armamentelor este reprezentată de asigurarea nevoilor de capabilități militare flexibile, mobile, interoperabile, rapid dislocabile, sustenabile în teatru și capabile să participe la întreaga gamă de misiuni internaționale (NATO, UE, ONU, OSCE și de coalitie). Managementul programelor strategice de achiziții include achiziția de sisteme complexe ce reprezintă un proces care se derulează pe mai mulți ani, necesită personal specializat suficient și resurse sigure și stabile pe termen mediu și lung, suport guvernamental și parlamentar permanent, dar și control riguros cu privire la gestionarea fondurilor publice alocate anual. Participarea activă a specialiștilor români la activitățile grupurilor și la proiectele derulate sub egida Conferinței Directorilor Naționali pentru Armamente (CNAD-NATO) și ale Agenției Europene de Apărare (EDA-UE) va contribui, în continuare, la promovarea politicii Ministerului Apărării ca parte a politicii externe și de securitate a României, pentru a arăta aliaților și partenerilor noștri că pot conta pe noi, că țara noastră este un aliat predictibil, loial și credibil. [1]

“Fortune favors the bold - Audentes Fortunas Juvat” – Virgil [2]

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1. NATO and EU strategic management

NATO Secretary General, Jaap de Hoop Scheffer has highlighted NATO-EU strategic partnership, in his speech at the Annual Meeting



of the Atlantic Treaty Association (ATA), on 10 November 2008, in Berlin, Germany: “It makes no sense to couch NATO and a European Security and Defence Policy as two irreconcilable opposites. A European Union without an ESDP would be incomplete. A transatlantic relationship without NATO would be unthinkable.

That is why NATO and the EU need to continue to work on their strategic partnership – not as competitors, not as contestants in a beauty pageant, but as two key institutions that have nothing to lose but everything to gain by working closely together. We are seeing the benefits of such an approach with our respective, and coordinated efforts in Bosnia and Herzegovina, in Afghanistan, and our responses to piracy off the coast of East Africa. Let us not forget the very important point: NATO and the EU share 21 Allies/member states.”

1.1. The Alliance's Strategic Concept

The Alliance's Strategic Concept was approved by the Heads of State and Government participating in the meeting of the North Atlantic Council in Washington D.C. on 23rd and 24th April 1999.

The five parts of the Strategic Concept are:

- Part I The Purpose and Tasks of the Alliance;
- Part II - Strategic Perspectives;



Fig.1

- Part III - The Approach to Security in the 21st Century;
- Part IV - Guidelines for the Alliance's Forces;
- Part V – Conclusion.

In order to be ready to meet the challenges and opportunities of a new century, the Strategic Concept reaffirms the enduring purpose of the Alliance and sets out its fundamental security tasks. It enables a transformed NATO to contribute to the evolving security environment, supporting security and stability with the strength of its shared commitment to democracy and the peaceful resolution of disputes.

The Strategic Concept will govern the Alliance's security and defence policy, its operational concepts, its conventional and nuclear force posture and its collective defence arrangements, and will be kept under review in the light of the evolving security environment. In an uncertain world the need for effective defence remains, but in reaffirming this commitment the Alliance will also continue making full use of every opportunity to help build an undivided continent by promoting and fostering the vision of a Europe whole and free.

1.2 Bucharest Summit Declaration

Recognising the enduring value of the transatlantic link and of NATO as the essential forum for security consultations between Europe and North America, the Heads of State and Government participating in the meeting of the North Atlantic Council in Bucharest on 3 April 2008 reaffirmed their solidarity and cohesion and their commitment to the common vision and shared democratic values embodied in the Washington Treaty: “The principle of the indivisibility of Allied security is fundamental. A strong collective defence of our populations, territory and forces is the core purpose of our

Alliance and remains our most important security task. We reiterate our faith in the purposes and principles of the United Nations Charter.”

NATO-EU relations cover a wide range of issues of common interest relating to security, defence and crisis management, including the fight against terrorism, the development of coherent and mutually reinforcing military capabilities, and civil emergency planning. “Our successful cooperation in the Western Balkans, including with EU operation Althea through the Berlin Plus arrangements, is contributing to peace and security in the region. In the light of shared common values and strategic interests, NATO and the EU are working side by side in key crisis management operations and will continue to do so. We recognise the value that a stronger and more capable European defence brings, providing capabilities to address the common challenges both NATO and the EU face. We therefore support mutually reinforcing efforts to this end. Success in these and future cooperative endeavours calls for enhanced commitment to ensure effective methods of working together. **We are therefore determined to improve the NATO-EU strategic partnership as agreed by our two organisations, to achieve closer cooperation and greater efficiency, and to avoid unnecessary duplication in a spirit of transparency, and respecting the autonomy of the two organisations. A stronger EU will further contribute to our common security.**”

1.3 NATO-EU Declaration on ESDP” and the agreement over the “Berlin Plus” arrangements

As well as meeting on a regular basis, the two organisations work together in the field under “Berlin Plus” arrangements. They have also decided to develop cooperation to combat terrorism and the proliferation of weapons of mass destruction and are working toward



Fig. 2

concerted planning of capabilities development. The “NATO-EU Declaration on ESDP” and the agreement over the “Berlin Plus” arrangements are milestones in the evolution of the NATO-EU strategic partnership.

The “NATO-EU Declaration on ESDP”, agreed on 16 December 2002, not only reaffirmed the EU assured access to NATO’s planning capabilities for its own military operations, but also reiterated the following political principles of the strategic partnership:

- effective mutual consultation;
- equality and due regard for the decision-making autonomy of the EU and NATO;
- respect for the interests of the EU and NATO members states;
- respect for the principles of the Charter of the United Nations;
- coherent, transparent and mutually reinforcing development of the military capability requirements common to the two organisations.

The “Berlin Plus” arrangements - following the political decision of December 2002, the “Berlin Plus” arrangements, adopted on 17 March 2003, provide the basis for NATO-EU cooperation in crisis management by allowing EU access to NATO's collective assets and capabilities for EU-led operations. In effect, they allow the Alliance to support EU-led operations in which NATO as a whole is not engaged.

They consist of the following major elements:

- a NATO-EU Security Agreement (covers the exchange of classified information under reciprocal security protection rules);
- assured EU access to NATO's planning capabilities for actual use in the military planning of EU-led crisis management operations;

- presumed availability of NATO capabilities and common assets, such as communication units and headquarters for EU-led crisis management operations;
- procedures for release, monitoring, return and recall of NATO assets and capabilities;
- terms of reference for NATO's Deputy SACEUR - who in principle will be the operation commander of an EU-led operation under the "Berlin Plus" arrangements (and who is always a European) - and European command options for NATO;
- NATO-EU consultation arrangements in the context of an EU-led crisis management operation making use of NATO assets and capabilities;
- incorporation within NATO's long-established defence planning system, of the military needs and capabilities that may be required for EU-led military operations, thereby ensuring the availability of well-equipped forces trained for either NATO-led or EU-led operations.

1.4 The future of NATO-EU relations

Built on a shared vision, analysis and strategy and all founded on all-important standards, doctrine and interoperability, the issues for the EU-NATO agenda [3] could be based on the following strategic objectives:

- ***Build on Berlin-plus by bring the NATO Strategic Concept and the European Security Strategy closer together:*** The two strategic concepts must and will be re-drafted and surely it is time to harmonise strategic approaches and look ahead to a world in which threats to our political and structural integrity could once again emerge.



Fig. 3

- ***Establish an EU-NATO Long Term Working Group on Force Planning:*** The EU and NATO need to look jointly beyond 2010, Battle Groups and the NATO Response Force (NRF). Indeed, The EU needs a Headline Goal 2020 aimed at generating 5000 strong Battle Groups that are NRF compatible. It is no longer a question of whether NRF or Battle Groups. Today operations are killing both and we will not continue to spend so much time on multilateral formations that they are rarely of use.
- ***Create an EU-NATO Strategic Comprehensive Approach*** that makes the most out of the civil-military lessons learned focussed on the civil and military aspects of campaign planning and action. An EU-NATO Working Group on the Comprehensive Approach is needed urgently because the sheer complexity of making it work at national level is sucking the life blood out of effective transnational effect. Such a group will help establish better links between the EU's Civilian Headline Goal and NATO's CPA.
- ***Harmonise Equipment Programmes:*** To that end, build on the EU-NATO Capabilities Group and promote closer procurement co-operation between the European Defence Agency, the ECAP process and NATO's integrated defence planning process. Indeed, a NATO-EU Working Group of National Armaments Directors would be useful.
- ***Re-consider Transformation:*** Transformation emphasises convergence on high-end, networked capability. Smart transformation should focus on enhancing the natural strengths of NATO and EU members to help solve a real dilemma for all of us – what to plan for? We need a better understanding of where to invest most resources in armed forces to generate the greatest security return throughout the strategic stabilisation task-list and across the conflict intensity spectrum. This is

the only way to prevent the capability-capacity crunch and the stabilisation attrition from which our forces are suffering.

- ***Start Defence Integration:*** Smaller European member-states must lead the way towards defence integration to: a) create real military effect on their limited force and resource bases. A critical mass of political influence will help keep the security and defence efforts of the major states within the institutional frameworks of both NATO and the EU and better balance big and medium state leadership.
- ***Create an EU-NATO Defence Education Concept:*** A cliché it might be but the greatest strength of the transatlantic relationship is its people. In war one must educate and research, not merely train and teach. We all need to better invest in security knowledge. Indeed, we need together to make far better use information technologies to inject far more flexibility into our command structures at every level of the command chain and between civilians and military.

2. SWOT Analysis on Romanian National Strategic Reference Framework 2007-2013 (NSRF) [4]

The SWOT (Strengths / Weaknesses / Opportunities / Threats) has been used as a tool to define and assess the key strategic issues that emerge from the NSRF Socio-Economic Analysis and to define the Priorities. The exercise indicates how the Structural Instruments could be best utilized to achieve the strategic objectives of NSRF.

The issues that emerge from the **socio-economic analysis** have been identified starting from Romania's development needs and with a view to the specific actions needed in order to address the real priorities for a growing economy and which could have the highest impact in terms of fostering economic growth. Promoting a balanced development across the country represents also a priority and was carefully considered. The categorization of

the issues into the thematic priority categories identified in the NSRF aims to assure a clear and optimal link between the analysis and the **strategy** of the NSRF. Identification of the strengths and the weaknesses in a certain area, with a view to capitalizing on the opportunities for the Structural Instruments to optimize investments in the field has been an instrument to prioritize the actions in order to achieve the highest impact. In each category, the issues having the highest importance and impact were selected and ranked, based on the perceived importance of these factors.

In its comprehensive form, the SWOT analysis looks at the **overall potential of Romania** and identification of the most efficient ways to capitalize on it. The *strengths* Romania can built on, such as the size of the market and the increasing stability both in macroeconomic terms and of the national currency, will influence the degree in which Romania will benefit from the existing *opportunities* such as the accession to the EU and the structural change of the economy, together with a stronger integration of all areas in the economic circuit. In this context, the strategy will aim to address the existing *weaknesses*, in terms of an unbalanced economic structure, unfinished structural reforms, insufficiently developed administrative capacity and significant regional disparities in order to narrow the development gap with the rest of the EU. The fact that such issues affect the overall implementation of the NSRF strategy increases the importance of addressing them. The potential *threats* for development – such as a difficult economic environment, a low absorption of EU funds or the external migration of the labour force – need also to be considered.

The analysis carried out recognizes the needs in terms of **basic infrastructure** as top priority of today's Romania, considering its crucial influence on the competitiveness of the economy as well as on the mobility and health of the workforce and the general welfare of the people. The envisaged strategy was designed as to best answer to the needs for

development in the field of transport, environment and energy, given the major *weaknesses* in these fields, as areas where there was no sufficient investment and Romania is at disadvantage compared to other countries, both at national and regional/local level. The *opportunities* deriving from the development of the infrastructure - such as an increased accessibility and mobility of resources and workforce as well as the challenge of transforming Romania into an attractive place to work and live in - given the impact of this type of investments in areas such as competitiveness and human resources, were determining in defining the line of action. In the process, a clear focus was placed on the already existing advantages which constitute *strengths*, either natural strengths – such as the geographical position or natural resources of Romania - or created strengths. Attention was also given to *threats*, as anticipated conditions which, if not countered could minimize the impact of the strategy in these fields.

In terms of **competitiveness**, the strategic objective of promoting Romania as a high added value economy was defined considering the current stage of development of the country, the development gaps compared to the EU, as well as the EU policies and guidelines in the field. The existing *strengths* of Romania, such as the size of the market, as well as its strong and expanding sectors and experience in development areas were analyzed in close connection with the recognized *weaknesses* in terms of productivity, low entrepreneurship, poor support infrastructure and services for business, under-investment in R&D and important regional disparities. Among the key *opportunities* the country could capitalize on, the strategy considered the potential advantages arising from a focus of investments in higher value added sectors and from increasing productivity, coupled with SME growth and entrepreneurship development, as well as better quality business support services, increased ICT and R&D expansion. Such factors were decisive in defining the right lines of interventions to correct the weaknesses and to

realize Romania's role in a global economy. The *threats* in the field are considerable and they need careful consideration both in the design and implementation of the strategy.

Competitive and well qualified **human resources** will be the key to achieving the set objectives of the NSRF strategy. The *strengths* in the field, such as the degree of development of the schools and universities network and the good initial education of the large part of the labour force will be the basis on which the strategy can develop. The actions in this field will build on the existing advantages and will look to address the prioritized *weaknesses* such as the mismatch between education and labor supply, a low adaptability of workers and poor life long learning, inadequate guidance and counseling, poor state of social and education infrastructure, high employment in agriculture, regional and urban-rural disparities and social exclusion. The *opportunities* of using fully and effectively a highly competitive and well educated human resource, within a framework of stronger partnerships and inclusive (labour) market will be capitalized on with the help of the envisaged actions of the strategy. However, the *threats* such as the ageing of the population and the emigration of skilled labour force were identified as issues to be carefully considered during the implementation of the strategy.

Strategic Vision - *A competitive, dynamic and prosperous Romania*

The entire territory of Romania is under-developed by EU standards. In 2005, Romania's GDP per capita was 34.8% of the EU-25 average. To address the development gap demands that all those involved in socio and economic development to identify a key target.

The National Development Plan (2007 – 2013) set the target to improve Romanian GDP per capita to 41% of the EU average by 2015. The Romanian Government

endorsed this Strategic vision and set the challenge that is being carried forward into the National Strategic

Reference

Framework

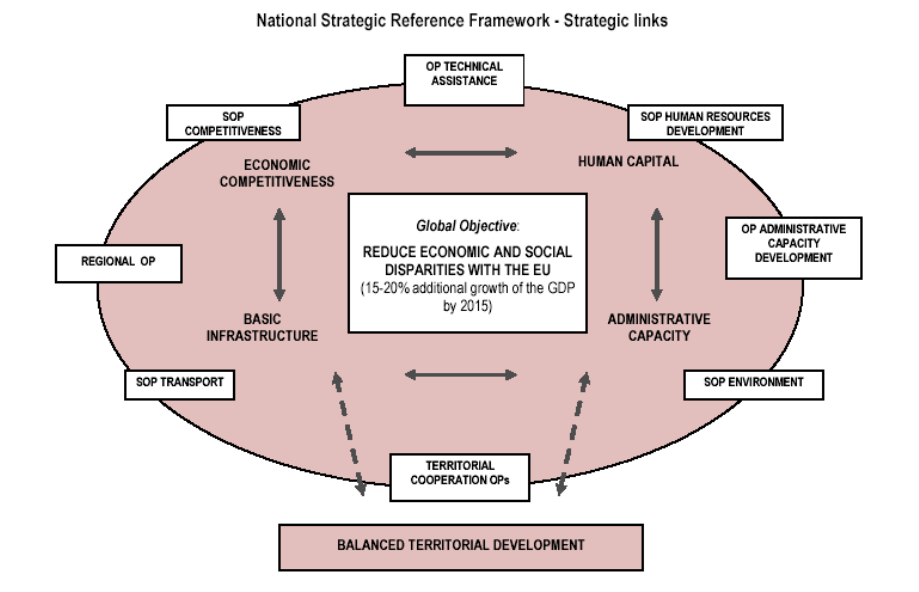
with the global objective for the Structural Instruments as follows:

NSRF Objective: *To reduce the economic and social development disparities between Romania and the EU Member States, by generating a 15-20% additional growth of the GDP by 2015* (Fig. 4).

3. European Armaments Cooperation Strategy [5]

European Union National Armaments Directors (NADs) on 15 October 2008, at Brussels, endorsed a strategy to promote and enhance effective European armaments Co-operation in support of the ESDP.

The Strategy [6] has three aims: **firstly**, it will help to generate, promote and facilitate co-operation through a dedicated programme preparation phase. This phase is crucial, as early decisions are needed in order to reduce overall programme costs, to realise shortest possible timescales and have maximum performance. **The second aim** is related to the European Defence Industrial and Technological Base. A solid EDTIB is a prerequisite for effective European armaments co-operation. This includes greater transparency and mutual understanding between governments and industries. And **a third**



strategic aim builds on the previous work of the Agency in improving the effectiveness and efficiency of the armaments co-operation more generally.

"The Agency has worked together with its shareholders in preparing an Armaments Strategy that provides a solid foundation for improving the way we conduct armaments cooperation in Europe. Applying the 'Guide to the Conduct of a Programme Preparation Phase' is a major step in translating the many facets of the Strategy into tangible action," said Eero Lavonen, the NAD of Finland who chaired the meeting. [7]

An intrinsic part of the Strategy is the Europe Defence Test and Evaluation Base (DTEB). The Steering Board approved a Conceptual Guide for DTEB to target priority areas, coordinate investments, encourage reciprocal use of facilities and create a network of Test and Evaluation capabilities, with the aim of having a ***consolidated and coherent European DTEB by 2030***.

The National Armaments Directors further underlined that Small and Medium-sized Enterprises are vital for an innovative and competitive European Defence Technological and Industrial Base. The EDA Steering Board therefore agreed on developing a number of measures aimed at supporting increased involvement of SMEs and non-traditional suppliers in the EDTIB. Contracting policies that will enhance SMEs opportunities to win contracts will be further analysed, and an experts' working group will develop Common Guidelines for simplification and harmonisation of tendering and contracting processes related to lower value contracts. In addition the Agency will develop an armaments cooperation driven IT platform to enable industry to propose solutions to pMS priorities. One key enabler is the Code of Best Practice in the Supply Chain which will be promoted more vigorously by Governments. They will also decide on a new publication threshold for the EBB in support of SMEs at their next meeting in the spring 2009.

"I think it is of great value that the NADs fully recognise the importance of SMEs for a competitive EDTIB. It is necessary to create conditions allowing SMEs and non-traditional suppliers to fully exploit market possibilities. EDA, supported by industry experts, has identified the right kind of measures." said Chief Executive Alexander Weis. [8]

European Armaments Co-operation Strategy

VISION - To promote and enhance more effective European armaments co-operation in support of the European Security Defence Policy - ESDP.

Strategic Aim 1 - Generate, promote and facilitate cooperative programmes to meet capability needs;

Strategic Aim 2 - Ensure the EDTIB and investment therein is capability orientated and supports future co-operative programmes;

Strategic Aim 3 - Improve the effectiveness and the efficiency of European armaments cooperation.

Armaments acquisition has many facets and it demands many actions from the participating member states (pMS) and the EDA to bring about more effective European armaments co-operation, as described in the European Armaments Co-operation Strategy. [9]



Fig. 5

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SOLUȚII NUMERICE PENTRU DIVERSE GEOMETRII ALE ȚEVILOR DE ARTILERIE ȘI MODURI DE ÎNCĂRCARE

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Abstract

Based on the calculus model for non-linear environments in the case of elastic-plastic stress-strain of thick-walled tubes, the paper presents the numerical solutions for different geometries of the barrel and modes of loading.

The method presented in the 2007 CNCSIS scientific research project, 970 code, is validated on a numerical application in which the behavior of a thick-walled tube is analyzed when there exists elastic-plastic stress-strain, without an axial load ($q = 0$), made from a homogenous material (specially heat treated steel).

Raportul dintre raza interioară și raza exterioară a țevii este:
 $\alpha = 1.4, 1.6, 1.8, 2.0, 2.2$.

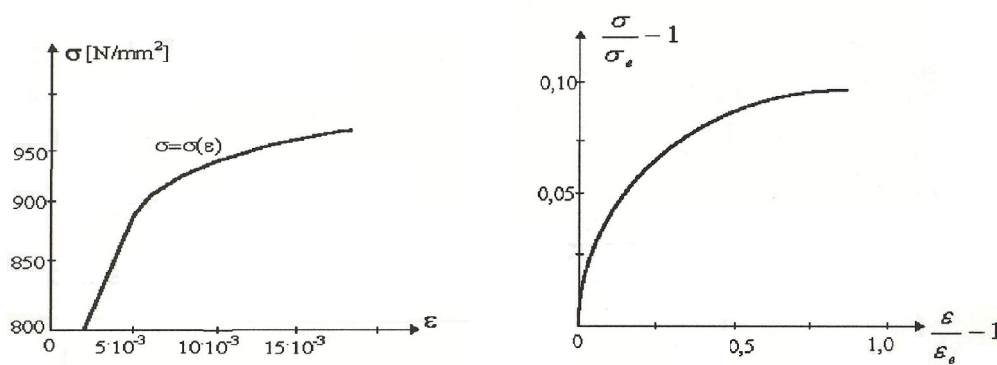


Fig.1 Aproximarea curbei caracteristice

Funcția $M(\sigma_i)$ [1] fost determinată pe diagrama caracteristică a materialului (fig. 1).

Ramura curbei caracteristice din zona $1 < \sigma < 1.1$ a fost reprezentată într-un nou sistem de coordonate: $\left(\frac{\varepsilon}{\varepsilon_e} - 1, \frac{\sigma}{\sigma_e} - 1\right)$

În noul sistem de coordonate curba caracteristică a aproximat, cu suficientă precizie, cu funcția:

$$\frac{\varepsilon}{\varepsilon_0} - 1 = \frac{\sigma}{\sigma_e} - 1 + 0,243 \left[10 \left(\frac{\sigma}{\sigma_e} - 1 \right) \right]^2 + 0,926 \left[10 \left(\frac{\sigma}{\sigma_e} - 1 \right) \right]^7 \quad (1)$$

Cu noile coordonate, funcția $M(\sigma_i)$ are forma:

$$M(\sigma_i) = \frac{9}{4} \left[\frac{d \left(\frac{\varepsilon}{\varepsilon_e} - 1 \right)}{d \left(\frac{\sigma}{\sigma_e} - 1 \right)} - 1 \right] \quad (2)$$

Pe cele trei intervale funcția $M(\sigma_i)$ a rezultat astfel:

$$M = \begin{cases} 0 & , \quad \sigma_i \leq 1 \\ 10,94[10(\sigma_i - 1)] + 145,8[10(\sigma_i - 1)]^6 & , \quad 1 < \sigma_i < 1,103 \\ 185,4 & , \quad \sigma_i \geq 1,103 \end{cases} \quad (3)$$

Pe aceeași diagramă caracteristică s-au determinat:

$$\left\{ \sigma_e = 850 \frac{N}{mm^2}, \varepsilon_e = 4,15 \cdot 10^{-3} \right. \quad (4)$$

Ca stare inițială s-a considerat starea limită elastică a tubului. În această stare, pe suprafața interioară a tubului ($p=1$) intensitatea tensiunilor ia valoarea limitei de elasticitate. Presiunea corespunzătoare acestei stări se obține ținând seama că în punctele interioare tensiunile sunt:

$$\begin{cases} \sigma_{\theta_0} = \frac{\alpha^2 + 1}{\alpha^2 - 1} p_{\lim_e} \\ \sigma_{r_0} = -p_{\lim_e} \\ \sigma_{z_0} = 0 \end{cases} \quad (5)$$

rezultând:

$$p_{\lim_e} = \frac{\alpha^2 - 1}{\sqrt{3\alpha^4 + 1}} \quad (6)$$

Tubul a fost discretizat cu elemente finite cu pasul radial $h = 0,01$ (fig. 2).

Numărul de ordine al elementului este identic cu numărul de ordine al nodului interior.

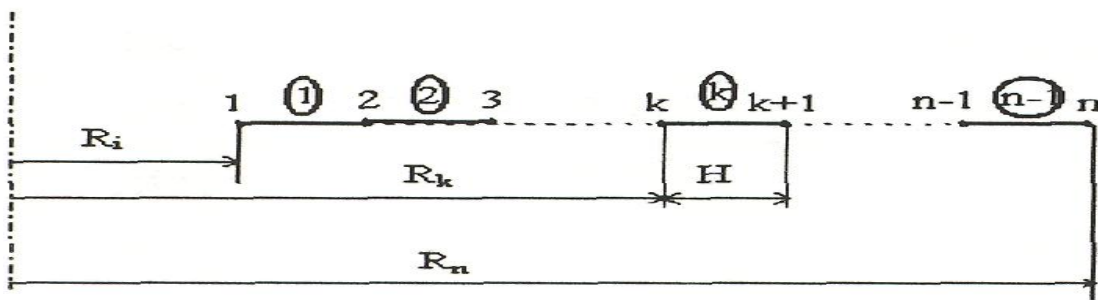


Fig. 2 Discretizarea tubului in elemente finite

Pentru elementul k tensiunile inițiale în centrul acestuia sunt:

$$\sigma_{\theta_0} = \frac{p_{\lim_e}}{\alpha^2 - 1} \left(1 + \frac{\alpha^2}{\rho_m^2} \right), \sigma_{r_0} = \frac{p_{\lim_e}}{\alpha^2 - 1} \left(1 - \frac{\alpha^2}{\rho_m^2} \right), \sigma_{z_0} = 0 \quad (7)$$

ρ_m fiind raza medie adimensională a elementului.

Deplasările inițiale în nodurile i și n sunt date de relațiile:

$$u_0 = \frac{1}{h} \frac{(1 + \mu)\alpha^2 + 1}{\alpha^2 - 1} p_{\lim_e}, u_{n_0} = \frac{1}{h} \frac{2\alpha}{\alpha^2 - 1} p_{\lim_e}, w_0 = \frac{2\mu}{\alpha^2 - 1} p_{\lim_e} \quad (8)$$

Cu programul conceput special pentru analiza tuburilor solicitate în regim elasto-plastic, pe baza celor descrise mai sus, încercând diverse valori pentru salturile de presiune Δp s-a constatat că între soluțiile obținute cu $\Delta p = 0,01$ și $\Delta p = 0,005$ diferențele sunt practic inesizabile.

Prezentăm în continuare câteva rezultate obținute pentru diverse presiuni de lucru.

Pentru $\alpha = 1.4$, $p_{\lim_e} = 2712,6 \text{ bar}$ la treapta de încărcare 17, corespunzătoare presiunii de lucru de $3512,6 \text{ bar}$, găsim următoarele rezultate (tabelul 1):

Tabelul 1 Rezultate pentru $\alpha = 1.4$ și $p_{\lim_e} = 2712.4 \text{ bar}$

Presiune	Depl. axială	Depl. int.	Depl. ext.	$\Delta\mu_{\text{interior}}$	$\Delta\mu_{\text{exterior}}$
0,35626	0,24158771	130,6393	111,7767	3,4392	2,8259
Nr. el.	$M(\sigma_i)$	σ_{θ}	σ_r	σ_z	σ_i
1	51,01	0,86290	-0,35018	0,00034	1,08131
16	7,06	0,94291	-0,18638	0,00143	1,04809
17	6,04	0,94521	-0,17669	0,00051	1,04463
18	4,55	0,94397	-0,16715	-0,00020	1,03776
19	3,67	0,94374	-0,15777	-0,00105	1,03211
20	2,86	0,94265	-0,14856	-0,00187	1,02577
40	0	0,80059	-0,00287	-0,00227	0,80316

Rezultatele prezentate sunt mărimi adimensionale, așa cum au fost definite în modelul de analiză numerică prezentat anterior.

Tabelul 2 Rezultate pentru $\alpha = 1.4$ și $p_{lim_e} = 2712.4 \text{ bar}$

Presiunea	Nr.elemente plasticizate	Depl. axială	Depl. interior	Depl. exterior	$\Delta\mu_{interior}$	$\Delta\mu_{exterior}$
0,27626	1/40	-0,17266	93,4682	80,5760	1,6918	1,4585
0,28126	2/40	-0,17582	95,1813	82,0510	1,7132	1,4741
0,28626	3/40	-0,17904	96,9313	83,5542	1,7499	1,5033
0,29126	4/40	-0,18234	98,7261	85,0922	1,7949	1,5380
0,29626	5/40	-0,18573	100,5737	86,6710	1,8476	1,5788
0,30126	6/40	-0,18922	102,4808	88,2959	1,9071	1,6249
0,30626	7/40	-0,19283	104,4547	89,9724	1,9739	1,6766
0,31126	8/40	-0,19658	106,5045	91,7080	2,0498	1,7356
0,31626	9/40	-0,20048	108,6388	93,5092	2,1342	1,8012
0,32126	11/40	-0,20458	110,8752	95,3901	2,2365	1,8809
0,32626	12/40	-0,20889	113,2238	97,3584	2,3485	1,9683
0,33126	13/40	-0,21344	115,6927	99,4207	2,4689	2,0623
0,33626	15/40	-0,21826	118,2971	101,5891	2,6044	2,1684
0,34126	16/40	-0,22342	121,0715	103,8910	2,7744	2,3019
0,34626	17/40	-0,22896	124,0210	106,3304	2,9495	2,4394
0,35126	19/40	-0,23499	127,2001	108,9509	3,1791	2,6205
0,35626	21/40	-0,24159	130,6393	111,7767	3,4392	2,8259
0,36126	23/40	-0,24890	134,3907	114,8497	3,7514	3,0729
0,36626	25/40	-0,25716	138,5535	118,2493	4,1627	3,3997
0,37126	27/40	-0,26677	143,2765	122,0955	4,7231	3,8462
0,37626	30/40	-0,27829	148,7691	126,5567	5,4926	4,4612
0,38126	32/40	-0,29297	155,4995	132,0105	6,7304	5,4538
0,38626	36/40	-0,31413	164,6697	139,4290	9,1702	7,4185

În figura 3 sunt reprezentate variația deplasărilor $\Delta\mu_{interior}$, $\Delta\mu_{exterior}$ în funcție de presiunea de încărcare. Se poate reprezenta și numărul de elemente plasticizate în funcție de presiunea de încărcare (discretizarea tubului pentru $\alpha = 1,4$ s-a făcut cu 40 elemente axial simetrice).

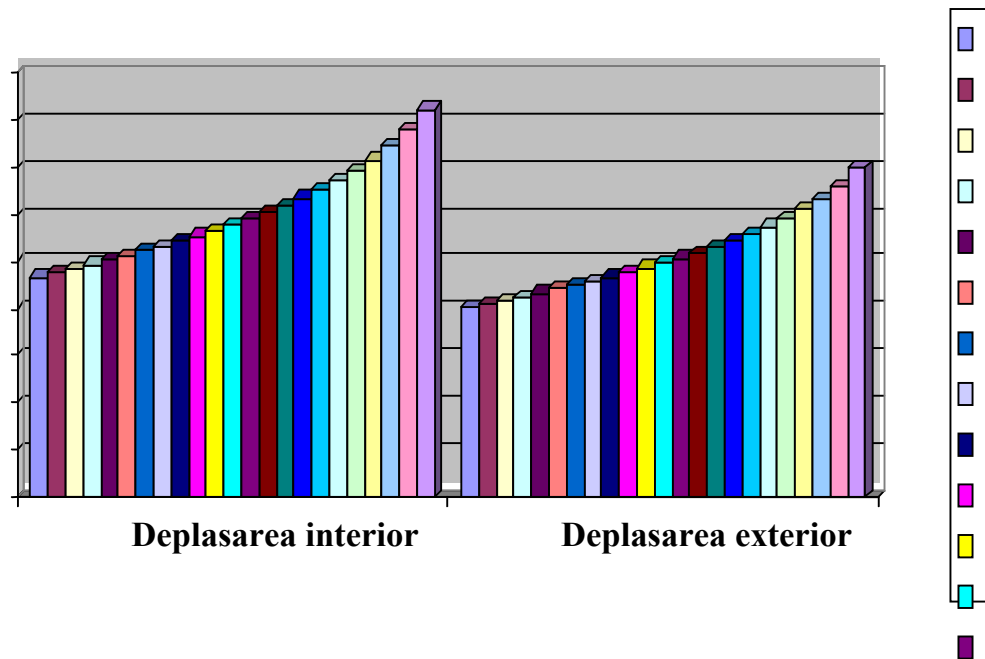


Fig. 3 Variația deplasărilor

Pentru $\alpha = 1.6$ tubul a fost discretizat în 60 de elemente axial simetrice. La treapta de încărcare 31, unde presiunea de lucru este de 4982 bar s-au plasticizat aproximativ 50% din elemente obținându-se următoarele rezultate:

Tabelul 3 Rezultate pentru $\alpha = 1.6$ și $p_{lim_e} = 4982 \text{ bar}$

Presiune	Depl. axială	Depl. interior	Depl. exterior	$\Delta\mu_{interior}$	$\Delta\mu_{exterior}$
4982 bar	-0,21377	147,4629	115,0411	3,1096	2,2758
Nr. element	$M(\sigma_i)$	σ_θ	σ_r	σ_z	σ_i
1	85,3388	0,75250	-0,49197	-0,00319	1,08962
25	6,6529	0,91153	-0,23369	0,00404	1,04680
26	5,4566	0,91291	-0,22457	0,00368	1,04227
27	4,5498	0,91414	-0,21557	0,00327	1,03774
28	3,5318	0,91308	-0,20670	0,00289	1,03108
29	2,6294	0,91122	-0,19800	0,00252	1,02379
30	1,7957	0,90910	-0,18944	0,00213	1,01639
60	0	0,72190	-0,00212	0,00212	0,72198

Pentru $\alpha = 1.8$ tubul s-a discretizat în 80 de elemente, iar pentru $\alpha = 2$, respectiv $\alpha = 2.2$ discretizarea s-a făcut cu un număr de 100 elemente axial simetrice, respectiv 120. Vom prezenta doar rezultatele obținute pentru $\alpha = 2$, caz frecvent întâlnit în construcția țevelor de artilerie.

La treapta de încărcare 59 unde presiunea de lucru are valoarea de 7250 bar au rezultat:

Tabelul 4 Rezultate pentru $\alpha = 2,2$ și $p_{lim_e} = 7250 \text{ bar}$

Presiune	Depl. axială	Depl. interior	Depl. exterior	$\Delta\mu_{interior}$	$\Delta\mu_{exterior}$
7250 bar	-0,16383	181,7480	117,6313	2,9737	1,7413
Nr. element	$M(\sigma_i)$	σ_θ	σ_r	σ_z	σ_i
1	153,35	0,55148	-0,71722	-0,12696	1,09961
41	5,60	0,86100	-0,30346	0,01295	1,04290
42	4,57	0,86192	-0,29523	0,01326	1,03787
43	3,69	0,86208	-0,28710	0,01350	1,03225
44	2,88	0,86141	-0,27910	0,01368	1,02594
45	2,04	0,85960	-0,27120	0,01379	1,01866
46	1,04	0,85573	-0,26345	0,01385	1,00951
100	0	0,59380	-0,00149	0,01386	0,58777

Trecând de la mărimile adimensionale adoptate prin modelul numeric propus la valorile reale ale acestora se obține pentru presiunea de 7250 bar $u_{int_{inc}} = 0,19 \text{ mm}$; $u_{int_{rem}} = 0,05 \text{ mm}$; $u_{ext_{rem}} = 0,025 \text{ mm}$.

Și în acest caz putem face o reprezentare a numărului de elemente plasticizate (fig. 4) în funcție de presiunea de lucru.

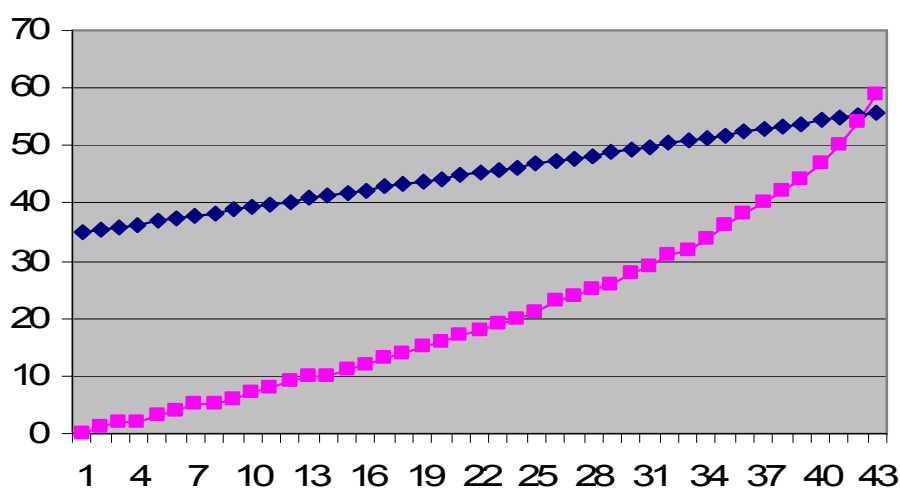


Fig. 4 Numărul de elemente plasticizate

Se poate face o reprezentare a deplasărilor interioare, respectiv exterioare, a razei de plasticizare (raza corespunzătoare ultimului element axial simetric plasticizat) în funcție de presiunea de lucru (fig. 5), precum și a

tensiunilor circumferențiale, radiale și axiale pentru o anumită valoare dată a presiunii de lucru (fig. 6).

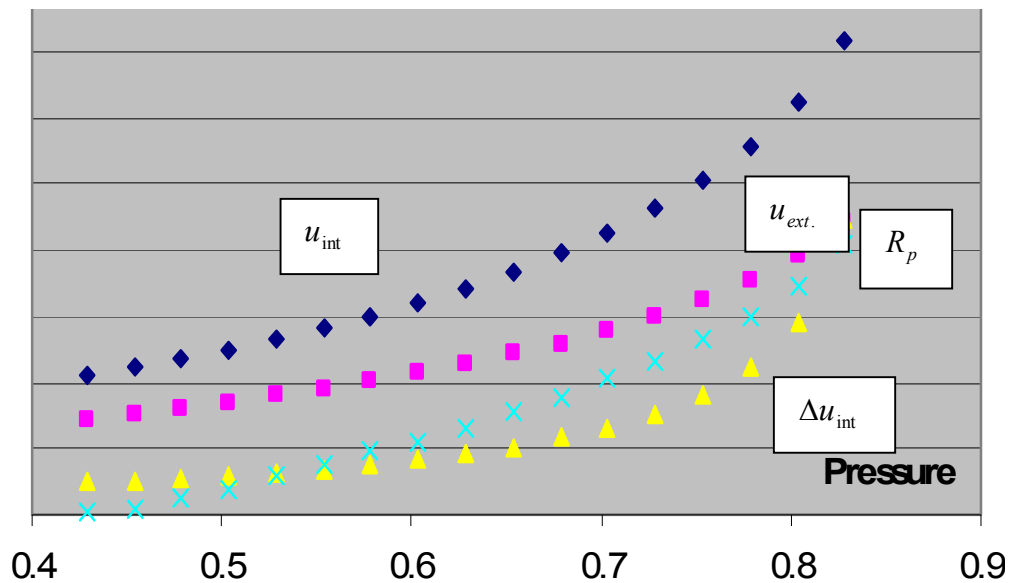


Fig. 5 Deplasările interioare, respectiv exterioare, a razei de plasticizare în funcție de presiunea de lucru

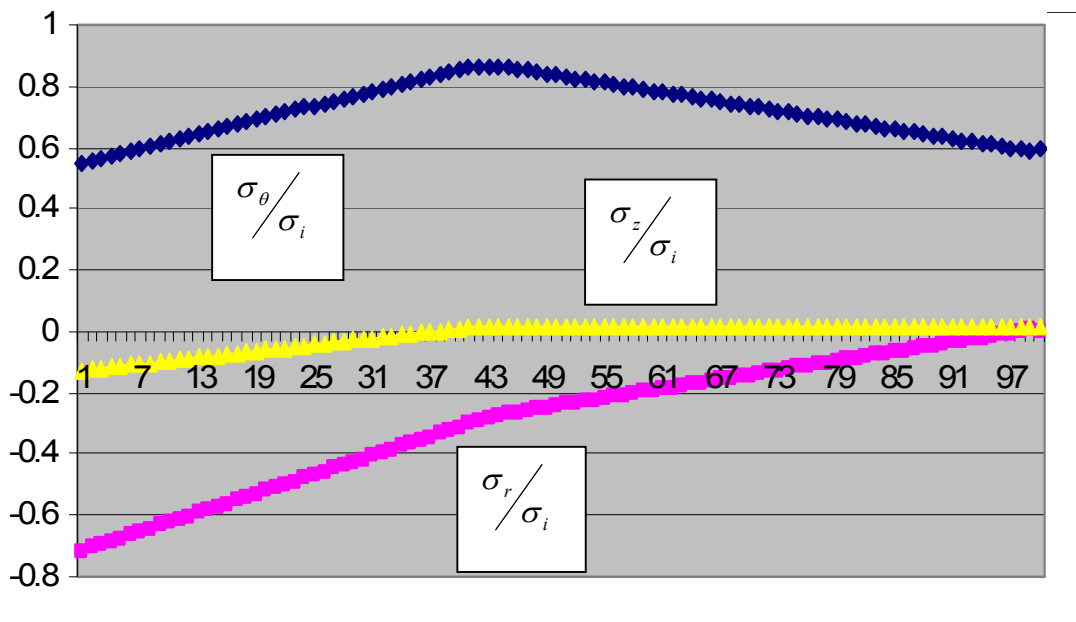


Fig. 6 Reprezentarea tensiunilor circumferențiale, radiale și axiale pentru presiunea lucru de 7250 bar

Pentru tuburile cu pereți groși la care $\alpha = 2$, pe baza cercetărilor și experimentelor efectuate rezulta că raza optimă de fretaj se obține - pentru oțelul studiat - pentru presiunea de 7250 bar.

Rezultatele obținute, precum și determinările experimentale validează modelul matematic propus și aplicația informatică pentru medii neliniare.

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APLICAȚIE INFORMATICĂ PENTRU MODELAREA PRIN ELEMENTE FINITE A SOLICITĂRII ELASTO-PLASTICE A TUBURILOR CU PEREȚI GROȘI

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Abstract

Based on innovative mathematical model, an own software program of non-linear analysis with finite elements for thick-walled tubes is described in this paper. This program can be used for various geometries of the tubes and for various loading modes.

The software application allows the choice of any state for which the tube has a linear elastic behavior as an initial state. One could also start from the unloaded state. In order to reduce to the minimum the effort of calculus it is preferable to start from the elastic limit state.

Pornind de la analiza proprietăților mecanice specifice și anume:

- modulul de elasticitate
- limita de elasticitate
- deformația la limită a elasticității

și discretizând tubul în elemente finite, axial simetrice, se calculează tensiunile și deformațiile ce survin în timpul procesului de autofretare.

Atât proprietățile mecanice specifice cât și raza interioară, respectiv exterioară a tubului sunt variabile:

```
/* variabile */  
// E=modulul de elasticitate  
// sigma_e=limita de elasticitate  
// epsilon_e=deformatia la limita a elasticitatii  
// miu=coef poisson  
// R1=raza interioara a tubului  
// R2=raza exterioara a tubului  
// alfa=R2/R1  
// n=nr de elemente finite  
// H=pasul de discretizare=(R2-R1)/n  
// ro=r/R1  
// h=H/R1
```

Ca stare inițială se consideră starea limită elastică a tubului, iar pentru fiecare element al unei trepte de încărcare se calculează: σ_θ , σ_r , σ_z și deplasările inițiale u_0 , u_n , w , tensiunea medie σ_m , intensitatea tensiunilor σ_i , deviatorul tensiunilor S_θ , S_r , S_z și funcția M .

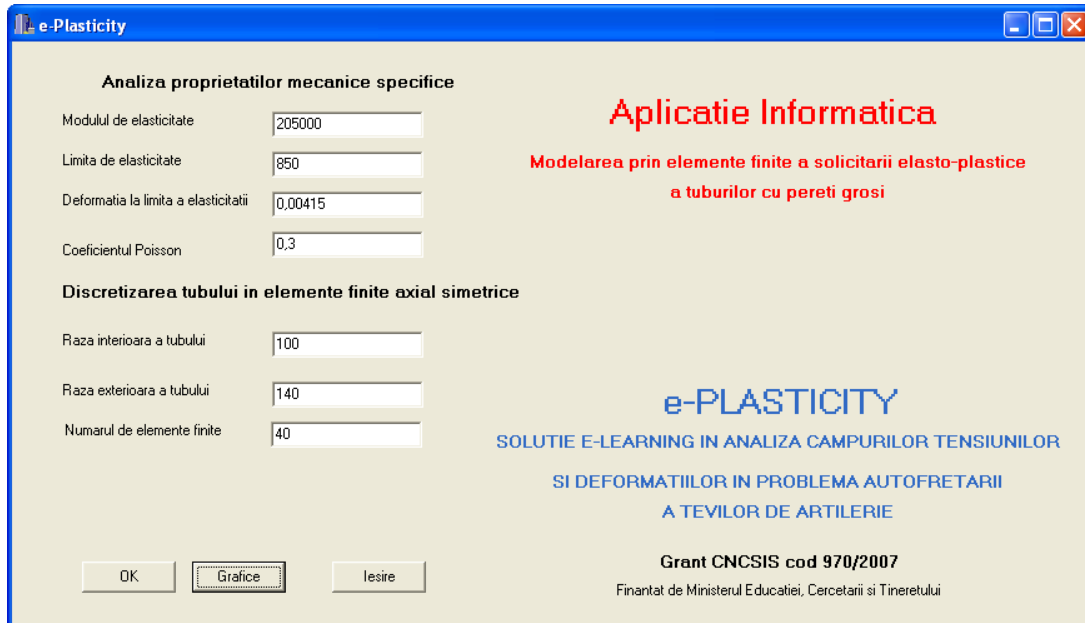


Fig. 1 Interfața grafică a aplicației

Secvența de program ce automatizează calculele este prezentată mai jos:

```
//marimi adimensionale
alfa=double(R2)/double(R1);
H=double(R2-R1)/double(n);
h=double(H)/double(R1);
//de la p=p_lim_e pana cand test=false
p_lime=double(alfa*alfa-1)/double(sqrt(3*pow(alfa,4)+1));
p=p_lime;
test=true;
contor=1;
treapta_de_incarcare=0;
while (test==true) //calculez marimile pentru fiecare element pana cand sigma_i<=1
{
    treapta_de_incarcare=treapta_de_incarcare+1;
    //starea limita elastica
    ro=1;
    u0=(double(p)/double(h))*(double((1+miu)*pow(alfa,2)+1-miu)/double(pow(alfa,2)-1));
    u_n0=(double(p)/double(h))*(double(2*alfa)/double(pow(alfa,2)-1));
    w0=-(double(2*(miu)*p)/double(pow(alfa,2)-1));

    ro=ro+double(H)/double(2*R1);
    for(i=1;i<=n;i++) //determin marimile, pt nr_elemente=n
```

```

{
sigma_teta0=(double(p)/(double(pow(alfa,2)-1)))*(1+
double(pow(alfa,2))/double(pow(ro,2)));
sigma_r0=(double(p)/(double(pow(alfa,2)-1)))*(1-
double(pow(alfa,2))/double(pow(ro,2)));
sigma_z0=0;
//deplasările initiale
u0=(double(p)/double(h))*(double((1+miu)*pow(alfa,2)+1-miu)/
double(pow(alfa,2)-1));
u_n0=(double(p)/double(h))*(double(2*alfa)/double(pow(alfa,2)-1));
w0=-(double(2*(miu)*p)/double(pow(alfa,2)-1));
//tensiunile din centrul elementului
sigma_m=(1/double(3))*double(sigma_teta0+sigma_r0+sigma_z0);
sigma_i= (double(sqrt(2))/double(2))*double(sqrt(pow(sigma_teta0-sigma_r0,2)+
pow(sigma_r0-sigma_z0,2)+pow(sigma_z0-sigma_teta0,2)));
S_teta=sigma_teta0-sigma_m;
S_r=sigma_r0-sigma_m;
S_z=sigma_z0-sigma_m;
if (sigma_i<=1) M=0;
else
if (sigma_i>=1.103) M=185.4;
else M=10.94*10*(sigma_i-1)+145.8*pow(10*(sigma_i-1),6);

//end IF
//maresc pasul ro
ro=ro+double(H)/double(R1);
} //end for

if (sigma_i>1)
test=false;
else {
p=p+0.005;
contor=contor+1;

}
} //end while cand testez ultimul element; daca sigma_i>1 -> stop

```

Datele obținute sunt salvate în fișiere de tip .INI cu următoarea structură:

```

[1]
treapta_de_incarcare=1
element=1
p_lime=0,271260047345055
p=0,271260047345055
sigma_teta0=0,83088818151778
sigma_r0=-0,26576308288225
sigma_z0=0
u0=91,7763160184102
u_n0=79,1175138089743
w0=-0,169537529590659

```

```

sigma_m=0,18837503287851
sigma_i=0,990870622765451
S_teta=0,64251314863927
S_r=-0,45413811576076
S_z=-0,18837503287851
ro=1,005
M=0
[2]
treapta_de_incarcare=1
element=2
p_lime=0,271260047345055
.
.
.
[1720]
treapta_de_incarcare=43
element=40
p_lime=0,271260047345055
p=0,481260047345055
sigma_teta0=1,00622517719399
sigma_r0=-0,00360007855845393
sigma_z0=0
u0=162,82631601841
u_n0=140,367513808974
w0=-0,300787529590659
sigma_m=0,334208366211844
sigma_i=1,00803003798006
S_teta=0,672016810982141
S_r=-0,337808444770298
S_z=-0,334208366211844
ro=1,395
M=0,878525244789321

```

Fiecare secțiune din fișier reprezintă un element pe treapta de încărcare corespunzătoare, iar numele secțiunilor ([1], [2]) reprezintă treapta_de_încărcare*elementul_curent.

Secvența de scriere într-un fișier de tip .INI:

```

rezultate->WriteInteger(sectiune,"treapta_de_incarcare",treapta_de_incarcare);
rezultate->WriteInteger(sectiune,"element",i);
rezultate->WriteFloat(sectiune, "p_lime", p_lime);
rezultate->WriteFloat(sectiune, "p", p);
rezultate->WriteFloat(sectiune, "sigma_teta0", sigma_teta0);
rezultate->WriteFloat(sectiune, "sigma_r0", sigma_r0);
rezultate->WriteFloat(sectiune, "sigma_z0", sigma_z0);
rezultate->WriteFloat(sectiune, "u0", u0);
rezultate->WriteFloat(sectiune, "u_n0", u_n0);
rezultate->WriteFloat(sectiune, "w0", w0);
rezultate->WriteFloat(sectiune, "sigma_m", sigma_m);

```

```

rezultate->WriteFloat(sectiune, "sigma_i", sigma_i);
rezultate->WriteFloat(sectiune, "S_tau", S_tau);
rezultate->WriteFloat(sectiune, "S_r", S_r);
rezultate->WriteFloat(sectiune, "S_z", S_z);
rezultate->WriteFloat(sectiune, "ro", ro);
rezultate->WriteFloat(sectiune, "M", M);

```

Pentru fiecare variabilă de intrare inițială (proprietățile mecanice specifice materialului și razele tubului) se generează câte un fișier ce poate fi ulterior folosit la reprezentarea variației deplasărilor $\Delta\mu_{\text{interior}}$, $\Delta\mu_{\text{exterior}}$ în funcție de presiunea de încărcare. Din fișierul INI existent se citesc doar valorile u_0 și u_{n0} care se vor salva în tablouri

```

try
{
    if(OpenDialog1->Execute()) //se deschide un fișier
    {
        NameOfFile = OpenDialog1->FileName;
        pif = new TIniFile(NameOfFile);
        j=1;
        for(i=1;i<=nr_elem;i++)
        {
            tab_u[i-1]=pif->ReadFloat(j,"u0",0.0); //din fiecare sectiune se citeste
                                                    componenta u0
            tab_u_n0[i-1]=pif->ReadFloat(j,"u_n0",0.0); //se citeste componenta u_n0
            j=j+nr_elem;
        }
    }
}
catch(...){ShowMessage("Eroare la citire");}

```

Variabilele de tip tablou (tab_u, tab_u_n0) constituie serii ale obiectelor de tip Chart.

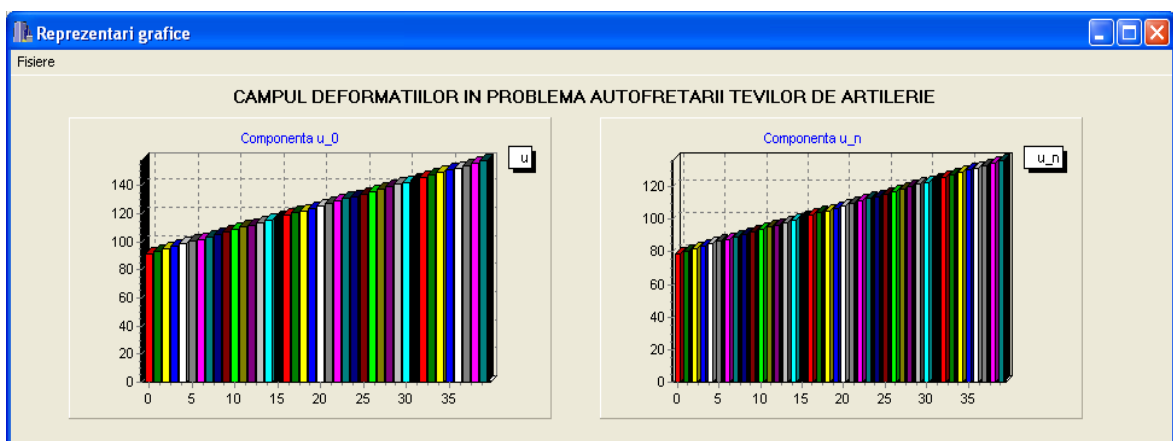


Fig. 2 Variația deplasărilor în interior u_0 , respectiv exterior u_n

Din cauza volumului mare de calcul, timpul de generare a rezultatelor este mare, astfel că s-a adoptat salvarea datelor în fișiere. Odată generate fișierele, acestea pot fi utilizate la reprezentările grafice, direct, fără a mai

trece prin etapa de calcul. Cu cât numărul de elemente finite în care este discretizat tubul e mai mare cu atât timpul de obținere a rezultatelor este mai mare.

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MANAGEMENTUL INFORMAȚIEI ÎN SITUAȚII DE CRIZĂ ȘI LA RĂZBOI

Mr. drd. Ilie PĂUN

ABSTRACT

The intelligence and information sharing structures that once enabled the winning of the Cold War now require greater flexibility and resilience to confront the threats facing our Nation from a transnational terrorist movement determined to destroy our people, our freedoms, and our way of life.

The efficiency of information management in carrying out joint missions is ensured by the information cycle, which is a conceptual model regarding the way in which information missions and actions are performed in order to transform data into information and offered to decision-makers and beneficiaries in all the relevant aspects.

Managementul informației, în conducerea acțiunilor în situații de criză și la război, se constituie într-un proces de cunoaștere, direcționare și comandă, influență și acțiune, capabil să stabilească direcțiile de efort și să planifice activitățile în domeniile:

- informare;
- comandă;
- acțiuni în câmpul de luptă și în cel al comunicațiilor;
- acțiuni în mediul psihologic;
- activități de informații și relații publice.

Primele două domenii presupun culegerea, prelucrarea și valorificarea informațiilor; adaptarea unor strategii de influențare; dispunerea de mijloace autonome de comunicații, de criptologie și de exploatare a informațiilor; asigurarea cu elemente de anticipare, simulare și prognoză.

Structural, sistemul informațional cuprinde sursele de informații care procură și transmit date structurilor de prelucrare a datelor primare, echipate cu mijloace tehnice interconectate prin canale de transmisiuni.

Organizatoric, sistemul informațional cuprinde ansamblul elementelor de legătură din rețeaua informațională (beneficiarii, abonații) prin care se realizează fluxul informațional, pe nivele de clasificare a informațiilor și posibilități (competențe) de accesare.

Metodologic, sistemul informațional cuprinde definițiile, regulile, limbajele, metodele și instrumentele folosite pentru formularea, identificarea, codificarea, stocarea, prelucrarea, prezentarea și imprimarea informațiilor.

Eficiența managementului informației în conducerea acțiunilor întrunită este asigurată de *ciclul informațional* care reprezintă un model conceptual privind modul de conducere a activităților și acțiunilor de informații, prin care datele sunt transformate în informații și sunt puse la dispoziția factorilor de decizie și beneficiarilor în părțile ce-i privesc.

Comandantul poate lua decizii corecte și la timp doar dacă există un bun flux informațional între toate compartimentele. Participarea la acest flux este responsabilitatea fiecărui membru al statului major.

Informațiile care sunt importante sau urgente (excepționale) trebuie să aibă prioritate față de informațiile obișnuite (cum ar fi rapoartele sau răspunsurile la acestea). Fiecare compartiment trebuie să stabilească o persoană care să monitorizeze sosirea corespondenței sau a informației verbale, pentru a determina nivelul de urgență și a asigura o distribuire optimă a acestora. Toate informațiile sosite care sunt primite de compartimentul documente clasificate trebuie să fie coordonate în punctul de comandă pentru asigurarea unei repartiții corecte spre rezolvare.

Comandantul trebuie să revadă în permanență necesarul informațiilor pentru fiecare dintre operațiile bazate pe factorii: misiune, inamic, trupe proprii, teren, timp la dispoziție și apoi să le modifice în raport cu schimbările de situații.

Informația excepțională este specifică și vitală afectând în mod direct succesul unei operații curente. Informația excepțională nu este evidentă, ea trebuie să fie recunoscută din volumul total al informațiilor. Aceasta semnalează evenimente extraordinare cum ar fi oportunitatea exploatării succesului sau dimpotrivă posibilitatea pierderii acestuia. Informațiile excepționale sunt:

- neașteptate și dependente de situația existentă;
- prioritate imediată pentru comandant și șeful de stat major;
- dependente, în mare măsură, de termenele de luare a deciziei;
- transmise direct comandantului în cel mai scurt timp posibil prin orice mijloc disponibil.

Informația obișnuită reprezintă informația standard care poate fi întâlnită zi de zi. Uneori, se pot întâlni cazuri în care, o informație obișnuită poate deveni „cerință critică de informații a comandantului”.

Informația obișnuită semnalează evenimente de rutină și:

- poate fi folosită de către statul major cu implicarea redusă a comandantului;
- este folosită la elaborarea și verificarea estimărilor;

- ajută la identificarea și anticiparea potențialelor probleme;
- permite statului major să rezolve din proprie inițiativă probleme de rutină;
- nu depinde de factorul timp în procesul decizional;
- nu afectează în mod direct executarea acțiunilor operaționale și tactice;
- este transmisă, de obicei, pe canalele stabilite pe timpul schimbului de informații dintre unități sau dintre state majore.

Toate informațiile trebuie să fie elaborate și transmise în concordanță cu prevederile PIC în vigoare și cu normele specifice NATO existând trei moduri de prezentare a informației: raportul scris, raportul verbal și forma grafică.

Informația scrisă trebuie să corespundă cerințelor stabilite pentru rapoarte, estimări și studii de stat major. Informația verbală trebuie să corespundă deciziei, misiunii sau precizărilor statului major.

Reprezentările grafice (hărți sau scheme) sunt informații despre operațiile curente sau viitoare. Când este posibil, comandantul și statul major pot prezenta informații cuantificabile folosind formate standard, prin intermediul mijloacelor computerizate sau overlay (schemă desenată). Informația grafică trebuie să:

- respecte reglementările în vigoare privind simbolurile grafice și terminologia de stat major;
- reprezinte informația esențială;
- reprezinte informația clar și inteligibil, într-o manieră precisă, veridică și oportună;
- fie în măsură să schimbe prompt și ușor o altă informație deja existentă;
- fie rapid distribuită eșalonului superior sau subordonaților, precum și unităților vecine.

Comandantul își bazează sistemul de gestionare al informațiilor pe cantitatea, calitatea și diversitatea structurilor care-i procură, analizează, centralizează și prezintă informații. Comandanții care pretind sau permit statelor majore subordonate să ceară o informare perfectă vor fi predispuși înfrângerii din cauza pierderii inițiativei. Cererile exagerate de informații pot duce la:

- dispersarea eforturilor unităților subordonate pe timpul îndeplinirii misiunilor;

- suprasaturarea sistemului prin aglomerarea statului major cu informații ce nu pot fi analizate sau distribuite la timp;
- obținerea de informații insuficient analizate sau necorespunzătoare situației reale.

Gestionarea informațiilor reprezintă un bun sistem de raportare bazat pe informarea eșaloanelor superioare și subordonate. Rapoartele trebuie să prezinte doar acea informație importantă pentru sprijinirea procesului decizional. Limitarea raportării la informații esențiale reduce volumul timpului și efortului necesar culegerii, analizării și transmiterii rapoartelor.

Suplimentarea sistemului de raportare cu personal de legătură duce la economisirea timpului și eforturilor unităților subordonate. Ofițerii de legătură pot de asemenea furniza comandantului informații precise într-un timp cât mai scurt.

Ciclul informațional reprezintă „procesul prin care un set de date, culese în vederea îndeplinirii unui anumit obiectiv, sunt transformate în informații și sunt puse la dispoziția factorilor de decizie militară și a beneficiarilor în părțile ce-i privesc”⁹⁰.

Putem considera că acesta este un instrument specific folosit pentru a realiza o cât mai completă pregătire informativă a zonei de operații. El identifică cerințele de informații, desfășoară activități de colectare a acestora, le prelucerează și le difuzează în condiții specifice.

Ciclul informațional, de regulă, presupune executarea într-o succesiune logică a următoarelor faze⁹¹ (Figura 1):

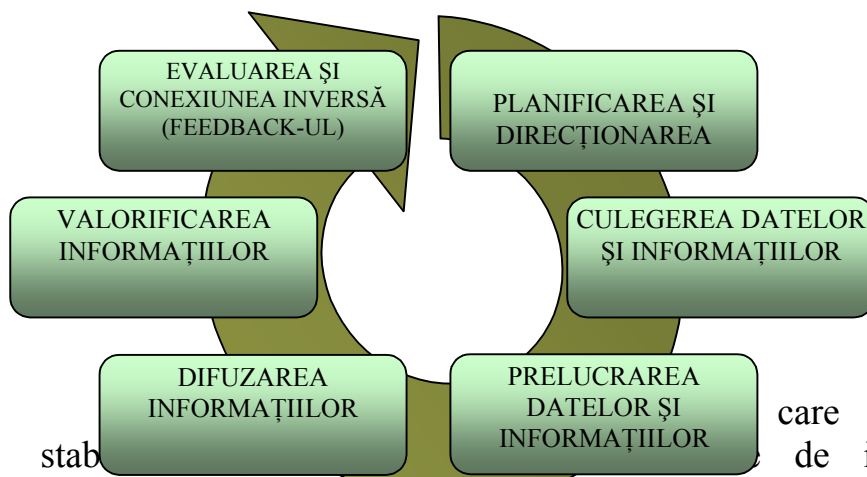


Fig. 1 - Fazele ciclului informațional

care presupun de informații, identificarea nevoilor de informații, stabilirea priorităților și direcțiilor de cercetare pentru acțiunile și cele viitoare;

- culegerea datelor și informațiilor, presupune o concepție unitară în implicarea tuturor surselor de informații ce acționează în spațiul terestru, aerian, cosmic și naval în scopul

⁹⁰ Doctrina pentru sprijinul cu informații al operațiilor într-unite , București 2003 p. 21.

⁹¹ Idem.

satisfacerii nevoilor de informații stabilite;

- prelucrarea datelor și informațiilor, ce presupune procesarea și direcționarea, analiza și elaborarea informațiilor, reprezintă procesul logic (mental sau bazat pe inteligența artificială), colectiv și imparțial ce stabilește semnificația datelor și informațiilor și care se finalizează printr-un produs de informații (prezentări orale, documente scrise sau în format electronic, hărți sau scheme);

- difuzarea informațiilor, reprezintă faza în care informațiile sunt transmise beneficiarilor pe verticală (ascendentă, de regulă, informații finite către factorii de decizie, descendentă - către structurile de execuție) sau pe orizontală (între compartimentele de la același nivel), folosindu-se informarea, rapoarte informative sau alte proceduri de stat major (hărți, casete video, filme sau imagini digitale);

- valorificarea informațiilor are loc pe timpul fundamentării deciziei, planificării și conducerii acțiunilor militare întrunite de către comandanți, în cadrul comandamentului și, în special în structurile de informații/cercetare pentru planificarea și conducerea acțiunilor de cercetare;

- evaluarea și conexiunea inversă (feedback-ul), constituie faza în care se stabilește eficiența ciclului informațional, pe faze și în întregul său conținut, pentru stabilirea de soluții față de nevoile de informații stabilite inițial sau actualizate în raport de desfășurarea acțiunilor militare întrunite.

În continuare vom face câteva considerații cu privire la câteva din aceste faze din perspectiva desfășurării acestui proces.

Planificarea și direcționarea: această fază poate fi privită ca și un I.P.B. inițial al cărui rezultat va fi o estimare inițială în strânsă interdependență cu analiza misiunii efectuată de comandant ce va duce la definirea Cerințelor Esențiale de Informații, baza planificării misiunilor curente și viitoare ale forțelor și mijloacelor de cercetare la dispoziție. De aceea comandantul asistat de șeful structurii de informații trebuie să fie cât mai exact în definirea acestora, evident ordonate și direcționate conform importanței în procesul decizional.

Culegerea datelor și informațiilor: indiferent de eșalon este necesară organizarea unui sistem unitar și planificat. Tot pe baza Cerințelor Esențiale de Informații, dar și a forțelor și mijloacelor la dispoziție, structura de informații militare întocmește planul de culegere a informațiilor. Acesta trebuie să se înscrie în concepția eșalonului superior, să fie pus în aplicare în

timp util și va fi detaliat cu minimum de informații pentru a se evita suprapunerile.

Subliniem aceste aspecte deoarece, în practică, am constatat că aproape întotdeauna comandantul nu dispune de timp suficient pentru a stabili foarte exact Cerințele Esențiale de Informații, fapt ce determină ca structura de informații să le reformuleze pentru a putea da misiuni exacte, succinte și clare.

Darea misiunilor la structurile subordonate și primite ca întărire sau sprijin ori cererile de informații necesită o cunoaștere amănunțită a capacităților și posibilităților reale ale acestora în scopul culegerii de informații cât mai exacte dar și pentru a evita suprasolicitarea acestora. Ca orice acțiune militară și culegerea de informații necesită o pregătire specifică. Din acest punct de vedere evidențiem necesitatea dotării cu mijloace de comunicații adecvate și suficiente pentru toate sursele de informații în scopul realizării oportunității informațiilor.

Pe tot parcursul executării activităților ordonate prin plan acestea vor fi monitorizate în scopul respectării lui, dar și pentru a-l adapta permanent pentru a realiza un ciclu informațional cât mai eficient prin exploatarea corectă a tuturor surselor de informații. Exploatarea acestora este un proces continuu. O nouă informație poate avea un impact important asupra cerințelor de informații viitoare fapt ce implică revederea permanentă a propriilor estimări, actualizarea misiunilor conform noilor cerințe.

Prelucrarea datelor și informațiilor: este definită ca fiind „activitatea specifică informațiilor militare care prin procesare, evaluare, analiză, integrare și interpretarea datelor și informațiilor neprelucrate (information) sau alte informații militare sunt transformate în informații militare (intelligence)”⁹².

Această fază cuprinde două subfaze - procesarea și direcționarea și analiza și elaborarea (producția) informațiilor⁹³.

Procesarea și direcționarea (collation): „cuprinde procedurile de primire, decodare, descifrare de mesaje, traducere, interpretare de imagini, gruparea pe categorii de forțe și mijloace sau obiective, stocarea pe bandă, înscrierea în Registrul de evidență a informațiilor, precum și raportarea rezultatelor acestor acțiuni la compartimentele de analiză”⁹⁴.

În practică reprezintă procesul de primire și înregistrare a tuturor rapoartelor de informații pe baza unor proceduri specifice dependente de suportul material la dispoziție. Este influențată de realizarea unui sistem informațional în centrul căreia să se găsească structura de informații militare. La nivelele tactice până la realizarea sistemelor de comandă și control informatizate, se materializează prin înscrierea în registrul special destinat și

⁹² *Allied Joint Publications AJP 2-1*, art 207.

⁹³ *Doctrina pentru sprijinul cu informații al operațiilor întrunite*, București 2003 p. 24.

⁹⁴ *Idem*.

prin activități de marcare a acestora pe hartă sau înscrierea în alte documente de lucru.

Pe măsura creșterii nivelului eșalonului, sistemul de procesare și direcționare poate prelucra automat datele și informațiile ca urmare a existenței rețelelor de comunicații și informatică inclusiv al mijloacelor vizuale.

În documentele NATO⁹⁵ se arată că în această subfază se desfășoară și activitatea de verificare (evaluation) a datelor și informațiilor din perspectiva încrederii în sursă și a credibilității conținutului pe baza existenței următorului sistem alfanumeric (Tabelul 1):

Încredere în sursă	Credibilitatea conținutului
A. încredere maximă	1. confirmate și din alte surse
B. de încredere	2. probabil adevărată
C. de obicei de încredere	3. posibil adevărată
D. de obicei de neîncredere	4. îndoielnic
E. mic de neîncredere	5. improbabilă
F. încrederea nu poate fi apreciată	6. credibilitatea nu poate fi apreciată

Tabelul 1- Sistem alfanumeric de verificare a datelor și informațiilor

În procesul de verificare, trebuie avute în vedere și situațiile în care, datorită unor împrejurări, informațiile considerate la prima vedere false sau nesigure, pot avea o mare valoare informativă. De regulă, se consideră că o informație are valoare dacă poate să răspundă la următoarele întrebări :

- cine? - sursa;
- ce? - descrierea evenimentului /acțiunii;
- când? - perioada de producere a evenimentului /acțiunii;
- unde? - locul evenimentului /acțiunii;
- cum? - modul cum a fost obținută informația .

Analiza și elaborarea (producția) (Figura 2) informațiilor: în cadrul acestei subfaze informațiile și datele culese sunt studiate, comparate, revizuite, verificate, integrate, interpretate pentru a crea informațiile militare necesare satisfacerii cerințelor de informații sau cererile de informații. Scopul principal este identificarea corectă a conținutului și extragerea unor concluzii exacte asupra acestora. Informațiile noi sunt comparate cu cele deja cunoscute în scopul actualizării.

Interpretarea datelor și informațiilor reprezintă un proces mental,

⁹⁵ Allied Joint Publications AJP 2-1, art 207.

obiectiv și imparțial ce are la bază teoria analizei, logica, experiența, cunoștințe și simț practic pentru stabilirea semnificației reale. Este o activitate care ia timp și cere experiență dar și o procedură corectă de transmitere în sensul diferențierii clare între fapte și eventuale deducții sau interpretări.

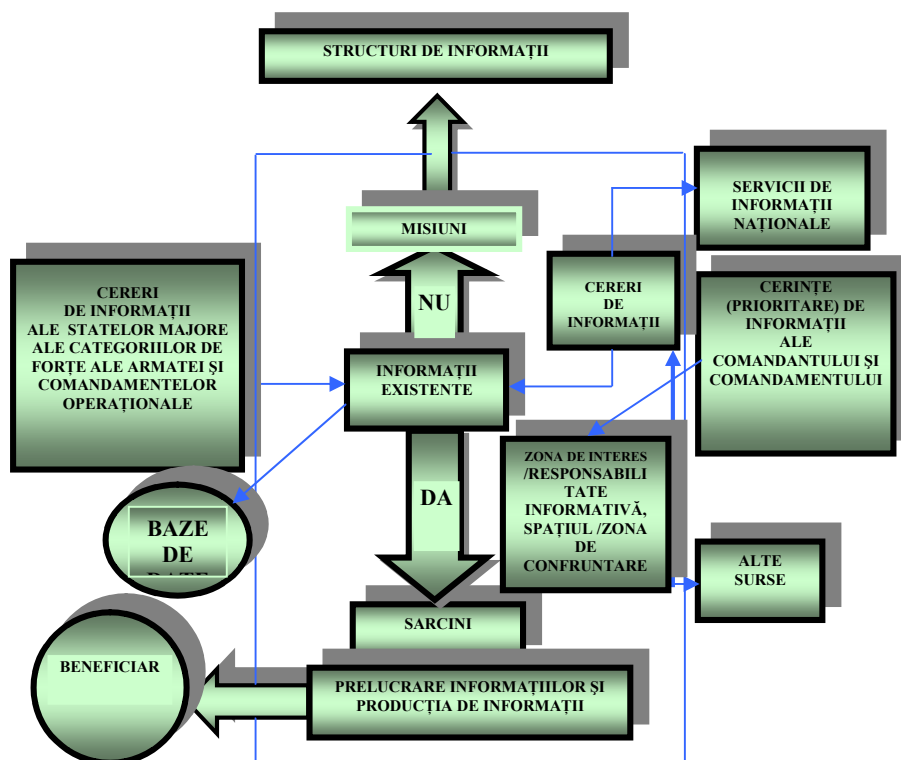


Fig.2 - Analiza și elaborarea informațiilor

În această etapă este important ca ofițerii care încadrează structura de informații să țină seama de existența a două „pericole” majore:

- selectarea doar a aspectelor care confirmă o informație anterioară fără a analiza date noi;
- surprinderea realizată de inamic poate determina un proces de analiză defectuos al informațiilor.

Rezultatul analizei datelor și informațiilor îl constituie produsele de informații care să permită precizări despre inamic și acțiuni ale acestuia în spațiu și timp și sunt concretizate în briefinguri, documente scrise sau în format electronic, hărți, scheme.

Difuzarea datelor și informațiilor este faza în care informațiile sunt transmise la beneficiari în forma cerută. Esențial este existența unui sistem de comunicații și informatică care să permită valorificarea integrală a informațiilor militare conform următoarelor principii de baza⁹⁶: claritate, să fie concis, standardizare⁹⁷, verificare, distribuție selectivă conform cerințelor,

⁹⁶ conform Allied Joint Publications AJP 2-1, art. 208 (N.A.).

⁹⁷ conform STANAG 2022 (N.A.).

securizare , regularitate.

Difuzarea informațiilor se face prin următoarele procedee:

- rapoarte de informare;
- rapoarte de informații;
- alte proceduri de stat major ordonate de comandant și avute la dispoziție.

Rapoartele de informare și de informații se prezintă comandanților și eșaloanelor superioare, iar informările se fac de către eșaloanele superioare, comandanți și șefi, către eșaloanele subordonate, între eșaloane vecine și între cele care cooperează pentru îndeplinirea unei misiuni, precum și între compartimentele unei structuri.

Această informare poate varia de la prezentarea dispartă a principalelor informații și concluzii, la un scurt și rapid instructaj verbal, la o prezentare repetată stabilită de către șeful de stat major în conformitate cu relațiile organizatorice existente.

Pentru cunoașterea permanentă a situației, se impune ca periodic șefii structurilor (obligatoriu structura de informații) să facă o informare în care se va prezenta situația la data și ora respectivă, ca și o prefigurare a evoluției în următoarele ore.

Informațiile (situația) se vor transmite eșalonului superior prin rapoarte de informare, care se vor înainta la termenele ordonate (stabilite) sau ori de câte ori situația impune acest lucru.

Pentru a se gestiona corect activitatea de difuzare a informațiilor, în documentele de evidență a acestora (registre, hărți etc.) se va consemna dacă a fost transmisă, cui și când.

Sprijinul de informații pentru securitatea operațiilor

Operațiile de securitate sunt acele măsuri cu caracter activ și pasiv luate de structurile militare pentru a se proteja împotriva acelor acțiuni menite să/sau care pot să le afecteze capacitatea operațională. Ele reprezintă efortul combinat al tuturor măsurilor de securitate și au drept scop asigurarea timpului de reacție necesar, a spațiului de manevră și a protecției forței precum și protejarea anumitor informații, persoane, materiale, sisteme, componente și echipamente de acțiunile și influența unor forțe ostile.

Comandanții trebuie să aibă permanent în vedere măsurile de securitate indiferent de tipul de acțiune pe care-l desfășoară. Forțele care asigură securitatea execută acțiuni de cercetare continue și agresive pentru a obține toate informațiile posibile despre inamic și teren. Securitatea rezultă, în mare măsură, din cunoașterea cât mai completă a inamicului și terenului din zona de operații.

Avertizarea timpurie despre activitățile inamicului asigură comandantului timpul și informațiile necesare pentru menținerea inițiativei

tactice și îi dă posibilitatea de a alege momentul și locul în care își va concentra efortul pentru a învinge inamicul. Mijloacele de cercetare se vor poziționa astfel încât să asigure observarea la distanțe mari pe direcțiile de apropiere ale inamicului. Flexibilitatea și acțiunile în adâncime constituie fundamentele planului de supraveghere.

Operațiile de securitate sunt caracterizate de executarea unei cercetări agresive în scopul de a reduce la minim terenul și inamicul necunoscut, obține și menține contactul cu inamicul pentru a asigura informații în mod continuu și de a asigura raportarea la timp și cu acuratețe a informațiilor opțiune pentru a proteja forțele.

Acțiunile agresive de combatere a cercetării inamicului necesită, în primul rând, desfășurarea unei pregătiri informative a câmpului de luptă detaliate, o integrare activă în acest proces a ofițerilor cheie din statul major precum și anticiparea corectă a evoluției situației.

Personalul structurii de informații constituie principalul element al statului major care planifică și organizează sprijinul de informații pentru a combate acțiunile de cercetare ale inamicului și acțiunile de contrainformații ca parte integrantă a operațiilor de securitate.

Acțiunile de combatere a cercetării inamicului reprezintă o parte integrantă a operațiilor de securitate. Ele se constituie într-o sumă de acțiuni executate la toate eşaloanele în scopul contracarării eforturilor de cercetare și supraveghere ale inamicului în spatele zonei de operații proprii.

La fel ca și operațiile de securitate, acțiunile de combatere a cercetării inamicului sunt atât de tip activ cât și pasiv și includ acțiuni de luptă menite să distrugă sau să respingă elementele de cercetare ale acestuia. Adversarul va folosi în procesul de colectare a datelor și informațiilor atât mijloace specializate (IMINIT, HUMINT, MASINT, SIGINT), cât și patrulă îmbarcate sau debarcate.

Acest efort este orientat spre identificarea dispunerii, compunerii, capabilităților și intențiilor trupelor proprii. Activitatea acestor mijloace trebuie detectată, interzisă și mijloacele trebuie distruse înainte de a-și raporta datele culese.

Acțiunile de combatere a cercetării inamicului la nivel operativ sunt incluse în planul general al cercetării. Gruparea de nivel operativ participă cu toate forțele și mijloacele la acest efort care este dirijat spre identificare și distrugerea elementelor de cercetare ale inamicului.

Structura de informații este cea care are în responsabilitate toate aspectele legate de sprijinul de informații pentru asigurarea securității la nivelul grupării operative. Aceasta se realizează prin coordonarea eforturilor tuturor mijloacelor la dispoziție în două domenii:

➤ Sprijinul de informații al acțiunilor de combatere a cercetării inamicului pe timpul:

- pregătirii informative a câmpului de luptă;
- analizei situației;
- stabilirii listei obiectivelor.

➤ Analiza și operațiile contrainformative.

În planificarea acțiunilor de combatere a cercetării inamicului, structura de informații trebuie să:

- înțeleagă procedeele metodele și tehnicile folosite de mijloacele de cercetare și supraveghere ale inamicului;
- întocmească modele posibile de întrebuințare a acestora în situația concretă (direcții de apropiere, locuri de dispunere);
- colaboreze cu șeful compartimentului operații și cu ofițerul cu artileria pentru a adapta planul de sprijin prin foc combaterii cercetării inamicului;
- se asigure că planul de combatere a cercetării inamicului permite urmărirea mijloacelor de cercetare ale acestuia pe întreg câmpul de luptă.

Cheia succesului în acțiunile de combatere a cercetării inamicului o constituie un plan adecvat. Elementele de cercetare și supraveghere ale grupării operative trebuie dispuse în așa fel încât să identifice și să urmărească elementele similare ale inamicului înainte ca acestea să pătrundă în dispozitivul trupelor proprii.

Pe baza analizei terenului și a inamicului, structura de informații va estima obiectivele probabile aflate în atenția cercetării inamicului și direcțiile de acțiune ale elementelor acestuia. El va recomanda șefului compartimentului operații și comandantului dispunerea și compunerea forțelor cu misiuni de securitate.

În funcție de îndrumarea comandantului, șeful compartimentului operații va stabili misiuni de combatere a cercetării inamicului, forțelor subordonate precum și mijloacelor proprii de cercetare pentru a urmări efectele acestor acțiuni. Aceste elemente vor localiza elementele similare ale inamicului și vor transmite informația pentru ca acestea să fie neutralizate de alte elemente sau sisteme.

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ANALIZA STILULUI

REF.EXP.VATAMANU CARMEN
ACADEMIA FORTELOR TERESTRE NICOLAE BĂLCESCU SIBIU

Abstract:

The stylistics is the component part of an insufficient delimited field, thus we can talk about more stylistics or about more directions of the stylistics. The studying object within stylistics is therefore regarded in a totally different manner by different specialists. For instance, Ch. Bally stated that the stylistics does not study part of the language, but the language itself. Bally minds the ordinary language, thus founding, at the beginning of the 20th century, the linguistic stylistics, further more developed into many directions, for most of the known languages, and especially for the Romanian language, as there is mentioned within Iorgu Iordan's *Stilistica limbii române*.

STILISTICA GENERALĂ este o știință a stilului în toate domeniile în care apare o organizare stilistică; tocmai extinderea cercetării stilistice la toate domeniile comunicării este cea mai valoroasă realizare a stilisticii actuale.

Definiția stilului se complică și prin trăsături suplimentare imprimate de *domeniul de aplicație*: limbă, literatură, artele plastice, arhitectură, muzică, dansul, filmul și chiar științele exacte care, contrar prejudecății, au o dimensiune stilistică iminentă. În artă, însă stilul este o dimensiune esențială a reprezentării.

Complexitatea noțiunii de *stil* se mai datorează *diacroniei și ierarhiei* extensionale a ipostazelor sale: stil al unei limbi, al unui grup de limbi, al unei epoci, al unei școli (curent literar), al genurilor, al temelor literare; al unui scriitor sau a unui moment din opera acestuia, al unei opere sau al unei părți dintr-o operă: capitol, fragment, paragraf, fraza.

Stil individual și supraindividual. Stilistica modernă a arătat că stilul este deopotrivă *supraindividual*, obiect al *stilisticii teoretice* și *individual*, obiect al unei *stilistici genetice* a expresiei. Paradigma vorbește și ea despre un *cod* al autorului, al genurilor literare, al epocii. Între stilistica în genere, adică între stilistica privită ca noțiune și un stil particular, (idiostil), raporturile sunt ca între limbaj și o limbă dată, ca între schema limbii și realizarea ei practică.

Conceptul *structuralist și semiotic* de sistem permite raportarea trăsăturilor stilistice la ceea ce este stilul în accepția cea mai largă a cuvântului: „un sistem închis, situat în primul plan al operei de artă înseși, care înseamnă tocmai realizarea concretă a stilului”.

Dupa criteriile lingvistice, stilul este: „întrebuințarea conștientă a unor mijloace lingvistice în vederea atingerii anumitor țeluri ale exprimării”. A da unui enunț un stil anume presupune principiile de *selecție intențională* și de *deviere de la normă* (écart).

În termeni glosematici, stilul definește *forma* specifică a discursului și există o formă a semnelor lingvistice (a semnificantului) și o formă a ideilor exprimate (a semnificatului), adică *o formă a expresiei și o formă a conținutului*.

Cele trei definiții aparținând sensului mai larg al stilului ar face obiectul unei STILISTICI TEORETICE, a mijloacelor de expresie în genere. În măsura în care stabilește tipuri de procedee și examinează posibilitățile în relație cu realizările (încălcând parțial domeniul poeziei) această cercetare capătă caracter de *teorie a stilului*.

Procedurile STILISTICII GENETICE/ ale STILISTICII EXPRESIEI (de pildă stilul devierilor stilistice de la normă, al cuplajelor, al cuvintelor-cheie, al cuvintelor-tema) caută mai degrabă stilului individual. Câmpul observațiilor se lărgeste enorm la acest nivel; termenul devine tot mai flexibil, justificând remarca lui Pentru Guiraud: „Când simplu aspect al enunțului, când arta conștientă a autorului, când expresie a naturii omului, stilul este o noțiune plutitoare ce depășește mereu granițele în care încercăm s-o închidem, este unul din acele cuvinte caleidoscopice care se transformă în clipa în care încercăm s-o fixăm”. De aici rezerva, ezitarea criticii structuraliste și semiologice în a folosi termenul; poeticianul G. Genette îl acceptă, cu condiția unei definiții care, printre alte funcții, ar lămuri natura relațiilor dintre stil și celelalte aspecte ale limbajului și ale semnificației. Ca Bally odinioară, el scoate stilul în afara stilisticii, însă nu pentru a-l supradimensiona, căci stilul este un lucru prea serios pentru a fi incredintat stilisticienilor sub monopol”. Genette disociază teoria stilului de practica sa, ajungând la o concluzie tranșantă: „*teoria stilului nu este stilistica*”. În sprijinul aserțiunii sale, poeticianul invocă personalitatea lui Leo Spitzer, care este mai mult un practician decât un teoretician – și prin aceasta e profund stilistician.

VALENȚE TIPOLOGICE ALE STILULUI

Tudor Vianu în prima parte a activității sale, are preocupări stilistice în acest sens larg, stilul fiind „unitatea structurilor artistice într-un grup de opere, raportate la agentul lor, fie acesta artistul individual, națiunile, epoca sau cercul de cultură”. Abia mai târziu, Tudor Vianu va defini stilul ca întrebuințare individuală a limbii.

Lucian Blaga va duce conceptul de stil cel mai departe, el depășind nu numai condiționarea lingvistică, ci și pe cea estetică și culturală: stilul devine o categorie ontologică – „produsul unei matrici alcătuite din categorii abisale, discontinue, dar sinergic și arhitectonic combinate. Reflecția stilistică ramâne, în sensul lui Buffon, o reflecție despre condiția umană. Preocupările lingvistice privind stilul considerate ca *revoluționare*, odată cu scaderea interesului pentru retorică, întâlnesc conceptul de stil elaborat, de filosofi și istorici ai culturii.

În sens larg, cultural și ontologic, stilul poate fi definit ca „*invariantele de structura ale unor mari unitati de cultură*”.

Stilurile individuale reprezintă un aspect particular al acestei ample stilistici pe care am putea-o numi *generalizată*. Formaliștii ruși cereau o corelare riguroasă între aceste serii cultural istorice și cele ale literaturii. Aceste deziderate au fost fructificate, începând cu deceniul șase, de către estetica/ poetica receptării, disciplină ce face joncțiunea între perspectiva autonomist – structuralistă și cea de tip extrinsec, prezentă în sociologia literaturii.

VALENȚE LINGVISTICE ALE STILULUI

Stilul ca individualizare (expresiva) a limbii. Abandonat retoricii, ea însăși o vreme abandonată, stilul reintră spectaculos în atenția lingvisticii, pentru a fi regândit ca fenomen de limbaj. Investigația lingvistică devine singurul instrument capabil să garanteze obiectivitatea analizei științifice.

În accepție restransă, lingvistică, cele mai multe definiții ale stilului sunt reductibile la ideea că stilul este *expresia celui care vorbește*, ceea ce înseamnă o definiție psihologică sprijinită pe mult citata formula a lui Buffon – „Le style c'est l'homme meme”. Stilul înglobează și adeseori confundă aceste două calități (arta scriitorului și natura însăși a omului) pentru a deveni, după expresia lui Claudel, „o calitate naturaă, ca sunetul vocii”.

Pentru că se aplică mai ales la literatură, conceptul stil este susținut de noțiunea de ornare, ceea ce așază în centrul stilisticii studiul figurilor. Oricât de limitativ – estetizantă, această optică are meritul de a face translația de la sensul larg la sensul estetic al noțiunii stil.

Stilistica este parte componentă a unui domeniu insuficient delimitat, putându-se vorbi de mai multe stilistici sau de mai multe direcții ale stilisticii. Obiectul de studiu al stilisticii este astfel văzut diferit de diferiți cercetători. De exemplu, Ch. Bally afirma că stilistica nu are ca obiect studiul unei părți a limbajului, ci limbajul în întregimea lui. Bally are în vedere limba comună, întemeind, la începutul secolului XX, stilistica lingvistică dezvoltată ulterior în multe direcții pentru majoritatea limbilor mai cunoscute, inclusiv și mai ales pentru limba română, cum o arată monumentală lucrare a acad. Iorgu Iordan, *Stilistica limbii române*. Expresivitatea este concepută în asemenea cercetări mai ales ca o marcă a afectivității, care caracterizează cu deosebire

vorbirea spontană, familiară și populară. Șt. Munteanu admite și el că obiectul de studiu al stilisticii este limbajul în întregime, însă precizează că este vorba de limbajul artistic, limba literaturii, vorbind astfel despre o stilistică literară. Creatorul stilisticii literare este Vossler. H.A.Hatzfeld și la noi Șt. Munteanu văd în stilistica literară o „disciplină de graniță, aparținând lingvisticii și teoriei literaturii, motivarea ei fiind psihologică, scopurile urmărite ținând dincolo de aceste domenii, fără a răspunde problemelor fundamentale, de natură estetică, spre înțelegerea cărora ea se îndreaptă totuși”. (Șt. Munteanu, *Stil și expresivitate poetică*, p.11)

Bibliografia studiată trimite la cele mai importante puncte de vedere demonstrând totodată și complexitatea noțiunii de expresivitate.

După cum a remarcat deja H. Hatzfeld, conceptul de expresivitate desparte stilistica în două mari curente: unul reprezentat de Bally și continuatorii lui, celălalt susținut de Vossler, Spitzer, Damaso, Hatzfeld însuși. (Edward Stankiewicz distinge trei poziții: una estetică – Vossler, una expresiv-stilistică – Bally, și una psihologico-literară – Spitzer. Edward Stankiewicz, *Problems of emotive language*, apud I. Coteanu, *Stilistica funcțională a limbii române*, I, p.73)

Intr-o definiție lingvistică generală, numim stil acele *trăsături particulare ale unui discurs/ text care îl individualizează și îi conferă autonomie în contextul unor discursuri/ texte asemănătoare*. Se deduce din această definiție că stilul este rezultatul unei practici individualizante asupra limbajului natural, un element care particularizează atât discursul poetic, cât și pe cel prozaic.

Stilul individualizează orice enunț lingvistic și nefiind o marcă a literarității, este una a vorbirii în general. De aceea, aplicarea metodelor lingvistice la poezie trebuie să accepte premisa ca poezia este limba.

Stilistica este dependentă de lingvistică, iar stilul nu poate fi definit exact fără referire la gramatica. Dar, în timp ce scopul analizei gramaticale este predictiv, al analizei stilistice e clasificator. Acest punct de vedere presupune că în timp ce lingvistul se ocupă cu descrierea unui cod, stilisticianul e interesat de diferențele dintre mesajele generate în acord cu regulile de cod.

Definițiile specializate ale stilului, în număr de șapte în sistematizarea lui I. Coteanu, gravitează spre cei trei factori de bază ai comunicării, adică spre:

1. EMIȚĂTOR – obiect al POETICII, stilul ca *alegere*; stilul ca *alegere* și *combinare* a faptelor de limbă; stilul ca *adaos* la nucleul comunicării; stilul ca expresie a unui *mod de gândire*;
2. MESAJ – obiect al POETICII, stilul ca *deviere*; stilul ca *funcție poetică* a limbajului;
3. RECEPTOR – obiect al TEORIEI RECEPTĂRII/ LECTURII, stilul ca *efect* al structurii mesajului;

DEFINIȚII ale STILULUI AXATE pe EMITĂTOR
STILUL CA ALEGERE A FAPTELOR DE LIMBĂ. Ch. Bally a încercat teoretic să despartă stilul de stilistică.

Deși a precizat încă de la începutul lucrării sale că se va ocupa de stilistica „neliterară” – „se cuvine să ținem seama de factorul estetic, în măsura în care el face impresia unei apariții spontane și firești”, argumenta el, pentru că „scriitorul urmărește, trebuie să urmărească, anumite efecte de ordin artistic, ceea ce reduce mult din caracterul de spontaneitate și naturalețe, care, în cazul produselor stilistice ale limbii vorbite, există totdeauna în întregime” – I. Iordan ia și exemple pentru a ilustra fenomenele spontane dintr-un repertoriu bogat de texte literare. Astfel, fără să vrea, acad. I. Iordan dovedește că opoziția dintre intenționalitate și spontaneitate nu opune limbajul scriitorilor vorbirii cotidiene vii.

La M. Riffaterre, devierea este însuși principiul de elaborare a structurii textului literar în vederea sensibilizării cititorului. Abaterile de la normă nu pot fi luate drept criteriu și punct de plecare pentru a descoperi constanta unui procedeu stilistic. De aceea, stilisticianul este dator să aleagă acele trăsături care reflectă cele mai conștiente intenții ale autorului mesajului, anume particularitățile de expresie esențiale, de neînlăturat, acestea fiind pentru cititor elementele imprevizibile generate de context. Pentru Riffaterre în expresivitate intră intensificarea reprezentării (a imaginilor), conotația estetică, dar și coloratura afectivă.

Distincția între expresivitate și estetică a fost făcută net de R. Jakobson în lucrarea *Lingvistică și poetică* atunci când, dezvoltând schema lui Bühler, identifica cele șase funcții ale actului lingvistic:

1. funcția referențială (numită și denotativă sau cognitivă) care corespunde funcției de reprezentare din teoria lui K. Bühler; se circumscrie contextului extralingvistic pe care se întemeiază substratul planului semantic al mesajului (înțeles biplan: expresie și sens);
2. funcția expresivă (emotivă) privește exclusiv pe emițător și introduce (conștient sau subconștient) în organizarea mesajului perspectiva individualității intelectuale, afective etc., a stării afective a emițătorului, a atitudinii lui față de realitatea extraverbală;
3. funcția conativă (de apel, din interpretarea lui K. Bühler) se circumscrie destinatarului; subiectul vorbitor își structurează mesajul și în legătură cu reacția pe care vrea să o determine din partea acestuia;
4. funcția fatică stă în legătură cu contactul între protagoniștii actului lingvistic; subiectul vorbitor invită un destinatar la dialog, verifică menținerea, realizarea comunicării;

5. funcția metalingvistică este focalizată pe limba însăși; în structurarea mesajului, subiectul vorbitor explică termeni lingvistici prin care limba numește componente ale lumii;
6. funcția poetică absolutizează mesajul în el însuși, structura lui verbală primește un grad maxim de autonomie.

Funcția expresivă sau emotivă numită și afectivitate sau expresivitate spontană

este manifestarea verbală a emoției corespunzătoare, concluzionează I. Coteanu în *Stilistica funcțională a limbii române*, în timp ce expresivitatea deliberată, funcția estetică sau poetică, adică, este manifestarea verbală a emoției contemplative.

Expresivitatea – conchide I. Coteanu – „nu rezidă nici în semnificația semnului, nici în sunete, ci fie în afara semnului, fie în raportul de solidaritate, în forma lui”. Ea este „o valoare realizată cu ajutorul unor contexte astfel întocmite încât să provoace o deplasare de planuri în conținutul semnelor lingvistice”. (*Considerații asupra structurii stilistice a limbii*)

T. Vianu credea că nu este posibil să vorbim de o stilistică lingvistică, care să studieze limba comună, și de o stilistică literară, nelingvistică, care să studieze autorii, deoarece „toate efectele de stil rezultă dintr-o anumită întrebuintare a limbii, a lexicului cu toate varietățile lui semantice, apoi a formelor și a construcțiilor ei, încât noțiunea unei stilistici nelingvistice este o alăturare de cuvinte tot atât de nejustificată ca, de pildă, fier de lemn sau cerc pătrat”. „Stilistica operelor literare este o prelungire a stilisticii limbii române – afirma T. Vianu – după cum expresivitatea scriitorilor este o prelungire a puterii generale de expresivitate a limbii, o potență mai înaltă a acesteia”. (T. Vianu, *Iorgu Iordan și stilistica*, apud Șt. Munteanu, *Stil și expresivitate poetică*, p. 67)

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UTILIZAREA JOCURILOR MATRICEALE ÎN OPTIMIZAREA ACȚIUNILOR MILITARE

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Abstract: The mathematical models can be used in different types of analyses and military actions in order to improve the employment of military capabilities.

The optimization of military operations as well as the finding of solutions supporting the decision-making process is one of the most important aspects of the new battlefield approach.

Nowadays, the evolution of military technique and the new trends governing the modern battlefield entail an efficient use of forces and combat means.

In this article we try to analyse the possibilities of using the game theory in the decision making process by determining the optimum strategy to be used when allocating forces and equipment, depending on the different assumed directions the course of action can take.

1. Introducere

Utilizarea metodelor matematice și a unor programe specializate în procesul de luare a deciziei referitoare la modul în care pot fi utilizate resursele aflate la dispoziție în vederea optimizării cursului acțiunilor militare este susținută de o serie de argumente, și anume:

- comandanții au posibilitatea să identifice și să verifice diferite variante de acțiune, să le analizeze și să le selecteze pe cele care asigură succesul;
- strategia optimă de acțiune este determinată în urma cunoașterii situației și a factorilor care au fost luați în considerare la crearea modelului;
- timpul necesar luării deciziei scade, crescând astfel viteza de desfășurare a operațiilor și implicit a posibilității de surprindere a inamicului;
- posibilitatea folosirii unui număr mare de restricții, având în vedere acțiunile desfășurate, apropiind astfel modelul de realitatea câmpului de luptă.

Această abordare necesită formarea unor echipe multidisciplinare în măsură să analizeze unitar aceste tipuri de probleme și în același timp să găsească cele mai adecvate metode de implementare. Aceasta implică și găsirea unor instrumente care să poată fi utilizate cu ușurință de comandanții diferitelor structuri militare.

2. Prezentarea scenariului

O structură militară are misiunea de a se deplasa din locația în care se găsește și să ocupe poziții într-o nouă locație precizată de eșalonul superior în vederea declanșării ulterioare a unui atac concertat asupra inamicului împreună cu alte forțe aliate. Pentru îndeplinirea acestei misiuni, în urma analizei terenului și a modalităților în care pot fi deplasate tehnica și militarii din cadrul acestei structuri, sunt identificate trei modalități de execuție.

Marșul se poate executa pe trei itinerarii și anume:

- I₁** - drum accesibil pe care există un pod și nu există informații certe în legătură cu starea acestuia;
- I₂** - drum accesibil pe care există un curs de apă și nu există informații în legătură cu adâncimea acestuia, pantele albiei etc.;
- I₃** - drum accesibil pe care există o porțiune unde inamicul poate executa foc cu o precizie mai mare.

Indiferent de itinerarul de deplasare ales, comandantul forțelor proprii este conștient de faptul că pe anumite porțiuni se află în raza de bătaie a forțelor inamice. Informațiile de care dispune în acest moment nu-i permit să ia o decizie, fiind necesară o analiză riguroasă cu privire la impactul asupra capacității de luptă a forțelor proprii în fiecare din variantele identificate.

În cele ce urmează, ținând cont de informațiile pe care le primește de la diferite structuri specializate, comandantul trebuie să evalueze pierderea capacității de luptă în fiecare din situațiile prezentate și să repartizeze în mod optim forțele de care dispune în așa fel încât diminuarea capacității de luptă să fie cât mai mică.

Situația tactică este prezentată schematic în figura de mai jos.

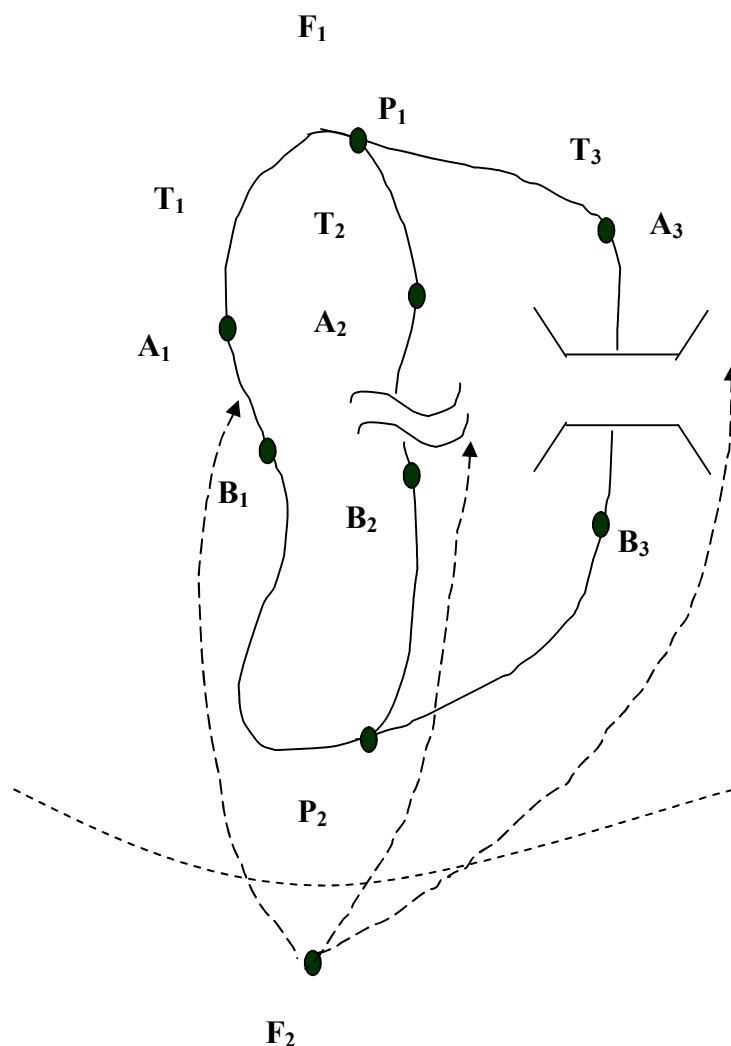


Fig. 1 Situația tactică

În Tabelul 1 sunt prezentate procentual estimarea capacității de luptă a forțelor proprii în funcție de dispunerea forțelor inamice și de itinerariile pe care forțele proprii le aleg pentru a îndeplini misiunea.

Tabelul 1

Means of action		M ₁	M ₂	M ₃
Possible itineraries				
I ₁	Damaged bridge 40%	80%	100%	100%
	Good bridge 60%	90%	100%	100%
I ₂	Passage impossible 30%	100%	70%	100%
	Passage possible 70%	100%	80%	100%
I ₃		100%	100%	90%

De exemplu, dacă forțele proprii aleg itinerarul I₃, neavând nici un fel de informații asupra dispunerii inamicului, iar inamicul alege să bombardeze suprafața dintre A₃ și B₃, capacitatea de luptă a forțelor proprii se reduce la 90%, dar dacă inamicul alege să bombardeze suprafața dintre A₂ și B₂ atunci forțele proprii nu suferă nicio pierdere.

Comandantul acestei structuri, împreună cu compartimentul de analiză din cadrul biroului operații a reușit să evalueze pierderile provocate de inamic forțelor proprii în fiecare situație în parte, datele fiind trecute în tabelul de mai sus. Acesta trebuie să hotărască repartitia forțelor pe cele trei itinerarii în așa fel încât pierderile suferite să fie cât mai reduse.

De asemenea, comandantul forțelor inamice cunoaște situația creată și analizează modalitatea de utilizare a tehnicii de luptă din dotare pe porțiunile de pe cele trei itinerarii, în așa fel încât pierderile provocate forțelor proprii să fie cât mai mari, neavând informații referitoare la repartitia forțelor de către comandantul forțelor proprii.

Stabilirea repartiției forțelor și mijloacelor de luptă de către comandantul forțelor proprii pe cele trei itinerarii și a modului de utilizare a mijloacelor de luptă din dotare de către comandantul forțelor inamice pe cele trei zone, poate fi determinată utilizând teoria jocurilor. Orice altă variantă aleasă de cei doi comandanți aduce pierderi mai mari forțelor proprii, iar inamicului un consum mai mare de muniție.

În Fig.1 este prezentată schematic situația descrisă anterior, fiind trecute pe fiecare itinerariu, obstacole și zonele unde forțele proprii pot fi bombardate de inamic.

Desigur, obiectivul forțelor proprii este să realizeze deplasarea cu pierderi minime, iar obiectivul forțelor inamice este să cauzeze pierderi cât mai mari prin utilizarea în mod eficient a tehnicii de luptă.

3. Soluția optimă

Cele patru variante sunt descrise în arborele decizional din figura de mai sus, având în același timp și probabilitățile cu care acestea pot să apară. These variants are described in the following decision tree:

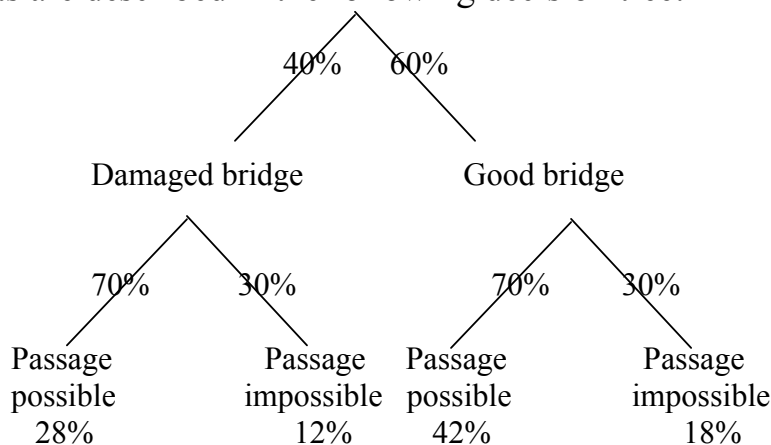


Fig. 2 Arborele decizional

Vom determina strategiile optime ale celor doi combatanți în cele patru variante posibile, după care vom scrie, ținând cont de probabilitățile cu care acestea pot avea loc, strategiile optime finale ale celor doi combatanți.

Avem următoarele 4 variante:

Tabelul 2

1	M ₁	M ₂	M ₃
I ₁₁	80%	100%	100%
I ₂₁	100%	70%	100%
I ₃	100%	100%	60%

Tabelul 3

2	M ₁	M ₂	M ₃
I ₁₁	80%	100%	100%
I ₂₂	100%	80%	100%
I ₃	100%	100%	60%

Tabelul 4

3	M ₁	M ₂	M ₃
I ₁₂	90%	100%	100%
I ₂₁	100%	70%	100%
I ₃	100%	100%	60%

Tabelul 5

4	M ₁	M ₂	M ₃
I ₁₂	90%	100%	100%
I ₂₂	100%	80%	100%
I ₃	100%	100%	60%

Pentru determinarea strategiilor optime a celor doi combatanți în fiecare din cele patru situații vom utiliza metoda programării liniare.

Problemele de programare liniară atașate jocurilor matriciale de mai sus sunt:

➤ pentru prima matrice

$$\left\{ \begin{array}{l} \min(u_1 + u_1 + u_3) \\ 0,8u_1 + u_2 + u_3 \geq 1 \\ u_1 + 0,7u_2 + u_3 \geq 1 \\ u_1 + u_2 + 0,6u_3 \geq 1 \\ u_1, u_2, u_3 \geq 0 \end{array} \right. \quad \left\{ \begin{array}{l} \max(v_1 + v_1 + v_3) \\ 0,8v_1 + v_2 + v_3 \leq 1 \\ v_1 + 0,7v_2 + v_3 \leq 1; \\ v_1 + v_2 + 0,6v_3 \leq 1 \\ v_1, v_2, v_3 \geq 0 \end{array} \right. \quad (1)$$

➤ pentru a doua matrice

$$\left\{ \begin{array}{l} \min(u_1 + u_1 + u_3) \\ 0,8u_1 + u_2 + u_3 \geq 1 \\ u_1 + 0,8u_2 + u_3 \geq 1 \dots\dots\dots \\ u_1 + u_2 + 0,6u_3 \geq 1 \\ u_1, u_2, u_3 \geq 0 \end{array} \right. \quad \left\{ \begin{array}{l} \max(v_1 + v_1 + v_3) \\ 0,8v_1 + v_2 + v_3 \leq 1 \\ v_1 + 0,8v_2 + v_3 \leq 1; \\ v_1 + v_2 + 0,6v_3 \leq 1 \\ v_1, v_2, v_3 \geq 0 \end{array} \right. \quad (2)$$

➤ pentru a treia matrice

$$\left\{ \begin{array}{l} \min(u_1 + u_1 + u_3) \\ 0,9u_1 + u_2 + u_3 \geq 1 \\ u_1 + 0,7u_2 + u_3 \geq 1 \dots\dots\dots \\ u_1 + u_2 + 0,6u_3 \geq 1 \\ u_1, u_2, u_3 \geq 0 \end{array} \right. \quad \left\{ \begin{array}{l} \max(v_1 + v_1 + v_3) \\ 0,9v_1 + v_2 + v_3 \leq 1 \\ v_1 + 0,7v_2 + v_3 \leq 1; \\ v_1 + v_2 + 0,6v_3 \leq 1 \\ v_1, v_2, v_3 \geq 0 \end{array} \right. \quad (3)$$

➤ pentru ultima matrice

$$\left\{ \begin{array}{l} \min(u_1 + u_1 + u_3) \\ 0,9u_1 + u_2 + u_3 \geq 1 \\ u_1 + 0,8u_2 + u_3 \geq 1 \dots\dots\dots \\ u_1 + u_2 + 0,6u_3 \geq 1 \\ u_1, u_2, u_3 \geq 0 \end{array} \right. \quad \left\{ \begin{array}{l} \max(v_1 + v_1 + v_3) \\ 0,9v_1 + v_2 + v_3 \leq 1 \\ v_1 + 0,8v_2 + v_3 \leq 1. \\ v_1 + v_2 + 0,6v_3 \leq 1 \\ v_1, v_2, v_3 \geq 0 \end{array} \right. \quad (4)$$

Soluțiile acestor probleme de programare liniară sunt:

➤ pentru prima problemă de programare liniară (1)

$$u_1 = v_1 = 0,4054; \quad u_2 = v_2 = 0,3571; \quad u_3 = v_3 = 0,4054 \quad // \quad z_{\min} = z_{\max} = 1,081.$$

$$\text{So, } u^0 = v^0 = (0,4054; 0,3571; 0,4054) \text{ and } z_{\min} = z_{\max} = 1,081.$$

➤ pentru a doua problemă de programare liniară (2)

$$u_1 = v_1 = 0,3571; \quad u_2 = v_2 = 0,3571; \quad u_3 = v_3 = 0,3571 \quad // \quad z_{\min} = z_{\max} = 1,071429.$$

$$\text{So, } u^0 = v^0 = (0,3571; 0,3571; 0,3571) \text{ and } z_{\min} = z_{\max} = 1,071429.$$

➤ pentru a treia problemă de programare liniară (3)

$$u_1 = v_1 = 0,5769; \quad u_2 = v_2 = 0,1923; \quad u_3 = v_3 = 0,2885 \quad // \quad z_{\min} = z_{\max} = 1,057692.$$

$$\text{So, } u^0 = v^0 = (0,5769; 0,1923; 0,2885) \text{ and } z_{\min} = z_{\max} = 1,057692.$$

➤ pentru ultima problemă de programare liniară (4)

$$u_1 = v_1 = 0,5263; \quad u_2 = v_2 = 0,2632; \quad u_3 = v_3 = 0,2632 \quad // \quad z_{\min} = z_{\max} = 1,052632.$$

$$\text{Deci, } u^0 = v^0 = (0,5263; 0,2632; 0,2632) \text{ și } z_{\min} = z_{\max} = 1,052632.$$

Pe baza acestora putem stabili strategiile optime ale celor doi combatanți în fiecare din cele patru situații cât și valorile capacității de luptă a forțelor proprii în urma utilizării acestor strategii. Astfel:

➤ pentru prima matrice

$$v_1 = 0,4054; \quad x^0 = y^0 (0,375; 0,25; 0,375);$$

➤ pentru a doua matrice

$$v_2 = 0,3571; \quad x^0 = y^0 (0,(3); 0,(3); 0,(3));$$

➤ pentru a treia matrice

$$v_3 = 0,5769; \quad x^0 = y^0 (0,545; 0,182; 0,273);$$

➤ pentru ultima matrice

$$v_4 = 0,5263; \quad x^0 = y^0 (0,5; 0,25; 0,25).$$

În sfârșit, determinate fiind strategiile optime și valorile capacității de luptă în cele patru situații, putem stabili strategiile finale ale celor doi combatanți, ținând cont de coeficienții de performanță ai acestuia.

Ținând cont de aceste valori și de valorile trecute în arboreal decisonal putem stabili valoarea finală a jocului și strategiile optime ale celor doi combatanți.

Obținem astfel valoarea finală a jocului:

$$v = 0,28 \cdot 0,925 + 0,9(3) \cdot 0,12 + 0,42 \cdot 0,945 + 0,18 \cdot 0,95 = 0,94,$$

Aceasta înseamnă că utilizând strategia optimă, 94% din capacitatea de luptă a forțelor proprii va fi disponibilă la încheierea misiunii, respective deplasarea în noua locație.

Strategiile finale ale celor doi combatanți sunt:

$$\begin{aligned} x_1 &= 0,28 \cdot 0,375 + 0,12 \cdot 0,3 + 0,42 \cdot 0,545 + 0,18 \cdot 0,5 = \\ &= 0,105 + 0,04 + 0,229 + 0,09 = 0,464 \end{aligned}$$

$$\begin{aligned} x_2 &= 0,28 \cdot 0,25 + 0,12 \cdot 0,3 + 0,42 \cdot 0,182 + 0,18 \cdot 0,25 = \\ &= 0,07 + 0,04 + 0,076 + 0,045 = 0,155 + 0,076 = 0,231 \end{aligned}$$

$$\begin{aligned} x_3 &= 0,28 \cdot 0,375 + 0,12 \cdot 0,3 + 0,42 \cdot 0,273 + 0,18 \cdot 0,25 = \\ &= 0,105 + 0,04 + 0,115 + 0,045 = 0,305 \end{aligned}$$

$$x^0 = y^0 = (0,464; 0,231; 0,305).$$

Această analiză a arătat că F_1 trebuie să se deplaseze pe itinerariul I_1 46,4% din capacitatea de luptă, 23,1% pe itinerariul I_2 și 30,5% pe itinerariul I_3 .

De asemenea inamicul trebuie să-și utilizeze . 46,4% din capacitatea de luptă pentru bombardarea zonei de pe itinerariul I_1 , 23,1% a zonei de pe itinerariul I_2 și 30,5% pentru a bombarda zona de pe itinerariul I_3 .

4. Concluzii

Realizarea unui program integrat care să poată fi utilizat în procesul de luarea deciziei este o preocupare mai veche a unui colectiv din Academia Forțelor Terestre "Nicolae Bălcescu", care sperăm să se concretizeze într-un proiect mai amplu finanțat de Ministerul Apărării sau Ministerul Educației, Cercetării și Tineretului.

Având în vedere cele spuse mai sus se pot trage următoarele concluzii:

- alegerea modelului și formularea acestuia trebuie să fie în concordanță cu tipul acțiunii ce urmează a fi modelată;
- modelul matematic trebuie să asigure o redare aproximativă a fenomenului modelat, deci esența reflectată de model prin structură trebuie să fie cât mai apropiată de realitate, de conținutul obiectiv al

fenomenului real, datele furnizate de model fiind cât mai corecte, deci și deciziile luate pe baza lor;

- folosirea programelor specializate în rezolvarea problemelor de optimizare reduce substanțial timpul necesar luării deciziilor, oferind astfel comandanților posibilitatea de a acționa rapid în câmpul tactic;
- utilizarea altor soluții decât cele optime duc la costuri mai ridicate (timp, carburanți, distanță, forțe și mijloace etc.) decât cele rezultate în urma rezolvării modelelor matematice specifice acțiunii militare care este optimizată.

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SOFTWARE SOCIAL

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Abstract

The profound changes induced by the social software using are of a great importance: more and more people have now the possibility to generate an informational content, to consume it and to interact with the others. Therefore, the individuals' approach is faster and easier performed, thus improving and intensifying the communication.

Post-cast, video-cast applications, blogs, wikis social bookmarks or the social networking instruments referred to as Web 2.0, totally change the means people communicate socially and professionally.

1. Introducere

Termenii de Web 2.0 și software social sunt tot mai des folosiți fie în paralel, fie interșanjabil, o graniță clară sau o delimitare strictă a lor fiind foarte greu de făcut. Chiar dacă termenul Web 2.0 este un trend, el are o rezonanță oarecum abstractă, pe când termenul de software social este mai expresiv și descrie serviciile din cadrul noului web, Web 2.0, care sunt orientate pe relaționarea dintre indivizi. Web 2.0 este des întâlnit în cadrul comunității Internet, pe când software-ul social este un termen folosit cu precădere în cadrul comunităților academice.

Reflectând modul în care socializăm în cadrul universului digital, software-ul social este mai mult decât o tehnologie, este o atitudine.

Stowe Boyd, o autoritate internațională recunoscută în domeniul tehnologiilor sociale- colaborative, numește următoarele trăsături ca fiind caracteristici definitorii ale software-ului social:

- software destinat rețelelor sociale – permite utilizatorilor crearea și managementul expresiei digitale a relaționării personale dintre oameni, ajutându-i și provocându-i în același timp să creeze noi relaționări;
- software care permite conversații între oameni și/sau grupuri – incluzând atât conversațiile în timp real, cât și pe cele în mod asincron;

- software care permite și suportă feedback-ul social ajungându-se la crearea unei adevărate reputații digitale prin aprecierea contribuției unor membri de către ceilalți din grup.

Concluzionând, software-ul social reprezintă totalitatea instrumentelor și/sau site-urilor web care permit și facilitează descoperirea, construirea, extinderea, comunicarea și managementul rețelelor sociale. Software-ul social oferă astfel suportul pentru construirea sau afilierea indivizilor la diverse comunități, în ideea de a-și atinge anumite scopuri, de a-și împlini anumite dorințe, sau pur și simplu de a beneficia de pe urma unor acțiuni realizate în cadrul aceleiași comunități.

2. Clasificări ale software-ului social

La întrebarea firească ce fel de soft poate fi desemnat ca făcând parte din categoria software-ului social se poate răspunde în primul rând prin efectuarea unor clasificări.

O primă clasificare prezentată, căreia îi subscriu, este cea făcută de Allen (2005) care divide software-ul social astfel:

1. Software social tradițional, subîmpărțit astfel:

- Sincron, cu subdiviziunile:
 - Chat
 - Teleconferințe
 - Chat cu context (avataruri)
 - Mesagerie instantanee
- Asincron, cu subdiviziunile:
 - Email-ul
 - Listele de discutii

2. Software social modern, subîmpărțit astfel:

- Sincron, cu subdiviziunile:
 - Chatbot –program asistent, rezident în cadrul chat-urilor
 - Chat-ul Proxy –program rezident în cadrul chat-ului care funcționează ca „secretar personal”, furnizând informații despre traficul și arhiva mesageriei instantanee
 - Editoare în colaborare - notele și modificările utilizatorilor ce colaborează simultan sunt vizibile în timp real
- Asincron, cu subdiviziunile:
 - Blog-uri
 - Wiki-uri
 - Partajarea în colaborare (Flickr, Del.icio.us etc.)
 - Rețele sociale

Hibridi (sau Mashups) – înglobează mai multe tipuri de software social într-unul singur.

O a doua clasificare, făcută de Owen (2006), divide software-ul social astfel:

1. Software social bazat în principal pe text: blogurile, wiki-urile, însemnările sociale și tagging-ul fiind cele mai cunoscute astfel de tehnologii.

2. Software social audio-vizual: partajarea fotografiilor, podcast-uri, videocast-uri, telefonie Internet etc.

3. Software social spațial și geografic: geotagging, software social mobil etc.

Sunt și alte clasificări făcute în funcții de servicii, instrumente de bază și standarde, sau în funcție de scopuri ale software-ului social.

3. Avantaje și trăsături proprii software-ului social

Colaborarea online – prin intermediul wiki-urilor în primul rând, dar și a editoarelor în colaborare utilizatorii pot conlucra sincron sau asincron la aceleași proiecte, mult mai eficient și mai rapid.

Desfășurarea în timp real sau asincron a conversațiilor – prin intermediul blogurilor, mesageriei instantanee sau telefoniei prin Internet, rețelelor sociale etc. se permite utilizatorilor să comunice distribuit, în timp real sau asincron, eliminând astfel costurile adiționale efectuării comunicărilor.

Crearea conținutului digital - se realizează cu ușurință, orice utilizator fără competențe specifice putând fi creator indiferent dacă acesta este de tip text, audio, video, sau imagini, prin intermediul blog-urilor, wiki-urilor, podcast-urilor, screencast-urilor sau aplicațiilor ce au ca scop principal partajarea imaginilor.

Partajarea informației - termeni ca „open source software”, sau „open acces to information” sunt în strânsă legătură cu acest concept de circulație liberă a informației între utilizatori. Software-ul social oferă indivizilor și grupurilor posibilitatea de colaborare și partajare deosebit de facilă a informațiilor și cunoștințelor.

Continua schimbare – apariția continuă de noi programe care pot fi incluse în cadrul acestei categorii de software, noi facilități pentru programele anterioare etc., fiecare individ putând contribui, pe măsura cunoștințelor și a spiritului inovator la realizarea unui software social mai bun.

Portabilitatea – marea majoritate a aplicațiilor din gama software-ului social sunt aplicații web, permițând accesarea informațiilor personale din orice loc al globului, în plus aceste aplicații putând fi accesate cu orice dispozitiv conectat la Internet, în orice moment.

RSS, sindicarea informației - reprezintă unul dintre cele mai mari avantaje generate de către software-ul social: prin folosirea tehnologiei RSS utilizatorul va alege despre ce anume să primească informații, acestea fiindu-i furnizate la câteva secunde de la postarea lor pe web. Astfel va fi informat în zona de interes aleasă, fără efortul căutării și urmăririi repetate în mai multe surse.

4. Concluzii

Aplicațiile specifice software-ului social permit și înlesnesc comunicarea și partajarea de informații între utilizatori, de-a lungul web-ului, oriunde și oricând. Software-ul social permite publicarea rapidă și facilă a cunoștințelor utilizatorilor, fapt fără precedent în nici o altă tehnologie până acum. Aspectul care îi justifică într-adevăr denumirea de social este acela că plasează în centrul atenției utilizatorul, cu nevoia sa de interacțiune, comunicare, socializare și de divertisment.

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OBIECT E-LEARNING DESTINAT EVALUĂRII PROFILULUI PSIHOLGIC AL UTILIZATORULUI

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Abstract

The psychological profile describes the features, behaviors which allow the identification of a candidate. In order to shape the psychological profile of the examined one, we use different investigation tools. The test is but a necessary tool to explore the psychological activity. Although it is a very used method, it is a time and resource consumer, coming from both parts, the tester and the tested one. The present paper aims at creating a learning object allowing the shaping of the optimum psychological profile.

Distanța nu mai constituie un impediment în procesul de însușire al cunoștințelor, același lucru îl putem spune și în cazul testărilor și evaluărilor la distanță. Astfel că, pe lângă testarea studenților asupra conținuturilor însușite putem utiliza obiecte înglobate în platforme e-learning care să permită realizarea testări în alte scopuri.

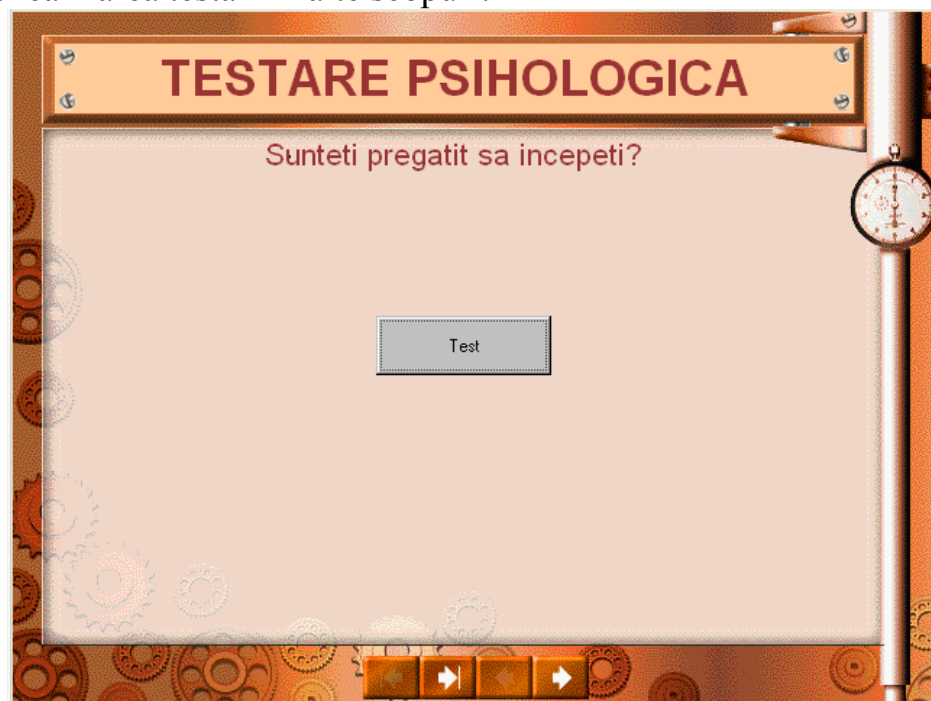


Fig. 1 Înglobarea obiecte executabile în ToolBook Instructor

Dacă în toate situațiile, rezultatele testelor ajung profesorilor, putem face ca rezultatele să fie așteptate de psiholog, spre exemplu, dacă subiecților li s-a pus la dispoziție un test psihologic. Testul psihologic trebuie definit ca obiect al conținutului și în prealabil realizat într-un limbaj de programare. Lucrarea de față își propune să descrie obiectul ce determină profilului psihologic al unui subiect, obiect ce este adăugat apoi în ToolbookInstructor.

Sub aspect gnoseologic, profilul psihologic este un proces complex de cunoaștere, care vizează înțelegerea personalității candidatului în cele mai diverse ipostaze ale sale. El urmărește aspecte particulare, individuale, definitorii ale persoanei. Astfel, subiectului i se pot descoperi deficite necunoscute sau i se pot confirma unele temeri, prilejuindu-i o luptă intensă cu sine, cu propria capacitate de efort.

Profilul psihologic descrie trăsături, comportamente care permit identificarea unui candidat. Pentru conturarea profilului psihologic al celui examinat se utilizează diferite instrumente de investigare. Testul nu este decât unul din instrumentele necesare explorării activității psihice, dar fără îndoială este unul dintre cele mai utilizate.

Testul de personalitate se structurează în două categorii : teste analitice, care studiază caracteristici delimitate ale personalității, instrumentele specifice acestei categorii fiind chestionarele și testele sintetice care interpretează structuri complexe ale personalității, cele mai reprezentative fiind testele proiective.

Chestionarele sunt probleme psihologice compuse dintr-un număr de itemi la care persoana trebuie să răspundă prin „da” sau „nu”. Cele care sondează o singură trăsătură de personalitate se numesc unifazice, iar cele care vizează personalitatea în ansamblu sunt multifazice. Fiecare test, pentru a conduce la un profil corect, trebuie să fie compus dintr-un număr considerabil de întrebări. Acest lucru implică, pe de-o parte, un timp mare pentru interpretarea rezultatelor, pe de altă parte, consum ridicat de hârtie. Soluția optimă de rezolvare a acestor neajunsuri este de a crea un obiect e-learning, într-un limbaj de programare, care să automatizeze atât etapa de evaluare, cât și cea de rezolvare a chestionarului. Astfel că softul prelucrează datele dintr-un test de personalitate, iar în final să le interpretează pentru a afișa profilul psihologic al candidatului.

Chestionarul pe care se bazează aplicația mea este Chestionarul G.Z., folosit de psihologi la testarea studenților.

Inventarul de temperament G.Z. este elaborat pe baza teoriilor personalității care evidențiază rolul trăsăturilor în structura comportamentului. Acesta grupează multifazic factorii care oferă un tablou complex al personalităților individuale. Studiile de validare efectuate în domeniul clinic și în domeniul orientării profesionale au demonstrat eficiența acestui inventar de personalitate.

Proba descrie 10 dimensiuni ale structurii de personalitate, astfel:

- (G) Activism - Eficiență;
- (R) Autocontrolul;
- (A) Ascendență;
- (S) Sociabilitate;
- (E) Stabilitate Emoțională;
- (O) Obiectivitate;
- (F) Toleranță, Bunăvoință, Acceptare;
- (T) Reflexivitate, Introversie;
- (P) Relaționare Personală;
- (M) Masculinitate.

Fiecare trăsătură este descrisă cu ajutorul a 30 de întrebări închise. Acestea au fost formulate în așa fel încât să asigure caracterul de unicitate al fiecărei trăsături descrise. Prezentarea itemilor este în formă afirmativă, pentru a determina o proiecție autentică a persoanei care completează inventarul de personalitate.

Pentru fiecare item, sunt posibile două variante de răspunsuri la alegere: "DA", "NU".

Fiecare dimensiune are itemii grupați pe un anumit număr de subdimensiuni (însușiri). Nota brută obținută la fiecare dimensiune relevă gradul de pregnanță, de manifestare a dimensiunii respective, iar însușirile ce compun fiecare dimensiune permit o analiză calitativă a acestora. Denumirea dimensiunilor exprimă natura adaptării sau a comportamentului vizat. În principiu, o notă ridicată indică o însușire "pozitivă", iar una joasă, o însușire "negativă". Calitățile puternic pozitive nu exprimă întotdeauna sensul celei mai bune adaptări. Cele puternic negative sunt însă semnul dificultăților în adaptare.

Testul psihologic a fost „automatizat” cu ajutorul limbajului de programare BC++Builder. Aplicația pentru realizarea profilului psihologic este o aplicație simplă de utilizat, prezentând o interfață prietenoasă pentru utilizator. Programul prelucrează datele dintr-un tip de test analitic, le interpretează pentru ca în final să afișeze profilul psihologic. Astfel, după introducerea datelor de identificare, candidatul va răspunde la întrebările chestionarului, timp în care programul prelucrează aceste răspunsuri. După prelucrarea lor, le compară cu cele din chestionarul standard, pentru a obține punctajul realizat. În urma acestui punctaj se va afișa corespondentul, ceea ce reprezintă de fapt profilul psihologic al candidatului.

Fig. 2 Formularul pentru introducerea datelor personale

Din punct de vedere tehnic, pentru a putea ajunge la interpretare s-au parcurs mai multe etape:

1. O primă etapă a elaborării aplicației a constituit-o construcția bazei de date cu mai multe tabele:

- tabela *Chestionar* – ce cuprinde chestionarul folosit la testare, însă cu răspunsurile corecte,

- tabela *Completare_chestionar* are câmpul răspuns necompletat, deoarece aceasta se va modifica ce măsură ce se va răspunde la întrebări

- tabela *Etalonare* care cuprinde caracteristicile testate cu punctajul aferent și explicațiile de rigoare. După rezolvarea itemilor din chestionar, pe baza acestui tabel se va alcătui profilul psihologic. Fiecare candidat, care va răspunde la întrebări va fi trecut într-un tabel *Student*, din care poate fi oricând accesat pentru a i se vedea caracterizarea.

2. Construcția propriu-zisă a aplicației. Aplicația pornește de la un formular principal care asigură deplasarea în cadrul programului. Fiecare formular conține un nume specific. Obiectul TForm prezintă mai multe proprietăți printre care una legată de numele obiectului (*Name*) și una legată de valoarea afișată pe formular (*Caption*).

Meniul aplicației este structurat astfel încât să permită testarea propriu-zisă sau obținerea profilului unui subiect deja testat:

- Test
- Administrator
- Rezultate
- Modificare parolă
- Iesire
- Meniul : **Test**

Accesarea acestei opțiuni permite începerea testului, în prealabil însă sau folosit obiecte de tip TMemo pentru instrucțiuni de urmat:

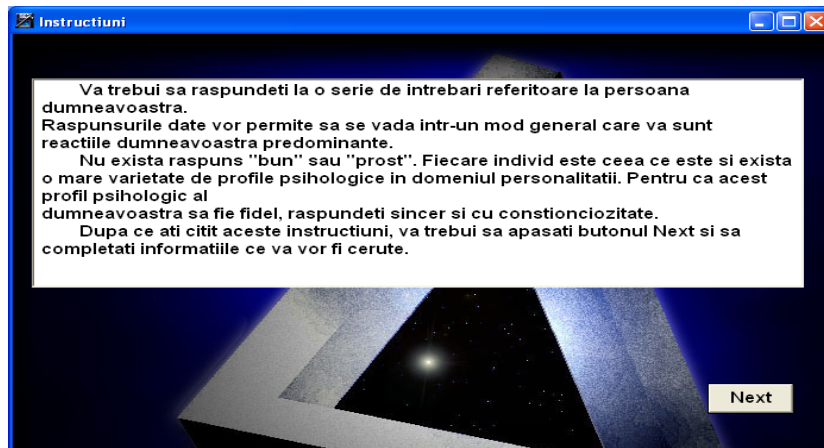


Fig. 3 Instrucțiuni de completare test

Datele de identificare sunt preluate cu obiecte de tip TEdit și TComboBox și salvate în tabela *Studenti*:

```
void __fastcall TForm2::Button1Click(TObject *Sender)
{
    try
    {
        if (Edit1->GetTextLen() > 0 && ComboBox1->GetTextLen() > 0 && ComboBox2->GetTextLen() > 0)
        {
            Table_Stud->Active=true;
            Table_Stud->Append();
            Table_Stud->FieldValues["nume_prenume"]=Edit1->Text;
            Table_Stud->FieldValues["sex"]=ComboBox1->Text;
        }
    }
    catch(, Eroare);
}
```

Formularul *Chestionar* cuprinde itemii la care trebuie să se răspundă în cadrul acestui test și opțiunile de răspuns

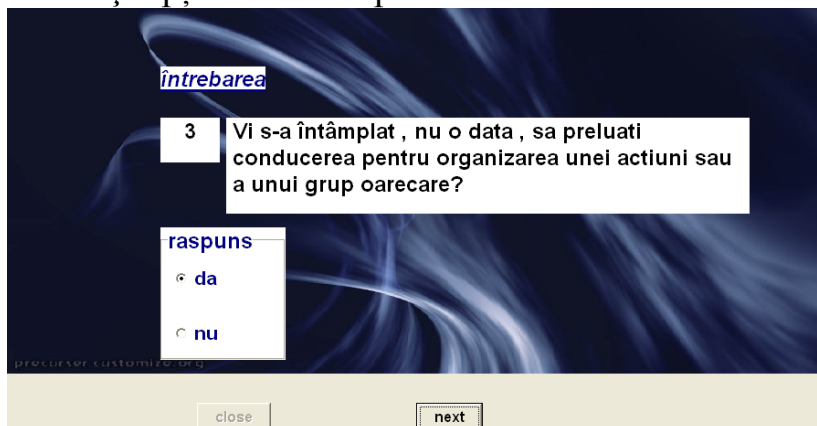


Fig.4 Formularul Chestionar

Întrebările sunt afișate din tabela *Chestionar*, iar răspunsul este salvat în tabela *Completare_chestionar*.

```
Table_Cch->Append();
Table_Cch->FieldValues["nr_intrebare"]=my_nr_intrebare;
Table_Cch->FieldValues["id_student"]=my_id_student;
```

```

Table_Cch->FieldValues["id_student"]=my_id_student;
if (RadioButton1->Checked==true)
Table_Cch->FieldValues["raspuns"]="da";
else
if (RadioButton2->Checked==true)
Table_Cch->FieldValues["raspuns"]="nu";
Table_Cch->Post();

```

a) Meniul :**Administrator**.

Acesta are două submeniuri *Rezultate* și *Modificare parola*. Așadar, pentru a putea vizualiza profilul obținut este necesar să se acceseze submeniul *Rezultate*, dar aceasta nu se poate face decât de către administrator pe baza parolei.

Formularul de interpretare rezultate conține obiecte TDBGrid care afișează și manipulează înregistrările din tabela *Student*. Înregistrările din tabela *Student* pot fi șterse sau analizate din punct de vedere al răspunsurilor .

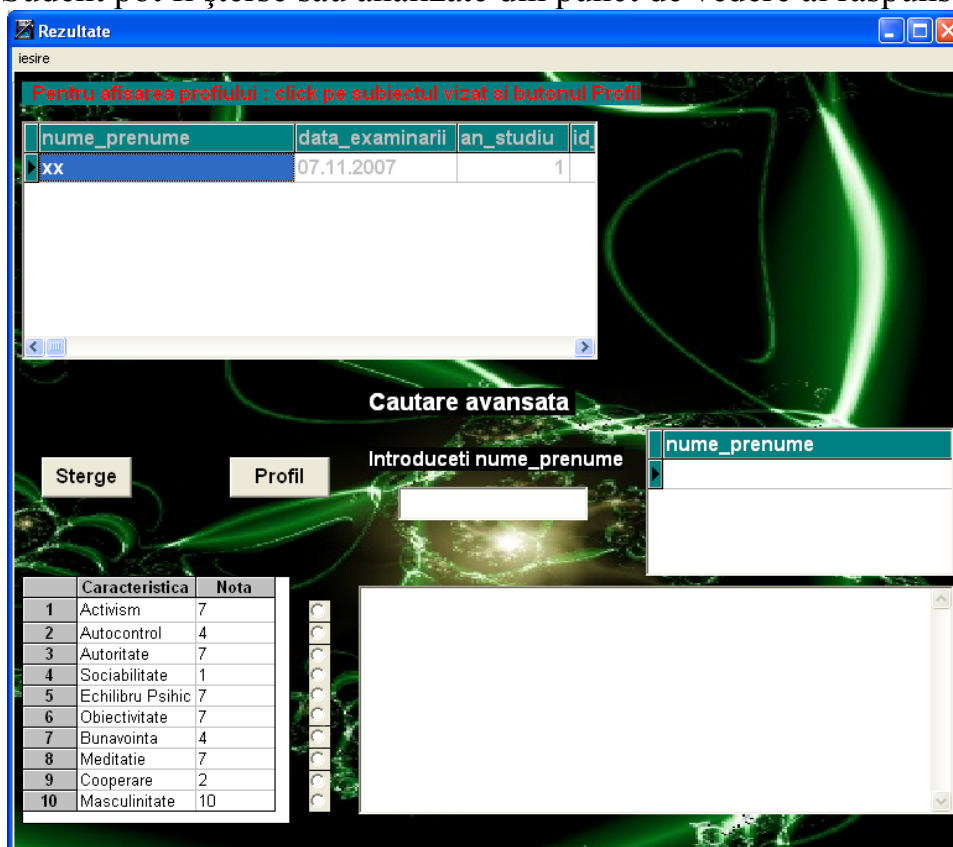


Fig. 5 Afișarea rezultatelor

Dacă sunt prea mulți subiecți se poate face o căutare avansată după numele subiectului care se va introduce într-un obiect TEdit. Căutarea se face după prima literă cu ajutorul unei interogări asupra tablei *Student*.

Opțiunea **Profil** activează formularul cu același nume, formular ce conține profilul psihologic al candidatului ce poate fi salvat.

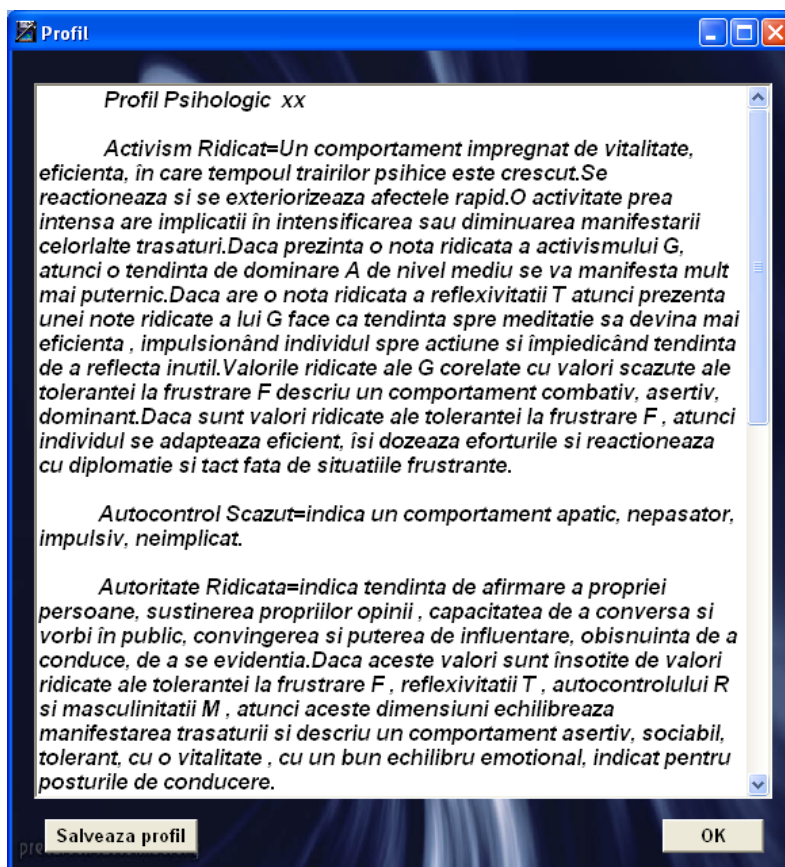


Fig. 6 Profilul psihologic

Partea cea mai importantă a acestei lucrări o constituie aplicația, prin care s-a dorit realizarea profilului psihologic al candidatului.

Astăzi, domeniul profilului psihologic se prezintă ca unul foarte dinamic, pregătit să facă față schimbărilor realității. Întrebarea care se pune frecvent este dacă mașinile inteligente pot aplica și interpreta teste psihologice și dacă pot elabora concluzii care să poată fi utile psihologului.

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THE IMPORTANCE OF ECONOMIC-FINANCIAL INDICATORS FOR THE FULFILLMENT OF INTERNATIONAL MISSIONS

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Abstract

În contextul internațional actual, România se confruntă cu o dublă provocare, aceea de a îndeplini atât obligațiile asumate față de NATO și aliații săi, cât și de îndeplinire cerințelor economice ale Uniunii Europene. În acest context, bugetul apărării este supus unor presiuni contradictorii, amplificate și de contextul internațional al crizei financiare. Analiza ce urmează nu este exhaustivă, putând fi identificați numeroși alți indicatori economici și financiari pentru misiunile internaționale, în funcție de variabile specifice. Importanța acestora derivă din necesitatea optimizării utilizării resurselor limitate alocate acestui tip de misiuni și a eficientizării luării deciziilor.

Romania's membership to NATO and European Union has numerous and important implications on both the country's economy and the military area. These implications derive from the need to fulfill well defined economic criteria (related to the budget deficit and other macroeconomic indicators demanded by EU membership) but also from the need to fulfill the military and political obligations undertaken towards our allies. Romania's participation to various international missions (ranging from ISAF peacekeeping operations in Afghanistan, UNAVEM in Angola, IFOR/SFOR in Bosnia, KFOR in Kosovo to logistical support offered to allied military

operations in Iraq in 2003 and the participation in security and reconstruction activities) is the result of the decision to participate and support allied operations, but must also be correlated with the possible financial and economic implications of such participation.

The participation to international operations implies, from a financial point of view, an increase burden on the defense budget, but also the need to re-allocate resources within defense programs. Fulfilling NATO requirements and other requirements deriving from international missions under United Nations, European Union or other coalitions means a reorientation of the funding priorities towards a high degree of modernization of the military equipment and a high degree of professionalization of the personnel.

Romania's membership in the European Union means a careful balancing of the budgetary expenditures, so that the economic stability is not endangered by a sudden increase in budget deficit or inflation. Romania's defense budget is thus the result of two (sometimes conflicting) approaches: the need to limit the budgetary expenses and the need to fund the military expenses, including the costly acquisitions of military equipment and the financing of international missions. Besides these factors, the defense budget (and implicitly the budget for international operations) is also influenced by circumstantial factors, such as the current international economic crisis. The future defense budget is linked to the country's economic growth and a slower increase in GDP is likely to negatively affect the defense funding, as the budget revenues decrease. Such a situation may lead to a new prioritization of the expenses within the military and even though international operations should have a higher priority in financing, they may also be negatively affected.

In this respect, determining economic and financial indicators for international missions is an important step towards optimizing the use of the

scarce budgetary resources and towards a more successful estimation of future costs.

The most obvious financial indicator for international missions is the ***budget allocated for this type of missions***, based on the estimation of funds needed to cover the cost of military operations abroad. This indicator is useful both as total amount, but also in its breakdown, namely the expense structure and the percentage of personnel, acquisition and operation-maintenance expenses in the total budget; this expense structure provides an insight into the readiness level and the effectiveness of the activity related to these specific missions.

Although such estimation is essential for funding future missions, achieving a precise estimation is difficult, if not impossible, due to various variables which influence this estimation, namely the size, the duration and the intensity of the operations. The estimation is made even more difficult in the situation when no similar operations were conducted, or the previous operation has just ended and detailed information on many of the factors that could affect the cost of the operation are not yet available. A useful source of information regarding this type of estimation is the experience of other allies, but also the lessons learned by our own armed forces from previous operations. In this respect, two of the most used methods of estimating the costs of operations are the top-down approach and the bottom-up approach, deriving from the industrial engineering method of cost estimation. If the future budget for this type of missions is difficult to predict, the budget allocated for international missions in previous years can be used more successfully as a starting point for estimating the amount of money needed to effectively finance international operations.

Another general financial indicator could be the yearly ***level of expenses / military***, calculated from two points of view:

- a narrower view, as a ratio between the yearly budget allocated for international missions and the number of military personnel in the operations theaters for that particular year
- a broader view, as a ratio between the yearly budget allocated for international missions and the number of personnel (mainly military, but also civilian) directly involved in the planning and execution of such international missions.

This indicator can be used as a mirror for the unit cost of these missions, but also of the modernization degree of the forces sent in such missions, as it involves all types of expenses (including acquisition, maintenance and operation expenses, scraping expenses etc) besides the personnel expenses. The yearly level of expenses / military of the Romanian troops sent into international missions is especially useful if compared with the similar level of expenses / military incurred by allied countries involved in similar operations or even with a similar average level of expenses / military calculated for NATO.

A more specific type of indicator is the yearly *cost / mission*, which can be detailed for each particular mission performed by Romanian military abroad. Considering that the Romanian participation to international operations consists mainly (but not exclusively) of land forces missions, this indicator can be applied to the different types of missions performed: cost / patrol mission (targeting standard missions), cost / convoy escort mission, cost / perimeter security mission, cost / search mission, cost / reconstruction mission etc.

The calculation of the costs of an international mission may begin with the calculation of the *costs related to the transport of troops and materials* to the theatre of operations. This cost derives mainly from the operation and maintenance expenses related to the means of transport, which can rise to substantial amounts, especially in the case of strategic transport planes, and

the less sizable amount of expenses related to the personnel accompanying the transport.

The alternatives available to forward deployment (such as material pre-positioning, enhanced airlift and sealift, or joint training operations) should be identified and described in detail in order to identify ways to reduce these types of costs.

In order to better encompass the costs involved by a mission, the amortization and a percentage of the acquisition cost of the plane should also be included in this calculation. Sometimes the acquisition costs of the equipments used for the performance of the international mission are included in other cost categories and are not taken into consideration when calculating the cost / mission. Yet this category of costs is pertinent to the particular mission, especially if the equipment is to be used mainly for these types of missions.

In calculating the transportation and sustainment costs (on a per troop or per aircraft basis), a relevant variable is the distance between the theater of operations and the home bases. Costs directly related to aircraft sorties (round-trip missions by individual aircraft), such as fuel, spare parts, and maintenance and repair costs are normally lower when this distance is not too big. Another variable refers to the specific terrain characteristics of the theatre of operations, as adjusting the equipment for specific conditions may also trigger additional costs.

Taking the example of a patrol mission, the starting point for calculating the costs would be to establish the variables influencing the total cost, such as the number of kilometers patrolled, the average speed of the vehicles on patrol, the maintenance costs etc.

The first step would be to establish the number of kilometers patrolled in a certain area and calculate an *average cost/kilometer patrolled*. This cost takes into consideration personnel, maintenance, operation and other types of

costs, based on the operational procedures and requirements. This type of analysis must also take into consideration the specific geographical and climatic conditions, as maintenance and operational costs may increase in mountain or desert areas.

Another component of the cost/mission derives from the *operation costs*. One of the most important cost in this category is the fuel consumption cost, calculated taking into consideration the *average cruising speed* of the patrol vehicles. Depending on the type of vehicles used, there is the temptation to calculate the fuel cost based on the optimum cruising speed in order to optimize fuel consumption. Yet in the theatre of operations, this speed is usually established in such way as to maximize the convoy security, meaning a higher speed and higher fuel consumption, so in the estimation of the fuel consumption cost this is the average consumption rate which should be taken into consideration.

In this category of costs, the cost/mission should also include the *replacement costs* for the damaged and destroyed equipment and the *cost of the ammunition used* in the operations.

Maintenance costs form another important part of the cost/mission calculation. While the scheduled maintenance cost is easier to calculate, based on specific existing rules and regulations, the unscheduled maintenance (resulting from unforeseen events) is more difficult to estimate. Both types of maintenance depend on the specific climatic conditions in the theater of operations (difficult areas, with heavy dust, big temperature differences or rough terrain), but the cost of unscheduled maintenance is more likely to be increased due to these factors. Allowance must also be made in the cost calculations for the unscheduled maintenance costs resulting from the military operations themselves (damage from bullets, shrapnel, accidents etc). A good estimation of the maintenance costs is important in calculating the overall budget for the international mission, as the US Army found out when the

maintenance cost of the Humvee greatly exceeded the estimations and they were forced to ask for an unforeseen budget increment in order to be able to continue the operations in Iraq.

Another issue of debate in computing the cost / mission derives from the *cost of specific training for the military personnel for this types of missions* (field applications and simulations), which is usually featured in the budget of training centers and operational commandments, but should also be added up when calculating the financial implications of an international operation.

This kind of indicators (cost/ international mission/ year, cost/vehicle, cost/patrol mission, cost/transport mission etc) can be particularly useful if compared to the costs incurred by other allies in similar missions, especially if using the same or similar equipment. For instance, the cost/kilometre patrolled or cost/ vehicle or cost /crew for a Piranha III LAV could be compares to the same cost for other members of the coalition in Afghanistan. Should these costs be higher would signal a potential cost problem, as the personnel cost for our country are lower.

The comparison of these indicators to the ones calculated by other allies may also help decision makers analyse and take into consideration another very important cost related to international operations, namely the opportunity cost. Defined as “the value of the next best alternative foregone as the result of making a decision” ^[1], the opportunity cost is an important (although often ignored) part of a decision-making process. Often, using (or acquiring) cheaper equipment may provide short term financial savings, but on long term such decision may prove a lot more costly.

As an example, a light armored vehicle may have the advantage of a cheaper acquisition price, but the disadvantage of an inferior armor, meaning that it can be easily destroyed. This means that the vehicles must travel in large groups to provide safety in numbers, meaning a very inefficient use of

manpower (with the inherent increase in costs) and a drastically reduced area that can be patrolled. At the same time, notwithstanding the cost of the human life, which is impossible and even immoral to be financially quantified, each time a soldier dies, the moral of civilians and soldiers is harmed. The result is a reduced military effectiveness and the total cost may be a lot larger than the original financial savings.

The financial and economic indicators for international missions analyzed above are by no means exhaustive. For each type of mission and depending on specific variables, a lot more particular indicators can be identified. In this respect, the importance of these indicators derives not only from the correct identification of all relevant indicators, but also from the way these indicators are used to facilitate better decision-making and a more cost-effective use of the existing funds.

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