

**REGIONAL DEPARTMENT OF DEFENSE RESOURCES  
MANAGEMENT STUDIES**



**THE 8<sup>th</sup> EXPLORATORY WORKHOP  
"DEFENSE RESOURCES MANAGEMENT -  
TRENDS AND OPORTUNITIES"**

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# **IMPLEMENTING A NEW AND ADAPTED EVALUATION CONCEPT AS AN ALLIANCE BEST PRACTICE**

*LTC Nicolae BABAN*

*“Don’t ever expect Air Force people to just let change happen. We get ahead of change, shape change, make change work for us.”*

Gen Merrill A. McPeak

## **ACKNOWLEDGMENTS**

When I have chosen this final paper title I first asked who needs it, who is interested in such a topic? The answer came extremely easy in my mind. First of all, my colleagues and I need it. Second, it could be a future development analyses or an article published in a military review. Finally, I had written this course final paper, in support of the Evaluation Branch within the Air Force HQ, the place where I work. The paper provides some important elements dealing with the complex and dynamic area of evaluation. This is a time of rapid change in the evaluation's community. The old system is not available anymore and the changes appear as a result of transformation and reform processes.

My proposal summarizes the outcomes from six years of experience and work with and within NATO evaluation system. Moreover, I have wanted to show a way in asking the right questions and seeking the best answers through a deeper understanding of evaluation principles. The purpose of writing this paper was also to provide a tool for understanding the fundamental concepts of evaluation and approach for organizing our thinking about the task of evaluating military forces. It wishes to be a proposal for the future Air Force evaluation system and is issued to stakeholders and members of the evaluation community as an invitation to think openly and creatively about AF evaluation needs and contribute to improvements.

I convey my appreciation to Junior Lecturer Aura Codreanu and the CRMRA staff. This paper could not have been completed without their support. Mrs. Aura Codreanu has provided important directions and ideas, and critical scrutiny of my efforts, drawing upon his widely varied experiences to help me in dealing with such a complex issues. Moreover, the challenging and rigorous academic atmosphere promoted by CRMRA allowed me to make

such efforts possible. Also, an excellent administrative organization of the centre provided me the time to devote to write this paper on time.

## 1. PURPOSE

There are four elements that drive the necessity to analyze the AFs' operational readiness evaluation systems and one significant opportunity for this analysis. The first element is the AF transformation process. Since Romanian Armed Forces Training Policy was last promulgated, the AF has suffered perhaps its most significant transformation, a process needed to remain relevant in the 21<sup>st</sup> Century to meet the changing strategy and military requirements of the current security challenging environment. In this context it will be important that we understand how to adapt the AF existing Training and Evaluation Policy in a general line to encompass the challenges getting up from its transformation process, consequently better developing operational realities.

The second element is connected with our Target of Capabilities and the third one is related to the AF commitment to consolidate the combat readiness forces. Currently, the AF evaluation system is limited and focuses on evaluation of NATO declared forces only. As a result of the AF reform, we know that there will be new evaluation requirements to be met for the consolidated forces. We need to find out how to meet these needs.

The fourth element is our Training, Exercises and Evaluation (TEE) system which is a key element in this approach, setting the basis for training standards and providing essential tools to achieve appropriate standards for forces and capabilities, ensuring that all of our TEE activities are systematically linked to an operational objective. It is important to realize why and for what we are preparing forces, so prioritization and allocation of resources and effort can facilitate a more dedicated program. In this respect, in his Annual Guidance on ETEE<sup>1</sup>, SACEUR has said that *“national forces are highly encouraged to take advantage of the ETEE opportunities and to utilize their national system for the betterment of the Alliance. NATO relies on nations to provide forces of known standards, focused evaluation processes, clear ACO forces standards and well recognized national responsibilities for the achievement of them, therefore remain paramount ..... NATO evaluation program should be used as guidance for nations when developing their national evaluation programs”*.

From the last 5 years, NATO has been evaluated most of the AF declared units and capabilities providing us with a wealth of practical experience through a variety of methods in

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<sup>1</sup> SACEUR's Annual Guidance on Education, Training, Exercises and Evaluation (SAGE), 2013-2017, dated 08 July 2011

this area of expertise. In my opinion, this experience has been properly captured providing a tremendous opportunity to intelligently and promptly chart the proper course for the future of the AF evaluation system. This is, actually, the aim of my paper, to identify a new and adapted evaluation concept as directed by AF chief of staff, as a way to implement the NATO evaluation system into the AF's activities.

*“ROU AF requires a fully implementation of the NATO evaluation system, with the intention of creating a new and adapted evaluating concept for the consolidated national home defense forces”.*

As a member of evaluation community, I found the chief of staff concerns to be well founded. Most nations have adopted and appreciate NATO evaluation program. For many nations, the structured methodologies support force level training programs. Although the NATO evaluation methodologies are well regarded and used by our AF as important aids in the development of their force capabilities, their effectiveness could be enhanced and increased by smarter way of working. We recognize that our evaluation system is reactive and has a limited area of implementation. We need to change it to a proactive evaluation system and more operationally oriented approach. This will provide more relevant data on capability, readiness and performance, not only of NATO declared forces, but also of national home defense consolidated combat readiness forces.

As recommended by SACEUR, the NATO evaluation program should be used as a guide when developing our national Evaluation System for the combat/operational readiness units. Operational readiness is the organization, manning, and training level of a unit that allows it to be rapidly deployed, integrated, and immediately employed as part of a joint, allied, or coalition force<sup>2</sup>. Combat readiness is the capability of a unit, ship, weapon system, or equipment to perform the combat missions or functions for which it is organized or designed<sup>3</sup>. Evaluation is a structured process consisting of the thorough examination of capabilities and performances against defined standards and criteria<sup>4</sup>. Overall, the evaluation process purposes to improve the combat readiness and capability of units and force components with respect to their capability including resources and performance, in order to effectively and efficiently conduct assumed missions and tasks. It is also examine the validity and consistency of systems, procedures and objectives.

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<sup>2</sup> School of Advanced Military Studies United States Army Command and General Staff College Fort Leavenworth, Kansas, AY 02-03, *Evaluating Operational Readiness for Fixed-Wing Tactical Aviation Units*, by LtCol Jeffrey L. Hoing, USMC, 11;

<sup>3</sup> Department of Defense, JP 1-02, *Department of Defense Dictionary of Military and Associated Terms*, 77, 311;

<sup>4</sup> MC, *NATO Education, Training, Exercise and Transformation Policy*, MC 0458/1, dated 27 March 2006.



**“We verify that you’re doing what you think you’re doing!”**

Carter McNamara, “A Basic Guide to Program Evaluation”

## **2. NATO EVALUATION SYSTEM AS A BEST PRACTICE**

The North Atlantic Treaty Organization (NATO) developed a military structure to create and maintain the military capabilities to conduct Article-5 (NATO member attacked) and non-Article 5 Crisis Response Operations (CRO). NATO had to create an integrated military structure that established performance, interoperability, equipment standards, standard operating procedures, support, and a framework for common language, terminology, and doctrine. In order to ensure that these diverse forces were trained to operate and fight together, NATO developed training, exercise, and evaluation criteria.

NATO nations “declare” forces as available to NATO force requirements and have a designated readiness category and standards to maintain. NATO directs that the evaluation and assessment of declared units must be made by means of an independent evaluation program. The TACEVAL is that program and is mainly focused at the AF unit’s declared capability. The program contains several generic tools, which evaluate or assess the operational or combat level of a specific unit or a capability. The TACEVAL presents a unit with an integrated operations, logistics, and force protection scenario to demonstrate its declared capability, in a simulated contingency in either a conventional or NBC environment. TACEVAL evaluators are given specific directions on how to properly coordinate and conduct the evaluation. The evaluators conduct an objective, honest evaluation against specific detailed criteria and standards.

TACEVAL uses a logical, simple framework for NATO forces to understand their responsibilities. NATO forces are to focus their preparation on rapid deployment, sustainability, interoperability, standardization, and training with a balance between operations, logistics, and force protection. NATO also encourages declared forces to train together and holds exercises to facilitate this integration and for saving money. TACEVAL conducts a detailed tactical level evaluation and does a very good job of integration at the operational level. The TACEVAL scenarios also enhance operational reach, agility, adaptability, integrated operations, and interoperability.

NATO TACEVAL is a good system that evaluates elements at the operational level of war that will enhance operational scope. It provides a balanced evaluation of operations, logistics, and force protection. We need to develop an operational readiness evaluation system to test and exploit these new concepts to increase operational reach.

NATO TACEVAL has procedures that test and evaluate agility, is the only system that truly evaluates integrated operations and, in my opinion, is the best system to evaluate interoperability. While the other systems are not as good at this as TACEVAL, the increased requirement and attention on interoperability is improving service efforts. The AF needs to develop an operational evaluation system where it can ensure it is interoperable with joint and coalition forces as technology and systems change.

### **3. VISION AND CORE PRINCIPLES**

Vision for the Evaluation Concept comes from the AF annual guidance and sees a superior delivered operational capabilities outcomes, by improving effectiveness and efficiency and achieving a smarter way of working. The Evaluation Concept will use the existing methodologies, constantly improved where possible. It will be a tool flexible and complex to requirements and challenges of the future AF. It will be focused on delivering better capabilities outcomes rather than just checking standards, in this way ensuring that forces are prepared to meet contemporary operational challenges and encouraging these forces to continually improve. In addition, a better outcome it will be achieved by more efficient and effective use of resources (improving efficiency and effectiveness) – having a clear prioritization of evaluation effort, matching the allocated resources to AF priorities and providing ability to reduce the evaluation cost. Finally, it will engage smarter ways of working by quality assurance of the whole training system, creating premises for a common evaluation framework.

In relation with this vision I propose a statement for AF evaluation system that will raise its horizon and bring it into line with AF's mission focused objectives:

*“To assure that consolidated home defense forces and/or capabilities are ready and prepared to meet current and contingent operational priorities in accordance with national required standards in the operational, procedural, material and technical fields”.*

In order to incorporate the best practices of the existing NATO evaluation system, I propose implementing the following core principles<sup>5</sup>:

- Trust but verify. Apply the mutual trust as a mean of reflecting AF unit's responsibilities for preparing their consolidated forces to national standards and only undertaking national led evaluations where risks and priorities are highest and where the benefits of evaluation exceed the cost;

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<sup>5</sup> ACO Evaluation Programmes Review, SHAPE, dated 05 August 2011, page. 2, 10

- Risk based prioritization. Change from an evaluation system based on cyclical approach to an evaluation based on priorities and risks. This will enable AF to make informed choices about best use of scarce resources by balancing costs of evaluation versus priorities and risks of the missions and tasks. Risk is defined as the total number of factors that could have a critical effect on the success or failure of the AF missions/objectives. It is important we all understand why and for what we are preparing forces, so that prioritization of effort and allocation of resources can facilitate a focused program. Risk based prioritization is a dynamic management tool which must be permanently reviewed in order to be relevant. Evaluation should be performed when priority and risks are high. In this way it will deliver a greater value. Evaluation of low priority and low risk must be rarely performed as an exception, if budget allows;

- Continuous improvement. We use to say that evaluation is part of training process, but in fact it is not integrate in it. The artificial organizational barriers create a lack of feedback for the training system. The evaluation is an opportunity to assess current performance, capability and readiness, is a viable solution to improve doctrines and standards, to share best practices and lessons learned and to solve the identified deficiencies. A continuous improvement will enable consolidated structure to become better by applying lessons learned and feedback from evaluations. The concept is proposed to provide an interactive and effective approach in which evaluation looks on the whole training system not just on the end of the product, when in my opinion, is almost too late to change something;

- Quality Assurance and Quality Control. Quality Control contrasts obviously with Quality Assurance approach, the last being a proactive process. As I mentioned before, current type of evaluation is a reactive one, as it scrutinize and detect if forces comply or not with standards/criteria and finally it makes recommendation for corrective actions at the end of the training process. Switching from just Quality Control to a wider Quality Assurance means to check the finished product and permanently focus on the entire training process as well. This solution, which can be successfully applicable to all consolidated forces will prevent non-compliance with standards and will reduce the risk the forces not being combat ready on time. However, Quality Control remains an essential and integral part of the Quality Assurance concept;

- Accreditation of AF evaluation system. Consider and recognize the AF evaluation system as being top class local-solution which might be accepted by other services as a best practice and providing a valuable team of experienced and knowledgeable evaluators, in this manner promoting inter-services burden sharing. Later on, each service will participate to

other two service's evaluations with experts having special and narrow expertise and experience required within specific functional areas, relevant to that service. This approach conducts to the next principle by creating the possibility of using multidisciplinary team as a consequence of the need to join resources and to unify effort to conduct joint evaluations in a most efficient and effective manner;

- Common evaluation platform. A common evaluation platform covers common standards across all services. It will enable to develop a multi-service evaluation team for the operational level. The services evaluation methodologies must continue to be used especially on the tactical level. It sounds extremely difficult to create a common evaluation platform for joint level using a single methodology. However, there is room for building more coherence between the services in regard of policy and methodologies. There are substantial parts which might be applied as a common evaluation framework and evaluated regardless of service background, such as administrative elements (policy, legal affairs, and finance), command and control, force protection and few logistic elements. These commonalities might be described as "common service knowledge" and create the possibility and chance of developing a multidisciplinary, multiservice evaluation team which will be most likely oriented on the operational level evaluations. It will create a valuable pool of experienced and knowledgeable evaluators which will act more efficiently and effectively at joint level. It never happened until now, that's way we need sooner a positive experience in order to verify, validate and encourage identification of this principle. In my opinion, a multidisciplinary team and a common evaluation platform could be employed possibly in the General Staff led evaluations, only. Implementation of this principle generates and creates permissive conditions to the last one principle;

- Exploiting Common Information. We must frankly recognize that each service uses its own database, paper records and scenarios, injects etc., to build and perform an evaluation. In addition to this, I should mention the extremely valuable team and database existed at the Nation Defense University Simulation Branch. Also the training, exercises and lessons learned databases must not be neglected. The ability to link all these individual databases enabling exchange and sharing information would contribute to a significant greater return on the investments and hard work individually performed. The most important fact is that appliance of this principle of Exploiting Common Information would avoid possible wasted effort and sub-optimal expenditure.

Having looked at how we evaluate, my proposal of a new system based on Alliance's evaluation core principles it will be clearly linked to the rest of the training system while

extending the lessons learned process and providing a better feedback instrument. This will be managed more effectively by the new AF A7 entity.

#### **4. THE NEED**

In general, evaluation has a specific organizational structure, location, philosophy and application. Specific for AF, evaluation is undertaken by dedicated teams, composed by a core team (key personnel working in the HQ) augmented by trained and qualified evaluators from different operational structures. However, this well organized and dedicated structure has some potential weaknesses and some areas of concern.

First of all, the current evaluation system is cyclical and limited to specific forces. At a time of AF reform when there are demands for more units to be evaluated, but resources are less, we need more detailed consideration of need. We must look for a better efficiency and to increase effectiveness. Such a system it appears unsustainable, that's why we need to adjust it by assessing priorities, adapting the scale of the evaluation system in order to match the affordable budget. How to do this? Through applying the good practice of the NATO evaluation program.

Second, we must take into consideration priorities established within the Chief of AF Annual Guidance. It is self-evident that, with some exceptions, the vast majority of evaluations do not address consolidated forces, which are now the highest level priorities. Most of these forces are not evaluated and Chief of AF has no independent assurance that they meet standards. What to do? We need to review our priorities, focus on consolidated forces (priority 1) and extend the evaluation cycle for those forces from priority 2 and 3.

Third, the cost-effectiveness needs to be bringing into sharper focus demanding for efficiency. In general, leadership continues to question the cost of participating in exercises and evaluation, being mainly concerned of the cost effectiveness, contemporary relevance and time commitments demanded by the evaluating systems. Training, exercises and evaluation are to be conducted in the most cost effective manner, which meets the AF interest and the operational training objectives. The scale and complexity of an AF evaluation combined with a specific exercise in support of this event (having direct cost, indirect cost, and possible hidden cost) makes difficult to establish the true cost and benefits of an evaluation. In the absence of accurate costs we must focus on opportunities to improve the efficiency, effectiveness and quality of evaluation.

Fourth, the value of evaluations is related to the quality of final evaluation report and how useful is for the leader for making pragmatic decisions. The quality of evaluation report

is a consequence of the quality and highly experience of qualified evaluators. On one hand, they must come from operational units where they are currently performing specific job similar to that position they occupy into the evaluation team. On the other hand, they must perform a specific training in order to be certified as qualified evaluators. All of these mean dedication to this job, time and budget for training and maintaining the qualification level by attending an international evaluation every three years.

Fifth and the last, we need to use evaluation as a feedback of training and exercises process. It must be real part of the training system; it must not act separately and should not come at the end of the process, focusing on the quality “check” and not on the quality of the training product. It is necessary to conduct our evaluations sufficient time in advance in order to get the chance to influence the development of capable and ready forces. In fact, we do this, but at a low level scale and visibility being forced to act in this way by scarce of resources. As a consequence, some feedback from training and exercises is provided but not adequately exploited. Moreover, there is little relationship between evaluation process and lessons learned. The focus of AF training must be on the achievement and improvement of effective capabilities. Therefore, the evaluation procedures are designed to identify existing capabilities and shortfalls, identify their causes, determine future priorities for training at all levels and identify necessary changes to doctrine, procedures and force structure to meet the agreed standards and criteria.

## **5. EVALUATION AND CERTIFICATION REQUIREMENTS**

The principal aims of the New Evaluation System are to evaluate and rate the operational/combat readiness and capability of consolidated forces against given requirements and standards, identify shortages in units resources and performance and make recommendations for the improvement of operational standards, resources and performance. The type of evaluation or assessment to be applied to the consolidated forces will be in accordance with NATO evaluation types based on size and role of the unit.

The reform of ROU AF will have impact on the evaluation system implementation as they will be initiated simultaneously. AF HQ will maintain a permanent evaluation capability (Evaluation Branch) in order to provide the core team. As the number of evaluated units has increased and the priorities has changed based on risk analyses, the conduct of evaluations will relay even more on augmentations than ever before. The Evaluation Plan must focus on implementation of the system by AF in order to have their forces ready and prepared prior to the end of the AF reform. Under the new AF Evaluation Concept the conduct of evaluation

will be based on AF Comm risk based priorities in order to ensure best use of scarce evaluation resources.

The AF - Evaluation Branch will lead the process to assure that consolidated forces are prepared and meet operational priorities in accordance with accepted standards. Air Operational Component will therefore assume an intelligent Customer role, articulating training requirements and evaluating product outcomes, in a customer-supplier relationship with Training and Doctrine Module. This role covers few important functions: description of the requirements (including standards), providing inputs, based on evaluation of training products and confirmation and reception of final outcomes with opportunity to identify remedial actions.

Evaluation is planned, organized and conducted as a detailed and structured investigation of specific aspects of force capability and readiness against specific standards and also integrated common procedures. General standards, specific operational capability requirements and performance criteria are the main yardsticks against which the combat readiness and operational capabilities of forces are measured. The AF structures/capabilities declared to NATO will continue to be evaluated based on NATO standards and methodologies. In addition, the AF is responsible for ensuring their national home defense consolidated units are subject to evaluation and meet the required standards in accordance with their declared Readiness Category. The authority to validate declared units adherence to national operational capability and performance standards is vested with Unit's Commander. Desired outcome is to certify the consolidated units and assure they are ready and prepared to meet current and contingent national operational capabilities. Certification is a process by which a military authority gives formal assurance that a unit comply with the demands and requirements to fulfill a specific task or mission.

The process leading to certification of consolidated forces is a bottom-up program, in which commanders are vested with authority to ensure forces under their command comply with national standards and are ready and prepared to meet the requirements within the time allocated to stand-up and prepare the force. Overall responsibility for the certification process rests with the chief of the AF. The whole certification process of the consolidated forces is directly supported and monitored by AF HQ. Basically, certification may be based on existing evaluation and on other available supporting information. The AF HQ will develop basic guidelines to administrate the certification plan over the long term. In order to assess the readiness and the capabilities against required standards, there are some tools available: staff assistance visits, audits, evaluation visits, partial or comprehensive operational readiness

evaluation. Once certification standards have been achieved, the unit commander will ensure that standards are maintained.

The use of AF exercises and training events has to be optimized to meet the demands of criteria for preparing, training and certifying the consolidated forces. Typically, the exercises are the evaluation vehicles. In order to efficiently use the allocated budget, the evaluations will be carried out during training and exercises periods depicted in AF program and will be coordinated during respective training and exercise meetings.

The operational readiness evaluation, conducted by a team of up to 40 people from AF HQ, measures how prepared a consolidated unit is to go to war, evaluating the ability to respond and adapt to a contingency scenario, better said, the ability of that unit to perform assigned operational missions. The weeklong undertakings look at all war-fighting functions — from personnel paperwork to how many aircraft take off on schedule. For scheduling purposes, the AF HQ may conduct the evaluation in two phases. The phases evaluate two separate and distinct areas of a unit's tactical and operational capability. In most cases, Phases I and II are conducted "back-to-back" during a single evaluation event and the scores of each phase are combined for an overall evaluation grade.

Phase I will evaluate the unit's transition from normal peacetime readiness/operations into a wartime/contingency posture. Unit must demonstrate their ability to deploy to an alternate location and its ability to maintain and sustain essential missions. Major areas of evaluation include the time it takes to start initial flight operations, aircraft maintenance operations, weapon delivery and preparation, and supply operations. The unit is evaluated on its ability to establish appropriate reliable communications capabilities and force protection measures to accomplish mission requirements.

Phase II is the employment phase and will evaluate the unit's ability to meet wartime tasking. Like Phase I, contains elements at both the tactical and operational levels of war evaluating three major subareas: employment, mission support and force protection. It will be verified the accuracy, timeliness, and adequacy of the unit's ability to receive and disseminate tasking directives. The unit commanders and personnel are tested on their familiarity with applicable plans, their ability to analyze ATOs and assign missions, and their ability to coordinate actions between internal and external agencies. Detailed, thorough evaluations of both the Operations and Maintenance Departments are conducted during tactical mission operations.

Units will be evaluated and graded in six major areas: initial response, preparation for deployment, deployment, employment, mission support (sustaining the force), and the force



protection capability in a hostile environment. The evaluation team will focus on mission performance. Academic testing will not be used as a primary measure of readiness unless it serves a specific evaluation objective, or hands-on performance cannot be observed. A four-tier rating system (consisting of Outstanding, Satisfactory, Marginal and Unsatisfactory) will be used for major graded areas and overall unit performance.

In terms of frequency, although optimum frequency varies based on priorities and risk assessment, a no more than 60 months between Operational Readiness Evaluations is required and the advance notice will be approximately one year. Evaluations scheduled within 120 days of the 60-month interval do not require a cancellation. Conducting the evaluation with short notice or no notice will always be an option and is supposed to keep the unit from getting self-satisfied.

Units with an overall rating or individual graded area rating of MARGINAL or UNSATISFACTORY will normally be re-evaluated no earlier than 90 days, but no later than six months following the initial evaluation.

Evaluation core team will create a scenario with a realistic environment for evaluation while ensuring safety is not compromised. A good scenario allows a better evaluation of both sustained performance and contingency response. Since units must be ready to meet the full range of potential assigned tasks, evaluation will periodically assess the consolidate units against OPLAN tasks. Whenever practical, scenarios may be combined with those of other AF exercises. Units should make every attempt to minimize simulations and react to evaluation scenarios as they would during a real-world situation. Simulations will be reserved for those actions which are cost prohibitive or present unacceptable risk to personnel or assets to perform in an exercise situation.

The evaluation team will focus on the results of the activity in support of the unit mission and to identify its strengths and weaknesses. It will use specific scoring to reporting evaluation performance. Findings are validated deficiencies which will be assessed during the unit's next scheduled evaluation. Deficiency corrective actions must address the core problem, not the symptoms described in amplifying/clarifying comments. Each finding will get assign one of the following deficiency levels<sup>6</sup>:

1. Critical Finding. Any deficiency that results or could result in widespread mission impact or failure. Critical deficiencies usually result in an "Unsatisfactory" rating for the specific area and could result in an overall unit "Marginal" or "Unsatisfactory" rating.

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<sup>6</sup> US Air Force, *Instruction 90-201 - Inspector General Activities*, dated 22 November 2004, 2.6

2. Major Finding. Any deficiency that has or could have significant mission impact. The deficiency may cause a unit to be rated “Unsatisfactory” in one or more evaluated areas.

3. Minor Finding. Any deficiency that is procedurally incorrect but has only modest mission impact.

In addition to that, the AF Evaluation Branch will record observed Best Practices as an addendum to all evaluation reports. Best Practices are designated by the evaluation team chief based on coordination with appropriate area chiefs and functional experts.

In terms of cost, the Evaluation Branch must be a good steward of AF resources allocated to the evaluation events, to ensure that limited resources match the priorities. In order to minimize cancellation within the Evaluation Plan, because of the reduced funding level, it is more important than ever to develop further procedures where the cost-benefit is considered when planning an evaluation (including its supporting exercise), the Level of Ambition and the desired output should be considered. Using some important exercises in evaluation and certification benefits, in order to have the exercise process more cost effective, it might be suitable if arrangements and synchronization have been done in advance.

One important aspect that should take into consideration is Lessons Learned. In addition to those coming from current exercises, the lessons and best practices must be collected from as many evaluation activities as possible, evaluators having an important role in providing pertinent inputs. All of them should be a subject to a quickly procedure of identification, rectification and implementation using the Lessons Learned process. Then, the units at all levels are to incorporate and share the lessons learned to the maximum extent possible in order to improve the evaluation system. Finally, this will lead to increase the effectiveness and efficiency in the preparation of consolidated forces.

In addition, another issue requiring attention is the current lack of qualified evaluators. Allocated augmentee subject matter experts must have the necessary experience and be available for specific training and preparation through specific courses and training seminars. The reduced staffing with HQ, plus the limited contributions from operational units is causing a critical shortage. Irrespective of whether the units will have more or less consolidate structures in the near future, it is required a stronger evaluator contributions from them. This will allow units to develop a core of experienced evaluators for their internal purposes and for the higher echelon as well. AF HQ is responsible to eliminate the critical shortage by selecting the personnel, planning and conducting the required courses, providing the perspective on the evaluation process. The main path to prepare such top-notch team is by attending an initial national training session, annually organized by the AF HQ Evaluation

Branch, followed by participation to a national evaluation. Then, the most important step is to attend a TACEVAL course at NATO School Oberammergau, immediately followed by participation to an international evaluation in order to get the certification as a qualified evaluator. In this way, the operational units will support the AF evaluation system and will get more well prepared and knowledgeable personnel. The initial national training session is designed primarily for newly assigned AF evaluation team members, but other qualified evaluators can attend on a space-available basis. The AF Evaluation Branch is responsible for the content and conducting this specific training that addresses unique aspects of their mission.

Quality assurance and feedback are important to meet requirements. As the Connected Forces Initiative stipulates, there is a “*need to validate the efforts undertaken, to standardize skills and to certify the results*”. The Evaluation Branch must submit the evaluation reports providing the AF Comm with information and assessment of the level of participation, results on resources and performances and deficiencies on implementing standards. Adopting Quality Assurance approach would be valuable for AF by influencing force capability and readiness, by enabling AF HQ to help units improve the quality of their training and therefore provide forces that are adequate to purpose. When focus more on Quality Assurance it will spend less time on Quality Control and that means fewer evaluations. The Quality Control will remain but might be reduced if a unit demonstrate that their training program conduct to compliance with standards. As a consequence, the risk will decrease and the unit might be accepted without an evaluation. However, for the purpose of feedback and for improvement of the training system, a certain amount of evaluations will remain necessary.

## **6. THE BENEFITS OF THE NEW EVALUATION CONCEPT**

It is important to say that benefits of the new AF evaluation system are direct consequences of using the identified best practices. It increases the evaluation perspective and concentrates on allowing outcomes that fits with AF missions. The evaluation system follows a core of principles and limits the number of assessments in accordance with priorities and risks identified. In this way the benefits exceeded the cost, creating an added value from AF involvement. There is a potential for substantial cost saving from prioritized evaluations rather than cyclical which does not provide a value for money. It allows the AF to create a continuous improvement learning cycle, encouraging the consolidated units to become the best they can be. The system helps transforming the lessons identified into lessons learned

through specific tools and monitors their implementation during evaluations. Consequently, units improve their training and deliver forces that are better fit for purpose.

The new AF evaluation system could make an important step in building a common evaluation platform which might be applied at joint level enabling multiservice team to be created. This will allow using a pool of qualified evaluators which potentially decrease the overall evaluation cost. Also, it will permit to share the information and the lessons learned database.

An important benefit comes from evaluation scoring and reporting on unit's performances. Validated deficiencies will be tracked until closed out, and if necessary, they will be re-assesses during the next evaluation. For AF Evaluation Branch data tracking purposes, all findings will be assigned a cause code in the evaluation report in accordance with assigned deficiency level.

## **SUMMARY**

To conclude, the New AF Evaluation System might be a significant improvement and an opportunity to make optimum use of resources. Findings in this paper are focused on one single service evaluation system, only. However, some findings might apply to other services as well. In general, an evaluation within AF is to be conducted in order to evaluate the consolidated units, to grade their combat readiness and operational capabilities and to identify their strengths and shortfalls. The AF Comm will determine the most efficient way to evaluate combat readiness, appropriate to resources available, timeframes of restructuring and reform process and level of ambition. Evaluation can be used either for determining and proving own capabilities at a certain level before informing the higher echelon ("bottom up"), or on higher level for validation of subordinated units' readiness ("top down"). Commanders at all levels are responsible for the cost-effective and correct administration of resources provided to sustain exercises, training and evaluation activities. In order to get the requirements within agreed budget ceilings, commanders will frequently be asked to make difficult decisions in terms of priorities of competing training, exercise and evaluation elements.

The evaluation will no longer focus on performance during exercises only, it will take into consideration all activities during the entire preparation cycle of the consolidated units, in order to verify that forces are ready and prepared to meet current and contingency operational priorities in accordance with national required standards.

This new evaluation system will permit implementation, in a convenient time, of remedial actions throughout the entire preparation cycle of the consolidated units. Evaluation will be an on-going process aiming at improvements throughout the preparation phase.

This paper lays a foundation and its findings might be developed. All evaluation and lessons learned stakeholders are encouraged to contribute their ideas and help adapt and improve evaluation methodologies. Evaluation requests a much severer focus on AF needs and priorities, superior integration into the training process and greater contribution to continuous progress of consolidated forces.

You may see my try as a way to consolidate a local solution – finding. I would wish to expect high influence on my proposal. On one hand I am looking for a proactive support from the entire evaluation community. They will easily understand it as they have permanently got in contact with other NATO qualified evaluators and have shared their experience. On the other hand I am sure there will be a proactive resistance as well, mainly from the operational environment. They would probably consider this concept not sufficient adapted to our national standards and difficult to apply against them. I am ready to work on it and to change this resistance into a desirable support. This approach will make evaluation methodologies relevant and congruent with the current AF reform program.

I consider that reading and using this paper and these approaches with judgment, could constitute a real and challenging art. This evaluation concept represents an opportunity to make optimum use of good practice already being applied or developed within NATO. More importantly, it wishes to align the evaluation system with the AF reform were limited resources, not only in terms of funding but also in terms of personnel, will be available.

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# PROJECT QUALITY MANAGEMENT

*LTC. Eng. BOTA Marius Gheorghe*

## 1. INTRODUCTION

Project Quality Management includes the processes required to ensure that the project will satisfy the needs for which it was undertaken. It includes “all activities of the overall management function that determine the quality policy, objectives, and responsibilities and implements them by means such as quality planning, quality assurance, quality control, and quality improvement, within the quality system”.

Project Quality Management, describes the processes required to ensure that the project will satisfy the needs for which it was undertaken. It consists of quality planning, quality assurance, and quality control.

Quality management in projects addressing both outcomes of project management such as cost and schedule performance and quality of the product / service from the project, eg deliverables. Quality control of project is used to verify that the specific deliverables are of acceptable quality and that they meet the criteria of completeness and fairness established in the planning process quality.

Quality Management processes include the following major projects.

1. Quality Planning—identifying which quality standards are relevant to the project and determining how to satisfy them.
2. Quality Assurance—evaluating overall project performance on a regular basis to provide confidence that the project will satisfy the relevant quality standards.
3. Quality Control—monitoring specific project results to determine if they comply with relevant quality standards and identifying ways to eliminate causes of unsatisfactory performance.

These processes interact with each other and with the processes in the other knowledge areas as well. Each process may involve effort from one or more individuals or groups of individuals, based on the needs of the project. Each process generally occurs at least once in every project phase.

Although the processes are presented here as discrete elements with well defined interfaces, in practice they may overlap and interact in ways not detailed here.

The basic approach to quality management described in this section is intended to be compatible with that of the International Organization for Standardization (ISO), as detailed in the ISO 9000 and 10000 series of standards and guidelines. This generalized approach should also be compatible with a) proprietary approaches to quality management such as those recommended by Deming, Juran, Crosby, and others, and b) nonproprietary approaches such as Total Quality Management (TQM), Continuous Improvement, and others.

Project quality management must address both the management of the project and the product of the project. The generic term product is occasionally used, in literature regarding quality, to refer to both goods and services. Failure to meet quality requirements in either dimension can have serious negative consequences for any or all of the project stakeholders. For example:

- Meeting customer requirements by overworking the project team may produce negative consequences in the form of increased employee attrition.
- Meeting project schedule objectives by rushing planned quality inspections may produce negative consequences when errors go undetected.

Quality is “the totality of characteristics of an entity that bear on its ability to satisfy stated or implied needs”. Stated and implied needs are the inputs to developing project requirements. A critical aspect of quality management in the project context is the necessity to turn implied needs into requirements through project scope management.

The project management team must be careful not to confuse quality with grade. Grade is “a category or rank given to entities having the same functional use but different technical characteristics”. Low quality is always a problem; low grade may not be. For example, a software product may be of high quality (no obvious bugs, readable manual) and low grade (a limited number of features), or of low quality (many bugs, poorly organized user documentation) and high grade (numerous features). Determining and delivering the required levels of both quality and grade are the responsibilities of the project manager and the project management team.

The project management team should also be aware that modern quality management complements project management. For example, both disciplines recognize the importance of:

- Customer satisfaction—understanding, managing, and influencing needs so that customer expectations are met. This requires a combination of conformance to requirements (the project must produce what it said it would produce) and fitness for use (the product or service produced must satisfy real needs).



**Prevention over inspection—the cost of preventing mistakes is always much less than the cost of correcting them, as revealed by inspection.**

- Management responsibility—success requires the participation of all members of the team, but it remains the responsibility of management to provide the resources needed to succeed.
- Processes within phases—the repeated plan-do-check-act cycle.

Figure 1 provides an overview of the following major project quality management processes:

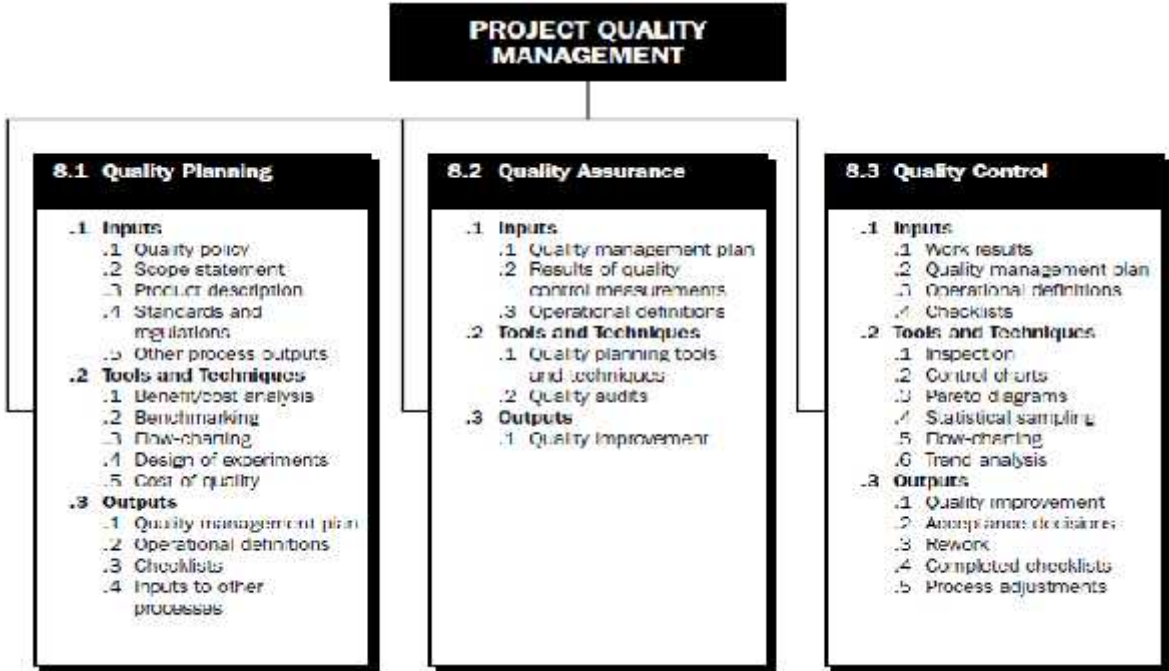


Figure 1. Project Quality Management Overview

In addition, quality improvement initiatives undertaken by the performing organization (e.g., TQM, Continuous Improvement, and others) can improve the quality of the project’s management as well as the quality of the project’s product.

However, there is an important difference of which the project management team must be acutely aware—the temporary nature of the project means that investments in product quality improvement, especially defect prevention and appraisal, must often be borne by the performing organization since the project may not last long enough to reap the rewards.

**CHAPTER 1: QUALITY PLANNING**

Quality planning involves identifying which quality standards are relevant to the project and determining how to satisfy them. It is one of the key facilitating processes during

project planning and should be performed regularly and in parallel with the other project planning processes. For example, the changes in the product of the project required to meet identified quality standards may require cost or schedule adjustments, or the desired product quality may require a detailed risk analysis of an identified problem. Prior to development of the ISO 9000 Series, the activities described here as quality planning were widely discussed as part of quality assurance.

The quality planning techniques discussed here are those most frequently used on projects. There are many others that may be useful on certain projects or in some application areas.

The project team should also be aware of one of the fundamental tenets of modern quality management—quality is planned in, not inspected in.

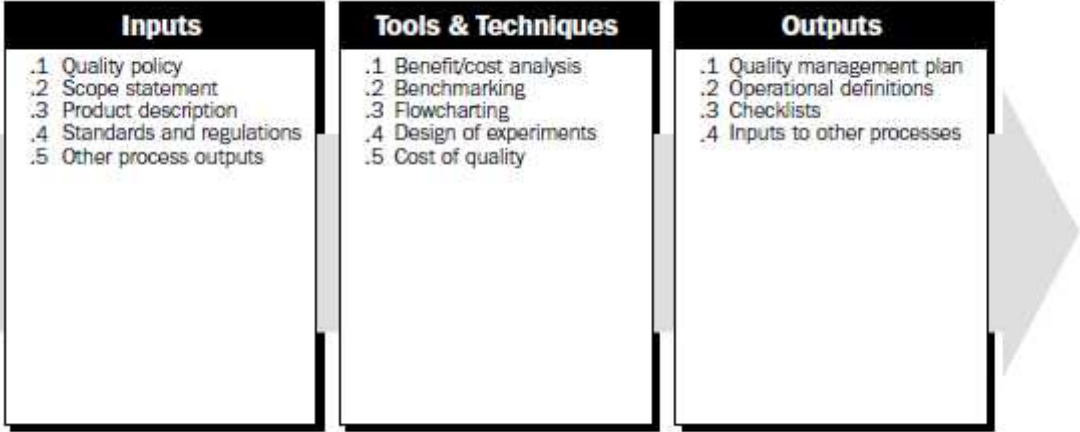


Figure 2. Quality Planning Overview

**2.1 Inputs to Quality Planning**

**1. Quality policy.**

Quality policy is “the overall intentions and direction of an organization with regard to quality, as formally expressed by top management” .

A quality policy is a document jointly developed by management and quality experts to express the quality objectives of the organization, the acceptable level of quality and the duties of specific departments to ensure quality.

The quality policy of the performing organization can often be adopted “as is” for use by the project. However, if the performing organization lacks a formal quality policy, or if the project involves multiple performing organizations (as with a joint venture), then the project

management team will need to develop a quality policy for the project. Regardless of the origin of the quality policy, the project management team is responsible for ensuring that the project stakeholders are fully aware of it (e.g., through appropriate information distribution).

ISO9001:2000 provides a clear framework for the establishment of your quality policy. Section 5.3 of the ISO9001:2000 standard has the following requirements:

“Top management shall ensure that the quality policy

- a) is appropriate to the purpose of the organization,
- b) includes a commitment to comply with requirements and continually improve the effectiveness of the quality management system,
- c) provides a framework for establishing and reviewing quality objectives,
- d) is communicated and understood within the organization, and
- e) is reviewed for continuing suitability.”

## **2. Scope statement.**

The scope statement is a key input to quality planning since it documents major project deliverables, as well as the project objectives that serve to define important stakeholder requirements.

A successful project scope statement should be concise and clear. Anyone reading the statement should have a good idea of what the project consists of (and what will not be part of the project). This statement will give a view of the project. It is also important to be specific in a project scope statement. For example, "The catalog will feature 100 products" is better than "The catalog will feature many products" and "The project will be completed over six months" is preferable to "The project will be completed over a period of time."

## **3. Product description.**

A product description in project management is a structured format of presenting information about a project product. Product description is usually created by the project manager and approved by the project board.

Although elements of the product description may be embodied in the scope statement, the product description will often contain details of technical issues and other concerns that may affect quality planning.

#### **4. Standards and regulations.**

The project management team must consider any application area-specific standards or regulations that may affect the project.

#### **5. Other process outputs.**

In addition to the scope statement and product description, processes in other knowledge areas may produce outputs that should be considered as part of quality planning. For example, procurement planning may identify contractor quality requirements that should be reflected in the overall quality management plan.

### **2.2 Tools and Techniques for Quality Planning**

#### **1. Benefit/cost analysis.**

The quality planning process must consider benefit/cost tradeoffs. The primary benefit of meeting quality requirements is less rework, which means higher productivity, lower costs, and increased stakeholder satisfaction. The primary cost of meeting quality requirements is the expense associated with project quality management activities. It is axiomatic of the quality management discipline that the benefits outweigh the costs.

#### **2. Benchmarking.**

Benchmarking involves comparing actual or planned project practices to those of other projects to generate ideas for improvement and to provide a standard by which to measure performance. The other projects may be within the performing organization or outside of it, and may be within the same application area or in another.

#### **3. Flowcharting.**

A flow chart is any diagram that shows how various elements of a system relate. Flowcharting techniques commonly used in quality management include:

- *Cause-and-effect diagrams*, also called Ishikawa diagrams or fishbone diagrams, which illustrate how various factors might be linked to potential problems or effects. Figure 2 is an example of a generic cause-and-effect diagram.
- *System or process flow charts*, which show how various elements of a system interrelate.

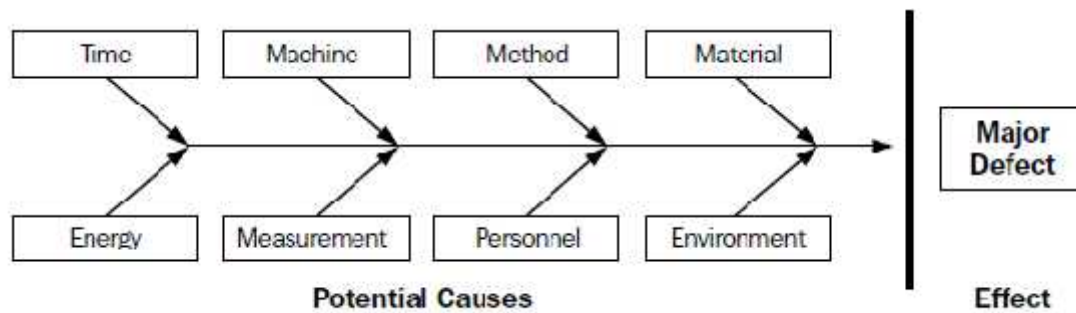


Figure 3 Cause-and-Effect Diagram

Flowcharting can help the project team anticipate what and where quality problems might occur, and thus can help develop approaches for dealing with them.

#### 4. Design of experiments.

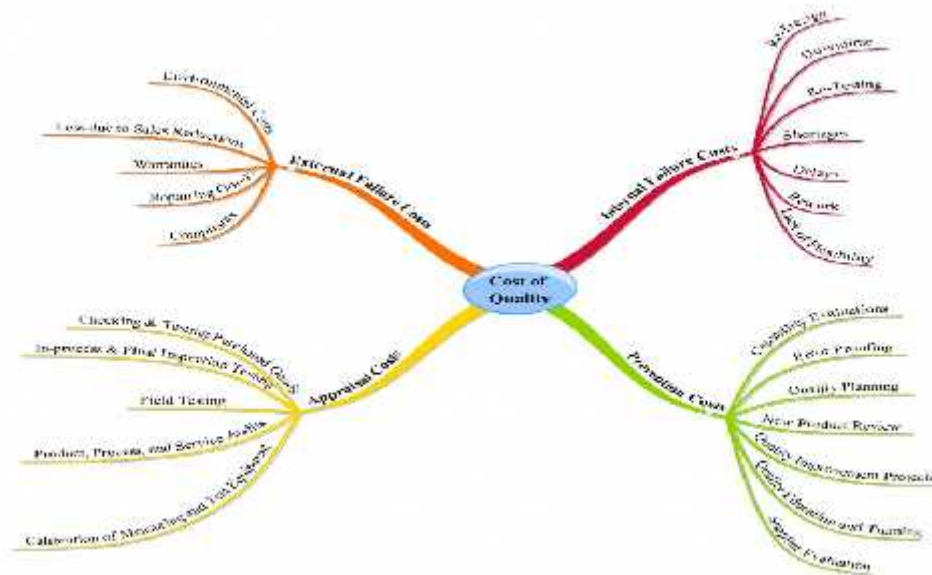
Design of experiments is a statistical method that helps identify which factors might influence specific variables. The technique is applied most frequently to the product of the project (e.g., automotive designers might wish to determine which combination of suspension and tires will produce the most desirable ride characteristics at a reasonable cost).

However, it can also be applied to project management issues, such as cost and schedule tradeoffs. For example, senior engineers will cost more than junior engineers, but can also be expected to complete the assigned work in less time. An appropriately designed “experiment” (in this case, computing project costs and durations for various combinations of senior and junior engineers) will often allow determination of an optimal solution from a relatively limited number of cases.

#### 5. Cost of quality.

Cost of quality refers to the total cost of all efforts to achieve product/service quality, and includes all work to ensure conformance to requirements, as well as all work resulting from nonconformance to requirements. There are three types of costs that are incurred: prevention costs, appraisal costs, and failure costs, where the latter is broken down into internal and external costs.

Quality, like finance, has various “buckets” or categories for the costs associated with the good and bad products that are created. Most often we hear about the Cost of Poor Quality, but the cost of poor quality only reflects a portion of the total quality costs. The figure below shows the 4 major categories for Quality Costs and examples within each area.



Cost of Quality Map

The internal and external failure costs are generally associated with the Cost of Poor Quality whereas the Appraisal and Prevention Costs constitute the costs related to ensuring the product is indeed to requirements. It is the overall goal of a quality management system to work within the appraisal and prevention cost areas since these areas provide greater leverage to ensure quality and reduce total quality costs. For example: If a metal tube fails to meet a blueprint dimension it would be more cost effective to dimensionally inspect (appraisal cost) the tube prior to it being shipped to the customer rather than the customer finding the non-conformance and thereby adding more cost to the manufacturer in warranty, shipping costs, and additional time for employees to work and investigate the defect (external failure costs).

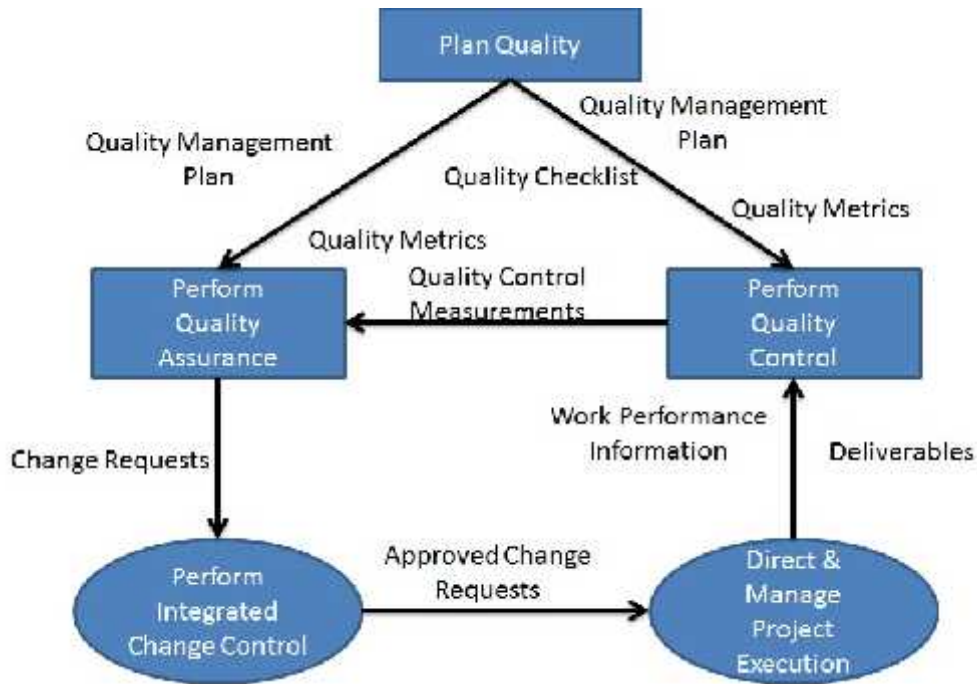
## 2.3 Outputs from Quality Planning

### 1. Quality management plan.

The quality management plan should describe how the project management team will implement its quality policy. In ISO 9000 terminology, it should describe the project quality system: “the organizational structure, responsibilities, procedures, processes, and resources needed to implement quality management” .

The quality management plan provides input to the overall project and must address quality control, quality assurance, and quality improvement for the project.

The quality management plan may be formal or informal, highly detailed, or broadly framed, based on the requirements of the project.



The Quality Management process explained in the picture above has the following processes:

- Plan Quality - This process is used to identify which quality requirements and standards are relevant to the project at hand and to determine how to meet these requirements and standards, as well as how compliance to the quality requirements will be demonstrated.
- Perform Quality Assurance - This process is used to audit the fulfillment of quality requirements to ensure that the project employs all the planned quality requirements and standards.
- Perform Quality Control - This process monitors project results to ensure that they meet the agreed-upon quality standards and identifies ways to eliminate the factors that keep the project results from meeting standards—that is, to make recommendations for changes or actions.

The processes for quality assurance are used as part of executing the project, and quality control is used as part of monitoring and controlling the project.

## 2. Operational definitions.

An operational definition describes, in very specific terms, what something is and how it is measured by the quality control process. For example, it is not enough to say that meeting the planned schedule dates is a measure of management quality; the project management team must also indicate whether every activity must start on time or only finish on time; whether

individual activities will be measured, or only certain deliverables, and if so, which ones. Operational definitions are also called metrics in some application areas.

**3. Checklists.**

A checklist is a structured tool, usually item specific, used to verify that a set of required steps has been performed. Checklists may be simple or complex. They are usually phrased as imperatives (“Do this!”) or interrogatories (“Have you done this?”). Many organizations have standardized checklists available to ensure consistency in frequently performed tasks. In some application areas, checklists are also available from professional associations or commercial service providers.

**4. Inputs to other processes.**

The quality planning process may identify a need for further activity in another area.

**CHAPTER 2: QUALITY ASSURANCE**

Quality assurance is all the planned and systematic activities implemented within the quality system to provide confidence that the project will satisfy the relevant quality standards. It should be performed throughout the project. Prior to development of the ISO 9000 Series, the activities described under quality planning were widely included as part of quality assurance.

Quality assurance is often provided by a Quality Assurance Department or similarly titled organizational unit, but it does not have to be.

Assurance may be provided to the project management team and to the management of the performing organization (internal quality assurance), or it may be provided to the customer and others not actively involved in the work of the project (external quality assurance).

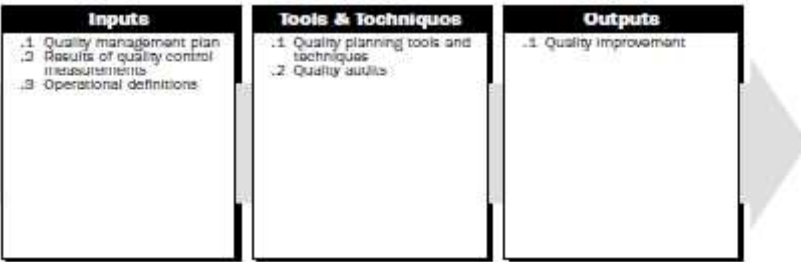


Figure 4. Quality Assurance Overview



### **3.1. Inputs to Quality Assurance**

#### **1. Quality management plan.**

The quality management plan is described in Chapter 1.2.3.1.

#### **2. Results of quality control measurements.**

Quality control measurements are records of quality control testing and measurement in a format for comparison and analysis.

Results of quality control measurements are inputs to project quality assurance. These results are the testing and measurement records of quality control and include acceptance decisions, rework and process adjustments.

From a quality assurance perspective, you can use the results of quality control measurements for comparison and analysis purposes. Specifically, you can compare the results found with the expected results of the product or process, pinpoint exactly where non-conformities took place, and examine the reasons for non-conformities.

#### **3. Operational definitions.**

Operational definitions are described in Chapter 1.2.3.2.

### **3.2 Tools and Techniques for Quality Assurance**

#### **1. Quality planning tools and techniques.**

The quality planning tools and techniques described in chapter 1.2.2. can be used for quality assurance as well.

#### **2. Quality audits.**

A quality audit is a structured review of other quality management activities.

Quality audit is the process of systematic examination of a quality system carried out by an internal or external quality auditor or an audit team. It is an important part of organization's quality management system and is a key element in the ISO quality system standard, ISO 9001.

Quality audits are typically performed at predefined time intervals and ensure that the institution has clearly defined internal system monitoring procedures linked to effective

action. This can help determine if the organization complies with the defined quality system processes and can involve procedural or results-based assessment criteria.

The objective of a quality audit is to identify lessons learned that can improve performance of this project or of other projects within the performing organization. Quality audits may be scheduled or random, and they may be carried out by properly trained in-house auditors or by third parties, such as quality system registration agencies.

### **3.3 Outputs from Quality Assurance**

#### **1. Quality improvement.**

Quality improvement includes taking action to increase the effectiveness and efficiency of the project to provide added benefits to the project stakeholders. In most cases, implementing quality improvements will require preparation of change requests or taking of corrective action, and will be handled according to procedures for integrated change control.

## **CHAPTER 3: QUALITY CONTROL**

Quality control involves monitoring specific project results to determine if they comply with relevant quality standards, and identifying ways to eliminate causes of unsatisfactory results. It should be performed throughout the project. Project results include both product results, such as deliverables, and project management results, such as cost and schedule performance. Quality control is often performed by a Quality Control Department or similarly titled organizational unit, but it does not have to be.

The project management team should have a working knowledge of statistical quality control, especially sampling and probability, to help it evaluate quality control outputs. Among other subjects, the team may find it useful to know the differences between:

- Prevention (keeping errors out of the process) and inspection (keeping errors out of the hands of the customer).
- Attribute sampling (the result conforms, or it does not) and variables sampling (the result is rated on a continuous scale that measures the degree of conformity).
- Special causes (unusual events) and random causes (normal process variation).

- Tolerances (the result is acceptable if it falls within the range specified by the tolerance) and control limits (the process is in control if the result falls within the control limits).

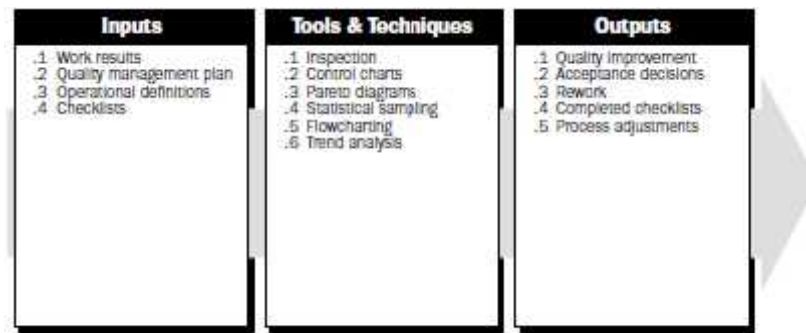


Figure 5. Quality Control Overview

#### 4.1 Inputs to Quality Control

##### 1. Work results.

Work results include both process results and product results. Information about the planned or expected results (from the project plan) should be available along with information about the actual results.

##### 2. Quality management plan.

The quality management plan is described in Chapter 1.2.3.1.

##### 3. Operational definitions.

Operational definitions are described in Chapter 1.2.3.2.

##### 4. Checklists.

Checklists are described in Chapter 1.2.3.3.

#### 4.2 Tools and Techniques for Quality Control

##### 1. Inspection.

Inspection includes activities such as measuring, examining, and testing undertaken to determine whether results conform to requirements. Inspections may be conducted at any level (e.g., the results of a single activity may be inspected, or the final product of the project

may be inspected). Inspections are variously called reviews, product reviews, audits, and walkthroughs; in some application areas, these terms have narrow and specific meanings.

**2. Control charts.**

Control charts are a graphic display of the results, over time, of a process. They are used to determine if the process is “in control” (e.g., are differences in the results created by random variations, or are unusual events occurring whose causes must be identified and corrected?). When a process is in control, the process should not be adjusted. The process may be changed to provide improvements, but it should not be adjusted when it is in control.

Control charts may be used to monitor any type of output variable. Although used most frequently to track repetitive activities, such as manufactured lots, control charts can also be used to monitor cost and schedule variances, volume and frequency of scope changes, errors in project documents, or other management results to help determine if the project management process is in control. Figure 6 is a control chart of project schedule performance.

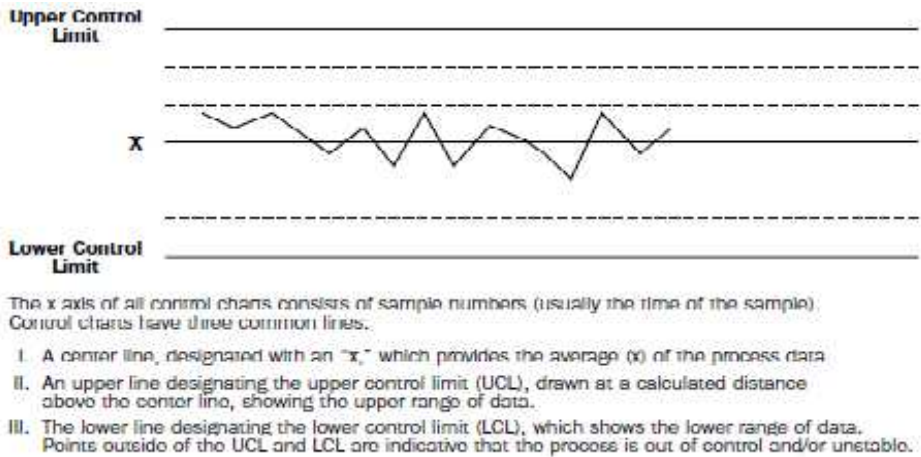


Figure 6. Control Chart of Project Schedule Performance

**3. Pareto diagrams**

A Pareto diagram is a histogram, ordered by frequency of occurrence, that shows how many results were generated by type or category of identified cause (see Figure 5). Rank ordering is used to guide corrective action—the project team should take action to fix the problems that are causing the greatest number of defects first. Pareto diagrams are conceptually related to Pareto’s Law, which holds that a relatively small number of causes will typically produce a large majority of the problems or defects. This is commonly referred to as the 80/20 principle, where 80 percent of the problems are due to 20 percent of the causes.

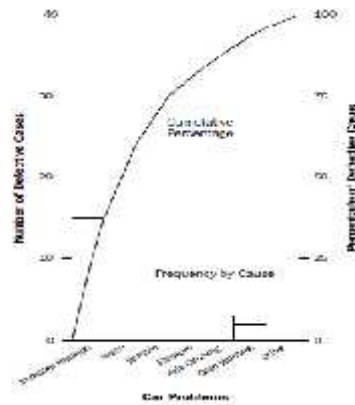


Figure 7. Pareto Diagram

#### 4. Statistical sampling

Statistical sampling involves choosing part of a population of interest for inspection (e.g., selecting ten engineering drawings at random from a list of seventy-five). Appropriate sampling can often reduce the cost of quality control. There is a substantial body of knowledge on statistical sampling; in some application areas, it is necessary for the project management team to be familiar with a variety of sampling techniques.

#### 5. Flowcharting.

Flowcharting is described in Chapter 1.2.2.3. . Flowcharting is used in quality control to help analyze how problems occur.

#### 6. Trend analysis.

Trend analysis involves using mathematical techniques to forecast future outcomes based on historical results. Trend analysis is often used to monitor:

- Technical performance—how many errors or defects have been identified, how many remain uncorrected.
- Cost and schedule performance—how many activities per period were completed with significant variances.

### 4.3 Outputs from Quality Control

#### 1. Quality improvement.

Quality improvement is described in Chapter 2.3.3.1.

## **2. Acceptance decisions.**

The items inspected will be either accepted or rejected. Rejected items may require rework (described in Chapter 3.4.3.3).

## **3.Rework.**

Rework is action taken to bring a defective or nonconforming item into compliance with requirements or specifications. Rework, especially unanticipated rework, is a frequent cause of project overruns in most application areas. The project team should make every reasonable effort to minimize rework.

## **4. Completed checklists.**

See Chapter 1.2.3.3. When checklists are used, the completed checklists should become part of the project's records.

## **5. Process adjustments.**

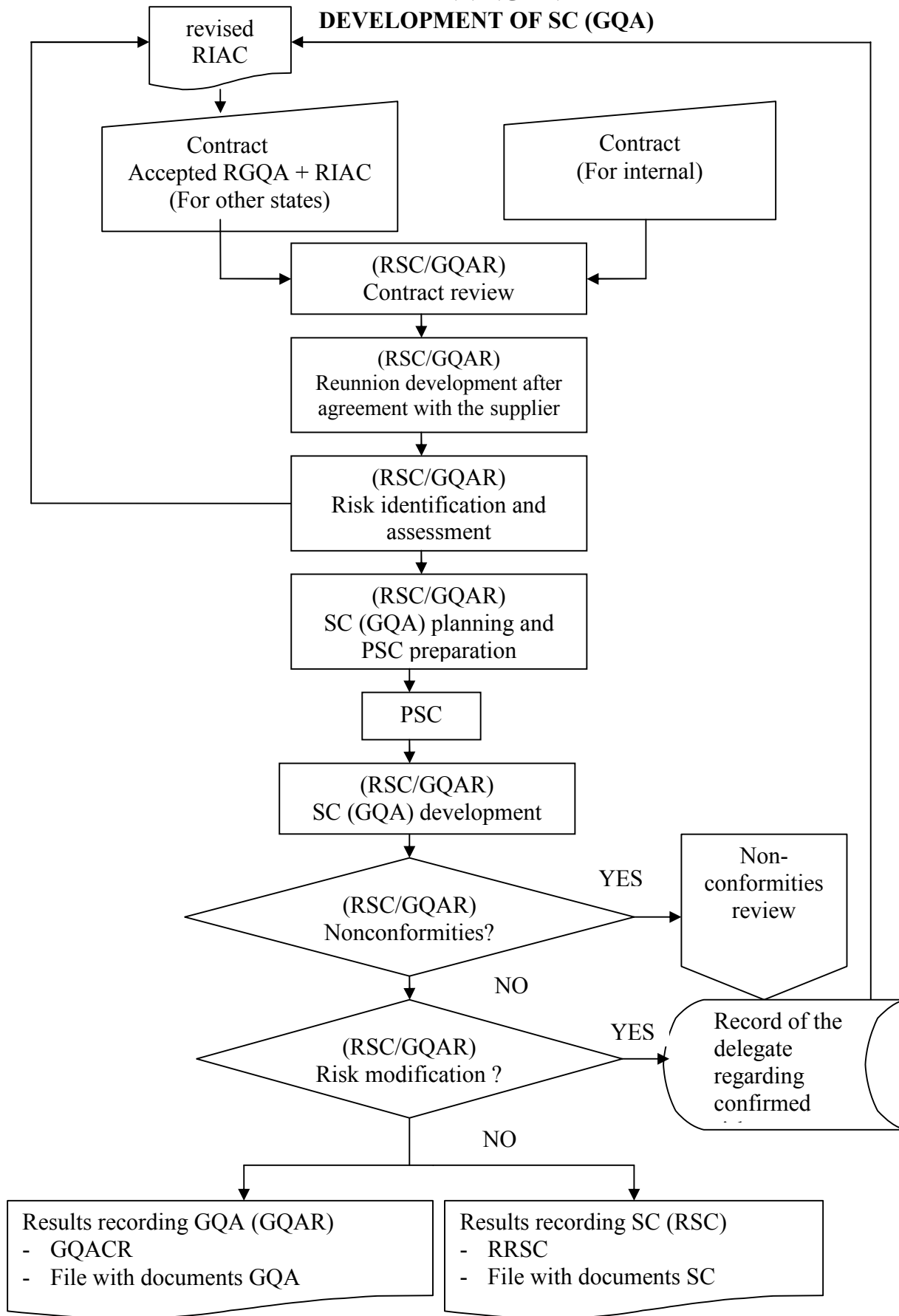
Process adjustments involve immediate corrective or preventive action as a result of quality control measurements. In some cases, the process adjustment may need to be handled according to procedures for integrated change control.

In the example below is a schematic planning and performing Quality surveillance (Government Quality Assurance) SC (GQA) for military products.

### **Abbreviations**

<b>SSC</b>	- Quality Surveillance Service
<b>RSC (GQAR)</b>	- Quality surveillance representative (Government Quality Assurance Representative)
<b>SC (GQA)</b>	- Quality surveillance (Government Quality Assurance)
<b>RIAC</b>	- Risk Identification, Assessment and Communication
<b>RRSC (GQACR)</b>	- Quality surveillance report (GQA Closure Report)
<b>PSC</b>	- Quality Surveillance Plan/GQA Plan

**PLANNING AND DEVELOPMENT OF SC (GQA)**



## Conclusion

The project management team should also be aware that modern quality management complements project management. For example, both disciplines recognize the importance of:

- Customer satisfaction—understanding, managing, and influencing needs so that customer expectations are met. This requires a combination of conformance to requirements (the project must produce what it said it would produce) and fitness for use (the product or service produced must satisfy real needs).
- Prevention over inspection—the cost of preventing mistakes is always much less than the cost of correcting them, as revealed by inspection.
- Management responsibility—success requires the participation of all members of the team, but it remains the responsibility of management to provide the resources needed to succeed.
- Processes within phases—the repeated plan-do-check-act cycle.

By building in regular reviews of both output development processes and project processes, quality improvement can be carried out throughout the life of the project. Those projects employing quality consultants, for advice on both output quality and/or project management quality, must ensure that provision is made, through both the project governance processes and within the quality plan, to action accepted recommendations.

Quality Improvement in project management within an Agency/organization can be assisted further through end-of-project and post-project reviews that help to capture lessons learned. It has proven more successful when the Agency/organization has a corporate approach to Quality Improvement.

In conclusion we can say that lack of proper quality management in a project increases uncertainty and increases the risk of project failure. We should involve a process for the management of changes, problems, issues and incidents that emerge during the production of the outputs. The management of this process may vary from project to project. The quality philosophy should reflect the overall intentions and approach to be applied with regard to quality throughout the project.



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# **COMBAT NET RADIO MANAGEMENT**

*LTC Iulian BOULEANU*

## **I. INTRODUCTION**

In the modern battlefield, combat net radios (CNR), are the most important means of achieving tactical communications environment. 2-3 decades ago, the only real service that can be provided by these networks was voice service. Today, in addition to voice service, specific armed actions carried out in the tactical environment offering a series of data services comparable to those of civil environment like: automatic position reporting (APR), submission of documents, database queries and internet access. Increasing the number of services, together with the need of data transmission at high rates led to resources diversification and, therefore, complicated process for their management. Under these conditions, combat net radio management is a challenge even for well-trained staff. The need to integrate these networks within integrated wide area communications systems or the upper echelons of the Allies, makes the management of these networks to be more difficult.

Previous planning method, pre-revolution (December 1989) planning method, focusing only on the needs of internal echelon connections in a hierarchical view, can be not applied to current conditions. A new planning method requires a systemic and integrative vision, taking into account the particularities of the use of new equipment and requirements for the implementation of new types of services demanded by the specific actions of the modern battlefield.

This paper presents the Romanian Army CNR characteristics and summarizes the resources used in the management process. This paper will present the steps of the CNR management as an integrated part of the Deployable Integrated Communications and Informatics Systems (DICIS) management process.

Finally, two algorithms for software resource allocation that can be used in the planning of the CNR are proposed.

## **II. COMBAT NET RADIO**

CNR are radio networks planned to operate in a tactical environment. In present, in the Romanian Army, combat net radio can be realized with radio stations belonging to several

generations of technological development [3]. Since each generation has specific communication capabilities, in terms of interoperability there are a number of problems. The main characteristics of those 3 generations are:

- *Analog radio stations*: no encryption capabilities, working only with fixed frequency;
- *Digital radio stations*: frequency hopping and encryption limited capabilities;
- *Software defined radios (SDR)*: frequency hopping, ALE (Automatic Link Establishment) and enhanced encryption capabilities.

The main function of CNR subsystem is to provide voice transmission for Commands and Control (C2) systems. Secondary function is to ensure data transmissions in situations when communication requirements are greater than specialized data communications systems capability or support campaign possibilities. In most C2 communication networks, voice transmissions are more important than data transmissions. Current requirements for C2 voice transmission networks consume a large part of operative time, leaving a little time for data transmission [1].

Digital and software defined radio stations can be connected with Support Campaign Communication Network (fixed part of DICIS) through specific interface devices (Network Radio Interfaces - NRI). Currently, for interconnecting radio communications network support, the Romanian Army uses the following interface solutions: CNRA (Combat Net Radio Access), CNRI (Combat Net Radio Interface), tactical hub, NAU (Network Access Unit) and TETRA (Terrestrial Trunked Radio).

These types of interfaces enable a user CNR station that uses digital or defined software radio to access any telephone network subscriber (and vice versa). To ensure necessary physical connections, NRI device is placed in the same location with the SCCN switch or a HCDR (High Capacity Data Radio) station from the composition of broadband data transmission network [8].

### **III. RADIO NETWORKS CLASSIFICATION**

For tactical echelons, most radio link is made with low power stations in the HF, VHF and UHF frequency range. We can use great power only to increase the quality connection or for making links over longer distances than the range of tactical echelon Area of Operation (AO) [2]. Under the existing regulations in the Romanian Army, we can organize the following types of networks (or directions) [3]:

- For leading the units, research subunits and detachments, with various purposes;
- For leading artillery and antiaircraft artillery subunits;

- For leading subunits of engineer, chemical and guidance of movement;
- For cooperation between the various battle elements;
- For coordination of control points;
- For links between Command Points (CP);
- For administration and logistics links.

Depending on the tactical situation, employment and the provision with communication equipment, in the planning of radio communication will consider performing multiple networks grouped into 3 categories: command and control networks, intelligence networks and logistics-administrative networks.

### *III.1. Command and control networks*

C2<sup>7</sup> networks are the leading operational networks. In turn, they can be divided according to destination: maneuver, fire support, aviation, artillery, engineer, etc. Each unit must carry out its own C2 network system. The same time, C2 network subscribers of an echelon must be subscribers of a C2 upper echelon network. Cooperation between different combat units is achieved with the leading operational networks also. Actual organization of networks depends on the tactical situation, the upper echelon requirements and available equipment.

The following types of networks are C2 networks [1], [2], [3]:

- *Command fighting units / subunits networks*, for leadership operations;
- *Service networks* - command networks expected to become operational when breaking up the link with the main station (commander's station) and network subscribers must subordinate to the upper echelon (upper commander's station);
- *Cooperation networks* - are organized from time to specific cooperation situations such as: cooperation with other task forces, cooperation with junction flanks units, cooperation with counter assault detachments, cooperation with other types of forces, cooperation with other governmental bodies, cooperation with allied structures;
- *Specialized networks* - are organized for leading combat support forces. These are networks of heads of branches (En, T Art, AA Art, CBRN, CIS, etc.), networks for C2 support forces, or networks for fire control support.
- *Packet data transmission networks* - are used only for data transmission. Their main purpose is to ensure the transfer of information necessary for data processing systems of

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<sup>7</sup> C2 = Command and Control

command points, individual platforms and other system elements (e.g. sensors, decision points, shoots). This type of network can be organized with Ethernet capable HCDR equipment or by fitting data modems to the radio stations.

- *Access networks* - networks that facilitate radio subscribers and telephone subscribers interconnection via NRI's installed into a Radio Access Points;
- Other types: networks to link subscribers in the moving column, networks to link subscribers from the moving column with the upper echelon, transit networks (networks with assure links between transit unit and deployed units), radio directions - directions made with VHF or UHF low power stations in order to activate remote high-power stations, networks for psychological operations, information operations networks, information networks for weather, notification and alerting networks.

### *III.2. Logistics – administrative networks*

Each unit must organize administrative-logistics networks. The main goal of this kind of networks is to separate administrative-logistics and operational information. This prevents support information from overwhelming the command operations network during battle [1].

The following types of networks are in this category: radio services area networks, materials management radio networks, supply and transport radio networks, technical services networks, radio networks of technical observation points; networks to coordinate technical evacuation, networks to coordinate medical evacuation [3].

### *III.3. Intelligence networks*

Intelligence networks are usually established from division through battalion. Because the information passed over these networks is almost continuous, this branch requires a separate network in order to prevent overloading the C2 nets. The local situation determines whether other subscribers are added or deleted [1].

Depending on the echelon, tactics and employment situation may encounter the following types of intelligence networks: intelligence units leading networks, intelligence subunits leading networks, communications surveillance and jamming networks, electronic warfare tactical control information networks; intelligence networks for information reporting; radio directions for information reporting; intelligence networks for aircraft position reporting [3].

To provide long distance communications with intelligence patrols, those units require HF radios. Battalions, division and brigade intelligence troops must use low power HF radios for C2 networks.

In terms of the planning process, tactical echelons radio networks are of two kinds: networks that are organized or held by the upper echelon and networks that are organized or held by references echelon. Basically, the types of networks listed above are found at every level in part, depending on the specific actions taken by that echelon.

*Table 1 Network subscriber distribution on echelons*

Network type	Assigning subscribers depending on who organize the network										
	Networks organized by the upper echelons						Networks organized by echelon				
	E <sup>n</sup>	E <sup>2</sup>	E <sup>1</sup>	E0	E <sub>1</sub>	E <sub>2</sub>	E <sup>2</sup>	E <sup>1</sup>	E0	E <sub>1</sub>	E <sub>2</sub>
Leading network			x	x					x	x	
Service network		x		x					x		x
Cooperation network		x		x					x		x
Data network		x		x					x	x	
Column travel network		x		x					x	x	x
Transit and re-subordination network		x		x					x		x
Information and notification network		x		r	r	r			x	r	r
Informational and psychological net		x		r	r	r			x	r	r
Operating direction			x	x					x	x	
Operating network			x	x					x	x	
Heads of weapons and support services networks			x	x					x	x	
Technical evacuation network			x	x					x	x	
Medical evacuation network			x	x					x	x	
Access network	x	x	x	x					x	x	x
Links with representatives of the territory from Area of Operation				x					x		
Social network				x					x		
Intelligence network			x	x					x	x	

Logistics network			x	x					x	x	
CIS support network			x	x					x	x	
Branches support network			x	x					x	x	

x – radio station;

E0 – reference echelon,

E<sup>1</sup>, E<sup>2</sup>, E<sup>n</sup> = upper echelons,

E<sub>1</sub> = lower echelon

In terms of subscribers belonging tactical echelons involved in the fight, they meet the following conditions (Table 1):

- Radio network between two echelons - are the most common networks. Subscribers of this type of radio network are representatives of ordered structures (lower echelon representatives) plus echelon command structure representative (representative from upper echelon).
- Radio networks beyond one upper echelon - typical case of service network. Subscribers of this type of radio network are representative of echelon command structure and the representatives of the lower echelon ordered (representatives of the second echelon below).
- Radio networks beyond more than one echelon. Its purpose is to realize an information networks, the main element of information is the highest echelon. Most often this is a broadcast network (simplex). At the highest echelon, there is a radio station and the subordinate structures are used only for receiving. Examples of such networks are weather information networks and alarm or notification networks.

In terms of the functions and organization, HF networks are similar to VHF networks. Most of them are organized as a reserve (duplicate) of VHF networks. On the battlefield HF C2 networks is always used as a secondary communication solution. HF networks are designed and used when the degree of dispersion of subscribers is greater than that possible to be covered by VHF systems.

Due to the UHF propagation specific, for land operation, UHF networks are planned in order to achieve internal links into a reduce area district. Most soil air connections are planned in this frequency band. Also UHF networks are used for the fighter team, group and sometimes platoon command link.

Because communication distances from major medical insurance bases before the first-aid points are high, medical facilities require dedicated HF radio communications systems.

#### **IV. CNR RESOURCES FOR PLANNING PROCESS**

Into radio network planning process should be considered three categories of resources: hardware, software and personnel.

##### *IV.1. Hardware resources*

Hardware resources relates to communications equipment, accessories and interior and transport means. In the communications equipment category are: transmitters, receivers, radio stations, encryption devices, recording devices, data terminals, modems, remote control devices and retranlations devices. Radio communications equipment accessories are: RF antennas, GPS antennas, vetronic devices, masts for antennas, coupling devices and adaptive antenna, power cords, cables, RF cables, remote line, electrical grounding accessories, power generators, transformers, adapters, batteries, battery chargers, fillguns, sticks, specific elements and connectors, power amplifiers, duplexers, etc.

Passenger and transport means are: covers transport, tents, transport boxes, racks, trailers, containers, cars, vans, trucks, combat platform (MLI's, APCs, tanks, aircraft, ships, etc.).

##### *IV.2. Software resources*

In planning the radio network, planner will use several types of software resources such as communication services, network parameters and communication equipment, software for managing and planning resources and planning documents.

Communication services can be classified in two ways: 1) the user and 2) the provider of services. From the user's management perspective will consider the following services: voice, selective call, conference, information about the caller's number, SMS (AMD), email, file transfer, chat, APR, real-time video transfer, video conferencing, access to databases, call barring, preemption, etc.. Each of these services can be provided in the clear or encrypted way. From the perspective of the provider's, available network services are: analog, digital, telephone (cable), radio, radio relay, satellite, tropospheric, mixed, etc.



In the planning process CNR manager will operate with a multitude of specific lines and radio networks parameters. In support of this view, below is a list of main parameters [4], [5]:

*Frequency parameters:* frequency, frequency sets, hop set number, 3G plan name, frequency bands, channel, channel group, frequency deviation, modulation index, presets.

*Types of radio features witch define radio channel:* manual, hail, regular, cooperation, secret, backup, directions and NRI access.

*Transceiver system parameters:* modulation mode, operating mode, the IF amplifier gain, modems parameters, radio station addresses, networks addresses, indices, call signs.

*Antenna parameters used by radio stations:* type, azimuth, elevation, height, gain, radiation pattern, polarization, impedance, length, efficiency, bandwidth.

*Radio line parameters:* transmitter power, sensitivity threshold, cable losses, losses on items connected, effective radiated power, beating (maximum allowable path loss).

*Propagation model parameters* (e.g. climate, terrain conductivity, relative permittivity of the soil, soil refractivity, K factor).

*Timing parameters:* GPS parameters, time of day (TOD) server, server synchronization for frequency hop.

*Parameters for encrypting communications:* key secrecy transmission (TEK) key encryption key (KEK), signs, passwords, encryption keys for external retranslations devices.

*Parameters to achieve data transmission:* data transmission protocols, IP addresses (host, network, gateway, DNS) routes, interfaces, IP network topology.

In the absence of network planning software, this is difficult and often impossible. In this category of resources meet: radio stations programming applications, wireless access hubs programming applications, NAU programming applications, applications for stations placement and radio coverage calculation, frequency management applications, command and control applications etc..

The most important radio communications planning documents are: services matrix, network organization table (or radio scheme), forces and means of employment table calculation, work table features and time-phased scheme in the district technical installation work, schedule location in strip action echelon support (quality links, Radio Access Points coverage, link quality on travel routes, locations of repeating stations, etc.).

### IV.3. Human resources

A third category of resources are resources personnel. In this category are: radio operators, drivers, auto platforms crews, planners, etc.

## V. CNR PLANNING

### V.1. Place and role of radio network planning process

In modern military system architecture, combat net radios are a subsystem of integrated deployable system. This subsystem is designed to support command and control actions. Planning, organization, installation and restructuring of this subsystem fall into the Deployable Integrated Communications and Informatics Systems (DICIS) management process [8].

Table 2 highlight the steps in the DICIS general management process [3] where occur CNR subsystem specific management activities.

### V.2. CNR management requirements

Required CNR types are determined by de unit's CIS Plan and SOP. In the planning phase every radio network planner should answer to the following questions [1]:

- What services should ensure that network?
- What kind of information will be handled through the radio networks: data, voice, or both?
- The network will contain external subscribers (subscribers outside unit)?
- It is an open or closed network with precise number of subscribers?
- Repeating is necessary to extend network coverage?
- It is necessary radio subscribers interconnection with telephone subscribers?

*Table 2 DICIS and CNR management activities*

<b>Steps</b>	<b>General DICIS Activities</b>	<b>CNR activities</b>
Planning	Initiate planning	
	Orientation of staff involved in the planning process	
	Develop preliminary order (WARNO 1)	
	Participation in the development of the action conception	

	Elaboration of CIS Plan (Annex to the OPLAN)	
	Elaboration of CIS Order (Annex to OPORD)	
	Elaboration CIS line Fragmentation Orders (FRAGO)	
Organization	Sending action / preliminary / fragmentation orders	
	Giving tasks and organization of forces and means	
	Sending travel orders	
	Moving subunits in the districts installation	
	Topo-geodetic orientation	
	District recognition and commissioning installation orders	
	Moving forces and means on installation sites	
Installation	Radio installation	
	Establishing direct radio CNR links	
	CPCN <sup>8</sup> elements installation and interconnection	
	Line installation and connection of internal subscribers	
	CSCN <sup>9</sup> elements installation and interconnection	
	CPCN and CSCN interconnection (making DICIS)	
	Ensuring actions and force protection	
	INFOSEC measures implementation	
Exploitation	Operative Service organizing	
	Operational management	
	Records and operational documents filling	
	INFOSEC measures implementation	
Reconfiguration	Sending and receiving fragmentary orders	
	Determination of forces and means involved in the reconfiguration	
	Installing the CIS reserve means in the new districts	
	Communication equipment integration into DICIS	
	Uninstalling communication equipment from old district	
	Filling communications and informatics reserve	
	INFOSEC measures implementation	
Maintenance	Daily preventive maintenance execution	

<sup>8</sup> CPCN – Command Points Communication Network

<sup>9</sup> CSCN – Campaign Support Communication Network

	Periodically corrective maintenance execution	
	Malfunctioning items repair and replacement	

To answer those questions it is necessary to collaborate with the CIS head structure and office operations (G3/S3). Once the questions have found the answer, can begin the initial planning of the network and coordinate the installation of equipment in its composition. A number of considerations discussed in the planning stage, will be found in SOP.

The types of information which will be transferred over the network are determined in the *Elaboration of CIS Plan* activity from the *Planning* stage. At this stage is prepared the *Services Matrix*. *Services Matrix* shall be made on a multilevel structure of services. Network subscribers that will receive services should be arranged horizontally and types of services necessary to meet mission will be arranged vertically [10].

If the network contains subscribers outside the unit, planning process coordination will be made by the structure witch subordinated all subscribers. It is very important to facilitated COMSEC features and networks plans distribution with software solution. This network plans must be realized at the highest level and, after that, this must be distributed through secure communication channels.

If the network is to be used for general purpose, we will use features and modes that will allow subsequent loading parameters in order to allow network extension. This is the case when we must be given special attention for radios interoperability solutions. If the network is for internal use (network precise number of subscribers) plans by coordinating structure may consider the use of more complex modes with ECCM<sup>10</sup> features.

To extend the coverage area of the network can use repeating equipment. For that reason planners will use software application and digital maps that will permit to evaluate coverage area. Repeating equipment will be placed on the dominating heights or into other emplacement points which will allow interconnection for all network subscribers.

For subscribers that will receive rights of interconnection to network interfaces to access the telephone network will deploy additional sets of access features. With this set of features, subscribers will access NRI interfaces deployed into or in the vicinity of the Area of Operation.

### V.3. Principles of planning

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<sup>10</sup> ECCM – Electronic Counter Counter Measures

The planning stage of networks should be taken into account the following principles [1]:

1. Each network can work with several sets of features.
2. For analog networks, the characteristics are noted in the forms with features. For changing network characteristics, operators set radio equipment with the new parameters specified in this forms. Completing forms shall be carried out by the operators, at stages of organization and reconfiguration of radio communications, through the compilation of an extract from the records of the planning;
3. For digital or SDR networks work characteristics are recorded in the workstation memory or fillgun device, at the stage of radio communications organization or reconfiguration. Data input can be done automatically (using fillgun or data terminals) or manually (this function is not available for all SDR radio modes).

Radio Operators may change the work characteristics in several typical situations: When received orders from main station; When changing the deadlines for work specified in SOI; When need to access network interfaces to contact a subscriber phone; When call to a radio station (network) working in frequency hop from a station which is operating on fixed frequency; Or when requesting transmission set of features by OTAR<sup>11</sup>.

## **VI. CONSIDERATIONS RELATING TO THE SOP PREPARATION**

Into an old radio network generation (e.g. single channel analog network), planners and managers had to take account of a range of options during the network planning and radio operation. New generation shall entail compliance with those same elements and introduce additional characteristic networks items with frequency hop or automatic link establishment. Some specific networks elements with frequency hop are similar stages of planning like networks with fixed frequency, but they also have more complexity.

In the first place, in order to establish network design it is necessary to gain greater knowledge of available types of equipment. If all the stations are compatible in frequency hop rate, the network will be able to operate in the hop frequency mode. However, if a single station in the network can work only on fixed frequency, the entire network will need to work on fixed frequency. Note that networks that are able to operate in frequency hop must work as long as in this mode to reduce enemy ECM<sup>12</sup>. This problem occurs mainly during combined

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<sup>11</sup> OTAR – Over The Air Reconfiguration

<sup>12</sup> ECM = electronic Counter Measures

operations, when the units have different features or during multinational operations when it should communicate with units of allied forces [1].

In the second place, planners must check compatibility in frequency and differences between network stations. The vast majority of VHF stations operating between 30 and 80 MHz. In the event that the radio from a network will have to be able to communicate with older radio, planners must ensure that the operating frequencies of single radio channel shall be located in the same range of frequencies. In addition, older radio stations operating on frequencies which may be fixed at higher steps (e.g. 25 or 50 kHz). As a result, frequencies allocated for single channel networks must be selected on the basis of the common steps difference to all stations on the network. This is also true for the establishment of the call frequency. To enable network access to any type of radio station that it will have to be a multiple of steps difference in common to all the stations in the network.

SOP must include instructions on how to enable the network (cold start). To cold start, before enabling network operators loaded into radio stations the set of hop frequencies, the specifications and the COMSEC<sup>13</sup> TSK<sup>14</sup> variables.

The reference time for networks that use this variable is set by NCS<sup>15</sup> or network planner. For the sake of simplification, SOP must specify whether NCS uses Greenwich Time (GMT) or Zulu time, that the set time for operation on the network. Before starting transmission clockwise, correspondent station would have to be TSK installed.

The transmitter power regime must be specified in SOP. Variable regime allows users to configure the dock to get the best communications depending on the situation. If the network requires increase distance link, SOP must govern the use of other types of antennas before the increment of power stations. The directive antennas allow station beat increase without increasing output power. Combining the power of low emission and ECCM methods reduces the possibility of being detected and intercepted by opponent. Masking offered on the ground and ECCM techniques should be used to the maximum.

Another way to increase the distance between two radio correspondents is to use a retranslation system. Retranslation requires careful planning, from the point of view of the set of hop frequencies. SOP must specify technical limits of the various types of equipment, the distribution of characteristics for retranslation points and focal points from where will require

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<sup>13</sup> COMSEC = **C**ommunication **S**ecurity

<sup>14</sup> TSK = Transmission Security Key

<sup>15</sup> NCS = Network Control Station

access to the retranslation workstation. The retranslation operations require two network identifiers, one for each branch of retranslation.

SOP must specify the time change limits for work characteristics. This element will serve as a guide for operation under normal conditions. Characteristics (features) can be changed as many times as is necessary in accordance with the rules of SOP. Units may receive only a few sets of specifications. Group of frequency sets, which are generated using systems and software application shall be distributed frequencies so as to maximize availability of the jump and sets of frequencies depending on the areas in which they are deployed units. In a situation in which the unit moves to another area will have to ask for other frequencies [1].

For radio types that stores a small number of features sets, SOP-s must specify the channels used for storing mission specific features sets and the other common sets for different network services in the area of operation. Group of pre-defined feature sets (presets) must be configured so that NCS and operators can simplify operation and control in the network. According to the memory workstation capabilities, the rights of access of certain networks, of the specific network in which it is used and the number of period/stages for which is used to program, the group of characteristics stored will have to contain combinations of following parameters:

- Set of features for the appeal channel;
- Set of features for the manually;
- Set of basic (regular) features;
- Set of back up features;
- Set of secrets features;
- Set of service features;
- Set of features for retransmission;
- Set of features for accessing the network interfaces.
- Set of features for requesting technical assistance or medical examinations.

Schedules, the group of feature sets stored will have to contain combinations of parameters:

In SOP is to be specified and interval at which changes TSK's. If missions require users to operate outside their own unit Area of Operation or to cooperate with neighboring units, they will be used TSK corresponding unit involved. In addition, SOP unit should provide measures of destruction for all cryptographic means.

One last problem that should be included in SOP is setting up radio equipment for data networks. Planners must identify networks that are dedicated exclusively for data transmission or which have double destination (data and voice). Units that regularly use means of data transmission will allocate separate network call sign to data traffic from those used for voice traffic.

Finally, SOP unit must specify [1]:

- Channels preset functions.
- Operating procedures for each working mode (Fixed, Hop, ALE, 3G).
- Link procedures.
- Procedures for TSK allocation and use.
- Network configurations for data transmission.
- Procedure for determining the reference time.
- Plans for data destruction, documents and equipment in the event of an emergency.

## **VII. CNR SOFTWARE RESOURCES ALLOCATION**

Due to the peculiarity of the use of SDR programming application (e.g. Radio Programming Application for Harris Falcon II radios generation), each stations and networks must have allocated a radio address and a network address. In order to simplify the planning process, for networks and stations addressing will use network indices. Special technical knowledge notes shall require that addresses to be made up of a as low as possible the number of characters and must begin with an alphanumeric character. This kind of addressing will be extended to the networks of data transmission that uses IP<sup>16</sup> in the tactical area [4].

The algorithms described below are built for the CNR software resource allocation. Resource allocation is done in a logical way. Modifying them to adapt to particular situations is very easy. The major advantage of this method of allocating resources is that no changes and additional allocations are required when resizing force structures. This aspect provides the conditions necessary for interoperability between CNR networks for any type of mission and force structures. The downside is that in the absence of secure radio transmissions, the enemy intelligence structures can easy obtain our force structure.

According to the requirements identified in the previous sections, the kinds of characteristics that can be assigned to a single network planning process for a single term are shown in Table 3.

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<sup>16</sup> IP – Internet Protocol



### VII.1. Radio address allocation

The *Radio Address* is the name that is assigned to a radio to identify it on the network. This name must begin with an alphanumeric character and for efficiency purpose must have lower number of characters. The *Network Address* is the name that is assigned to a radio network. We will use this name when we want to address all the others members from the network (we must be part from this network). This name must begin with an alphanumeric character and for efficiency purpose must have lower number of characters, also [7].

This addresses will appear on the radio display and radio operators must deal with its all the time when they want to transmit information. It is very important to keep this address in a simple and logical form.

As we explain in the first chapter, each echelon up to battalion organizes his set of radio networks. Actually, at each level there are two set of radio networks: networks organized by communication team from those level and networks organizes by communication teams from upper levels. Each feature of those networks is introduced into a corresponding table (*Table of organization networks*). We will use this table in order to establish radio address and network address as we present in the following paragraph.

*Table 3 Types of features for radio networks*

<b>Nr.</b>	<b>Tip</b>	<b>Features name</b>	<b>Description of the features goal</b>
1	B	<b>Basic</b>	to work under normal conditions after the link establishment
2	S	<b>Secret</b>	To work when the basic characteristics do not operate in the optimal conditions (interference, jamming, low signal, etc.).
3	D	<b>Directions</b> (for selective call)	To achieve output directions when you want the information to be received only by certain operators but not all. The transition from basic features or secret features to directions is made only at the NCS order's or in accordance with SOP procedures
4	A	<b>Access NRI</b> (for radio to telephone link)	To access the telephone network subscribers. Passing on these features is achieved only with the NCS approved or in accordance with procedures.

5	I	<b>Initialization</b> (manual channel)	For loading new characteristics by radio (OTAR) when erased radio characteristics sets
6	H	<b>Hail</b>	For calling a working frequency hop stations by a station working on a fixed frequency
7	T	<b>Technical</b> evacuation	For contacting technical evacuation team. Will be allocates a set of features for each frequency band (e.g.: HF, VHF and UHF). This set of characteristics will be appropriate for all kind of equipment and must work in an unsecured mod on fixed frequency.
8	M	<b>Medical</b> evacuation	For contacting medical evacuation team. Will be allocated a set of features that can work for all kind of equipment from Area of Operation It organizes one network for each specific frequency band (e.g. HF, VHF, UHF)
9	C	<b>Column</b>	For the connection between the column elements while traveling

First character (alphanumeric character) will indicate level of echelon which will organize the set of networks. For example: B for Battalion, D for Division, G for Brigade, and so on. In this way operator can notice if a network belong to his echelon (is organized by his echelon) or belong to upper echelon. The next two characters will represent the number of network from *Table of organization networks* written with two characters (e.g. 01, 02, ... 99). In this way operator will know network number. Some example could be:

- D01 – Division no.1 access network.
- G02 – Brigade no.2 HF C2 network.
- B01 – Battalion no.1 VHF C2 network.

Radio stations belong to radio network. This is the reason for that radio station address must have similar way to construct. Into a tactical network, the number of subscribers can't be higher because of communications procedures. Usually is less than ten. In order to identify a radio station, his address will contain network address and will be completed with a new alphanumeric character. Alphabetical order of this character will specify communication order into the network. Some example could be:

- D01A – first radio station from D01 network.

- D01B – second radio station from D01 network
- B05D – fourth radio station from B05 network

Each radio station belongs to a specific subscriber. The first station from a network (A station) will be the station that will impose the rules into the network, so, that will be the NCS.

### *VII.2. Presets allocation*

Radio station preset is a set of features that can be storage into radio station memory. Each set is composes by many radio parameters. Type and number of parameters depend on equipment type but usually contain frequency, mode and modulation. New types of radio station have capability to storage many presets. Actually, each preset will contain radio parameters for one type of feature described in table 3. All preset that will be allocated to a network will compose a set of characteristics that identify a network. This option is available because the radio setting process is too complex and can't be done by the radio operator. Now, this setting process must be done whit radio programming application by the communication planning team [7].

Another condition for planning process is to switch frequency parameter into presets from a period to another period, usually one day. From planner point of view this condition multiplies number of presets with number of time period.

In conclusion, each network will have many presets and because a radio station can be part of many networks, the number of presets storage in each station will be even more. Operator job is to switch presets in order to establish link and transfer information. So, from operator point of view that presets name are very important.

In the following algorithm, the presets name will be constructs based on previously addressing algorithms.

The first three characters will be the network address. The fourth characters will represent number of time period. Because the fourth character is a number, this will avoid confusion with radio station address. The fifth character will be alphanumeric character and will represent types of features (see table 3). Some example could be:

- D012A – Access preset for time period no.2 from division network no.1.
- G113B – Basic preset for time period no.3 from brigade network no.11.
- B201S – Secret preset for time period no.1 from battalion network no.20.

## CONCLUSIONS

CNR management in a modern army represents a challenge even for well-trained staff. This kind of management combines administration and technical rules in two very dynamic areas: radio communication and IT area. CNR modern management must use radio programming application and very strictly rules in the implementation process. New types of CNR require CIS integration and telecommunication services diversification. All this must fit requirements imposed by a very dynamic environment – the tactical environment.

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# CONFLICT IN MILITARY ORGANIZATION

*LTC Marius CHELU*

„ If we manage conflict constructively, we harness its energy for creativity and development.”<sup>17</sup>

## INTRODUCTION

The first philosophical, social and historical reflections related to research of conflicts and crises have occurred since antiquity. Approaching conflicting issues for those who want that can begin with the work "Art of War" by Sun-Tzu, and it can continue with the works of others as N. Machiavelli, E. Durheim, Karl Marx, etc.

A significant percentage of the time of top and middle managers is spent in dealing with various forms of conflict - according to the AMA<sup>18</sup>, about a quarter of it. The activity of any organization is strongly influenced by the conflict and its existence is inevitable. The skills for resolving conflicts, the implication in the first instance for choosing the best methods of resolving conflicts occurred, represent the essential side of managerial success and development of a high-efficiency management.

The purpose of this paper is to highlight the existence of conflicts, to present some interpretation methods of conflicts and, especially, the way to manage them. The chapters of the paper identify the main issues considered relevant for achieving the objective.

The first chapter presents some conceptual delimitations of the organization generally followed by specific characteristics and differences of military organization. Studying the characteristics of military environment and interpersonal relations between members of a specific military group can reveal us the cause and evolution of conflicts occurred and the way to resolve them.

The second chapter presents the conflict with its definition from several perspectives, followed by its classification based on causes of its occurrence.

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<sup>17</sup> Kenneth Kaye, American Psychologist and Writer

<sup>18</sup> AMA – American Management Association - [http://www.amanet.org/site-search-results.aspx?search\\_terms=conflicts](http://www.amanet.org/site-search-results.aspx?search_terms=conflicts) ,  
<http://www.amanet.org/training/articles/Answers-to-Collegial-Conflicts.aspx>

The conclusion of the paper aims to present the strong influence of conflict on the activity of the organization, its presence at all organizational levels, from the macro-social level to the inter-individual level.

## I. ORGANIZATION IN MILITARY ENVIRONMENT

### I.1. Organization

The organization was always defined as a form of association between individuals or groups of individuals with the need to ensure their specific needs, certain definitions deserving some attention:

“*Organizations* are social inventions for achieving common goals through group effort.”<sup>19</sup> Their essential feature is the coordinated presence of people and not necessarily of things.

The groups for instance, made up of leaders and performers, having thus a hierarchical structure, internal cohesion and stability, pursuing certain objectives, respecting certain procedural rules and life-related rules within their activity, form relatively stable structures, referred to as the *organizations*”<sup>20</sup>.

“*Organizations* are social constructions created by individuals or groups within society, in order to achieve specific goals by means of forecasting the organization, coordination, involvement and control of activities.”<sup>21</sup>

To achieve these objectives, an organization must do two basic things: distribute work among its members and coordinate the work distributed. The organization can be seen as a place where decisions are made, where the controls are exercised, where authority relationships exist. Individuals, services, units inside the organization may have different ideas and interests that they will try to defend. One can extract the following characteristic features based on the analysis of the concept of organization: *the social dimension of the organization, its specific goals, use of planning and coordination activities.*

The main characteristics of an organization are:

- a) the existence of a strict division of activities, of responsibilities imposed deliberately, for an interaction, to achieve specific goals;

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<sup>19</sup> Gary Johns - „Organizational Behaviour” Economic Publishing House, 1996

<sup>20</sup> Gheorghe Arădăvoaice - „Management of organization and military action”, Sylvi Publishing House, Bucharest, 1998

<sup>21</sup> George Moldoveanu - „Analysis of the organization”, Economic Publishing House, Bucharest, 2000

- b) it is a social entity, being composed of groups of people acting and interacting according to a predetermined pattern;
- c) it has a relative autonomy that distinguishes its members from members of other organizations in which individuals' relations with the organization itself are regulated;
- d) the interaction between members of the organization is achieved through a conscious coordination. There are several centers of decision, which coordinate the combined efforts of the participants and orient them to the chosen objective;
- e) it has an existential unlimited potential, which does not mean that its members are forced to work within the organization all their life or that, for various reasons, the organization itself cannot be abolished. There is the possibility of replacing staff with people who better achieve the objectives;
- f) the organization always has one or more objectives known and respected by its members.

As the organization is the space where members spend most of their active life, it affects both the lives of individuals within society, and the society as a whole. Thus, the *purpose*, *effectiveness* and especially *profitability*, are dimensions on which the organization is established and developed. The example for the goal of an organization is eloquent: "The *goal* of an organization is defined by the future condition that the organization is trying to achieve as a result of a well defined collective action."<sup>22</sup>

Organizations can be presented as rational entities pursuing certain goals, coalitions of strong elements, open systems that transform inputs (information, material, financial and human resources) into outputs (goods, services, information), tool of domination which requires the members what to do and with whom to enter into relationships, units that process information, environment interpretation, coordination of activities and the preparation and drafting of decision.

The organization may be composed of subsystems including the relationships established between them as follows:

- a) The *management subsystem* with the main attributes in the drafting, decision-making and coordination, direction and control of the system;

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<sup>22</sup> „Psychosociology and Military Pedagogy” -Military Publishing House, Bucharest, 1992

- b) The *operational subsystem* is a framework for implementing the process of transforming inputs into outputs;
- c) The *support subsystem* provides purchase of inputs (materials, energy and especially human resources), directing outputs and initiating and maintaining organization' s contact with the outside;
- d) The *maintenance subsystem* makes the permanent interior design of the organization according to their needs (recruiting, training, motivating, stimulating human resource and it includes an amount of mechanisms, corrective actions, adaptation to external stimuli).

Organizations are *informal* and *formal* from the point of view of the degree of structuring. Practically, it's hard to find pure forms, informal or formal, every organization including both forms of organization in variable proportions.

*Formal* organizations have the defining characteristic that distinguishes them within social organizations, the fact that they ***have been deliberately created for a certain goal***. They have several defining characteristics: they have specific goals; they have a structure of statuses and roles appropriate for these goals; the statutes are not acquired spontaneously, but they are assigned.

“The social organization of a certain collectivity is a model of conduct, institutions, social roles, means of social control that ensure the coexistence of community members, adopting their aspirations and actions in the process of meeting the needs, solving problems and conflicts resulted during their cohabitation.”<sup>23</sup>

Szczepanski considers that informal organizations extend outside formal organization, covering all informal areas.

"The informal organization is a spontaneous creation of action patterns transmitted through tradition, of informal institutions, customs, moral and satirical sanctions governing daily life outside the formal systems and that complement and fulfill goals of the formal organization.”<sup>24</sup>

There are five types of organizations in terms of the goal, beneficiary of the activity or the nature of conduct of organization members:

- a) voluntary organizations, such as scientific, religious organizations;
- b) military organizations;

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<sup>23</sup> J. Szczepanski - „Fundamentals of Sociology”, Scientific Publishing House, Bucharest, 1972

<sup>24</sup> Idem 6



- c) humanitarian (charitable), spiritual, social assistance organizations;
- d) corporate type organizations (industrial, financial organizations);
- e) family business organizations.

Depending on the goals, the circumstances and the forms in which they operate, organizations can be political, governmental, legal, professional, non-governmental, illegal, cultural, military, clandestine, sports, paramilitary, terrorist.

The relationship between organizations is due to the concentration around the same basic goal, with a single management, constituting a system no matter how similar or different they are. "Generally, the management is the specialized activity, the science and art of determining others - individuals or groups - to do what they need to do, which corresponds to the needs and tasks of the organization"<sup>25</sup>, because the organization is not a world of harmony where there is one interest. The *unitary management* is an essential factor of existence and efficiency of living systems, implicitly of human systems, consisting of: the brain, the group leader, the chief, the commander, the manager, the committee, the council.

## **I.2. Military organization**

The military environment is represented by all elements that make up the army as a social organization.

The military unit is the built area in which servicemen of a military unit are accommodated and develop their activity.

The military institution is an organization with some specific features resulting from the goal for which it was created (military actions), as follows:

1. it is an organization where the formal relationship prevails over the informal relationship;
2. it is a hierarchical bureaucratic institution;
3. it is a social environment with its own system of stratification;
4. it is a group of struggle organized in order to achieve victory in the war.

The characteristic elements of the military environment are: barracks, weapons, fighting technique, uniform, drill ground and fields. These characteristics are reflected in the work process and individual and collective experiences hosted.

The military system can be described and analyzed in terms of the fundamental system properties specific to any social system:

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<sup>25</sup> Idem 3

a) The *goal* is the property showing that any military system is established and exist to achieve a fundamental and permanent goal defining its profile;

b) *Functionality* is the basic property of the military system that reveals that in order to fulfill its role and purpose for which it was created and exists, it must be able to prepare, conduct and carry out basic and supporting processes through which the input quantities are converted into output values;

c) The *structure feature* is the property revealing that the system must have an optimal grouping and hierarchy of constituents and relations between them to operate for achieving the fundamental goal;

d) *Hierarchy*, which expresses the aggregation module of systems as there are subordinate and superordinate relationships between them;

e) *Adaptability* and *stability* express the capacity of the system to continuously adapt to the environment, by modifying its operating values, being concurrently stable within certain limits.

### **I.3. Interpersonal relationships as a source of conflict in the military group**

The coexistence of a large number of servicemen, concentrated in a small space, increases the maximum frequency of interactions that occur between them, forcing them to permanent behavioral adjustments in order to avoid or overcome conflicts in accordance with the requirements of military order and discipline.

Discipline and order, efficiency, quick and prompt execution, unit of will and action, have been and will always be the defining military characteristics, elements of paramount importance for its strength. Unlike the other bodies and social organizations, the army has a specific internal structure and it operates on the basis of specific rules and regulations arising from military life, armed combat requirements.

Military subunit specificity is given by:

- a) the characteristics and limits of human maturation;
- b) the characteristics and limits of human socialization;
- c) ways in which socialization is supported and managed;
- d) procedures and limits in which needs are identified and met (of the subunit and people);
- e) the methods in which interactions are carried out;
- f) the characteristics and limits of managed processes.

Army is a bureaucratic system, established in terms of the organization, the objectives and the structure, as well as interpersonal relations based on strict hierarchy and regulations

imposed.

The group structure is generated by the interrelations between its members. Mutual relations between the servicemen have a special feature, they are strictly covered by regulation, they are legislated and formalized, providing a formal structure. Others are informal, relationships arising spontaneously within and outside the group, constitute an informal structure.

The formal structure includes from the beginning all staff members, without exception. The specificity of the military group compared to other groups in terms of formal relations is that the *main form taken by the communication within the employment relationship is the order*. Therefore, the relationships between soldiers take place in forms expressly provided by military regulations, starting with the binding forms of politeness and ending with complex manifestations.

Regarding the informal structure, we can say that servicemen forming the group-military staff relate to each other not only by reason of the place occupied in the hierarchy of ranks and positions, but also horizontally in relations between servicemen.

"In the process of interpersonal interactions people perceive one another, communicate, act and interact in relation to one another, they know one another, and therefore, they become closer to one another, associate, fall over, help one another, make friends or on the contrary, they suspect one another, get jealous, reject, hate."<sup>26</sup>

Understanding the mechanism of the informal structure of the military group depends on the knowledge of psychological content of interpersonal relationships among the servicemen:

a) *cognitive* (knowledge) relationships between members of subunit aims at gathering information about partners, its more appropriate interpretation and valuation for mutual understanding;

b) *communicative* relationships are represented by the mediating framework and mechanism of all the interpersonal relationships established between servicemen in the subunit as through information they find what they have to do, when, how, in what timeframe and with what means;

c) *appreciative affective relationships* within the military subunit are largely influenced by the way in which the communication and mutual understanding relations between servicemen are realized, through which they form with one another their point

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<sup>26</sup> Pantelimon Golu - „Social Psychology”, Didactic and Pedagogic Publishing House, Bucharest, 1971

of view, attitudes of appreciation, feelings of attraction, rejection or indifference;

d) *relationships of influence, prestige, authority* arise as a consequence of interpersonal relationships within the subunit.

One of the determinants of military group dynamics is the relationship between formal and informal structure. The mismatch between formal and informal structure represents a potential source of interpersonal conflict and of reduction of the military team cohesion.

"The dynamics of interpersonal relationships in human collectives has certain regularities and trends in development that must be known, controlled and directed in order to increase efficiency of activity, achieve social objectives and unhindered development of the personality of people."<sup>27</sup>

The military leadership is based on the formal authority, with unconditional subordination within the limits set by law and military regulations. As a result, the independence in decision making is getting smaller as it descends in the hierarchy.

In the army, control and surveillance are much closer than in civilian life and as a logical consequence, deviations from military rules and regulations are penalized more rigorously.

The military system consists of various categories of staff with very different social status, with largely non-coincident motivation and interests. We note, however, that individual interests are subordinated to the general interests of the organization. In terms of the competitive environment that develops quickly in another organization, we have the almost complete absence of competitive environment in the army, because the law and military regulations provide periods of time for exceeding certain thresholds and different categories of staff know almost from the beginning the route that must follow to achieve a certain level of hierarchy.

The need for military discipline is required, however, to be presented as a requirement of modern warfare. Every serviceman must strictly unconditionally comply with the rules laid down in regulations, orders and instructions in his job and the position he/she fulfills.

Whatever the cause of conflict between members of the military organization, in the end, it is reflected in some way in interpersonal relationships.

We mention the following sources of interpersonal conflicts in the army:

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<sup>27</sup> Maior Gabriel Dulea - „Sociodynamics of the military group” , Military Publishing House, Bucharest, 1991

- a) wrong perception of actions, intentions, words, gestures of others;
- b) poor, incomplete, negligent communication, lack of information on the goals pursued by others;
- c) some desire more power and influence (to control others);
- d) compromised manipulation;
- e) violation of interests (material, political, ethnic, religious, sports), of any rights, of customs or the feeling of the subject that his/her rights are despised, that he/she is overloaded with tasks or his/her tasks are not distributed fairly, that his/her honor is touched;
- f) nepotism, favouritism, real or alleged corruption;
- g) oppression, frustration, excessive authoritarianism, insults;
- h) the large difference in relation to cultural, behavioral, religious values;
- i) ignoring the presence of the other, scorn, contempt, rejection of cordiality, discourtesy, failure to aid, denigration.

Viewed from another angle, inter-military conflicts essentially refer to opinions, ideas and solutions, ways to materialize them, setting tasks for each participant (workload), distribution (allocation) of resources, assessment of results and rewarding effort.

While the sense of the term "conflict" is limited only to its acute form between two or more parties, the existence and need for conflict resolution in the military subunit are hardly recognized, considering that the provisions of military regulations prevent their occurrence or clearly regulate their resolution.

The military leader has a duty to know and try to turn conflicts into conflicts beneficial to the organization or prevent their aggravation and transformation into destructive conflicts.

Communication plays an important role in preventing, reducing or solving conflicts within the military structure. Many conflicts that arise between individuals or between different groups are based on a poor and ineffective communication. This is caused either by some weaknesses in the organization, or lack of skills in the military manager's communication.

## II. CONFLICT

### II.1 Definitions

The study of conflict management is increasingly approached in human resource management as it contributes to a better understanding of individual and group behaviours within an organization.

Wherever there are people, there are ideas, values, circumstances, styles and standards that may come into conflict, which means that anything can be a cause of conflict: objectives, goals, aspirations, unconfirmed expectations, habits, prejudices, personalities and ideologies, competition, sensitivity and insulting, aggression and many more.

The conflict generally appears as a form of human interaction in which two or more members of a community wholly or partly disagree on some issues. In other words, the conflict is a deliberate mixture of an individual or a group in efforts to achieve the goals of another group. As the goals of both parties are often incompatible, achieving the goal by one of the parties makes it impossible to be achieved by the other party.

Objectives:

- a) Identification of conflicts in the organization;
- b) Clarification of concepts relating to conflict;
- c) Identification of conflict sources;
- d) Knowledge of the main types of conflict;
- e) Resolve conflict situations;
- f) Understanding stress factors in conflict management.

Organizational practice shows that conflict situations are used as important strategies to obtain a better result at the expense of others' progress.

Consequently, the conflict should be seen as an element of organizational life because of differences between the attitudes, goals, ways of action or a situation within the management process.

"*Conflict* can be considered in terms of behaviour as a form of opposition centered on opponents, based on the incompatibility of goals, intentions or values of the opposing party, the direct and personal opposition where the opponent controls the goal or intention required by both parties."<sup>28</sup>

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<sup>28</sup> Stern L. – „Contemporary conflicts”, Nemira Publishing House, Bucharest, 1993

Regarding the role of conflicts in the organizational life, there are several points of view. On the one hand, conflicts are abnormal situations within the activity, with a profoundly dysfunctional feature. On the other hand, conflicts are natural functional aspects of existence and development of the business, with a positive result.

At the present day, the world of experts has a common sense view of conflicts, which can be summarized as follows:

- a) conflict is inevitable;
- b) conflict is caused by: organizational structure, differences in goals, perceptions, assessment of human resources.
- c) conflicts contribute to defamiation of performance of organizations in different degrees;
- d) the management objective is to manage the conflict for optimal performance in the organization;
- e) the optimal performance requires reduction of conflict.

According to Robert E. Callahan and his collaborators, the term of conflict is used to describe:

- a) n problematic states (resource crisis);
- b) affective states (hostility, frustration, agitation, restlessness or anxiety);
- c) cognitive states (awareness of conflict situations);
- d) behavioural states (from passive resistance to declared aggression, without neglecting secrecy, meanness, etc.).

## **II.2. Causes of conflicts**

Causes that generate conflicts can be searched both within psycho-sociological elements and structural elements that characterize organizations.

Conflicts may be caused by:

- a) the inability of a member of the group to perform the tasks assigned;
- b) dissatisfaction with the division of tasks;
- c) misperceptions and misinterpretations;
- d) lack of open and honest communication;
- e) difficult interpersonal relationships;
- f) the existence of a climate of mistrust between people;
- g) aggression;
- h) fear of letting others to affirm themselves;

i) competition, etc.

Interpersonal conflict situations can be generated by:

- a) differences in personal training, exercise capacity, resistance to stress and change;
- b) differences in character, behaviour and work style;
- c) challenging behaviours of individuals;
- d) sexism, nepotism, favouritism;
- e) sexual harassment - quite common problem of conflict in military organization;
- f) exaggerated hierarchical scheduling.

Intergroup conflict situations can be generated by:

- a) the interdependence of positions, functions and sections of formal structure;
- b) differences in objectives and competition for their achievement (access to resources);
- c) differences in perception;
- d) the ambiguous definition of objectives and the ways to achieve them, the lack of clarity in the decision transmission, uncertainty about duties, authority and responsibility of business;
- e) The existence of different purposes - groups tend to become specialized and differentiated in terms of goal and objectives. This is the reason conflicts of interests or priorities occur, even when one pursues to achieve the same organizational goals;
- f) Stress is a constant source of organizational conflict and its mainly source is: the turbulent environment, chaos, fast pace of activities, including preparation and decision making, globalization of most problems.

When the individual or the organization cannot respond to all environment requests, nervous tensions and strains occur and can be treated as stressful situations. Stressors are presented in a very diverse form: from physical factors (heat, cold, weather) to emotional factors (aggressiveness, competition, frustration, obligation to negotiate, persuade, promote and manage).

Potential stressors at the level of organizational life include: role overload, excessive responsibility, deficiencies in the ergonomic design of workplace, inadequate design of job positions or roles of representation.

According to Sam Deep and Lyle Sussman, there are three "causes of conflict perpetuation"<sup>29</sup>:

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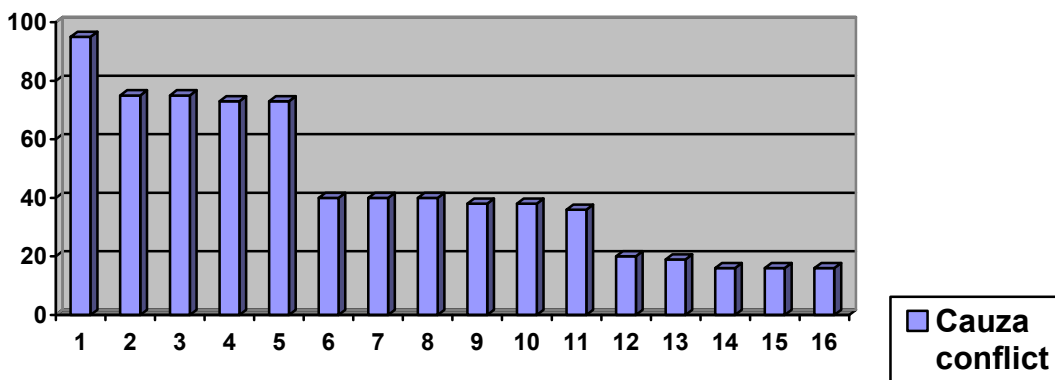
<sup>29</sup> S. Deep, L. Sussman - „The secret of every success: Let's act intelligently”, Polimark Publishing House, Bucharest, 1996



- a) different people want different things and "there are few things that please everyone";
- b) "working with people means that we inevitably face the conflict": misunderstandings, inconsistencies, aspirations, offended egos are some reasons generating conflicts;
- c) we live and work in a world that requires "limits on resources." Subunits belonging to military structures have limited access to information, material and financial resources.

Conflict management envisages both the structural causes and the diagnosis of interpersonal relationships, a full treatment of the conflict requiring strategies of structural modeling and tactics to address the interpersonal relationships within the organization.

A study done in a military unit on the *causes of conflicts in military groups* gave rise to the following results:<sup>30</sup>



-graphic adapted from Modern Military Spirit - March, 2004

Legend:

- 1. insufficient financial funds and material resources;
- 2. job insecurity;
- 3. differences of opinion;
- 4. unsatisfactory financial situation;
- 5. fight for positions, method of appointment to positions;
- 6. housing failure;
- 7. biased interpretation or breach of regulations and orderssr;
- 8. favouritism, discrimination among subordinates;
- 9. insufficient time for solving tasks;

<sup>30</sup> Modern Military Spirit - March, 2004

10. complaints about giving and executing order;
11. way of granting merit military pay and bonuses;
12. small number of staff and numerous tasks;
13. corruption;
14. conflict between generations;
15. stress;
16. pride.

As can be seen, the first place is occupied by the lack of financial funds and material resources (lack of equipment, spare parts, maintenance materials, etc.).

The second place was occupied by differences of opinion and job insecurity at par (restructuring, elimination of positions, closing units, small number of positions available for employment, etc.).

One clearly expressed reason depicts one of the issues that concerned servicemen in recent years: restructuring. Perhaps the concerns will alleviate and the incidence of conflicts generated by this issue will decrease after its completion.

Given the current economic climate and the perceived wage gap between various state institutions or between state and private institutions, in conjunction with job insecurity, it was natural that military staff consider the insufficient financial situation one of the causes generating a series of conflicts. Closely related to this is the poor housing situation in the army that apparently can generate quite a lot of conflicts, probably because of the modality providing job dwelling and places in garrison homes or difficulties in looking for private housing and payment of rent.

The fight for occupying positions is a reason arising from restructuring conditions, and it gives rise to conflicts not only in terms of reducing the number of positions and the need for confrontation for their appointment, but also in terms of the duplicitous, disloyal and illegal way they are given in some places.

Other causes are related to the biased, flawed, unprofessional way the commanders understand to perform functions on valuing people, granting rewards and sentencing, the way they know to give orders, to provide time to meet them or to interpret regulations point. All these causes, such as failure to fulfill tasks on time, tendentious interpretation of orders and regulations, non-compliance or failure to fulfill orders, are causes very much related to subordinates. However, commanders are those who have an obligation to manage conflicts

and it's their guilt or their credit if the number of conflicts of such cases is at high or low rates within the structures they lead.

The other positions are occupied by other causes, more or less specific to the activity of the army, such as corruption, conflict between generations, stress, pride, overlapping of functions, rumor, poor education or lack of information.

## **II.2. Classification of conflicts**

To characterize the conflicts, we can formulate some basic criteria as a starting point in determining a typology of conflicts: effects generated by conflicts, essence of conflicts, subjects engaged in a conflict, the position of the actors involved, the intensity, shape, duration and course.

1. The idea of desirability of positive conflicts leads to conflict classification depending on the **effects** or results they have in organizations. Thus we distinguish functional conflicts and dysfunctional conflicts. The interactionist perspective does not approve that all conflicts are good. Some conflicts, however, support the objectives and improve performances - these conflicts are efficient *functional conflicts*, others are blocking the activities – destructive *dysfunctional* conflicts.

Functional conflicts fulfill a challenging, competitive, stimulating role of human thought and action. For example, although they are simulated conflicts, troop tactical applications generate a strong competitive spirit between commandments and performers of participating echelons, both sides seeking success. Emulation exists between commanders of subunits of the same structure as well: filling a top position regarding the results of the combat training of subordinates, to maintain discipline at different types of competitions, etc. Well organized, monitored not to reach exaggerations, such events, based on a normal rivalry, play an important role in increasing cohesion of groups, platoons and companies.

Dysfunctional conflicts deteriorate inter-human relationships, undermining the cooperative spirit between individuals or between groups, altering the productive potential of the organizational structure, leading to mutual rejection, violent language, threats, sometimes extending to revenge beyond the acceptable limits of relationships between members of a group.

Sam Deep and Lyle Sussman<sup>31</sup> recommend managers to stimulate beneficial conflicts in organizations through the following measures:

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<sup>31</sup> Idem 17

- a) encourage employees to have different views and ask questions about facts; reward them when they do so;
- b) hire individuals who do not think in the same way as you, but make sure that they will respect your authority;
- c) when you suspect that your subordinates are afraid to admit that they have a different opinion, tell them that you want to listen to that opinion;
- d) do not react negatively to bad news, on the contrary praise the employees who keep you posted;
- e) help the team to see projects coming out to increase cohesion of its members;
- f) increase the level of your goals and expectations to employees;
- g) place the subordinates in competing position with each other, but do not allow them to sabotage each other.

2. In terms of their **essence**, we highlight *substantial conflicts* and *emotional conflicts*.

The first are manifested with greater intensity when individuals pursue their goals through groups. Substantial conflicts are strong within authoritarian management systems, in which those who hold key decision-making positions impose their own judgments, having long experience as an argument. Reduction of conflicts is achieved by focusing on those objectives that enable consensus.

The emotional conflicts that relate to interpersonal relationships are on the other side, being generated by emotions. The state of being suspected, the hostility, social tension, emotional explosion, are all ways to manifest such conflicts. While substantial conflicts are specific to hierarchical structures and relationships, emotional conflicts belong to the sphere of values, relationships or interests. Emotional conflicts are accompanied by strong negative emotions, the stereotypical perception of those who are on the other side and by revanchist behaviour.

3. Depending on the **level** at which subjects that came into conflict are manifesting, we distinguish: intrapersonal conflicts, interpersonal conflicts, intra-group conflicts, inter-group conflicts and conflicts between organizations.

- a. The conflict in the personality of an individual occurs at the *intra-personal* and *intra-psychic* level. Sources of conflict may include ideas, thoughts, emotions, values, predispositions or personal goals that conflict with each other.
- b. A second major level occurs in the relations between people, the so called *inter-personal conflict*. The conflict between bosses and subordinates, spouses, co-workers are conflicts in which a person frustrates the other person about the achievement of the goal. There are two major types of interpersonal conflicts: the consensual conflict (when the opinions, ideas, beliefs of conflicting parties are

incompatible), and competition for limited resources (when individuals perceive that they want the same limited resources).

- c. The *intra-group conflict* occurs within a group due to the pressure it exerts on its members. According to Panaite C. Nica, the effects of low performance of the group may reflect directly on the individual in terms of rewards or general assessments he/she receives.
- d. *Inter-group conflicts* are characterized with a more complex feature, which often occur between functional subdivisions of the organization. These conflicts generally lead to increased group cohesion and loyalty of its members. The importance given to teamwork suggests a strong identification with the team where he/she belongs, and the identification with a particular group sets the stage for organizational conflicts.

4. The **position** of the actors involved in the conflict helps us to make a distinction between *symmetric conflicts* and *asymmetric conflicts*. Conflicts often occur between parties who have different weight factor, such as a majority and a minority, a legitimate government and a rebel group, an employer and its employees. These conflicts are asymmetric and their root is not found in natural problems or issues that may divide the parties, but in their structure.

Hugh Miall and his collaborators<sup>32</sup> argue that a given structure of roles and relationships cannot be changed without the outbreak of a conflict. Such structure is established in asymmetric conflicts, so the "big fish always eats the little fish". The only solution is to change the structure, but this is never in the interests of the "big fish". Therefore, there are no win-win results, and the third party can only join forces with the "small fish" to reach a solution. Otherwise, the "big fish" make the effort to maintain power and control the little fish.

5. According to the **degree of intensity**, Helena Cornelius and Shoshana Faire<sup>33</sup> mention discomfort, incidents, misunderstanding, tension and crisis. Discomfort is an intuitive feeling that things are not normal, even if conflict cannot be defined precisely. It is an irritating incident in time and the basis of most intense conflicts if not forgotten. An incident may be, in itself, a simple problem, but if misunderstood, it could escalate tension.

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<sup>32</sup> H. Miall, O. Ramsbotham, T. Woodhouse - „Contemporary Conflict Resolution”, Polity Press Cambridge, 2000

<sup>33</sup> H. Cornelius, S. Faire - „Everyone can win”, Simon & Shuster, Australia, 1989

Misunderstanding is a form of conflict caused by misperceptions, lack of relations between parties and poor communication. Tension and crisis are extreme forms of conflict, people cross the line and let themselves be dominated by feelings.

6. Regarding the **form** of conflict, we can distinguish *latent conflicts* and *manifest conflicts* (embodied in labour disputes). Labour disputes arise from employment relationships between the unit, on the one hand, and its employees, on the other hand, and they concern only the professional, social or economic interests. The legal framework of our country specifies two categories of labour disputes: conflicts of interests regarding the establishment of working conditions during the negotiation of employment contracts, and conflicts of rights that arise in the exercise of labour rights. This clarification is important because the strike, as a form of protest of the employees, reflected by collective and voluntary cessation of work, can be triggered only during the course of conflicts of interests.

7. In terms of the **duration and evolution**, we have spontaneous, acute and chronic conflicts.

*Spontaneous conflicts* occur suddenly, they are difficult to predict, with short duration and they occur at interpersonal level. *Acute conflicts* have a short evolution, but they are very intense, while *chronic conflicts* have hidden impalpable causes, with slow and long-term evolution.

*Conflict Research Consortium* of the University of Colorado suggests *short-term conflicts* and *long-term conflicts* dichotomy on the same criterion. Short-term conflicts can be resolved relatively easily for involving negotiable interests. This means that it is possible to find a solution to satisfy the interests of each party, at least partially.

Long-term conflicts are resistant to settlement and usually involve intangible problems that cannot be negotiated (e.g. fundamental value differences). Basic needs of security, identity and recognition often trigger such conflicts because none of these aspects is negotiable.

## CONCLUSIONS

The image of military conflicts is quite normal, so conflicts should not be disregarded in any form for a better development of activities, in order to obtain higher efficiency and an optimal working climate in military units. Knowing the causes that produce them, mechanisms and laws that govern them and the most effective ways to prevent and resolve them, is the duty of any serviceman, but especially of commanders at all hierarchical levels.

It thus confirms that, ultimately, the main psychosocial climate modeler is in the area of leadership.

The leadership position incumbent on the group leader at any level is primarily based on the role relationships to facilitate coordination of group members' activity toward their common goals. Based on an accurate knowledge of the processes and phenomena that occur in the subunit that coordinates, the subunit commander is the one who creates the conditions necessary for the manifestation of those positive relationships of sociometric attraction that have a determining structural and functional value in group activity.

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# ACQUISITION MANAGEMENT FOR NATIONAL DEFENCE

*LTC Constantin DEDU*

## INTRODUCTION

As a main component of acquisition management, the contracting acquisition process inside Romanian Ministry of National Defense - MoD is a mixture of procedures that is mandatory to be performed based on national acquisition laws and regulations.

In terms of business numbers, after 1989 till now, MoD budget was progressively reduced and as a primary consequence acquisition of military equipments is in a massive regress or is really frozen. Missing of orders from Romanian military system and loss of traditional export markets has generated in rough words crash of our defense industry. In this respect, also we should mention a huge lack of real management, long term oriented, for leading staffs at the level of these military factories, plants or other production components.

After Romania joined the North Atlantic Treaty Organization (NATO) on March 29, 2004 following the decision taken at the Prague Summit, in November 2002, modernization needs of Armed Forces in order to reach a reasonable interoperability increased. Despite of these reality, limited financial resources allocated, lack of long term acquisition planning and continuous restructuring, have been forced MoD to postpone main acquisition programs.

Today, at the MoD level there were established 6 strategic acquisition programs, two for each Arm Forces Departments (Land Forces, Air Forces, Naval Forces), but taking into account the above mentioned facts, acquisition process was not started yet.

Whole acquisition management process is based on needs and requirements.

- Needs

Between objectives of contracting process one very important is fulfilling the beneficiary's needs as a reasonable price level. That requires a sum of approaches like:

-beneficiary's needs to be clearly expressed and as simple as possible in order to fulfill its missions;

-all people involved in contracting process to be all the time focused on achieving these needs during entire process.

During this process usually some constraints and new conditions are generated by:

- new beneficiary's needs based on new quick technical changes;
- acquisition process duration more than reasonably amount of time;
- regulation unexpected changes during the "game";
- new contractual conditions.

- Requirements

The entire contracting process is based on beneficiary's requirements and is enforced by:

- technical specifications (System Performance Specification – SPS);
- quality requirements;
- warranty requirements;
- technological transfer requirements if applicable under contractual provisions or based on a separate offset agreement;
- training requirements;
- list of activities (Statement of Work – SOW);
- schedule with financial provisions (also with penalties).

Beneficiary's requirements have to be taken into consideration starting with development of documentation for offer presentation till finishing the contract.

In order to reach these needs and requirements it is necessary to have them inside MoD objectives related to whole bunch of endowment process.

In accordance with National Military Strategy, we have to stress maintaining of major programs that are developing, not only those strategic ones. Due to the lack of funds or limited funds, we can contract only the programs necessary for maintaining an adequate endowment of forces (that should be well defined) during these called to be a "transition period".

Taking into consideration these aspects and having well defined needs, requirements and objectives regarding the acquisition policy, people involved in contracting process have to be highly skilled in order to perform a well done job.

## **I. APPLICABILITY RANGE**

The process of contracting is one of the most important phases within acquisition process of military technical systems. It defines steps, activities and responsibilities regarding the contracting of one system beginning with establishing the program director and finishing with signing the contract. The main objective is transforming mission needs and operational requirements in an integrated contracting solution for a specific system taking into consideration in the same time all needs during its life cycle time: R&D, development, fabrication, testing and evaluation, checking, installing, functioning, supporting, training and disposal at the end of lifetime cycle.

Because a major acquisition contract is a complex process and usually will be developed during many years it has to be taken into account very carefully the risks control in order to diminish uncertainty aspects.

### **I.1. Conceptual defining documents**

All major aspects in terms of planning and execution as a part of acquisition management processes for national defense should be well defined in the following documents:

- National Security Strategy
- Government White Paper
- Technical Research Strategy
- Strategies, doctrines, plans and programs
- Instructions, procedures, and standards
- Department for Armaments Quality Manual
- Defence Planning Directive
- National Military Strategy
- Arm Forces endowment strategy
- Integrated logistic management concept

## **I.2. Public acquisition regulations**

### **A. GENERAL REGULATIONS**

1. Government Emergency Ordinance No.34 / 2006, regarding the award of public acquisition contracts, public works concession contracts and services concession agreements;
2. Romanian Government Decision GD 925/2006, for approving the rules for the implementation of the provisions relating to GEO No.34/2006;
3. Government Emergency Ordinance No.114/2011 on the award of certain public contracts in the fields of defence and security;
4. Law No. 121/2010 concerning the participation of the armed forces in missions and operations outside the territory of the Romanian State;
5. Law No. 30/1997 approving Government Ordinance No. 25/1996 concerning the ratification of the agreement between the Government of Romania and the Government of the United States of America relating to the assistance programs, technical and economic in related areas;
6. Law No. 182/2002 concerning the protection of classified information;
7. Government Decision No. 585/2002 for the approval of national standards for protection of classified information in Romania;
8. Law 544/2001 on free access to information of public interest;
9. Regulation No. 2195/2002 of European Parliament and of the Council on the common procurement Vocabulary (CPV);
10. Government Emergency Ordinance No. 189/2002 on compensatory operations foreseen for defence, public order and national security (law offset);
11. Law No. 672/2002 on Public Internal Audit;
12. GD No. 445/2003, GD No. 1660/2006, GD No. 71/2007, Law No.294/2007, GD No. 353/2002, GD No.781/2002, PFMO No. 3512/2008, PFMO No. 1792/2002, GEO No. 30/2006, GD No.942/2006, ANRMAP 26/2007, GD No.782/2006, GD No. 445/2003, Law 500/2002;
13. The civil code and the code of civil procedure;
14. Government Emergency Ordinance No. 77 / 2012 (effective from 1 January 2013) which amends GEO No.34/2006 mainly by raising thresholds applicable for the award criteria to EUR 5.000.000 in the case of works contracts and to EUR 200.000 in the case of services agreements.

## **B. SPECIFIC REGULATIONS**

1. Minister of national defence order No. MS 91/2010 of the for approval "Methodology relating to the conduct of the Ministry of national defence procurement of goods, works and services by the NATO Agency for Supply and maintenance";
2. Minister of national defence order No. M 83/2006 regarding the Organization and conduct of military security, assistance granted by the Ministry of national defense of the United States Government, through the Foreign Military Sales Program – FMS, externally funded grants ";
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4. Minister of national defence order No.M.6/2004 regarding the code of ethics of the MoD staff working in the field of public procurement;
5. Minister of national defence orders No. M.141/2002, M. 31/2008, M.48/2002, DA 40. M1/2009, IPS 39/2008, M 87/2003, MS 91/2010, M83/2006;
6. Instructions from I. 1000 series.

### **I.3. Acquisition phases and decision points**

#### **Phase 0:**

- |        |   |
|--------|---|
| Steps: | Preliminary analysis                          |
|        | Concept selection and study                   |
| Scope: | Threat evaluation and validation              |
|        | Mission Needs Document issue - DNM            |
|        | Alternative methods analysis                  |
|        | Operational Requirements Document issue - DCO |
|        | Alternative concepts exploration              |
|        | System concept definition                     |
|        | Risk assessment                               |
|        | Acquisition strategy issue                    |

#### **Phase 1:**

- |        |   |
|--------|---|
| Steps: | System (project) definition                         |
| Scope: | Project characteristics and capabilities definition |

Information support for phase 2 decision  
 Acquisition Program Base issue

**Phase 2:**

Steps: Technological development  
 Scope: Most favorable phase 1 program translation  
 Production process technology validation  
 System capability test

**Phase 3:**

Steps: Production and inventory entry  
 Scope: Production and support base establishment  
 Reaching operational capability  
 System performance monitoring

**Phase 4:**

Steps: Operation and support  
 Scope: End user support  
 Weak points identification  
 Upgrades and required upgrades  
 Out of inventory

Decision points as they are defined by instructions I.1000

<b>Phases</b>	Phase 0	Phase 1	Phase 2	Phase 3	Phase 4
<b>Decision Points</b>	DP 0 Concept study approval MDA (CODA) DNM	DP1 Program start approval MDA (CODA) DCO	DP 2 Development approval MDA (CODA)	DP 3 Production approval MDA (CODA)	DP 4 Modification approval MDA (CODA)

Abbreviations List : MDA - Acquisition Memorandum  
 CODA - Acquisition Council

DNM - Mission Needs Document

DCO - Operational Requirements Document

DP -Decision Point

#### I.4. NATO acquisition system phases

NATO	GE	FR	UK	USA	RO
Mission analysis		Mission analysis	Mission analysis	Mission analysis	Mission analysis
Mission requirement and evaluation	Tactical concept evaluation	.	Concept evaluation	Requirement determination and concept evaluation	Mission needs issue Concept study Operational requirements issue
Pre-feasibility	Pre-feasibility	.	.	.	.
Feasibility		Feasibility	Feasibility	.	.
Project definition	Definition	Definition	Project definition	Program definition	Program / system definition
Project and development	Development	Development	Development	Engineering development	Technological development
Production	Production	Industrial production	Production	Production	Production
Use	Use	Use	Use	Use	Use

## II. PLANNING AND MONITORING OF ACQUISITION PROCESS

In each contracting process as part of acquisition management process it is very important to exist a well established hierarchy of activities, estimated time and structured class of relationships between activities. All these elements will help to have an initial master plan but for reason regarding medium and long term activities is needed to really plan and control available resources and costs induced by a specific program/project.

In the case of contracting process projecting is difficult to establish the exact manpower costs for all people involved in this process because there are no

specialized equipment like a complex tool and also there is not a pointed budget for achieving the activities.

By using computing tools like Microsoft Project or others project oriented programs could be avoided inherent conflicts between different manners of resource allowance. Resources management in a project is a very tough target even in a military system management people is not working with money and they cannot act as real managers.

A computer program will be all the time able to solve the issue of resources versus reducing the costs, optimizing the resources consumption but only in such a situation when inputs are more than well provided. In this respect, is very important also do not come with resources overcharging solutions that will never induce a cost decrease.

In our military planning and monitoring system, there are some entities that are part of the entire process, responsible for each step of an acquisition management process.

In short, after a specific task or need was established by General Staff / Departments (LF, AF, NF) or other beneficiary from military area, major program manager from that area will present and sustain that need in Requirements Oversight Council – CSC. Documents that will be validated as a result will be Mission Needs Document - DNM and Operational Requirements Document -DCO. Based on these documents will be started the entire process for translating requirements into technical specification, after best solution was find among the all possibilities to accomplish the task (all process will be part of Defense Acquisition Management System).

In the same time Department for Defense Policy and Planning, following Defense Planning Guidance and with respecting Defense Planning Council decisions at the level of entire Armed Forces, will establish priorities for specific budgets and resources allocation that are needed.

Based on these documents, Acquisition Council will decide to start in real terms acquisition process and Armaments Department will follow this decision.

Till now we speak only about approvals to start the process and wich are entities that are in front of providing these green cards. From that time on entire



process will be in the Armaments Department hands and is mandatory for this institution to act in accordance with national acquisition laws.

After negotiation and contracting, monitoring of contracting process needs a lot of effort in collecting, introducing and analyzing information.

The monitoring process involves the follows levels of work:

- establishing a reference planning;
- periodically actualization of planning;
- determination of stage for each activity;
- adjusting of actually planning;
- emphasizing actual data for activities developing;
- comparison of current planning with the reference one.

Of course, these levels are mentioned in the books, but inside a real contract control is not synonymous with changing, flexibility is for decision making in order to maintain the original scope of the contract, not to alter ate it.

### **III. INFORMATION MANAGEMENT IN ACQUISITION PROCESS**

In present time the issue of too much existing information on the all media channels is a real one, so in order to catch enough time to check that information is needed to have a powerful tool for organizing, finding and evaluating. It is a necessary process to counteract information overload and to pass forward: information management is the first step to true intelligence amplification.

#### **III.1. Generals**

Information management is a fundamental activity within the acquisition process of complex technical systems.

A good information management can not be imagined without existence of its two systems: informational and informatics.

Informational system is a sum of elements involved in collecting, transmitting and processing process.

The role of this system is to transmit information between different components during the entire process. For example in an economic unit it has to transmit to the staff necessary information for decision making process or other kind of information.

Within informational system almost all activities can be developed with computers help. It is possible to process initial (primary) data and after that delivering them to another compartment or component of the system. The transfer can be realized electronically using a local computers net or internet.

All the elements that are involved in this process of transmitting and processing are named informatics system.

Informatics systems cover a large domain diversity which can be divided by follows criteria:

- specialization,
- location of data and the place where data are processed,
- hierarchy level within the structure,
- domains of functioning,
- activity.

In order to realize as big as possible profit economic units have to improve their activities all the time because the tough competition. Using computers the efficiency of their activity is growing up fast.

### **III.2. Informatics System (IS) in acquisition process**

For big companies with many sections deployed in a large geographical area and a central HQ is it profitable to use an integrated informatics system, with well established access rights, because the speed of data transmitting actually just in time.

The integrated character of all components is given by an unitary approach during their development, architecture (client/server), and common used data bases server. Communication between components is solved by using the same data bases.

Components` developing is realized upon user requirements base that are experts in their fields of expertise.

### **III.3. Management of acquisitions using Informatics System**

The efficient management of contracts is the biggest satisfaction of all managers in the world.

All commercial organizations have such a goal signing contracts in their benefit. More contracts means more difficult management of information because their bigger quantity.

Besides all usual data included in a contract can be monitored information about items, terms of delivering, discounts. Moreover, can be controlled special situations such deviations of prices, stopping of payments or restrictions of payments. This application can be applied to all kind of activities.

In a market economy conditions and bigger and bigger competition more and more companies have decided that informatics is the solution of success.

The acquisition of an IS which allows just in time communication not only at local level but also at global level has like consequences growing up performances and dynamism of a company. The types of contracts may be flexible configured in accordance with each activity informational requests. Therefore, besides economic information (specific information for defining a contract) can be defined many attributes (having values between a minimum and a maximum) which help in complete monitoring of contract data.

This application allows monitoring of contracts by viewing the stages, and offering information about payments. At each contract level and each phase of contract are available both an analytical situation and a synthetic one having included delivering, payments, reservations for each item of contract.

The most important advantages of using this monitoring way are as follows:

- big and divers volume of contractual information;
- possibility of knowing every time the cash flow in accordance with contract;
- the forecasting capacity for unusual or crisis situations;
- the utility on management side by creating synthetic reports that reflect entire contract activity with clients and providers of a company;
- the including of a notification mechanism adaptable (for instance by e-mail) through the user of this kind of system is informed about possible problems like payment deadlines that were not obeyed.

Contracts` monitoring is an essential component of complete informatics system for companies that have their activities based on contracts, a flexible tool for defining acquiring contracts (even using different currency). The user can organize a contract in elementary units, easily to be monitored, named contract phases. A contract can be defined like a tree structure of phases. This application allows defining of this kind of phase`s hierarchy on unlimited number of levels. The phases

can be named and coded as wish and developed together (in the same time) or separately.

#### **III.4. Data management**

Data management is an important component of information technology as part of entire process, in order to sustain developing, control and providing of necessary data during entire contracting process. The activities regarding the data management include data bases set up and appropriate procedures for collecting and keeping them.

In order to realize and use a data base for increasing the efficiency during contracting process it is necessary to fulfil the following requests:

- important data have to be easily accessible and maintained during life cycle time of system;

- all the activities related to management and collecting data have to be coordinated all the time;

- it is preferable to storage and access data by using electronic assets (not manually);

- all participants in contracting process team have to have complete data access;

- data base has to be precise, sure and kept in safety;

- time to time it is better to make copies of data base in order to avoid losing data by mistake (accidentally);

- strictly safety measures implement for data integrity.

The efficiency and effectiveness of contracting process can be improved using:

- integrated work teams, multidisciplinary;
- integrated tools assisted by computer;
- integrated data bases.

In general, data that every company has are usually about its activity object, own structure and functioning, relationships with others, accounting-financial data, development strategies, partnership politics, contracts, negotiations and additionally data base about traditionally clients and business partners.

In order to protect data is necessary to study what are the possibilities to affect data accuracy. In this case appears the necessity take into account all the risks of data damaging, vulnerable points, and finding the most efficient solution for keeping data in good conditions.

#### **IV.RISK MANAGEMENT IN ACQUISITION PROCESS**

Informational risk management is an important component of integrated management which is expected to produce necessary tools for analysing and implementing the best solutions for reducing the negative effects of information perturbation.

The main phases that have to be made for having an efficient risk management are:

- establishing a general policy for own informational system security with clear norms, rules and responsibilities for all categories of information and employees;
- permanently monitoring of system;
- events management;
- choosing the properly security system architecture for company;
- control and feedback.

##### **IV.1. Definition**

Risk could be understood like the probability of vulnerability to become an exploited one and in general is generated by incomplete information that means uncertainty.

The existing level of risk from an organization (firm, plant or society in general) could be considered like:

- High – it compels more attention and immediate protect measures;
- Medium – it compels attention and immediate implementation of protect measures;
- Low – it implies some attention and consideration for implement protect measures like a good practice in activity.

We have to agree that uncertainty exists elsewhere where the outcomes of managerial decisions cannot be predicted with absolute accuracy but all possibilities and their associated probabilities of occurrence are known.

#### **IV.2. Types of economic risks**

**Some of usual types of economic risks are referred to:**

- Business risk;
- Market risk;
- Inflation risk or interest risk;
- Credit risk;
- Liquidity risk;
- Derivative risks;
- Cultural risks;
- Currency risks;
- Government risks;
- Expropriation risks;
- Others (like dumping or predatory dumping, embargo risks).

#### **IV.3. Risk evaluation**

Risk evaluation represents the analysis of possibility to suffer damages, losses and so on, due to specific threats that are oriented against one specific structural element of threaten system (good which has a associated value) by taking into account all protection measures in order to determine the vulnerabilities. In risk evaluation quality of input data are essential because uncertainty in strategy development cannot be eliminate without knowing what was happened before the actual process.

For the purpose of establishing of one associated level of risk – risk evaluation involve:

- to examine the existing protection measures;
- to establish the vulnerability;
- to determine the level of risk starting with a random number of factors.

#### **IV.4. Decision making in risk conditions**

Risks are existing inside each and every human activity.

The risk management is a process used by managers for reducing or balancing the risk. It provides leaders with a systematic mechanism for identification and choosing the optimal course of action in a given situation. It represents a complete integrated element of planning and execution in any activity. This process can be applied in all phases of an acquisition process. The key of successful in risk management are a good planning and rigorous execution. A good planning includes an organized approach, smart and iterative in identification and evaluation risks.

It would be better the evaluation of risks to be done as earlier as possible in order to be sure that critical technical risks regarding to the schedule in realizing and total costs, are identified and correctly included program's plans and budget projections. An important role in establishing risk management program has the program director who manages all the activities regarding the risks. This has to permanently collaborate with people involved in program developing. A big part of decisions that are made during the contracting process are based on and elaborated in risk conditions. There are no doubts that the final decision and the most important is purchasing goods.

The probability estimation of a process results can be made based on past data or measuring performances.

As we know and is shown in economic literature in order to establish the probability that an event happens it is necessary to have a minimum number of observations for a specific interval of confidence.

In these given conditions can be computed the probability of a phenomenon and the credibility of this result can be considered a risk. In these situations with high level of risk the first task of manager is to develop techniques for computing and minimizing risks.

Having knowledge about probability of an unfavorable result allows decision making in order to counter possible negative effects.

In modern theory is also used the attitude of decision factor about risk because the same result does not appear as attractive for somebody as for others taking into account psychological, cultural, professional differences.

Risk transfer from provider to buyer will be made in accordance with INCOTERMS (International Commercial terms) 2000 that establishes rules for interpreting of main terms used in international import contracts. The obligations written in this document for each delivering condition can be completed or improved by partners in contract. After risks are transferred from provider to beneficiary the last is obliged to pay entire price of goods even if during delivering process will appear damages or losses except the case when the fault is belonging to the seller or to another person from its staff.

## **CONCLUSIONS**

In acquisition terms I tried to present current situation based on the law provisions expressed in chapter I.2, where are depicted most important laws regarding public acquisition in today's Romania.

In chapter I.3 are presented some of MoND regulations that are in accordance with national law. In fact, our acquisition system is mainly similar with USA, but we are still working with internal regulations.

What is very important to emphasize here is that in MoND we didn't reach a full level of regulations (same) as public laws yet. Instructions from I.1000 series are not translated yet as public laws in full term in order to become mandatory rules for acquisition inside MoND.

Inside MoND, after were established needs, requirements and further System Performance Specification based on our planning system and Acquisition Management System we are facing a new challenge: passing to public acquisition reality.

From this point on, we will work in accordance with GEO No. 34/2006 (with a lot of amendments), GD No. 925/2006, GEO No. 114/2011 and a huge amount of specific laws and regulations. I just depicted some of these laws in chapter I.2 for information purposes only. Process will be done by public procurement system with key stakeholders of the system like: National Authority for Monitoring and Regulating Public Procurement - ANRMAP, Unit for Coordinating and Verifying Public Procurements - UCVAP, National Council for Solving Complaints - CNSC, Competition Council, Contracting Authorities - CAs, Economic Operators – EOs, Audit Authority, the Department for Fight against Fraud – DLAF and data available



from the Electronic Public Procurement System - SEAP and Tenders Electronic Daily - TED applications. So, from a specific need to a real acquisition we are passing through a mixture of internal regulations/decisions and public laws, and there is necessary to establish a bridge between these two classes in order to simplify and more powerful control of entire process.

In terms of process, for a beneficiary / end user should be very clear that acquisition is just first step, costs for entire lifetime cycle will be made also from operating, maintenance and unexpected costs. I mentioned in chapter IV some risk assessment considerations, in fact at the end of an acquisition the winner will be who is managing risks the best in terms of prediction and control.

Based on our past experience, for further acquisition is recommended if possible to pay more attention to on-the-shelf products in order to diminish possible risk induced by a new and not so much tested product.

Our acquisition legal framework is changing in order to become compatible with EU norms, so we expect in nearest future to work with these new tools (last amendment of GEO No. 34/2006 was GEO No. 77 / 2012 - effective from 1 January 2013).

For a long term good performances in acquisition is needed to have an efficient acquisition management based on simple well defined legal framework, well defined responsibilities and competences positions filled with skilled people.

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# **HUMANTARIANISM AND WAR**

*Dumitru Vasilica GRADINARU, PhD.*

## **1. INTRODUCTION**

The conflicts of the 1990s are often viewed as a departure from state dominated interests in favor of national or other interests and thus called “new,” “post-modern” or “residue” as distinct from the conflicts of the Cold War era. The most recent conflicts in Afghanistan and Iraq represent another departure in at least two interconnected ways: first, the supra-nationalist or religious interests of non-state actors are challenging the dominant world system. For the United States government, at least, this has resulted in renewed activism around the world in an effort to combat terrorism. Second, the relationship between the military and humanitarians has been affected by renewed activism, most notably in Afghanistan and Iraq. This second change is the focus of this paper.

## **2. PURPOSE**

This Graduation Paper addresses two questions:

What are the previous broad lessons learned in the interactions between the military and humanitarian actors? And,

How were, these lessons, “relearned” during the recent operations in Afghanistan and Iraq?

This Course Paper does not contribute to theory nor investigate deeply into the controversial debate over correctness of so-called humanitarian intervention or military humanitarianism. Rather, this paper makes attempts to add to the discourse that has emerged between humanitarians, the military, and scholars.

First, this Graduation Paper presents background of the recent military and humanitarian operations in Afghanistan and Iraq. Second, five lessons learned in the relationship between the military and humanitarians is presented with a discussion of how each has been were ignored or relearned in Afghanistan and Iraq. Third, based on experience in Afghanistan and Iraq, at least two emergent issues or “lessons” are discussed. Finally, the conclusion suggests further steps in improving the way the military and humanitarians interact and presents several questions worth further inquiry.

### **3. THE CONTEXT OF AFGHANISTAN AND IRAQ**

Before reviewing the situation in each country, it is worth discussing the wider setting. Since the attacks of September 11th (2001) many fields including economics and international relations have been altered in profound ways, economic downturn and renewed US activism overseas serve as clear examples.

Yet what may be more significant is what has remained consistent. In other words, many of the trends, modalities and lessons learned of the past decade are relevant today as they were before two years ago. For the military much has remained the same. The strategies and tactics are consistent with many past missions. Facing new challenges, most of the forces continue to conduct operations as they would before 9/11.

For humanitarian perspective much has also remained constant and the humanitarian organizations have not significantly evolved. In this sense the world has changed faster than the institutions (whether political, military or humanitarian) themselves. Indeed, many models used today, both in delivering aid and in fighting asymmetric wars, were developed during previous conflicts such as the Vietnam War.

Finally, a significant part of the countries that are at the top of the terrorism “agenda” are the same for aid and military assistance in previous decades including Afghanistan and Iraq. Afghanistan was itself a recipient of massive aid programs with the Soviets dominating in the north building dams and agriculture collectives and the Americans in the south with airports and other projects. Iraq under Saddam Hussein, seen as a Cold War ally, received heavy military support from U.S., nearly up to its invasion of Kuwait in 1991. This situation presents a veritable minefield of issues such as impartiality and neutrality for humanitarians operating in areas next to the Coalition.

#### ***3.1. Afghanistan***

The initial phase of Coalition operations in Afghanistan may be seen in retrospect as a huge victory for combined and joint special operations methods and strategy. Support to the Northern Alliance by special operations forces and air assets made the military difference. The groundwork was laid for renewed hope among Afghans in less than three months following the September 11th attacks.

After the liberation of Kabul in early December 2001, the Coalition Joint Civil-Military Operations Task Force (CJCMOTF) was established for strategic command of Civil Affairs (CA) assets. At the tactical level, following the deployment of Special Forces

operational detachment's in key areas, the Coalition deployed Coalitional Humanitarian Liaison Cells (CHLCs – pronounced “chicklets”) in several urban areas around Afghanistan. The CHLCs performed a variety of tasks including assessments, information sharing, contracting projects and supporting combat operations. Depending on their mandate and mentality, some humanitarians cooperated with the CHLCs while others kept them at an arms length.

In the summer of 2002, as the mission changed from combat to one of supporting stability, the US government launched combined civil-military teams called Provisional Reconstruction Teams (PRTs). In many ways, the PRTs serve as a stop gap measure in areas where the International Security Assistance Force (ISAF) has not deployed and helped the Afghan transitional government do not fail. The PRT's presence is thought to add to security, but the teams are largely preoccupied with their own security with the hope that the embryonic Afghan National Army will assume more responsibility. From the Coalition's perspective, the PRTs have been a success.

Humanitarians hardly share a positive view of the PRTs in Afghanistan. The PRTs have been roundly criticized for their mission, structure, and, now that they are in place, their lack of effectiveness. A commonly held view among humanitarians is that the PRTs “have failed to tap local resources and have failed construction projects.”

During the most recent war, there were different access points for both military and humanitarians including Pakistan, Tajikistan, Uzbekistan and other countries. The US umbrella NGO, Interaction, placed a representative at CENTCOM in Tampa, Florida to share humanitarians' perspectives and opinions. As areas opened following hostilities, humanitarians moved their activities and offices into Afghanistan, sometimes after years of exile. In certain locations, they continue to wait for areas to be declared safe.

Despite the success, there are lessons to be learned from a military-political point of view and perhaps none stronger than the realization that to secure peace is more difficult than winning wars. Many, especially inside Afghanistan, feel that the stability is patchy, reconstruction slow, and the dividends of peace less than expected. With the recent death of two Afghan humanitarians, continued factional fighting, and pervading warlordism, the strategic goal of securing a peace that lends itself to development in Afghanistan is far from complete.

### ***3.2. Iraq***

If the Coalition operation in Afghanistan was an achievement of specialized warfare, the offensive in Iraq was a reaffirmation of conventional military power. The mission of regime change in Iraq is widely known. Rather than trying to stitch together a devastated tribal society as in Afghanistan, the Coalition's mission is to "cultivate" an educated, oil rich state. While both countries are ethnically divided and prone to corruption, the level of complexity in Iraq is probably several times greater. Yet, few years after Coalition redeployment from Iraq it is still difficult to assess the extent in which this success will be translated into a durable peace.

During combat, US Army Civil Affairs (CA) units were assigned to support conventional units. They assumed a role supporting conventional forces in reducing civilian interference of combat operations, liaising with civilian agencies, and helping displaced persons as needed. These units also played a role in finding civilian resources for military use.

As a post-conflict country, Iraq was somewhat unique for its absence of the United Nations as a major presence. For this reason, the Coalition filled an important role in organizing coordination meetings, identifying civilian needs and sharing information of a humanitarian nature. Once Baghdad had fallen, the Coalition also implemented its own rehabilitation and humanitarian projects, usually through local contractors. As happens in Afghanistan, sometimes these projects compete directly with humanitarian organizations' initiatives. Unlike Afghanistan, however, CA had prior experience working alongside conventional forces in Iraq. Their role in the first Gulf War was similar to the most recent mission, but on a more limited scale.

The civil-military structure of the US Army in Iraq was somewhat unique for its purpose but followed established doctrine closer than in Afghanistan. At the strategic level, the Coalitional Provisional Authority (CPA) has established the Iraq Assistance Center (IAC) in Baghdad to coordinate humanitarian and reconstruction efforts. At the operational level, three Humanitarian Assistance Coordination Centers (HACCs) have been set up; one each in Baghdad, Jordan and Kuwait.

In addition to command and control, various tasks were accomplished at the strategic and operational level including compiling lists of active organizations and Iraq contractors. Sharing information was also a key function as many humanitarian organizations base themselves in the capital. Initially, there were eleven daily, some redundant, "coordination" meetings conducted by the Coalition in Baghdad alone.

At the tactical level, there were twenty-one Civil-Military Operation Centers (CMOCs); half of these located in Baghdad and the rest scattered throughout Iraq. These centers provided CA with an on-the-ground presence and allow them to support directly brigade combat teams. Unlike many of the peace operations of the past decade, CMOCs were located within fortified areas; with about half of them being co-located with headquarter units. This arrangement met force protection measures but has been a trade off for reduced access to civilians.

PRT arrangement used in Afghanistan did not apply to the situation in Iraq. The local context, with its educated and urban population and natural resource base, was simply different. At some point there was an attempt for “civilizing” the CMOCs, through recruiting and training Iraqis in its functions, and turning them over to district advisory councils.

For humanitarians in Iraq, the challenge is somewhat different from other recent crises.

Unlike Afghanistan, the presence of humanitarian activity in Iraq was relatively new. Fewer humanitarians had the depth of experience in Iraq as they might have in other crisis prone countries like Afghanistan. Further, while fairly devastated by war and bad governance, Iraq’s infrastructure was fairly developed, negating the need for many types of humanitarian projects. Iraq never experienced a complex emergency leaving many organizations with the decision of whether to stay in-country at all. Add to this the suicide bombing attacks and continued violence in other parts of the country (such as Basra) has led to a perception that the Coalition was failing in its basic responsibility of providing a safe humanitarian space.

#### **4. PREVIOUS LESSONS LEARNED**

Problems can always be expected, but what frustrates smooth interaction above all is the repetition of lessons that are thought to have been learned from recent experience. Five big problems or lessons learned, which are obstacles to effective interaction, are discussed here as they relate to recent experience in Afghanistan and Iraq.

##### ***4.1. Roles and missions may be at odds***

One point agreed upon by both the military and humanitarians are the core missions of each; respectively, to win wars and to help alleviate human suffering. While these two roles may seem to be at odds, they are not entirely incompatible. There are examples of positive

interaction, for example, where military resources have made a critical humanitarian impact, but the negative perception remains.

In Afghanistan, humanitarians banded together to forward concrete recommendations to the Coalition. The resulting policy brief outlined a reemphasis of military activities such as arms collection and demobilization. Where CA wanted to carry out civic-action projects on schools and health clinics, humanitarians often suggested they concentrate on security and fixing those things that were destroyed by the Coalition in battle. The brief also recommended a de-emphasis on humanitarian activities by the Coalition: “The military should not engage in assistance work except in those rare circumstances where emergency needs exist and civilian assistance workers are unable to meet those needs due to lack of logistical capacity or levels of insecurity on the ground. ... All such work should fall under civilian leadership.” For a variety of reasons, including a lack of donor and political will, these recommendations have not taken effect.

In Iraq, following the experience of Afghanistan, the debate about the justness of the war further muddied the water as many humanitarians took a strong stance against military intervention. The military has made strides in its attitude towards “civilians on the battlefield,” but many early meetings between humanitarians and the military were sometimes touchy. The postwar guerilla campaign to undermine the Coalition and the Provisional Authority efforts to improve conditions has shown a failure by some military decision makers to understand the complexity of the journalistic quip “winning the peace is harder than winning the war.”

#### ***4.2. Humanitarian activities must be independent***

Widely known and enshrined in international law, but not completely understood or implemented, independence of action and identity is a critical principle for humanitarians to maintain. Yet, this has been a contentious issue. One reason is that the aid industry relies on the donor market place for its existence and many humanitarian agencies rely heavily, sometimes exclusively, on donor governments that may be party to the conflict. Experience in Kosovo and other post-conflict countries are illustrative. This is a struggle that does not affect the military who are themselves state actors.

A further manifestation of this issue is the blurring of the lines of distinction between humanitarians and the military in the field. While this has proved less of an issue where conventional troops have been the main combatants, in Afghanistan it has been highly controversial. Objections to soldiers wearing civilian clothing were loudly raised in various

capitals. One letter from humanitarians noted: “By pretending to be aid workers, armed forces are trying to have it both ways, to benefit from the protections accorded non-combatants [in international humanitarian law] while themselves remaining combatants.” The type of vehicle is also a practical operational issue in this regard with some military units using civilian four-wheel drive vehicles.

#### ***4.3. The military and humanitarian operate differently, leading to difficulties***

It appears to be continuing problems at the most basic level with mistrust and apprehension on the side of the humanitarians and fundamental misunderstanding about the capabilities and purpose of humanitarians by the (especially US) military. Here are some illustrative examples.

First, there is mutual misunderstanding of how organizations are organized and funded. Prior to the invasion of Iraq, for example, US government officials talked of “pre-deploying assets,” which seems to show a lack of understanding at a fairly basic level. Further, military personnel also do not usually understand the sector specialization of humanitarian organizations unless the name of an organization clearly indicates what the organization does. Humanitarians for their part often misunderstand military force mix and unit composition, thinking that skills and resources can be used for tasks for which they are not intended by military commanders.

Second, when existing structures exist, it does not mean they are easily used or understood. In both Afghanistan and Iraq, those humanitarians who required Coalition CA did not always find it easy to do so because of the different levels of command.

Third, communication difficulties exist on two levels. On one level, basic terms often differ, impeding communications. Humanitarians who arrived in Afghanistan, for example, familiar with CMOCs from other conflicts were confronted with CHLCs. On another level, communication hardware systems differ. Maps are not common and humanitarians rely on satellite phones and e-mail which CMOC’s do not necessarily have.

#### ***4.4. More “coordination” is needed***

The call for more or better coordination has been well-known. The loose structure of humanitarian organizations and the way they operate, their very ethos in fact, does not lend itself to being tightly coordinated. Military forces and humanitarians most often try to gain consensus between themselves through persuasion. Persuasion can be effective on some



level, although this is not a foolproof system as, for example, the abovementioned uniform issue in Afghanistan demonstrates.

Regarding the coordination during the conflict phase in Iraq, one relief worker remarked that “it’s been the normal zoo.” In the post-conflict phase as well, humanitarians felt there were simply too many meetings in Baghdad without substance and so attendance dropped. To their credit, CA adjusted their efforts and provided more easily understood security information and developed a comprehensive contact directory but a feeling remains that the modality and output could be improved.

#### **4.5. *Cultural differences exist***

These are widely known but worth briefly reviewing. The humanitarian organizations, for example, are more or less horizontal while the military is largely vertical in structure. Humanitarian operations tend to be assembled on an as-needed basis, whereas the military prides itself on planning and preparation. Humanitarian organizations strive for transparency and accountability while the military seeks a positive public image but must control information to ensure its operational security.

Profound differences exist at the individual level as well. Often noted are the dissimilarities of “do-gooder” aid workers with hippy lineage or who are ex-backpackers versus gung-ho and robust military personnel who follow orders while disregarding other considerations or common sense. These stereotypes bear little resemblance in reality and the differences seem exaggerated by some researchers and practitioners. A poll of humanitarian managers in either Iraq or Afghanistan might reveal that many have military experience. There are also former volunteers (e.g. Peace Corps or VSO) who are not intrinsically opposed to the military. Military personnel in Western democracies are often well educated and normally have genuine humanitarian concerns while on operations.

To be sure, the truth of this issue is somewhere in between yet the issue remains.

### **5. TWO “NEW” ISSUES**

There are two additional issues that deserve wider attention: competition for resources and training of personnel. These are not exactly “new” issues but have had a greater impact on interaction in Afghanistan and Iraq than before.

### ***5.1. Competition for Resources***

War and post-conflict situations are low-resource environments and therefore increased competition among stakeholders is a common phenomenon. With the Coalition taking a more active role in sectors normally the domain of humanitarians, as has been the case in both Afghanistan and Iraq, clash seems inevitable.

Humanitarians and the military often perceive that the other has resources that outstretch their own. Analysis, however, shows that humanitarians have few resources in comparison with the military. According to the Coalition's own figures in Afghanistan, for example, they "rebuilt 116 schools, 28 clinics and hospitals and 42 well and irrigation systems. The \$10,653 million dollars they have spent has almost gone entirely to these projects: basic, no frills and essential work, mostly channeled into the hands of Afghan workers and Afghan companies for the benefit of many communities in all parts of the country". This work was largely done by local contractors and brings up the issue of cost-effectiveness given the ratio of dollar per project. This point is in addition to the fact that military personnel cost far more than civilians to field. The cost of military personnel, when both direct and indirect expenses are included, is vastly more expensive than civilians doing similar jobs.

Humanitarians on the other hand, implemented thousands of projects across different sectors from delivery relief supplies to developing civil society. "Many of the NGOs are going bankrupt but the military has lots of funds," commented one humanitarian working in Afghanistan. This feeling is verified by at least one CA officer who remarked, "One reason that some NGOs are upset with the Civil Affairs units is that they see us as rivals, competing with them for relief funds." A similar issue is the demand for human resources. Potential local staffs have been poached by Coalition units using higher pay as an incentive (although this is a classic problem experienced by NGOs in relation to the UN). Well qualified Afghans and Iraqis, including doctors and similar professionals, not uncommonly work as translators, administrative assistants and drivers because of higher salaries.

Another aspect of this issue is military forces receiving funds from donor agencies that are set up to fund humanitarians. The US Department of Defense has its own humanitarian funding mechanism and the British funding agency (DFID) provided resources directly to military units for reconstruction projects in Afghanistan. Although this is a repeat of Bosnia where DFID (and its predecessor ODA) funded British forces civil action programs either directly or through contractors, it is a worrying trend for humanitarians.

## ***5.2. Inadequate Training***

The importance of training and preparation to the military has been mentioned. Yet the training received by US CA personnel is inadequate and training for common soldiers is at best likely to consist of a single block of instruction. For an organization that prides itself on training and preparation, this may seem unfair but this is certainly an area that deserves significant improvement.

In fact, the training issue is not an entirely new one. Trainees of the CA enlisted course are left with the understanding of humanitarians as do-good charities, which likely existed before their training. Without adequate understanding of their role, humanitarian organizations are therefore often seen as assets to be used, controlled or coordinated in completing a mission. The training does not include any instruction let alone discussion of, for example, the basic ideas of development or how activities can be best coordinated in the field. The reason for this is, perhaps rightly, that development and reconstruction are seen as something that happens after CA leaves or is done by others like NGOs. However, this distinction has been eroded in Afghanistan and Iraq.

Specific to Afghanistan and Iraq, training for Iraq was described as a “cluster...” which focused on common tasks. Entering a combat zone, military common tasks are essential survival skills, but advanced preparation needed for mission success seems to have been ignored. The need for operational security meant that CA personnel could not prepare themselves for the areas in which they would be deployed.

For their part, humanitarian organizations need to continue and increase the training provided to their staff. Board of directors should mandate training and senior managers should further develop their staff and mobilize adequate resources to do so. At the industry level, training opportunities exist but should be expanded and strengthen instead of the ad hoc way done to this point. Donors play an integral role in helping humanitarians develop professionally.

## **6. PERSONAL CONCLUSIONS AND POINTS OF VIEW**

The relationship between humanitarians and the military has taken “two steps back” following recent experience in Afghanistan and Iraq. There are three reasons for this, underlined in this paper.

***First***, there is growing negativity in the interactions between the humanitarian workers and the military. This can be seen as politically motivated in part but also focuses on very legitimate operational concerns including a blurring of humanitarian principles.

**Second**, there was a failure in providing basic security in Afghanistan and Iraq as witnessed by the continuing unrest and suicide attacks.

**Third**, there were and still are frustrations by individuals involved over the lack of progress in what are thought to be “lessons learned.”

Humanitarians, by definition and purpose, must maintain the principles of independence, neutrality and impartiality in helping those in need. For their part, humanitarians should be open-minded (to the fact, for example, that Coalition forces normally make genuine efforts to better the situation) while remaining true to their personal and organizational guiding principles.

The military, on the other hand, has a much more singular purpose which is winning wars. Provided that strategic, operational and tactical objectives are fulfilled, interaction with civilians can be carried out in various ways and not necessarily in its present form. Transformation within the military, as called for by some decision-makers, may help but this is yet to be seen and may be resisted by senior staff.

At the least, what is needed is further dialogue and clarification between the military and humanitarians if the cycle of relearning lessons is to end. For the military, this means a full reexamination of the way they operate. And for humanitarians, rather than decreased dialogue, what is needed is a greater unity of effort and clarity of both core principles and operational issues. Humanitarians might benefit from further codification or guidelines regarding their relationship with the military. To be sure, flexibility is crucial and this is the likely reason more significant change has not been in place to date.

**In conclusion**, there are several questions worth further analysis. At the geo-political level, the main question remains”: how can the military successes in Afghanistan and Iraq be translated into durable peace? To move the humanitarian-military relationship again forward, three significant questions deserve close examination.

First, what are the best uses of resources? Collective thought should be devoted to determining results which can be translated into best practices. This analysis should be comprehensive and take quality of outcome into account as well as quantity of output by both humanitarians and the military as well as other actors in relief and post-war reconstruction. If the existing military units can not achieve its main mission, why allocate so many resources to PRT's? There still seems to be room for the military to carry out civic action projects to gain good will at home while “winning hearts and minds” in theater, but the budgets given to Coalition forces seems to be out of proportion with these goals. As mentioned, military

forces are more expensive to field and it is this “overhead” that could be used to go directly to help those in needs.

*Second*, an important consideration for the continuation of this discourse is whether people on the ground (notably local inhabitants, beneficiaries and other host country nationals) care about the distinctions between humanitarians and the military? While there might be important legal considerations for distinctions between organizations, the line is not always clear in the field. In fact, they often see them as one and the same especially in Afghanistan. Those of the terrorist ilk, in particular, do not distinguish between civilians and combatants. The way in which the last UN expatriate was killed in Afghanistan and the attack on the UN headquarters in Baghdad serves to illustrate this. Yet, the discussion of the relationship between Coalition military operations and humanitarians working in the same areas rests firmly in a cosmopolitan discourse where nuanced differences over rights and responsibilities matter.

*Finally*, is the association between development and security becoming more complete? Do the military interventions in Afghanistan and Iraq represent a fulfillment of the new hegemonic pattern? In some ways, it is still too early to tell, but unless such massive interventions continue, it seems unlikely. Liberia is one case in point where the current hegemony is still risk adverse and weary of its own power.

**Therefore the lessons of the past decade are relevant now.**

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# CAREER MANAGEMENT: FROM THEORY TO PRACTICE

*LTC Danut IVANOF*

## INTRODUCTION

*“What is a career?”<sup>34</sup>*

*The answer depends on the viewpoint of the questioner. A career belongs to the individual but in much, if not most, employment, the career will be planned and managed for the individual by the organization. The organizational structure forms the (internal) ‘road map’, providing identifiable positions, interrelationships between these positions, the qualities necessary to fill them, and moreover, mechanisms to enable people navigate this road map. This way organization can take a leading role and have control over career planning and management. Careers can be seen as a sequencing of an individual’s life, work roles and experiences, if one limits one’s perspective to that of the individual.”*

Careers studies are taken into account that these take place in different social environments, in different particular organizations and are made from psychological point of view. Usually a professional career follows a sequence of developmental phases; each of phases is delineated by a distinct shift in the individual development, but is formed and influenced by the organization in which the person works.

Career management is part of HRM. The basic roles of HRM are to hire and hold employees, and career systems deal with the latter role, of holding, promoting and sometimes releasing an excess of employees.

The many career models goal is to obtain a balance between individual and organizational needs, and to write about these.

The meaning of career planning and management depends by individual or organizational perspective which is taken into account. Many observers have viewed career management as a process by which individuals are responsible for their development, implementation and monitoring of career goals and strategies.

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<sup>34</sup> Yehuda Baruch- *Managing Careers - Theory and Practice*, Pearson Education Limited, Eangland, 2004, pag.3

The point of equilibrium between what people offer to the organization and what they expect in return, and vice versa is obtained after mutual recognition, negotiation and agreement about the ‘give and take’, and contractual agreement for that organizations and individuals consent to.

The intermediate outcomes of the core process are manifested in two types of relationship between the individual and the organization. These can be transactional, calculated ‘deals’, on the one hand, and relational, even emotional, bond relationships on the other.

An example of transformation in both the social and economic realms is the decreasing level of involvement of the state in life. There is less support for the deprived in society, and Socialism has ceased to be the ideal. Governments have reduced subsidies for lagging sectors. A free-market, individualistic oriented approach has come to dominate capitalist governments. This free-market economy has also contributed to the transformation of careers.

Depending on the process that takes place between the individual and the organization it is possible to obtain successful career systems.

From the organizational point of view, career management is reflected in the career practices for planning and management of careers.

*The art of career management requires the combining of vertical integration and horizontal coherence.*<sup>35</sup>

<i>Vertical integration</i>	<i>Horizontal coherence</i>	
<i>Business strategy</i>	<i>Selection</i>	
<i>HRM strategy</i>	<i>Rewards</i>	<i>Induction</i>
<i>HRM practices</i>	<i>Appraisal</i>	<i>Training</i>
<i>Individual needs and behaviours</i>	<i>Career development</i>	

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<sup>35</sup> Yehuda Baruch- *Managing Careers - Theory and Practice*, Pearson Education Limited, England, 2004, pag.27



## I. CAREER MANAGEMENT – THEORY

### I.1. Career view from individual perspective

According with Yehuda Baruch<sup>36</sup>, ” *without understanding the antecedents, processes and outcomes of careers for individuals we will not be able to develop an appropriate organizational system to deal with them. Another significant factor to be recognized is that major changes are taking place in the environment, in society and in organizations.*”

The individual is confronting with two major career issues: ‘career choice’ and ‘career development’.

**Career choice**<sup>37</sup>. “*Work is an essential and mostly a desired part of our lives. Its role goes far beyond the need to provide food, shelter and other essentials for life. Work provides people with a sense of purpose, challenges, self-fulfillment and development, as well as the essential income to enable them to participate in other spheres of life.*”

Some people formulate their career choice at a very young age, but of these, not all achieve their aim. Other people choose a career later, while some never thinking to a definite choice of career. Many have to modify their career aspirations due to changes in the environment, appreciation of their own limitations, changes in their values and attitudes, and in the realities of life. The choice of a career may be unintended, but even when planned, people do not necessarily achieve their goals.

### I.2. Internal, external and organizational careers

In defining what career is, we should distinguish between internal, external and organizational careers.

The **internal career** represents an individual perception about own career: its development, promotion and fulfillment of goals. This self-perception involves setting subjective career goals and evaluating one’s own achievement in reaching them. An internal career is subjective, and thus the definition of internal career success depends on the private feelings and values of the person, and is relative to the career aims set by the self for the self.

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<sup>36</sup> Yehuda Baruch- *Managing Careers - Theory and Practice*, Pearson Education Limited, Eangland, 2004, pag.37

<sup>37</sup> Yehuda Baruch- *Managing Careers - Theory and Practice*, Pearson Education Limited, Eangland, 2004, pag.39

The **external career** concerns how other people and organizations perceive a person's career – the development, promotion and fulfilment of the person's goals. Evaluating career success by means of external evaluation it is more objective than internal career measurement, but it still depends on the particular observer's viewpoint. Success in an external career is assessed mainly in terms of hierarchy level and pace of progress on such a ranking, social status (e.g. occupational status), professional qualifications and financial success.

The **organizational career** is a lane people move along, in terms of the positions and the roles they fill during their working life. Career progress or promotion can be quite objective and measurable within a single organization or between organizations with equivalent promotion scales (e.g. army v. navy).

Such comparisons are less clear or may even be meaningless for dynamic careers, as moves involve multiple transitions. Comparisons might be impractical or irrelevant.

While organizations maintain career systems through which they plan and manage employee's careers, it is individual who encompass careers. Individuals will plan and manage their careers, not always according to an organization's plans and schemes. It may be most appropriate to consider careers as being under 'mutual ownership' – that of individuals and organizations.

### **I.3. Career success**

All individuals want to achieve success, but the meaning of success is different for different from one to another, and varies according to the circumstances.

To evaluate career success from the personal point of view one can refer to objective, 'hard' measures (rank, income), or to subjective, 'soft' measures, mostly concerned with personal feelings of achievement and values. The meaning of success will always be associated with personal, professional and organizational objectives, and how far these have been accomplished. Following observers' debate that the social circumstances in which the activity of individuals occurs condition their perception of the world in which they live, it is clear why career success will never be similar for all.

Objectives are derived also from the choice of career and the assumed progress in a particular vocation. As shown earlier, this starts with the general selection of the individual's life interests. A career choice depends on individual inclinations, aspirations, interests and competencies, but this choice is also influenced by the family, education and social

institutions. The criteria for evaluating success can be, first, reaching what you expected for, and second, how far doing so helped to fulfil your needs.

*“Career success<sup>38</sup> is a desired outcome for most individuals. However, for each individual the outcomes desired are different. In addition people develop a set of desired outcomes, not a single aim. The measures that can be used to assess such desired outcomes and the extent to which they are reached are complex.”*

The observers classified the commonly accepted measures in four categories:

- *Advancement*: hierarchy, power; professionalism, reputation (status), but also autonomy, entrepreneurship, self-control.

- *Learning*: gaining new skills, abilities, competencies.

- *Physiological and survival*: money making (buying power); employability.

- *Psychological*: satisfaction, recognition, self-esteem and self-actualization.

To these have been added career pliability, in both meanings of pliability – toughness of spirit in confronting career crisis, and flexibility in adapting to ever-changing labour markets.

To evaluate an individual’s progress or expansion within organizational boundaries, one starts from their first role in the organization. In analysing career success it was recognized that the entry stage has a strong impact on further career progress – in terms of time in the job, in the organization, and the highest position the individual is expected to reach. The first role is, however, only the first step in a long and snaking road.

#### **I.4. From an individual-focused to an organizational perspective**

The core asset for the vast majority of existing organizations is not the building, the equipment, or the money pertaining to it, but the people who comprise it.

And there are several similarities at the conceptual and the figurative level between people and organizations. Both possess identity and ‘personality’, both plan and manage their future according to explicit and implicit goals.

However, when dealing with an individual career perspective, the discussion, analysis and understanding derive from the behavioural sciences – psychology and sociology in particular. An organizational career perspective focuses on managerial issues, in particular the HRM aspect. While each individual ‘owns’ his or her unique career, organizations, as a collective, plan, direct and manage systems in which careers develop.

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<sup>38</sup> Yehuda Baruch- *Managing Careers - Theory and Practice*, Pearson Education Limited, England, 2004, pag.78

An organization is a grouping of brains, bodies and behaviours. That is the source for the parallelism between individuals and organizations: organizations have identity, they hold values; they even possess 'personality'. These are developed by the collective community and by the leaders who founded the organization, who manage, inspire, control and direct it.

Organizational career management is the comprehensive system that organizations apply to manage employees' careers.

### **I.5. Organizational career systems**

Contemporary organizational career systems need to be based around several remits. First, the organization is no longer the only, or maybe not even the main focal point for career management. Sociological, economic and technological trends contribute to an increased involvement and responsibility on the individual side. The world of work and employment experience presents a significant transition in psychological relationships between employers and employees, and in the growing number of new work arrangements.

There are still many traditional and conventional organizations, in both production and services, with traditional career systems characterized by a relatively clear hierarchy, career paths and central control systems.

Among them there are organizations with bureaucracy-based structures and conventional career ladders. In teaching, the civil service, and certainly in the armed forces, the police and the health sector, career systems still offer a relatively clear hierarchy and alternative paths. In certain systems, the vocation dictates a flat career structure (such as teaching), whereas in others there are clear routes for managerial development up multiple ladders.

Line managers and HR units share the role of running the operational part of career systems. In small enterprises this role is carried out by general managers, in addition to their broad operational roles. The larger the organization, the more can be done in the specific area of career systems. At the micro level, HR should aim to help individuals to gain a balance between work and other spheres of life, in particular the family. In the emerging career systems, organizations are taking on a supportive, consulting role. At the macro level, the HR manager or director will deal with strategic issues of HRM and with the strategic configuration between HRM and the operation of the organization, including career-related aspects.

## II. CAREER MANAGEMENT PRACTICE

### II.1. Career management defined

*“Career management<sup>39</sup> is concerned with providing opportunities for people to progress and develop their careers and ensuring that the organization has flow of talent it needs.*

*The elements of career management are the provision of learning and development opportunities, career planning and management succession planning.”*

For employees, the aims of career management policies are first, to give individuals the guidance, support and encouragement they need if they are to fulfil their potential and achieve a successful career with the organization in tune with their talents and aspirations. Secondly, the aim is to provide individuals of promise with a succession of learning activities and experience that will equip them for whatever level of responsibility they have the ability to reach.

For the organization, the aim of career management is to meet the objectives of its talent management policies, which are to ensure that there is a talent flow that creates and maintains the requires talent pool.

Career management calls for an approach that explicitly takes into account both organizational needs and employee interests. *“As described by Hirsh and Carter (2002), it encompasses recruitment, personal development plans, lateral moves, and special assignments at home or abroad, development positions, career bridges, lateral moves, and support for employees who want to develop. It calls for creativity in identifying ways to provide development opportunities and enhance employee loyalty”<sup>40</sup>.*

### II.2. Career dynamics

Career planning should be based on an understanding of career dynamics. This is concerned with how careers progress – the ways in which people move through their careers either upwards when they are promoted, or by enlarging or enriching their roles to take on greater responsibilities or make more use of their skills and abilities. The three stages of

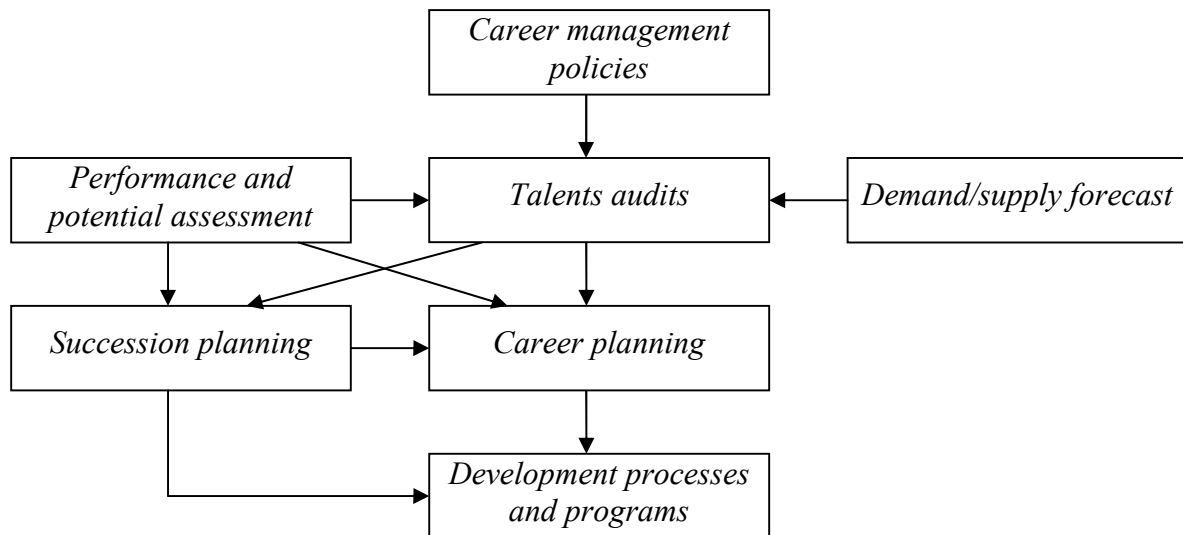
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<sup>39</sup> Michel Armstrong- *A handbook of human resource management practice*, Kogan Page Limited, London, 2006, pag.399

<sup>40</sup> Michel Armstrong- *A handbook of human resource management practice*, Kogan Page Limited, London, 2006, pag.400

career progression – expanding, establishing and maturing – are illustrated in figure below. This also shows how individuals progress or fail to progress at different rates through these stages.

*The process of career management<sup>41</sup>*



### **II.3. Career management policies**

The organization needs to decide on the extent to which it makes or buys talented people. Should it develop its own talent or should it rely on external recruitment? The policy may be to recruit potentially high performers who will be good at their present job and are rewarded accordingly. If they are really good, they will be promoted and the enterprise will get what it wants. In contrast and less frequently, employers who believe in long-term career planning develop structured approaches to career management.

There may also be policies for dealing with the stalled manager who has got so far but will get no farther. Some managers in this position may be prepared to accept to reaching the ends of development but continue to work effectively. Others will become bored, frustrated and unproductive. The policy may be to provide for steps to be taken to reshape their career so that they still have challenging work at the same level, even if this does not involve promotion up the hierarchy. Alternatively, the policy may need to recognize that some managers will have to be encouraged to start new career elsewhere. In the latter case, career

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<sup>41</sup> Michel Armstrong- *A handbook of human resource management practice*, Kogan Page Limited, London, 2006, pag.401

counselling advice should be provided, possibly through 'outplacement' consultants who provide such a service.

#### **III.4. Career planning**

Career planning uses all the information provided by the organization's assessments of requirements, the assessments of performance, and potential and management succession plans, and translates it into the form of individual career development programs and general arrangements for management development, career counselling and mentoring.

It is possible to define career evolution in terms of what people are required to know and be able to do to carry out work at progressive levels of responsibility or contribution. These levels can be described as competency bands. For each band, the experience and training needed to achieve the competency level would be defined in order to produce a career map incorporating aiming points for individuals, who would be made aware of the competency levels they must reach in order to achieve progress in their careers. This would help them to plan their own development, although support and guidance should be provided by their managers, HR specialists and, if they exist, management development advisers or mentors.

Formal career panning along these lines may be the ideal, but there has been a shift from managed career moves to more open internal job markets. The process of internal job application has become the main way in which employees manage their career.

#### **CONCLUSIONS**

Through their efforts in the HRM process, the Organizations have a significant impact on employees' careers. All stages of career management: recruiting, selecting, training, developing, appraising, retaining and separating the employee, affect the individual's career. Traditionally, career development efforts targeted managerial personnel to assist them to look beyond their current jobs and to prepare them for a variety of future jobs in the organization. The progress for all employees is crucial for organizations' competitive capabilities for future growth and change.

A formal career progress plan typically consists of career planning and career management. Career planning involves HR activities to recognize career stages, help employees become aware of their personal skills, interest, knowledge, motivation, acquire information about opportunities and choices, identify career-related goals, and establish action

plans to attain specific goals. It is the organizations duties that, through career management process, to select, assess assign and develop employees in order to provide a pool of qualified people to meet the future needs of organization.

Career systems, so-called traditional career, are developed by organizations who work in static environment, with stable jobs and loyal employees. These traditional careers are defined as a progression step-by-step aimed at a few select employees for management positions or specific management, most career paths being designed by the head of the organization.

Whereas in the traditional career systems largely involved planning and managing a relatively passive workforce, modern systems are different. The emphasis is on developmental processes, where the employee is expected and even encouraged to take an active role, while the organization play the role of facilitator or enabler. Career management is being transformed into a service designed to support managers, professionals and employees to create and re-create their development path. This can remove them from the organization, but neither side need lament this loss too much.

Many of the outcomes of work and career that people face will depend on why they do what they do; this is not only a matter of which vocation, profession, job or career they choose. It is how important work is for them, as an aspect of their lives.

In terms of individual career management is a continuous adaptation. The environment changes are very fast and force the individuals to adapt their present career stage according with future prospects. What you think about your career choice today it is possible not to be available tomorrow. The same it is happens in organizations that have to adapt their objectives in accordance with market requirements and accordingly its have to adapt and their HRM policies.

In a world constantly changing, HRM personnel tasks are becoming increasingly difficult, existing models of career choice and career studies may not be anymore available.

No matter what systems are used to assess employees to retain staff, the focus has to be less on the techniques and more on the outcomes. These outcomes are related at a macro-level to the business and HR plans and at a micro-level at the job description and potential for career development of the employee. The aim of the assessment is to keep the employee in service, and performing well, while their abilities and contributions are needed.



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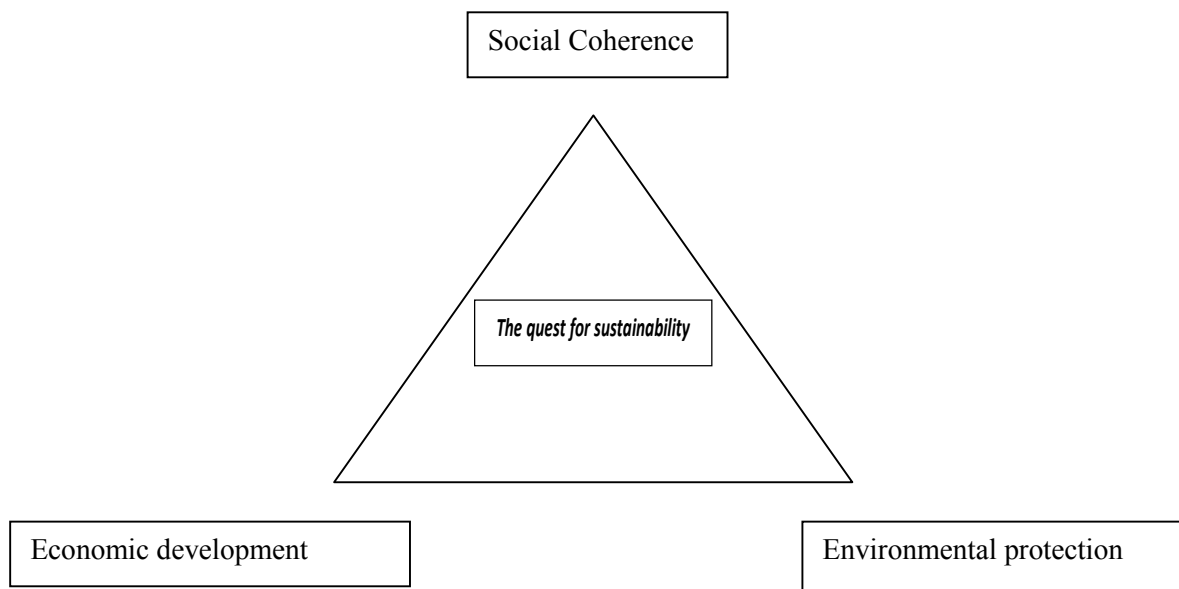
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# THE SUSTAINABLE DEVELOPMENT IN MILITARY ORGANIZATION

*LTC phd. Dănuț MOȘTEANU*

## INTRODUCTION

*“Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.”<sup>42</sup>*



The sustainable development should be seen as a global objective said the Brundtland Commission. It is a term that needs to be applied to everybody's lives in order for it to be made a reality. The European Union has an important role in bringing about sustainable development, where widespread international action is required. To meet this goal, the European Union and other signatories of the 1992 United Nations' "Rio declaration" committed themselves, at the 19th Special Session of the United Nations' General Assembly in 1997, to draw up strategies for sustainable development in time for many years to come.

Four out five Europeans live in urban areas. They share the same problems: poor air quality, high levels of traffic and congestion, very high levels of ambient noise, poor-quality

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<sup>42</sup> World Commission on Environment and Development (the "Brundtland Commission"), 1987

built environment, derelict land, greenhouse gas emissions, urban sprawl, and waste and sewage disposal. These are highly complex problems, and the causes are inter-related, which is why an integrated approach is needed. Given the wide variety of urban areas and existing obligations, which call for tailor-made solutions, together with the difficulties encountered in setting common urban environmental standards, guidelines and coordination measures are more appropriate instruments than legislation. This strategy is therefore based on subsidiary, giving priority to local initiatives while promoting cooperation between the different levels of decision-making (Community, national and local) and interweaving the various strands of urban management.<sup>43</sup>

### **I. Implement the sustainable development.**

The European Council set a new strategic goal for the Union: “*to become the most competitive and dynamic knowledge-based economy in the world capable of sustainable economic growth with more and better jobs and greater social cohesion*”. This expression in long-term meant, **economic growth, social cohesion and environmental protection must go hand in hand**. In endorsing this strategy, it was recognized that the external dimension needed to be further developed. It also called on the Commission to consider the Union's contribution to global sustainable development. This communication responds to this request and contributes to developing the EU's position in relation to the World Summit on sustainable development, which was held in Johannesburg in 2002. It is important to improve a global governance, to promote more efficient management of interdependence.

The design of sustainable development is accompanied by two concepts:

- the concept of "needs" of the disadvantaged which should be given priority;
- the concept of "shackles" of the current state of technology and social organization of economic and environmental capacity of to meet current and future needs.

Sustainable development offers the European Union **a positive long-term vision** of a society that is more prosperous and more just, and which promises a cleaner, safer, healthier environment – a society which delivers a better quality of life for us, for our children, and for our grandchildren. According this in practice requires that economic growth supports social progress and respects the environment, that social policy underpins economic performance, and that environmental policy is cost-effective.

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<sup>43</sup> Commission Communication of 11 February 2004 "Towards a thematic strategy on the urban environment" *COM (2004) 60 final*- Official Journal C 98.

### **I.1. Trade globalization seen as sustainable development.**

For intrinsic process of globalization, to be part of the sustainable development, the activities established by the Commission were following:

- within the framework of the World Trade Organization to improve the integration of developing countries into the world economy;
- to help developing countries benefit from the global trading system;
- to change the *generalized system of preferences* to take account of sustainable development;
- to include sustainable development in the bilateral and regional agreements;
- to reduce the non-transparent use of the international financial system and to regulate it more efficiently;
- *to encourage European businesses to be socially responsible*;
- to promote cooperation between the WTO and international environmental organizations.<sup>44</sup>

Another important objective is reduced severe poverty in the world by 2015 (people living on \$ 1 a day or less). The result should be to increase the quality, quantity, impact and sustainability of cooperation for the development of poor countries:

- to focus European Union development policy on poverty reduction;
- to ensure that European Union policies contribute to combating hunger;
- to integrate water distribution and treatment policies with health and education policies;
- to mainstream the gender perspective in European Union policies;
- to invest more in the fields of health, education, training and communicable diseases;
- to promote research relating to sustainable development.

### **I.2. Management of natural and environmental resources.**

Another important objective is the sustainable management of natural resources and environmental, the main goal in this area is to stop as much as possible is the trend of loss of environmental resources by 2015, and to develop alternative operational objectives in the water field, land and soil, energy and biodiversity domains:

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<sup>44</sup> Communication from the Commission to the European Parliament, the Council, the Economic and Social Committee and the Committee of the Regions, of 21 February 2002, entitled: "Towards a global partnership for sustainable development"

- to launch an initiative on cooperation in the field of *energy and development*;
- to promote the application of international environmental agreements;
- to partially replenish the Global Environment Facility;
- to draw up an action plan to combat *illegal logging*;
- to invest in sustainable modes of transport;
- to promote sustainable fishing;
- to deal with the prevention of natural disasters;
- to extend the *Global Monitoring for Environment and Security* (GMES) system to developing countries.<sup>45</sup>

### **I.3. The coherence of the European Union policies**

**In the field of European Union policies it is need to improving the coherence in respect with:**

- to establish a system to assess the economic, social and environmental impact of all major policy proposals of the Union;
- to continue the process of adapting policies to the objectives of sustainable development;
- to sign the United Nations Protocol on the Illicit Manufacturing and Trafficking of Firearms;
- to combat the negative effects of emigration.

### **I.4. Better governance at all levels**

Another goal it is the better governance at all levels of governance.

This area deals with strengthening the participation of civil society, and the legitimacy, coherence and effectiveness of global economic, social and environmental governance in order to:

- strengthening public institutions and civil society in developing countries;
- stepping up the fight against corruption;
- ensuring that core labor standards are respected;
- encouraging the adoption of decisions which improve global governance;
- stepping up the fight against *discrimination against women*.

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<sup>45</sup> COMMUNICATION FROM THE COMMISSION A Sustainable Europe for a Better World: A European Union Strategy for Sustainable Development Brussels, 15.5.2001

### **I.5. Financing sustainable development.**

*The objectives are those of the Millennium Declaration, namely: “to eradicate poverty and hunger; to achieve universal primary education; to promote gender equality; to reduce child mortality; to improve women's health; to combat communicable diseases; to promote sustainable development; and to develop a global partnership”.*<sup>46</sup>

All these global conferences have influenced the international environmental law<sup>47</sup>. Being a relative in the fields training, law and international environmental policy evolves and the resolutions and declarations of international organizations such as the United Nations Environment Program, World Health Organization and the International Atomic Energy Agency, who played an important in forming international environmental principles, though often these principles, are not binding. Through repetition and state practice, which aims to incorporate these principles into national legal systems, they may become mandatory.

EU strategy will have to look beyond the current borders of the Union to be relevant for countries that will join the EU in the next years. Future member states face many commonalities but also have a number of distinctive features. For example, some countries have a greater diversity others do not. However, economic and social disparities will be larger in an enlarged European Union. The new Member States will have much larger agricultural areas, and poor infrastructure development and production technology. Future EU policy reforms should take into account these differences. Countries should be actively involved in the implementation of this strategy.

In order to further encourage the adoption of socially responsible practices in the business community, the Commission is supporting an alliance which will act as an umbrella for CSR initiatives. The new instrument is open to European enterprises of all sizes, on a voluntary basis. There are no formal requirements for enterprises wishing to take part, and it does not imply any new financial obligations for the Commission. The Alliance will involve businesses and stakeholders in achieving the objectives of the renewed Lisbon Strategy and will provide increased support for their efforts through Community policies and instruments. The Commission will encourage participating enterprises to publicize their efforts in the area

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<sup>46</sup> Communication from the Commission to the European Parliament, the Council, the Economic and Social Committee and the Committee of the Regions, of 21 February 2002, entitled: "Towards a global partnership for sustainable development"

<sup>47</sup> Marinescu, Daniela, *Tratat de dreptul mediului*, Editura All Beck, București, 2003

of CSR (strategies, initiatives, results, best practice) and will support stakeholders in developing their capacity to evaluate this information from businesses.<sup>48</sup>

Many EU policies influence the direction of sustainability development beyond union, EU production and consumption increase the pressure on shared global resources. It is therefore important to ensure that they take measures necessary for sustainable development and exports to other adjacent areas. Policies - internal and external - must actively support efforts by other countries especially developing to understand and implement sustainable development policies.

#### **I.6. National strategy for sustainable development on the conservation and management of natural resources.**

*"The defining element of the national strategy is to connect Romania to a new philosophy of development, the European Union and widely shared own world - that of sustainable development."*<sup>49</sup>.

According to EU strategic guidelines, conservation and management of natural resources is one of the key challenges set for the period 2013-2020-2030".

Until 2020 Romania aims to achieve the current average for the main EU countries the responsible management of natural resources.

Up 2030 strives to bring significant environmental performance of other EU Member States that year.

The specific objectives of the National Strategy for Sustainable Development focus on five main areas:

- the management of water and sewage;
- the integrated waste management;
- improving air quality;
- the conservation of biodiversity and natural heritage,
- prevention of natural disasters.

The strategy to achieve each specific objective is broad and aims to resolve these problems in stages corresponding to the three horizons from fixes to the current conservation

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<sup>48</sup> Communication from the Commission to the European Parliament, the Council, the Economic and Social Committee and the Committee of the Regions, of 21 February 2002, entitled: "Towards a global partnership for sustainable development

<sup>49</sup> Strategia Națională pentru Dezvoltare Durabilă a României, Orizonturi 2013-2020-2030, București, 2008

methods and reaching the proposed target for 2030 to adjust to the requirements and standards of the European Union.

To make an effective contribution to achieving global sustainable development the EU and its Member States need to co-operate effectively with other countries and international institutions, including the OECD, the World Trade Organization, the International Labor Organization, the International Monetary Fund, the World Bank, and the United Nations Environment Program.

### **I.7. Limit climate change and increase the use of clean energy**

Main objectives:

- Thereafter, the EU should aim to reduce atmospheric greenhouse gas emissions by an average of 1% per year over 1990 levels up to 2020.
- The Union will insist that the other major industrialized countries comply with their Kyoto targets. This is an indispensable step in ensuring the broader international effort needed to limit global warming and adapt to its effects.

Within two years of this, the Commission will propose more ambitious environmental targets for energy taxation aiming at the full internalization of external costs, as well as indexation of minimum levels of excise duties to at least the inflation rate.

Phase out subsidies to fossil fuel production and consumption by 2010. Where necessary, put in place flanking measures to help develop alternative sources of employment. Analyse whether there is a need to create a stockpile of coal reserves, and whether or not we should maintain a minimum level of subsidized production for security of supply reasons. Commission proposal in 2001 for adoption by Council before the expiry of the ECSC Treaty in July 2002. Take account of the specific situation of some candidate countries in the accession treaties.

Greenhouse gas emission reduction measures based on the outcome of the European Climate Change Program. Specifically, the Commission will propose by end-2001 a proposal for the creation of a European CO<sub>2</sub> tradable permits system by 2005.

Alternative fuels, including biofuels, should account for at least 7% of fuel consumption of cars and trucks by 2010, and at least 20% by 2020. The Commission will make a proposal in 2001 for adoption in 2002.

Clear action to reduce energy demand, through, for example, tighter minimum standards and labeling requirements for buildings and appliances to improve energy efficiency.



More support to the research, development and dissemination of technology on:

- clean and renewable energy resources;
- Safer nuclear energy, namely the management of nuclear waste<sup>50</sup>.

Address threats to public health

Main objectives

- food safety and quality should be the goal of all food producers;
- by 2020, all chemicals are produced and used in diet and health must not be threats in these areas;
- Prevent outbreaks of infectious diseases and resistant to current antibiotics.
- reorient support from the Common Agricultural Policy to reward healthy, high quality products and practices rather than quantity;
- following on from the 2002 evaluation of the tobacco regime, adapt the regime so as to allow for a phasing out of tobacco subsidies while putting in place measures to develop alternative sources income and economic activity for tobacco workers and growers and decide an early date accordingly;
- develop a comprehensive Community strategy to promote health and safety at work, to achieve a substantial reduction in work accidents and professional illness<sup>51</sup>.

### **I.8. Sustainability Studies: A Global Movement**

Paul Hawken wrote in the January/February 2000 issue of Sierra Club Magazine: “There are in the United States today at least 30,000 nongovernmental organizations dealing with sustainability in the broad sense of the word. In the world, there are approximately 100,000 such groups. Numbers themselves, however, does not convey the power of this movement; what do are the underlying mental models and frameworks that inform it. In the past, movements that became powerful (Marxism, Christianity, Freudianism) started with a set of ideas and disseminated them, creating power struggles over time as the core model was changed, diluted, or revised. The sustainability movement does not agree on everything, nor should it ever. But, remarkably, it shares a basic set of fundamental understandings about the earth and how it functions and about the necessity of fairness and equity for all people in partaking of the earth’s lifegiving systems. This shared understanding is arising spontaneously, from different economic sectors, cultures, regions, and cohorts. And it is absolutely growing and spreading worldwide, with no exception. No one started this worldview, no one is in

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<sup>50</sup> Communication from the commission a sustainable Europe for a better world: a European union strategy for sustainable development Brussels, 15.5.2001 COM (2001)264.

<sup>51</sup> Communication from the commission a sustainable Europe for a better world: a European Union strategy for sustainable development Brussels, 15.5.2001 COM (2001)264.

charge of it, and there is no orthodoxy.”<sup>52</sup>

These organizations and others maintain web-based databases that describe the evolution of sustainability studies at universities throughout the world. Among the leading organizations are:

**The Association of University Leaders for a Sustainable Future (ULSF)** was created by a group of academic leaders. Presidents and other administrative leaders from about 280 universities around the world have signed the Talloires Declaration in support of sustainability education and operations. The mission of ULSF is to make sustainability a major focus of teaching, research, operations and outreach at colleges and universities worldwide. ULSF pursues this mission through advocacy, education, research, assessment, membership support, and international partnerships to advance education for sustainability. According to ULSF “...*higher education is beginning to recognize the need to reflect the reality that humanity is affecting the environment in ways which are historically unprecedented and which are potentially devastating for both natural ecosystems and ourselves. Since colleges and universities are an integral part of the global economy and since they prepare most of the professionals who develop, manage and teach in society's public, private and non-governmental institutions, they are uniquely positioned to influence the direction we choose to take as a society. As major contributors to the values, health and well being of society, higher education has a fundamental responsibility to teach, train and do research for sustainability.*”<sup>53</sup>

**Second Nature Inc.** is another educational non-profit dedicated to accelerating a process of transformation in higher education. While Second Nature will change in the near future due to budget constraints, for some time they have guided and nurtured higher educational institutions in their quest to make sustainability an integral part of the institution. Second Nature Inc., states, “...*we must reinvent the world socially, economically and environmentally. A sustained, long-term effort to transform education at all levels is critical to the change in mindset necessary to achieve this vision. Higher education has the power to lead in this endeavor by exercising its role in training future leaders, teachers and other professionals and in producing wisdom needed to face the challenges of an increasingly complex world.*”<sup>54</sup>

For more than a decade, **National Wildlife Federation's Campus Ecology Program** has been helping transform the nation's college campuses into living models of an ecologically sustainable society, and training a new generation of environmental leaders. They are at: <http://www.nwf.org/campusecology/>.

The **International Institute for Sustainable Development** provides tools for campus leaders and educators wanting to incorporate sustainability into campus operations as well as the curriculum. They are at: <http://iisd1.iisd.ca/educate/>.

HENSE, the **Higher Education Network for Sustainability and the Environment**, is a new North

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<sup>52</sup> January/February 2000 issue of Sierra Club Magazine

<sup>53</sup> : <http://www.ulsf.org/>.

<sup>54</sup> : <http://www.secondnature.org/>.

American network of individuals and organizations from academia, associations, government, non-profits, community interests and business who are dedicated to improving the quality of life for all through the realm of higher education. They are at: <http://www.hense.org/>.

The **International Initiative on Science and Technology for Sustainability** (ISTS), which can be found at: <http://sustsci.harvard.edu/>, is an educational collaborative that seeks to enhance the contribution of knowledge to environmentally sustainable human development around the world. The Initiative is based on an evolving vision of "science and technology for sustainability" which they describe as:

- anchored in concerns for the human condition; (it's engaged in the world)
- essentially integrative, regional and place-based and, fundamental in character; (it addresses the unity of nature and society)<sup>55</sup>

## **II. Applying the concept of sustainable development of military organizations.**

### **II.1. Introduction.**

To easier understand the concept of sustainable development you must requires people with the best level of knowledge to know and apply. In my opinion the best carriers of knowledge information is the students who will disseminate this information next years.

The case study is taken in a theoretical case and refers how to apply the concept of sustainable development at a military higher education institution. This case is a research work based on extensive experience of prestigious universities in Europe and U.S.A. which have implemented such program.

**X** University is committed to promoting binomial "University-sustainable development" for future generation's students and teachers. The University is a modern organization which can have a significant impact on the economy, environment and society both locally and nationally. Sustainability can be found in all key strategic areas such as the revolution of change in education through excellence in teaching, research and partnerships.

The strategic objective of the university in terms of the national classification of higher education institutions in Romania is consolidating its position and obtaining access to superior category, and as far as all the bachelor programs are concerned, the objective is their promotion in the first category. The short term strategy aims at training students at the bachelor's and master's level, firstly for the needs of the beneficiaries and secondly to meet the local/regional needs by opening the new bachelor and master programs.

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<sup>55</sup> Creating a *Sustainability Curriculum* at the University of Massachusetts Amherst

Furthermore, a priority is represented by the accessing of funds for scientific research from national, and EU sources in order to support the educational process at a high scientific level and development the Erasmus programme.

At present, the X University operates 5 bachelor programs, 5 master programs and 5 postgraduate programs, nationally accredited.

## **II.2. Analysis of the X University**

Priorities and objectives:

➤ An internal and external audit to determine if, where and how sustainability curriculum is delivered as a springboard for new developments in this area. The selection of members for internal audit must be have in mind a balanced representation of the X university important structures and their expertise in their fields of responsibility within the institution – prerequisite for optimum performance in the process of self-evaluation. Sustainability education addresses the public university mission in ways that are explicitly focused on economic, environmental and social fields

- if there are links between curriculum development and sustainability agenda;
- identify opportunities for related research and consultancy field;
- to promote sustainability awareness throughout university and encourage or engage all the teachers and students with this philosophy.

And also we can look for if the university:

- Has a short, medium and long term strategic plan which drives annual detailed plans for the implementation of the operational objectives?
- Is a constantly monitored by the internal or external control?
- Does this high level control process allow for the identification of the measures necessary to eliminate the discrepancies between objectives and achievements?
- Does university implements the educational quality improving measures and collaborates with other national and international universities to identify and adopt good practices in the quality fields?

Sustainability vision.

excellence in teaching and learning;

research and ensure cooperation with other national and international research entities;

promoting transparency of information to the scientific community;

links within a social and economic context.

The second step for this action it is needed to have a plan of the university for the next period which should cover the follow areas:

- the institutional management;
- the sustainable development;
- the scientific research, development and innovation;
- the human resources;
- the material, financial and informational resources;

In order to design a specific plan, a compulsory stage is doing a SWOT analysis to identify the strengths, weaknesses, opportunities and vulnerabilities of the X university.

Based on SWOT analysis, the management structure must ensure the institution's optimal achievement of its objectives and mission.

### **II.3. One possible way of implementing sustainability**

If we will find a lack about sustainable development a good way to achieve this main goal may be to include a major objective 'to develop and applied the principles of sustainability in all the University's activities' in order:

- to establish seminars internet exchanges, and further development of the sustainability intranet and web-site;
- to organized and involve at national and international conferences with sustainable topic;
- encouragement link between departments and faculties, cross-school and cross-disciplinary initiatives in module and course design;
- engagement of teachers and students in the design and delivery of sustainability focused modules;
- growth of courses that include sustainability knowledge;
- promoting an inclusive approach to staff teachers in sustainability education;
- encourage graduate and postgraduate research and innovation related to sustainable development;
- optimizing the management of the information, human and financial resources;
- to minimize and manage waste through elimination, reduction, and recycling;
- to promote management systems which reduce the potentially waste materials;
- develop and implement an Energy Strategy to reduce energy use;
- to reduce and manage carbon emissions;

- Increase the level of renewable electricity;
- reduce consumption;
- to reduce driving own car and promote alternative travel (such as public transport, walking and riding a bicycle, and reduce associated emissions);
- promote resource efficiency, cut wastefulness and consider the whole life costs of products and services;
- to encourage owners and real estate developers to adopt higher sustainability-isolation for buildings in order to reduce gas consumption;
- promote biodiversity and conservation on all university campuses - planting resistant turf and ornamental trees in campuses;

## **CONCLUSIONS**

1. Nova day is mandatory to building, designing and manage a new concept in a new university for future generations of students and staff;
2. Sustainability can be found through all key strategic areas such as a major participation in education, through to excellence in teaching, research and partnership;
3. The university has a great responsibility to create knowledge in respect with healthy, safe, and a good environment;
4. Sustainable development has led primarily by the academic community in a top level process.
5. We live in a very dynamic world into great challenges and is need to systematically embed all aspects of sustainability in management process of the university;
6. Must to apply an environmental protection policy for the University and have to accept overall responsibility for sustainability.

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# TESTING AND EVALUATION PROCESS MANAGEMENT FOR MILITARY AERONAUTICAL PRODUCTS

*Cpt.cdor. Eng. Constantin NUȚĂ*

## INTRODUCTION

*Test & Evaluation (T&E) for military products is the process by which this products or components are compared with requirements and specifications through testing. The results are evaluated to assess progress of design, performance, operational capability, etc.*

In the broad sense, T&E may be defined as all physical testing, modeling, simulation, experimentation, and related analyses performed during research, development, introduction, and employment of a weapon system or subsystem.

The testing process can be divided into two major categories:

- *Developmental test and evaluation (DT&E) is an engineering tool used to reduce risk throughout the acquisition cycle.*
- *Operational test and evaluation (OT&E) is the actual or simulated employment, by typical users, of a system under realistic operational conditions.*

A “test” is any program or procedure that is designed to obtain, verify, or provide data for the evaluation of any of the following:

- 1) progress in accomplishing developmental objectives;
- 2) the performance, operational capability, and suitability of military products;
- 3) the vulnerability and lethality of military products

The role of Test and Evaluation for military aeronautical products is to provide information on the capabilities and limitations, and the risks affecting system cost, development schedule and performance.

The fundamental purpose of T&E for military aeronautical products is the following:

- verify and validate performance capabilities documented as requirements;
- evaluated of technical performance parameters;

in order to determine whether systems are operationally effective, suitable, survivable, and safe for intended use.

During the early phases of development, T&E is destined to prove:



- the feasibility of conceptual approaches;
- evaluate design risk ;
- identify design alternatives;
- estimate satisfaction of operational requirements.

Information drives the acquisition process. Good, objective information is critical to the management of any acquisition program. In order to ensure that the program does not go over budget, run behind schedule or develop a product that doesn't meet the requirements, program managers rely on timely, correct information to make valid, informed decisions.

## **I. THE T&E PROCESS for military aeronautical products**

### *I.1.GENERALITIES*

T&E process involves collecting and analyzing data related to actual or projected performance of military aeronautical products.

T&E has the following function:

- provide design concept regarding the relationship between expected and actual performance;
- helping managers assess design maturity;
- assuring prospective users that the system can perform its;
- intended mission.

The testing process content two major categories:

- developmental
- operational

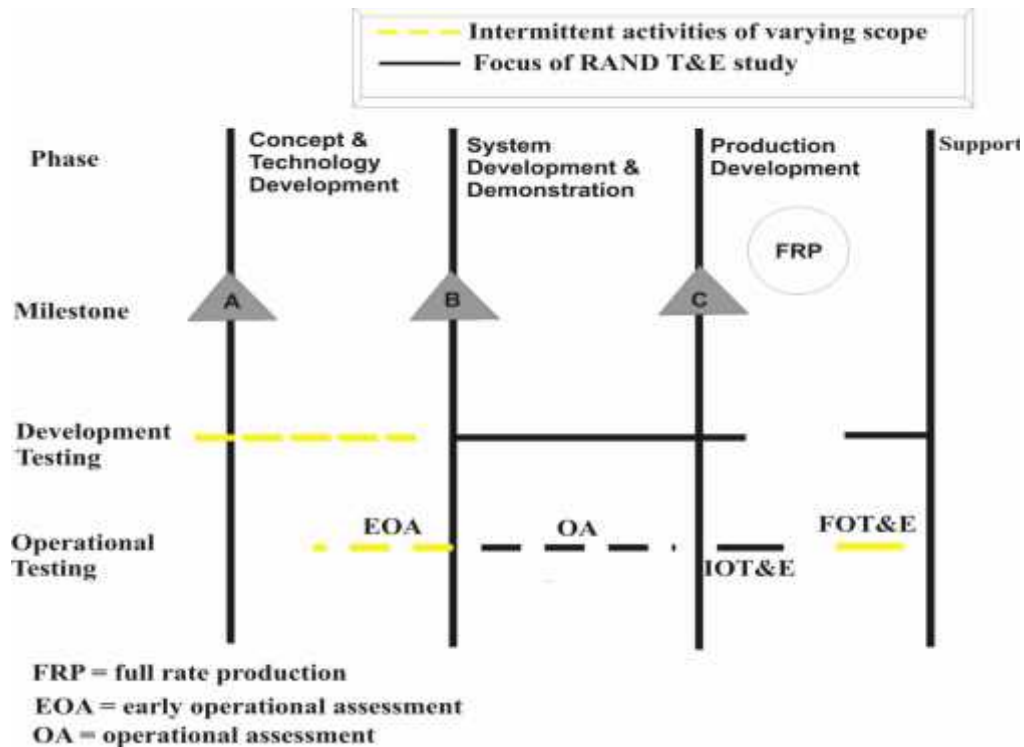
Developmental testing (DT) is performed at the part, subsystem, or full system level to prove the validity or reliability of the design, materials used, etc. The results of DT are used to modify the system design to ensure that it meets the design parameters and system specifications.

Operational testing (OT) relies in part on the results of DT, it is designed to test a system in its operational environment, where operational personnel would be responsible for operating, maintaining, repairing the system in a realistic environment.

The intensity and duration of T&E activities vary as the program progresses through the acquisition process (see Figure I.1). In the concept and technology development (CTD) phase, the T&E working-level IPT (WIPT) is formed, and an evaluation strategy is developed

to describe the early T&E approach for evaluating various system concepts with mission requirements.

M & S also began during this and makes an important contribution in determining the correct assessment of the main requirements and design.



**Figure I.1-T&E Phases within the Acquisition Process**

During the SDD phase, T&E focuses on:

- evaluating alternatives of military aeronautical products design;
- components of military aeronautical products design;
- system performance and suitability;

as specified in the mission needs statement (MNS), the operational requirements document (ORD), the acquisition program baseline, and the T&E master plan (TEMP).

When the product comes into the production and deployment predominates the complete testing of the product. Key test development, operation, and live-fire tests of production representative articles must be complete before a decision to move beyond low-rate initial production (LRIP) can be made. Follow the OT is designed to complete any postponed test, check correct deficiencies discovered in previous testing, and improve operational employment concept.

T&E continues into the operations and support phase to support evolutionary or block upgrades. A large program may have a standing T&E organization, located at a test center, to ensure continuity, maximize test program efficiency, and smooth transitions from upgrade to upgrade.

## ***1.2. TYPES OF TESTING***

### *Developmental Test and Evaluation*

Developmental T&E (DT&E) is the T&E conducted by the developing organizations to determine whether the system meets its technical and performance specifications.

DT&E during acquisition:

- Evaluates design approaches, validates analytical models, quantifies contract technical performance and manufacturing quality, measures progress in system engineering design and development, minimizes design risks, and predicts integrated system performance (effectiveness and suitability) in operationally relevant environments.
- Identifies, tracks, and resolves design deficiencies as early as possible. Also identifies enhancements.
- Provides data for cost-performance trade decisions before system down select, and during system development.
- Is funded from Research and Development funds.
- Supports the acquisition of new or improved material or operational capabilities before acceptance for operational use or production.
- Supports the decision to certify the system ready for dedicated OT&E.

**DT&E during sustainment is planned, conducted, and reported for improvements, modifications, or upgrades to fielded systems which:**

- Extend their useful military life within the current performance envelope or capabilities;
- Expand or increase the current performance envelopes or capabilities;
- Identifies, tracks, and resolves system deficiencies as early as possible. Identifies enhancements. Also identifies quality, reliability, maintainability, and safety problems and solutions;
- Ensures fielded systems continue to perform as required;

- Provides information that may lead to future modification or upgrade programs;
- Supports modification or upgrade programs for fielded systems when a sufficient amount of integration testing is needed;
- Provides aging and surveillance testing;
- Verifies changes in operational environments.

T&E activities take place throughout system development. DT&E supports the system engineering process in evaluating the feasibility and performance of alternative concepts and identifying risk areas. It supports designers by evaluating component, subsystem, and system-level performance, often highlighting areas for improvement.

DT&E also provides managers with objective assessments of the progress and maturity of the development program. For programs using a performance-based acquisition approach, DT&E is the primary means of visibility into contractor progress and system performance.

Another function of DT&E is to demonstrate that the development phase is essentially complete and that the system is ready for dedicated OT. The program manager must certify this readiness.

#### *Operational Test and Evaluation*

In operational T&E, service test organizations conduct tests in operationally realistic conditions against threat or threat-representative forces to determine whether the system is operationally effective and suitable. *Operational effectiveness* evaluates the ability of the system to perform its assigned mission. *Operational suitability* evaluates the ability of operational personnel to operate and sustain the system in peacetime and wartime environments and is a function of such characteristics as reliability, maintainability, availability, supportability, transportability, compatibility, and adequacy of proposed training procedures.

Operational testers will conduct OT&E in order to:

- Determine and report operational effectiveness and operational suitability;
- Identify, track, and help resolve deficiencies as early as possible, and identify enhancements;
- Identify quality, reliability, maintainability, and safety problems and propose solutions;

- Provide information for identifying and refining logistics and software support requirements;
- Provide information on organizational structure, personnel requirements, support equipment, technical publications, training, training systems, tactics and doctrine;
- Recommend and evaluate changes in system configuration;
- Provide information for refining operations and maintenance (O&M) cost estimates, or identify system characteristics or deficiencies that affect O&M costs;
- Determine if support equipment, training and technical publications support the system and mission;
- Assess the survivability and/or lethality of the system in the operational environment;
- Evaluate system compatibility, interoperability, and integration;
- Evaluates changes and verifies correction of new deficiencies discovered after system deployment;
- Explores non-material means of satisfying changing operational requirements during system sustainment;
- Evaluates routine software block cycle changes, Operational Flight Programs (OFPs), modifications, upgrades, mission data updates, and other improvements or changes during sustainment;
- Evaluates operational systems against Foreign Material Equipment (FME) and new threat system.

Early operational assessments, which are done before the SDD phase, use studies, M&S, lab trials, demonstrations, and prototypes to evaluate alternatives and the level of risk and estimate military utility.

Operational assessments, done during SDD, use engineering development models or production-representative systems. Critical operational issues (COIs) are the questions that OT must answer. These are derived from ORD requirements and give focus to OT planning and testing. Measures of effectiveness (MOEs) are used to evaluate performance on COIs.

Since most programs use what is termed *combined* DT and OT, planning for DT also considers OT objectives. The resulting tests can thus provide data useful for both DT and OT

purposes. This minimizes expensive testing, while providing timely data for analysis of technical performance (DT) and operational performance (OT).

#### *Qualification Test and Evaluation*

Qualification Test and Evaluation is a modified form of DT&E conducted on commercial off-the-shelf (COTS), non developmental items. Candidate systems for QT&E require little or no government funded research and development (R&D), engineering design, or integration efforts.

In addition, QT&E:

- Is planned, conducted, and reported following the same test process guidance applicable to all DT&E.
- Identifies, tracks, and resolves system deficiencies as early as possible. Also identifies enhancements.
- Supports the verification of changes, modification, or upgrades to fielded systems.
- Supports the decision to certify the system ready for dedicated Qualification Operational Test and Evaluation (QOT&E).

#### *Live-Fire Test and Evaluation*

**Live Fire Test & Evaluation (LFT&E)** is testing accomplished to demonstrate the survivability and lethality of new weapon systems.

Vulnerability testing mainly involves actual use of enemy weapon systems (firing munitions, Electronic Counter Measures (ECM)) at mission configured, full production versions of the end system.

Lethality testing is the actual use of a weapon system against an enemy or similar weapon system to prove the capability of the system.

T&E have an important role during a military system lifetime since ensure data and information that support its selection, procurement, operating and replacement.

T&E are used to sustain decision regarding optimum solution to be applied in order to accomplish certain missions and ensure that Forces operates only systems that complies its requirements from the point of view of design, development, manufacturing, exploit and storage. T&E provides information that is required to support decision to retain a certain system in safety condition.

The fundamental aim of T&E within Military System Procurement and Development Program is to identify hazard areas in order to decrease or eliminate risks.

During the initial phase of development T&E are dedicated to the concept suitability, appreciate design hazards, identifying design variants analyzed and compare different solutions, estimate requirements compliance.

## **II. EVALUATION**

This underlines the importance of establishing and maintaining a clear audit trail from system requirements through critical issues, evaluation criteria, test objectives and measures of effectiveness for evaluating products.

### *II.1. DIFFERENCE BETWEEN “TEST” AND “EVALUATION”*

The following distinction has been made between the functions of “test” and “evaluation:”

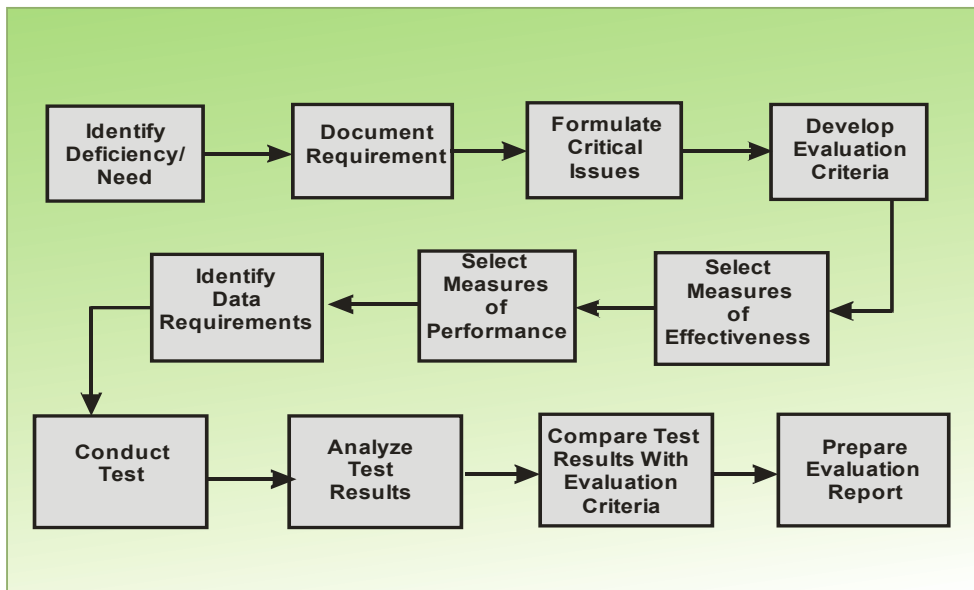
“**Test**” denotes the actual testing of aeronautical products - to obtain data, both quantitative and qualitative, relevant to developing new capabilities, managing the process, or making decisions on the allocation of resources.

“**Evaluation**” denotes the process by which relevant data are analyzed by the desired performance tests in order to take decisions on the behavior of a product or system.

### *II.2. THE EVALUATION PROCESS*

The evaluation process requires a broad analytical approach, focusing closely on the development of the T& E plan that will provide clear answers and justified critical issues to the questions required by the authorities in all the acquisition phases decision. Evaluations should focus on key performance parameters, and establish which technical and operation characteristic is so important that failure to meet the threshold can be cause for the concept or system selection to be reevaluated, or the program to be reassessed or terminated

A functional block diagram of a generic evaluation process is shown in Figure II.1.



**Figure II.1.** Functional Block Diagram of the Evaluation Process

The process begins with the identification of a deficiency or need and after that the categories of forces edit operational requirements document. It goes on to identify the critical issues that must be addressed to determine whether the system meets user requirements.

First we have established targets and thresholds that must be reached in order to assess performance and supportability parameters in the operation of military aeronautical product. Test and evaluation analysts then decompose problems into measurable test items, perform necessary tests, review and analyze test data, weigh the test results on the basis of evaluation and prepare an assessment report for the authorities' decision.

### *II.3. ISSUES AND CRITERIA*

Issues are questions about military aeronautical products that require answers during the procurement process and that are in the development phase. These responses may be needed to help develop a strategy to acquisition a products to assess the performance requirements and designs in order to establish products compliance with operational requirements.

The evaluation criteria for a military aeronautical product are the standards by which accomplishments of the necessary technical and operational effectiveness and / or suitability characteristics or resolution of operational problems can be evaluated. The evaluation program can be built using a structured approach to identify each issue.

The evaluation process involves the following structural elements:



- (1) *Issue* – a statement of the question to be answered;
- (2) *Scope* – detailed conditions and range of conditions that will guide the T&E process for this issue;
- (3) *Criteria* – quantitative or qualitative standards that will answer the issue;
- (4) *Rationale* – full justification to support the selected criteria.

#### *Key Performance Parameters/ Critical Issues*

Key Performance Parameters (KPPs) are those parameters that can support the development of a hierarchy of critical issues and issues less important. Critical issues are the questions about the functioning of a product in terms of technical, operational, support and other features. These critical issues must be answered before a full assessment of the product, and are of primary importance for decision-making authority allowing the system to advance to the next phase of acquisition.

#### *Evaluation Issues*

Evaluation issues are those addressed in technical or operational evaluations during the acquisition process. Evaluation issues can be separated into technical or operational issues and addressed in the TEMP.

Technical issues primarily concern technical parameters or characteristics and engineering specifications normally assessed in development testing. Operational issues concern effectiveness and suitability characteristics for functions to be performed by equipment/personnel.

#### *Test Issues*

Test issues are a subset of issues subject to the evaluation process. They refer to areas of uncertainty that require test data to be handled properly. Testing problems can be divided into technical issues - addressed through development test and evaluation (DT&E) - and operational issues - addressed operational testing and evaluation (OT&E). Test issues can be divided into critical and non-critical categories. All critical T&E issues, objectives, methodology and evaluation criteria should be defined in the initial establishment of an acquisition program. Critical issues are documented in the TEMP.

#### *Criteria*

Criteria are statements for technical performance of a product to demonstrate the operational efficiency, suitability and supportability. Criteria are often expressed as "targets

and thresholds." These performance measures are the basis for data collection used to assess / respond test issues.

### **III. T&E IN THE CAPABILITY LIFE CYCLE**

#### *III.1. CAPABILITY SYSTEM LIFE CYCLE*

Each capability system has a 'life cycle' that begins with the identification of the need to address a current or prospective capability gap. This need is gradually transformed into a product that is used in operating environments and combat operating until complete withdrawal from service.

The stages of capability life cycle are:

- Needs
- Requirements
- Acquisition
- In-Service
- Disposal

The numbers of inputs which must be considered when developing future capabilities for military aeronautical products are:

- Personnel
- Organization,
- Collective Training
- Major Systems
- Supplies
- Facilities
- Support
- Command and Management

Significant benefits will be obtained through the application of T&E activities early in the capability system's life cycle. The primary benefit is the reduction in development costs through the early identification of risks and capability shortfalls.

### *III.2. T&E'S CONTRIBUTION TO CAPABILITY*

T&E help ensure future defense capability needs and also budget allocations are not exceeded. The T & E effort applied to support capacity development must be commensurate with the level of risk identified at each stage of the life cycle and the scale of the necessary defense capability.

The results obtained by modeling and simulation (M&S) can be used by T&E, as appropriate, in different phases. A series of DT&E and AT&E can be made during the acquisition phase. OT&E phase occurs mostly during the service, although significant benefits can be achieved through early validation of the user input capacity measured by early OT&E activities.

The conduct of T&E should facilitate learning, assess technology maturity and interoperability, facilitate integration into fielded capabilities, and confirm performance against documented capability needs.

### *III.3. T&E AND THE SYSTEMS ENGINEERING PROCESS*

The Systems Engineering Process (SEP) is an integrated set of interdisciplinary activities that are required throughout the life cycle of a system to transform customer needs, requirements and constraints into a system solution. SEP focuses on total technical effort engineering activities necessary to guide product development in order to ensure that:

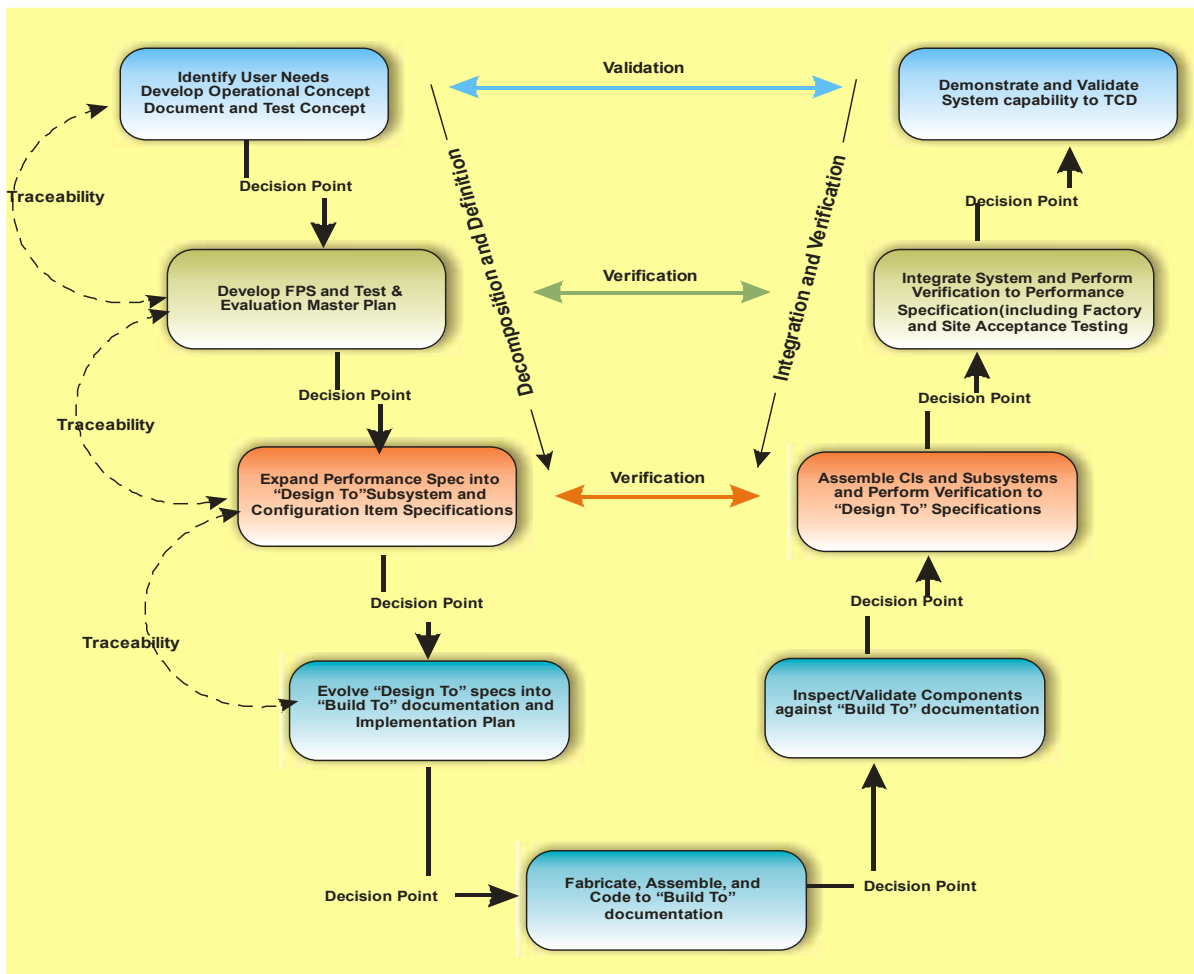
- the product is well designed;
- answer to the technical and operational requirements;
- the reliability and operating

Furthermore, the SEP includes the life cycle processes for manufacturing, test, distribution, support, training, and disposal, which are necessary to provide life cycle support for products.

The T&E process is an integral part of the SEP, which identifies levels of performance and assists the developer in correcting deficiencies. It is a significant element in the decision-making process, providing data to support trade-off analysis, risk reduction, and requirements refinement.

Program managers are responsible for balancing the risks of cost, schedule, and performance to keep the program on track through to production and fielding. T&E in the

SEP identifies risks and enables decision-making authorities to assess risk trade-offs. Figure III.2 provides detail on T&E as part of the SEP<sup>56</sup>.

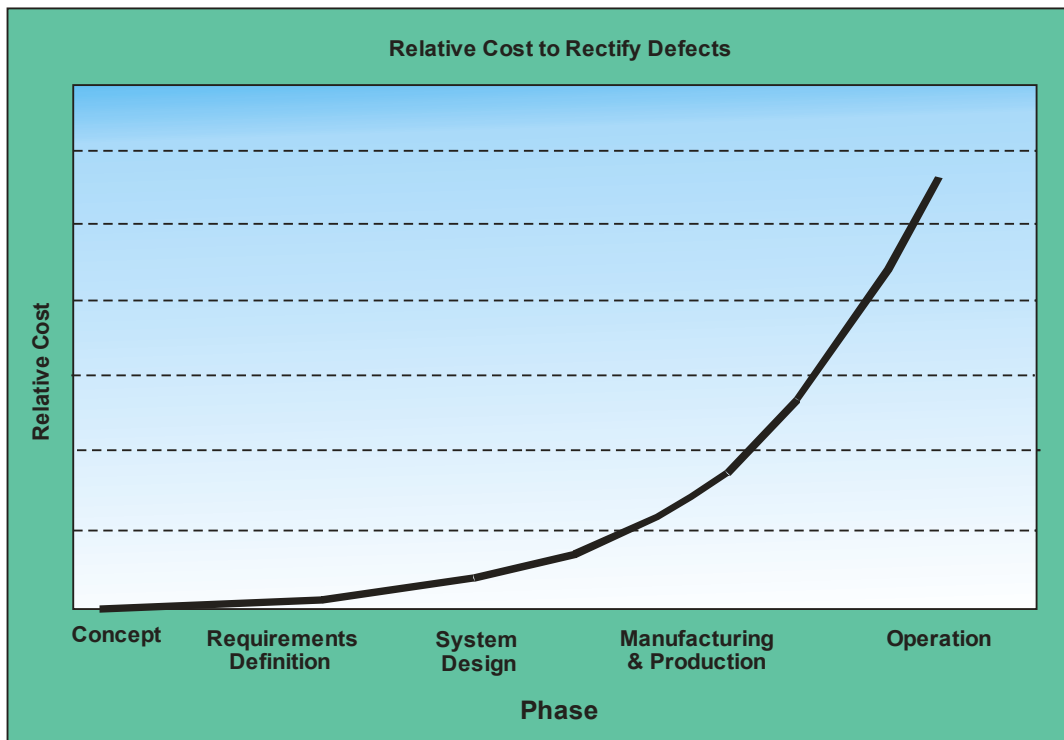


**Figure III.2 - System Development V Diagram**

Responsibility for examining critical issues returns policy makers that assesses the importance and impact that these issues have on the functionality of the system. Identification of the risk that can be accepted in the ability of the system operation should be well justified technical. T&E provides the decision-maker a solid base of information upon which to make these judgments.

<sup>56</sup> Australian Government Departmental of Defense - *Defense Test and Evaluation Roadmap* – 2008

The Cost Escalation Model specifies that the cost of correcting defects increase significantly later in the life cycle that are identified due to growing system complexity and sub-system integration. Because defects earlier in the lifecycle will cost much less to resolve than those identified later in development, T&E should apply early in the life cycle of the system to help control costs development of the system. Figure III.3 shows the benefits of catching defects early lifecycle.



**Figure III.3:** Life Cycle Cost Escalation Model<sup>57</sup>

#### **IV. MANAGING RISK during the T&E PROCESS**

The level of risk in each area of system design and performance can be analyzed by assessing the **probability of occurrence** of a specific risk event and **severity of the impact** or consequence of that event to the system and the user. The specific combination of probability and consequence determine the level of risk—generally high, medium or low.

Risk Management, one of the Systems Engineering Technical Management Processes, includes the following activities:

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<sup>57</sup> Australian Government Departmental of Defense - *Defense Test and Evaluation Roadmap* – 2008

- Risk Identification
- Risk Analysis
- Risk Mitigation Planning
- Risk Mitigation Plan Implementation
- Risk Tracking

T&E helps manage the following types of risk:

- Risk that the program will not meet cost, schedule and system performance goals.
- Risk that the system will not be operationally effective, suitable or survivable.
- Risk that testers and, ultimately, the users are placing themselves at undue personal risk when testing the system and then after the system is deployed, using it.

#### *IV.1. TECHNICAL MANAGEMENT PROCESSES*

Consist of: Technical Planning, Requirements Management, Interface Management, Risk Management, Configuration Management, Technical Data Management, Technical Assessment, and Decision Analysis.

#### *IV.2. RISK IDENTIFICATION*

The Risk Identification activity is structured to help answer the question: *'What can go wrong?'* that could affect the technical effort and potentially the success of the program. Risk Identification examines each element of the technical effort to help identify associated risk root causes, begin their documentation. Risk Identification sets the stage for their successful management.

#### *IV.3. RISK ANALYSIS*

The intent of Risk Analysis is to answer the question *'How big is the risk?'* by:

- Considering the likelihood of the root cause occurrence
- Identifying the possible consequences in terms of performance, schedule, and cost
- Identifying the risk level

#### *IV.4. RISK MITIGATION PLANNING*

The intent of Risk Mitigation Planning is to answer the question *'What is the technical approach for addressing this potential unfavorable consequence?'* Risk Mitigation Planning helps identify, evaluate and select options to set risk at acceptable levels given program constraints and objectives. One or more of these mitigation options may apply:

- Avoiding risk by eliminating the root cause
- Controlling the cause or consequence
- Transferring the risk
- Assuming the level of risk and staying with current plans
- Risk Mitigation Plan Implementation

The intent of the Risk Mitigation Plan Implementation activity of the Risk Management Process is to help ensure that successful risk mitigation occurs. It answers the question *'How can the planned risk mitigation are implemented?'*

#### *IV.5. RISK TRACKING*

The Risk tracking activity of the Risk Management Process is integral to good technical management. The intent of risk tracking is to help ensure successful risk mitigation. It answers the question *'How are things going?'*

### **V. TEST AND EVALUATION PROCES STEPS**

#### *V.1. STAGES IN T&E PROCESS FOR MILITARY AERONAUTICAL PRODUCTS*

All T&E activities for military aeronautical product must be adapted to:

- performance requirements of the product;
- nature and maturity of the system under test;
- time and resources available.

However, the complexity of testing for military aeronautical product involv planning and coordination by general process in order to execute a test program effectively.

All T&E activities for military aeronautical product must be carefully monitored and tracked in order to avoid deficiencies which may occur that could create risks that were not evaluated in the early stages of program.

Figure V.1 illustrates the interrelated aspects of the T&E process. The stage in the test process are repeated as the system matures. The objective is to identify deficiencies as early

as possible to avoid the cost and delays inherent in redesign and retest of a more complete, and therefore more complex, article.



**Figure V.1 – T&E Processes**

Each step of this generic T&E process is described below.

*STAGE 1 - Program initiation*

This stage includes the following phases:

- PHASE 1- Team organizing
- PHASE 2- T&E plan and products ‘documentation presentation
- PHASE 3 - Logistic and personnel support
- PHASE 4- T&E activities schedule
- PHASE 5- Establish T&E events /objectives algorithm
- PHASE 6- Modeling and simulation

The specific objectives derived from requirements to test the system or product mentioned in the MNS, ORD, and the TEMP. Test objectives should be clearly defined from the beginning so that they cover the entire range of tests necessary for a relevant assessment.

Taking into account the product's performance requirements, test planners set out in the T&E plan following :



- article to be tested;
- evaluation criteria;
- performance parameters;
- testing condition;
- testing methodology that will include a list of test events.

The sequence of these events is called a test matrix. The objectives of the test matrix events is to get enough knowledge and information about product performance under the test in order to reduce the risk of proceeding to the next step in developing an acceptable level.

The knowledge and experience gained, simulations, and other tests are used to help the estimation and prediction results to be obtained. The responsible test organization develops a detailed test plan, which will include the testing and evaluation activities schedule, logistical support and personnel involved in the testing and evaluation activity.

#### *STAGE 2 - T&E events performing*

Before testing begins, the test matrix is evaluated to ensure that it will produce the required data while making efficient use of test resources.

Prior to conducting the testing, the team must select the specific test points of the test matrix. In this case, the test team must consider many external factors that can influence the safe development of tests such as:

- correct configuration of the test
- appropriate environmental condition
- system configuration instrumentation for data acquisition
- personnel training

In addition, opportunities for achieving multiple test points during a test event require careful planning and coordination to maximize the productivity of test resources. Efficient and timely execution of a test program becomes a complex balancing act requiring coordination (and often flexibility) among all participants.

This stage includes the following phases:

- PHASE 1- Establish parameters of T&E events
- PHASE 2- Establish criteria for data analyze
- PHASE 3 - Establish equipment and methods
- PHASE 4 - Safety analysis
- PHASE 6- Equipment' and personnel' preparation

- PHASE 7 -Test Order design
- PHASE 8- T&E performing
- PHASE 9- Primary data analyze and mission debriefing
- PHASE 10- Event/objectives stages analyze
- PHASE 11- Decision-making process in order to continue T&E

Modern test programs produce large volumes of data, which must be reduced and converted to a useful form for evaluation. Most test activities can produce rapid, “quick-look” reports to give some indication of test outcomes before conducting more-detailed analysis of the test data. Quick-look results can be used during the test itself to verify that suitable data were collected and that the next test can proceed.

### *STAGE 3 - Data analysis*

After the test, the data are analyzed in detail and compared with the values expected or required. If predicted values do not match those observed, further analysis is needed to determine whether the predictions, testing conduct, or tested product meet the requirements. In many cases, a retest must be performed to validate the corrective action.

This stage includes the following phases:

- PHASE 1- Data transfer, reading and analyzing
- PHASE 2- Data interpretation
- PHASE 3- Conclusions and results reports editing
- PHASE 4- Decision-making process in order to continue objectives within T&E plan
- PHASE 5- Documents issuing

The product of these efforts is information in the T&E report. These reports cover the full range of system design and performance, in both technical and operational areas.

#### **Technical area:**

- Hardware/Software Performance (weapon firing, test scripts)
- Reliability/Maintainability/Availability Survivability
- Operability/Supportability

#### **Operational area**

- Real world tests for operational: Effectiveness

The test results are reported in a variety of ways, depending on the type and intended use of the test. At the end of DT and OT, official reports are submitted and maintained to provide a record of the execution of the test program and results.

Where a study identifies a discrepancy between the expected results or required results and the actual product performance, predictive algorithms are reviewed and adjusted as necessary. If a test article deficiency is found, its cause must be isolated, which may require further testing.

For a complex design changes for certain components may become increasingly complex and expensive, as they may affect the performance of other components or other operation. As a result, extensive retesting (regression testing) is necessary to ensure performance results from previous tests were not compromised.

#### *STAGE 4 - T&E stage analysis*

Process analysis techniques consist of thinking through how the system will be used in a variety of environments, threats, missions and scenarios in order to understand the events, actions, situations and results that are expected to occur. This technique aids in the identification and clarification of appropriate MOEs, test conditions, and data requirements.

This stage includes the following phases:

- PHASE 1- Objectives completion
- PHASE 2- Logistic support analyze
- PHASE 3- Equipment / systems and personnel preparation analyze
- PHASE 4- Safety analysis
- PHASE 5- T&E activity analysis
- PHASE 6- Short period schedule and consumption evaluation
- PHASE 7- Team organization reevaluation
- PHASE 8- Restart T&E activities

#### *STAGE 5 - T&E activities completion*

In this stage is analyzed the fulfillment of T&E plan and will completed if is necessary the T&E report and T&E activity.

This stage includes the following phases:

- PHASE 1- Analyzing T&E Plan stage
- PHASE 2- T&E Bulletins and reports completion

- PHASE 3- Team member analysis
- PHASE 4- Availability and consumption evaluation at T&E activities completion

## VI. CONCLUSION

To cope with common challenges and great complexity technological factors in the future T&E for military aeronautical products must:

- Practice a high level coordination of all T&E resources, policy and processes ensure the most efficient and effective application of T&E.
- Sustain projects to ensure that the planning and resourcing of T&E activities during a capability's life cycle are adequately addressed.
- Sustain existing T&E organisation and in their delivery of T&E by the provision of adequately skilled T&E professionals who are trained and equipped to meet emerging technologies in future capability systems.
- Centralize and coordinate the management of T&E facilities and equipment to ensure projects in the DCP can be delivered into service on time.

Through the continual delivery of quality T&E, the RoMoD will receive systems that meet operational requirements.

T&E has several roles in the acquisition process.

By:

- Identifying non-conformance to requirements, T&E prevents the delivery of unsuitable equipment to the end user.
- Identifying and reporting the capabilities of "as-delivered" equipment over and above the user requirements, T&E provides a valuable service to the user.
- Collecting generic requirements on types of systems and providing them to systems engineering, T&E helps to minimize more and more categories of missing requirements.

By making use of modern Quality theory, Knowledge Management, and Information Technology, T&E is positioned to work with systems engineering to prevent defects, test for non-conformance to requirements, and evaluate the capability of "as-delivered" equipment in a cost-effective manner over the entire life cycle.

## ACRONIMS

AT&E	Acceptance Test and Evaluation
FIC	Fundamental Input to Capability
CoIs	Critical Operational Issues
DCP	Defense capability Plan
DT&E	Developmental Test and Evaluation
ECM	Electronic Counter Measures
FOT&E	Follow Operational Test and Evaluation
FME	Foreign Material Equipment
FPS	Function and Performance Specification
IA	<b>Information Assurance</b>
IOC	<b>Initial Operating Capability</b>
IOT&E	<b>Initial Operation Test and Evaluation</b>
IPT	Integrated product team
LFT&E	Live Fire T&E
MC	Military Capability
MNS	Mission Need Statement
RoMoD	Romania Ministry of Defense (MOD – Ministry of National Defence)
MOEs	Measures of Effectiveness
MNS	Mission Needs Statement
M&S	Modeling and simulation
OCD	Operational Concept Document
O&M	Operations and maintenance
OFPs	Operational Flight Programs
ORD	Operational Requirement Document
OT&E	Operational Test and Evaluation
PM	Program Management
QOT&E	Qualification Operational Test and Evaluation
QT&E	Qualification Test and Evaluation
RDT&E	Research Development Test and Evaluation
SEP	System Engineering Process

SDD	System Development and Demonstration
SRD	System Requirements Document
TEMP	Test and Evaluation Master Plan
T&E	Testing and Evaluation
T&E – DT&E	Testing and Evaluation -Development Testing and Evaluation
T&E – OT&E	Testing and Evaluation –Operational Testing and Evaluation
WIPT	Working Level Integrated Product Team

## **GLOSSARY**

**Acceptance.** A process, under the control of the Sponsor as the Acceptance Authority, confirming that the user's needs for military capability have been met by the systems supplied.

**Analysis.** The deriving of the effectiveness, cost, time, and achievability attributes of a solution.

**Capability.** An operational outcome or effect that users of equipment need to achieve.

**Evaluation.** (Trade off) The action of determining the overall worth of the solution and how that worth might be increased, on balance, across the properties of effectiveness, cost, time and achievability.

**Objectives.** (Trade off) Measurable reasons for applying the ST-OP process to a specific solution at a particular point in the acquisition lifecycle.

**Optimize.** (Trade off) Establish, via trade-off, an equitable convergence of need and solution, and balance across the effectiveness / cost / time / achievability properties of a solution. Optimization requires objectives, judgment, compromise and consensus.

**Option.** (Trade off) Depending on context, either - one possible solution, in competition with other mutually exclusive solutions, or - a possible variation within a solution, to be judged on its merits relative to the basic solution and other options, i.e. a 'Change' "Alternative solutions" "Competing designs". 'APM Body of Knowledge' 5th Edition ISO 15288

**Procurement [Acquisition] Strategy.** Sets out how a defiance requirement is to be met taking whole life considerations into account. It includes an assessment of all of the procurement and support options, of the risks involved, and it proposes a specific acquisition route. The preparation of the strategy is the responsibility of the IPT Leader; for Category C projects and above it has to be approved by the Equipment Approvals Committee.

**System.** As a Systems Engineering Term - A human-made entity with a distinguishing and defined purpose that draws on integrated, constituent parts, each of which does not individually possess the required overall characteristics or purpose.

**Verification As a Systems Engineering Term** - The processes which provide assurance that an integrated system satisfies its (SRD) requirements.

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# HOW TO MAKE A CHANGE IN YOUR ORGANIZATION? – A REAL CHALLENGE FOR A MANAGER

*LTC Cătălin OȚEL*

*“Great minds discuss ideas,  
Average minds discuss events,  
Small minds discuss people”*

Eleanor Roosevelt (1884-1962)

*"It must be considered that there is nothing more difficult to carry out nor more doubtful of success nor more dangerous to handle than to initiate a new order of things."*

Machiavelli (1446-1507)



## INTRODUCTION

According to Jim Hunt<sup>58</sup>, there are seven tips<sup>59</sup> regarding change within any organization. Whether it is preparing for a change, dealing with the circumstances or developing the appropriate strategies, these can help you understand the importance of change within an organization.

1. *If you want and need the people in the organization involved into what you are doing, **don't decide what to change and how to change it without giving them an opportunity to have their input.** What we need are "stakeholders," not those who are just passive observers to what goes on.*
2. ***Resistance is not an indication that something is wrong with what you are trying to change.** It is an indication that something is happening. It is a good sign! If you treat everything you see as resistance, you can be wrong. It may be a lack of understanding of what you are doing as opposed to not liking what you are doing. The remedies for each are quite different. You will learn many important things from resistance, which will make your implementation plan to go a lot smoother.*
3. ***Culture eats change for breakfast!** If your change will impact "how we do things around here," the odds are the culture change will be a bigger project than the original change.  
  
Your three options are: change the change, change the culture, or prepare to fail.*
4. ***The most important word in the language of change is TRUST.** Without it, you will only get what looks like change on the surface while underneath things remain the same. When you do not have time to make lengthy explanations about why you are doing what you are doing, only TRUST will carry the day.*
5. ***The perceived level of commitment of the person at the top of the organization will have more to do with your success or failure than anything else.** Test to find out what that perception is. The commitment may be there but poorly communicated, so make sure it is there and well communicated.*
6. ***Pain drives change!** In most organizations, nothing changes until the pain of doing it the way we currently are gets high enough so that it can no longer be tolerated. You are in the "pain management" business when you are in the change business.*

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<sup>58</sup> Principal James W. Hunt & Associates The "Change II" Management Consulting Firm Web

<sup>59</sup> [http://Top7Business.com/?expert=Jim\\_Hunt](http://Top7Business.com/?expert=Jim_Hunt)

7. *Given the option of listening to the rhetoric or following the reward system in the organization, people will follow the reward system every single time. The rhetoric and the reward system must line up.*



## I. CHAPTER - DEFINITION AND PRINCIPLES

### I.1 Section Change definition

**Change management**<sup>60</sup> is a systematic approach to dealing with change, both from the perspective of an organization and on the individual level.

A somewhat ambiguous term, change management has at least three different aspects, including: *adapting to change*, *controlling change* and *effecting change*. A proactive approach to dealing with change is at the core of all three aspects.

For an organization, **change management** means defining and implementing procedures and/or technologies to deal with changes in the business environment and to profit from changing opportunities.

Successful adaptation to change is as crucial within an organization as it is in the natural world. Just like plants and animals, organizations and the individuals in them inevitably encounter changing conditions that they are powerless to control. The more effectively you deal with change, the more likely you are to thrive. Adaptation might involve

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<sup>60</sup> [http://searchciomidmarket.techtarget.com/sDefinition/0,,sid183\\_gci799426,00.html](http://searchciomidmarket.techtarget.com/sDefinition/0,,sid183_gci799426,00.html)

establishing a structured methodology for responding to changes in the business environment (such as a fluctuation in the economy, or a threat from a competitor) or establishing coping mechanisms for responding to changes in the workplace (such as new policies, or technologies).

In a computer system environment, change management refers to a systematic approach to keeping track of the details of the system (for example, what operating system release is running on each computer and which fixes have been applied).

## **I.2 Section Change principles**

Change management is a basic skill in which most leaders and managers need to be competent.

When leaders or managers are planning to manage change, there are five key **principles** that need to be kept in mind<sup>61</sup>:

1. *Different people react differently to change;*
2. *Everyone has fundamental needs that have to be met;*
3. *Change often involves a loss, and people go through the "loss curve";*
4. *Expectations need to be managed realistically;*
5. *Fears have to be dealt with.*

### **I.2.1 Different people react differently to change**

The following diagram represents a spectrum of change:

**Stability ----- Change**

Different people have different preferences for where they like to be on this spectrum. Some people like to be at the STABILITY end of the spectrum - they like things to be the way they have always been. Other people like to be at the CHANGE end of the spectrum - they are always looking for something different and new.

Problems arise when the individual's preferences differ from the situation they find themselves in.

That is, if:

- a stability-oriented person finds that circumstances are changing quite rapidly, or
- a change-oriented person finds that everything is the same and there is nothing new.

In these situations, the individuals involved can experience:

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<sup>61</sup> <http://www.teamtechnology.co.uk/changemanagement1.html>

- strong dissatisfaction;
- stress;
- negative attitudes towards individuals with preferences at the other end of the spectrum (eg: distrust, dislike);
- resistance (to change, or to the status quo);
- intense emotions;
- loss of rational judgment.

People tend to resist, therefore, approaches on other parts of the spectrum than where they themselves prefer to be.

### **I.2.2 Everyone has fundamental needs that have to be met**

A famous psychologist called Will Schutz<sup>62</sup> identified three basic needs that people have in interpersonal relations. These basic needs are also of fundamental importance in people's reaction to change:

- the need for control,
- the need for inclusion,
- the need for openness.

Whilst the need for these can vary between people, in any change process there is always some degree of need for control over one's environment/destiny, some degree of need to be included in the process of forming the change that is taking place, and some degree of need for managers/leaders to be open with their information.

If a change program fails to meet the control, inclusion and openness needs of the individuals affected by it then that program is likely to encounter a range of negative reactions, ranging from ambivalence through resistance to outright opposition.

### **I.2.3 Change often involves a loss, and people go through the "loss curve"**

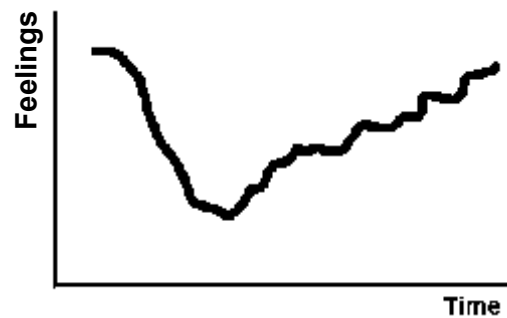
The relevance of the "loss curve" to a change management program depends on the nature and extent of the loss. If someone is promoted to a more senior position, the 'loss' of the former position is rarely an issue because it has been replaced by something better. But if someone is made redundant with little prospect of getting a new job, there are many losses (income, security, working relationships) that can have a devastating effect.

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<sup>62</sup> Will Schutz (1925 - 2002) American psychologist. Schutz practiced at the Esalen Institute in the 1960s. He later became the president of BConWSA International. He received his Ph.D. from UCLA.

There are many variations of the "loss curve". One is known as "Sarah" - that is, the individual experiences (in this order):

- S-hock
- A-nger
- R-ejection
- A-cceptance
- H-ealing



The common factors amongst all "loss curves" are:

1. there can be an initial period where the change does not sink in. For example, feelings may be kept high by the individual convincing themselves that the change is not going to happen.
2. when the loss is realized, the individual hits a deep low. The depth of this 'low' is deepened if the loss is sudden / unexpected.
3. the period of adjustment to the new situation can be very uncomfortable and take a long time. In the case of bereavement, the period of adjustment can be as long as two years.

#### **I.2.4 Expectations need to be managed realistically**

The relationship between expectations and reality is very important. You can see this in customer relations - if a supplier fails to meet expectations then the customer is unhappy; if the supplier exceeds expectations then the customer is happy.

To some extent the same principle applies to staff and change. If their expectations are not met, they are unhappy. If their expectations are exceeded, they are happy.

Sometimes, enforced change (eg: redundancies) inevitably involve the failure to meet expectations: there had been an expectation of job security, which has now been taken away.

What leaders/managers have to do, however, is make sure they don't pour petrol on the fire by making promises that cannot or will not be kept. Expectations have to be set at a realistic level, and then exceeded (eg: in terms of the degree of outplacement support that will be provided).

#### **I.2.5 Fears have to be dealt with**

In times of significant change rational thought goes out of the window. This means that people often fear the worst - in fact, they fear far more than the worst, because their subconscious minds suddenly become illogical and see irrational consequences.

Some examples are written below:

- Our company is reducing staff, which means...
- They will make people redundant, and...
- I'll be the first to be kicked out, and...
- I'll have no hope of getting another job, and...
- I won't be able to pay the mortgage, so...
- I'll lose the house, so...
- My family won't have anywhere to live, and...
- My wife won't be able to cope, so...
- She'll leave me, and...
- I'll be so disgraced the children won't speak to me ever again.

Such fears need to be addressed, eg by helping people to recognize that most people who are made redundant find a better job with better pay and have a huge lump sum in their pocket! Or, where appropriate, by explaining how the reductions in staff numbers are going to be achieved (by natural wastage or voluntary redundancy).

### **I.2.6 Other principles to have in mind**<sup>63</sup>

1. *At all times involve and agree support from people within system (system = environment, processes, culture, relationships, behaviors, etc., whether personal or organizational).*
2. *Understand where you/the organization is at the moment.*
3. *Understand where you want to be, when, why, and what the measures will be for having got there.*
4. *Plan development towards above No.3 in appropriate achievable measurable stages.*
5. *Communicate, involve, enable and facilitate involvement from people, as early and openly and as fully as is possible.*

As you see it is difficult to know what “basic” is. The two sets of principles are not equivalent. After the enumeration of the first set the reader may start to build the implicit part for every principle. Comparing them with the explicit explanation offered by the author, the reader may find the last ones poor or inadequate.

Two sets may be generated by two points of view. What implication may have *changing the point of view?*

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<sup>63</sup> <http://www.businessballs.com/changemanagement.htm>

## II. CHAPTER 2 "PEOPLE ARE DOING THE THINGS RIGHT..."

### II.1 Section How to act

Here are some tips to apply the above principles when managing change:

- **Give people information** - be open and honest about the facts, but don't give overoptimistic speculation. Meet their OPENNESS needs, but in a way that does not set UNREALISTIC EXPECTATIONS.
- For large groups, **produce a communication strategy** that ensures information is disseminated efficiently and comprehensively to everyone Eg: tell everyone at the same time. However, follow this up with individual interviews to produce a personal strategy for dealing with the change. This helps to recognize and deal appropriately with the INDIVIDUAL REACTION to change.
- **Give people choices to make**, and be honest about the possible consequences of those choices. Meet their CONTROL and INCLUSION needs.
- **Give people time**, to express their views, and support their decision making, providing coaching, counselling or information as appropriate, to help them through the LOSS CURVE.
- Where the changes involves a loss, **identify what will or might replace that loss** - loss is easier to cope with if there is something to replace it. This will help assuage potential FEARS.
- Where it is possible to do so, **give individuals opportunity** to express their concerns and provide reassurances - also to help assuage potential FEARS.
- **Keep observing good management practice**, such as making time for informal discussion and feedback (even though the pressure might seem that it is reasonable to let such things slip - during difficult change such practices are even more important).  
Where you are embarking on a large change program, you should treat it as a project.

In other words, you have to apply all the rigors of project management to the change process - producing plans, allocating resources, appointing a steering board and/or project sponsor, etc..



## II.2 Section John P. Kotter's model for a successful change

John P. Kotter<sup>64</sup> in "The Heart Of Change" (2002) describe a helpful model for understanding and managing change.

Each stage acknowledges a key principle identified by Kotter relating to people's response and approach to change, in which people **see**, **feel** and then **change** the eight step change model can be summarized as:

1. **Increase urgency** - *inspire people to move, make objectives real and relevant.*
2. **Build the guiding team** - *get the right people in place with the right emotional commitment, and the right mix of skills and levels.*
3. **Get the vision right** - *get the team to establish a simple vision and strategy, focus on emotional and creative aspects necessary to drive service and efficiency.*
4. **Communicate for buy-in** - *Involve as many people as possible, communicate the essentials, simply, and to appeal and respond to people's needs. De-clutter communications - make technology work for you rather than against.*
5. **Empower action** - *Remove obstacles, enable constructive feedback and lots of support from leaders - reward and recognize progress and achievements.*
6. **Create short-term wins** - *Set aims that are easy to achieve - in bite-size chunks. Manageable numbers of initiatives. Finish current stages before starting new ones.*
7. **Don't let up** - *Build and encourage determination and persistence - ongoing change - encourage ongoing progress reporting - highlight achieved and future milestones.*
8. **Create a new culture** - *reinforce the value of successful change via recruitment, promotion, new change leaders. Weave change into culture.*

Different "basic principles" sets always conduct to different techniques that will be use. Different results and consequences are guaranteed.

## III. CHAPTER 3 PREREQUISITES FOR CHANGE MANAGEMENT

Recent research has identified 4 vital prerequisites for change management. The practitioner's view is that without these prerequisites, an organization is not ready for change and change initiative may well fail. However, do organizations really know if these prerequisites are in place? How can they be identified?

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<sup>64</sup> Is a former professor at the *Harvard Business School*, an author, and now Chief Innovation Officer at Kotter International. He is regarded as an authority on *leadership* and change.

The prerequisites identified are:

- Senior management commitment;
- Clear vision;
- Strong, visible leadership;
- Good 2-way communication.

### **III.1 Section Senior management commitment**

Almost all change management guidance emphasizes that without senior management commitment, true change is difficult or impossible. Yet little guidance is available that describes in detailed terms what actions senior managers must take to demonstrate such commitment.

Senior managers must understand and then act upon five principles.

Senior managers establish a common vision of an improved organization, demonstrate their commitment by actions that are taken “in the heat of battle,” engage other managers, provide resources, and actively address organizational incompetence.

Change programs are most likely to succeed when the commitment is strong and clear.

Senior managers set the tone for the organization as a whole. Senior management attention makes things happen.

Senior management actions are both overt and behind the scenes.

The senior manager must also insist on change at the top levels (in his or her own work, as well as the work of his or her direct reports) and maintain such attention over the long term.

These actions are grouped into the following principles<sup>65</sup>:

- ❖ *Establish a common vision of an improved organization*
- ❖ *Encourage other managers to take process improvement seriously*
- ❖ *Support the process group in word and deed*
- ❖ *Provide resources*
- ❖ *Actively address organizational incompetence*

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<sup>65</sup> Sarah Sheard” **What Is Senior Management Commitment?”** Published in International Council on Systems Engineering Symposium Proceedings, 2001

### III.2 Section Clear vision

Vision is crucial. It is utterly irreplaceable. No amount of execution or financial success can replace vision. Why? Because, vision can lead the creative work of an entire tribe. (Not just of a few people who think about it all the time, but for everyone.)

“**Vision is the art of seeing what is invisible to others**”, *Jonathan Swift*<sup>66</sup> wrote.

Vision is the way to imagine what is needed, and then strategy becomes about being the one to deliver on it. Without a clear vision, everyone has to wait around and see what happens next. They have to get assignments and read smoke-signals to see which way to go. It creates slowness, a kind of wait-n-see-ness to everything. Vision is the *Why*. Without it, organizations rely on the *What*.

Having a good **WHY** allows power to be shared, for momentum to be built for stuff to happen without having to check back in. Without it, you travel in circles, covering a lot of ground but not necessarily going anywhere. You stay where you’ve been because where you are going is entirely unclear. An organization that is doing more of what they did yesterday doesn’t necessarily need a vision. But an organization that needs to reinvent what they do, surely does. Having a WHY enables a collaborative HOW. It empowers.

Vision. It paints the goal, sparks and fuels the fire of purpose, and invites everyone to play a role.<sup>67</sup>

Some primers for how this plays out.

- Never, ever have a statement like “transform the business” without a “to become XYZ” at the end.
- Share the narrative of why this matters, drawing on your own history. The bigger and better the why, the more people will be drawn to it. And the more they will want you to succeed ... because you are the person manifesting that vision.
- Talk about why this Vision meets others’ (customers especially) needs. If it’s all about you, then it’s not really a vision, it’s a revenue plan. Here’s the difference. The vision can happen without your firm being successful. It is beyond you. But if you execute well, the manifested vision will allow your firm to benefit.
- Vision allows you to gather resources (partnerships, commitments, strategic relationships, etc) but it also requires people to step into the vision with you. Demand

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<sup>66</sup> Jonathan Swift (30 November 1667 – 19 October 1745) was an *Anglo-Irish satirist, essayist, political pamphleteer* (first for the *Whigs*, then for the *Tories*), poet and cleric who became *Dean of St Patrick's Cathedral, Dublin*.

<sup>67</sup> *Nilofer Merchant* “*Without a Clear Vision*” published on February 21, 2012 in *Culture & Leadership*

that of everyone working closely with you. A vision must be shared, for it to become real.

### **III.3 Section Strong, visible leadership**

So, what exactly is the definition of leadership? How would you explain leadership to a five-year old? We can make use of a commonly-used definition which describes leadership as *“a virtue by means of which one is able to inspire a group of individuals into working progressively towards achieving a common goal”*.

Strong and visible leadership support for change is essential to securing necessary resources (staff, time, and money) and implementing recommended changes.

In order to secure strong visible leadership all the following steps<sup>68</sup> are frequently necessary:

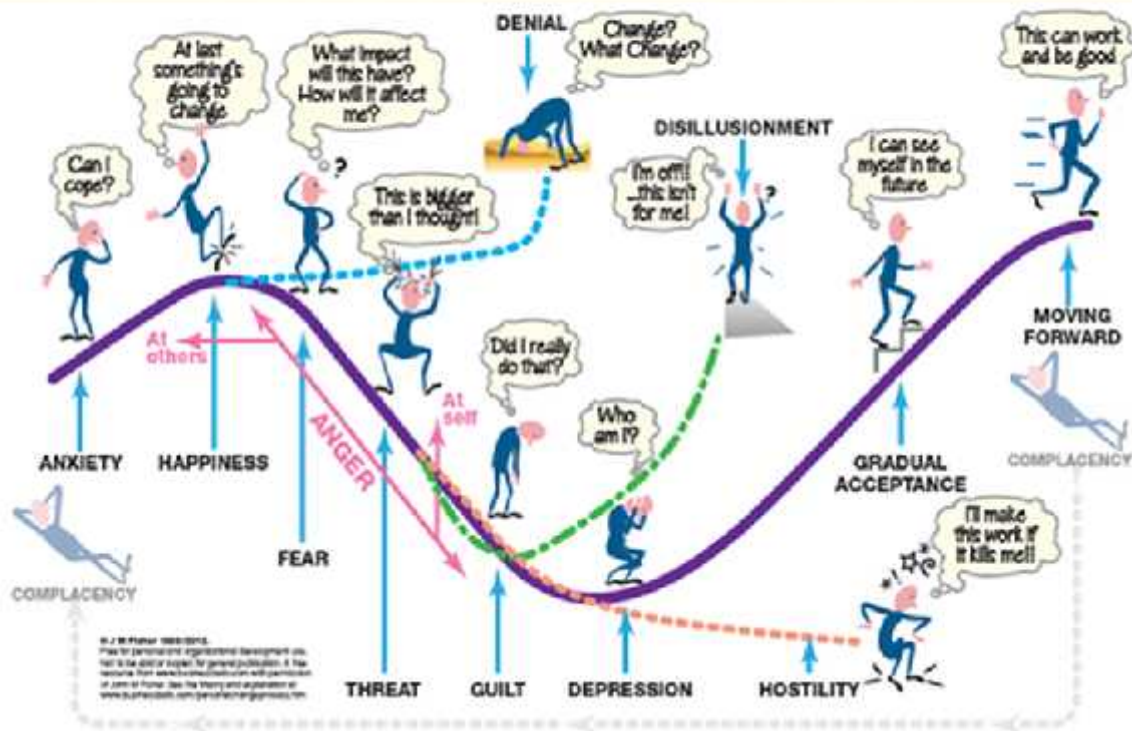
- 1. Demonstrate the benefits of improving of the organization to senior managers and the Board, using useful tools;*
- 2. Designate a Board member to undertake Responsibility;*
- 3. Produce regular reports of the organisation’s Board. This will help to communicate commitment and progress. It also helps to create confidence in staff that their well-being matters to the organisation.*

Having strong, visible leadership at all levels of the organisation alongside good program / project governance is critical for the successful transition process.

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<sup>68</sup> <https://www.ewin.nhs.uk>

## The Process of Transition - John Fisher, 2012 (Fisher's Personal Transition Curve)



Not everyone is a born leader. Leadership skills can be developed through hard work, determination and with experience. Developing good leadership skills plays an important part in the process of career development.

### III.4 Section Good 2-way communication

A short definition<sup>69</sup> can be as follows “Two-way process of reaching mutual understanding, in which participants not only exchange (encode-decode) information, news, ideas and feelings but also create and share meaning.”

In general, communication is a means of connecting people or places. In business, it is a key function of management – an organization cannot operate without communication between levels, departments and employees.

Management of an organization is effective only when its communication machinery is effective. The very existence of management depends upon an effective machinery of communication. Effective communication machinery is important because it communicates, and helps in implementing, the policies and objectives of the organization on the one hand, and also helps in understanding the nature and behavior of the people at work.

<sup>69</sup> <http://www.businessdictionary.com/definition/communication.html>

Management communication is a two-way process. It means that the management must allow both the parties - the management and the subordinates to convey their feelings, ideas, opinions, facts, grievances etc. to the other party. Communication is said to be a continuous process of exchange of views and ideas, but it should be both ways - downward and upward.

The communication machinery or process should not only provide the manager with a the privilege of communicating orders and directions to the workers to get the work done towards the achievement of organizational objectives as pleaded by the classical theory of organization behavior known as *Theory X* by McGregor<sup>70</sup>, but the workers also must be given a right to approach the management and communicate their complaints, grievances, opinions, facts, suggestions etc., which may be in response to the orders or directions received from the management, or in the interest of the organization, contributing to the achievement of its objectives.

This two-way traffic is advantageous to both the management and the workers. Managers, very often, like that the subordinates must listen to them and follow their orders and directions whatsoever. On the other hand, managers are not prepared to listen to their subordinates regarding what they think about them and of their suggestions, ideas or directions. They are not bothered about their subordinates' likes and dislikes and how they can contribute to the organizational objectives. Management, in this way, cannot be effective. Without giving subordinates an opportunity to be heard, their feelings will remain suppressed and they may breakdown at any time.

A message can be interpreted by the recipient according to the image of the communicator in the mind of the recipient. If the image is bad, the version of the message may be distorted and interpreted differently. The bad image can be erased through proper communication from the other side, which is possible only when there is two-way communication in the organization.

Thus, creation of organizational systems allowing two-way traffic will improve the morale of the workers on the one hand because they think that they have a say in the management, and will improve the working of the organization on the other hand, because management-worker relations develop in a cordial atmosphere.

**Thus, two-way communication is necessary for effective management.**

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<sup>70</sup> An American social psychologist, proposed his famous X-Y theory in his 1960 book 'The Human Side Of Enterprise'

## **I. CHAPTER – MAKING A CHANGE IN A MILITARY ORGANIZATION.**

### **IV.1 Military Organization**

It is a special type of organization whose members are acting guided by some concepts, such as: duty, service, self-sacrifice, respect, and so on. His members are under oath: "...to respect national law and military regulations..."

Military leaders tend to hold high level of responsibility and authority even at the lower levels of our organization. In the Military a leader does not need to be liked by his subordinates; he will be respected for rank, position, age or for a given authority. For him all subordinates must be treated in the same way.

Usually, the leader is the commanding officer and his actions are related to the given mission; his goal – fulfill the mission, no matter how!

For this, a leader gives orders, is entitled to command; and according to military regulations, an order must be put in practice with no comments, in proper time.

#### **YOU HAVE TO DO THAT....., IN ORDER TO.....**

Those are the key words for a military leader to use! Doing so, the subordinates will understand the commander's vision, their role in action and the reason for doing that.

### **IV.2 Constraints**

In such organization there a lot of regulations, SOPs and other directions to follow. Also, there is a chain of command which must be respected when a change applied in a small organization affect others.

There is no doubt that a commander is allowed to make all changes he considers appropriate for the success of his mission, but only according to law and regulation. For bigger changes he will have to have his senior approval, otherwise he can fail to achieve the best result or to have support when needed.

### **IV.3 Change strategy**

Military organizations need to respond to external dynamics in order to create and maintain outstanding performance. Those incomes can be political, social, technological or even external threats to our country.

Every four years we have a new government, a new Parliament and – usually – new laws. Each year a new budget, that is never enough. As military we have to cope with.

Since 1989, every major change put into practise in our organization was **ordered** by the senior officers from MOD or from our General Staff. There were times in which, before

starting to write the order, those seniors officers asked for possible solutions from subordinates. Sometimes was a good approach to solve the problem. In such a way, the commanders could take pre-emptive measures in order to prepare their organizations for the future change, smoothing the road. Also, they could send feedback to seniors regarding what is good, what not and what else must be done. A good senior officer will analyse every suggestion coming from lower levels and he will be able to choose the right strategy to implement the change with minimum risk.

Once the orders are given – bad or good - the subordinates must comply. A “bad” order will be repaired only by a “good” order given by the same senior. This can affect the senior’s position!

## **CONCLUSIONS**

### **Fact one:**

People will never align with bad aims. Executive greed, exploitation, environmental damage, inequality, betrayal, false promises are transparent for all decent folk to see:

"Oh you want me to do this training, and adjust to your changes, so I can make more money for you and the parasites who feed off this corporation? Sorry, no can do. I've got my own life to lead thanks very much.."

And that is if you are lucky. Most staff will simply nod and smile demurely as if in servile acceptance. If they still wore caps they'd doff them.

And then nothing happens. Of course nothing happens. The people can't be bothered.

"... if the directors are too arrogant and stupid to understand why, then why should we tell them?.."

Re-assess and re-align your organization's aims, beliefs, integrity - all of it - with your people's. Then they might begin to be interested in helping with new skills and change, etc.

### **Fact two:**

People cannot just drop everything and 'change', or learn new skills, just because you say so. Even if they want to change and learn new skills, they have a whole range of issues that keep them fully occupied for most of their waking hours - which were dumped on them by the organization in the first place.

"So you want me to attend this training course, so you can earn more (etc, etc), and when I come back from two days away in some rotten hotel my personal pile of meaningless jobs will just have magically disappeared will it? And when I come to try to implement these



new skills and make all these new things happen, everyone will be completely in step will they? Pull the other one.. Again, no can do.."

The reason why consulting with people is rather a good idea is that it saves you from yourself and your own wrong assumptions. Consulting with people does not mean that you hand over the organization to them - they wouldn't want the corporation if you paid them anyway. No, consulting with people gives you and them a chance to understand the implications and feasibility of what you think needs doing. And aside from this, consulting with people, and helping them to see things from both sides generally throws up some very good ideas for doing things better than you could have dreamt of by yourself. It helps you to see from both sides too.

**Fact three:**

Organizations commonly say they don't have time to re-assess and re-align their aims and values, etc., or don't have time to consult with people properly, because the organization is on the edge of a crisis.

Well whose fault is that? Organizations get into crisis because they ignore facts one and two. Ignoring these facts again will only deepen the crisis.

Crisis is no excuse for compromising integrity. Crisis is the best reason to re-align your aims and consult with people. Crisis is wake-up and change the organization and its purpose - not change the people. When an organization is in crisis, the people are almost always okay - it'll be the organizational purpose and aims that stink.

So, whatever way you look at organizational change, you are kidding yourself if you think you can come up with a plan for change and then simply tell or persuade your people to implement it.

Instead, start by looking at your organization's aims and values and purposes. What does your organization actually seek to do? Whom does your organization benefit? And whom does it exploit? Who are the winners, and who are the losers? Does your organization have real integrity? Are you proud of the consequences and implications of what your organization does? Will you be remembered for the good that you did - in the widest possible sense of doing good - while you were in charge and in your position of responsibility?

And what do your people say to themselves about the way you are managing change?  
Ask them.

**Fact four:**

Some guys will say that for military is easier to change because you can give orders and the other will obey.

DON'T FORGET THAT IN MILITARY THE MANAGER IS THE LEADER AND VICE-VERSA!

In civilian life the manager will make a plan and the leader will implement it. A civil organization can act without that manager!

In military the senior officer will have to follow the PLAN, and if something goes bad he will be responsible! Is a greater responsibility for a military to decide a change! Sometimes can be a problem of life or dead!

Our main mission will always be to defend the country, not making money!

Money can be made back easier than regaining freedom!

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# RESOURCES PLANNING PROCESS

## *LTC Radu POPA*

### **Introduction**

Planning, as a function of management of industrial firms is to establish the foundation of the main development directions and scale of production, taking into account the material to ensure its sources and market demand. The essence of planning is manifested in the realization of the development objectives of the company and each of its structural links for some time in the future, setting tasks and means of achieving them, a succession of deadlines and completion, highlighting and providing material resources, human and financial resources tasks set.

The need for planning in a market economy arising from large production of socialization conducted internationally, specialization and cooperation in industrial companies, the existence of many structural links within the firm, the close links between companies with suppliers of raw materials, materials, completing contained in a single technological process, as well as scientific and technical requirements to take into account very quickly and the latest achievements of science and technology. Acting in the same direction and another factor as firms tend to subordinate the market to enhance their influence on the formation and functioning of the market demand.

Planning is the beginning stage management, but it is not a single act but a process that continues until the planned resort activities.

### **I. DEFINDING THE CONCEPT OF PLANNING**

Planning, which in the 1950s was essentially a type activity budget, subsequently spread rapidly to become the middle of the 1960s a method driven solid work most of the activities of large companies. Starting this year, planning to become strategic planning, in less than 10 years has become an obsession for American businesses and American Government as PPBS ("Planning - Programming, Budgeting System).

In fact the concept of planning is much older. In his "Art of War", Sun Tzu made with approx. 2400 years ago, referring to a "head of strategic planning."<sup>71</sup> H. Fayol, describing his

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<sup>71</sup> Sun Tzu, - "L'art de la guerre" Paris, Flammarion, 1978, pag.146.

experience as a manager of a major French mining company, note the existence of "... 10-year projections revised every five years"<sup>72</sup>.

The term comes from the Latin planning *planum*, "which means flat."<sup>73</sup> English term began to be used in the seventeenth century to refer to forms, for example, maps or plans that were drawn on flat surfaces<sup>74</sup>. Such term planning has been long associated with formal documents<sup>75</sup>.

But the question "what is the plan?" There is no universally accepted answer among specialists. In an article on this topic says that the term "planning" is currently used in many different ways, that there is some danger of confusion<sup>6</sup>. A little later, at a meeting of planners at Bellagio - Italy, Jay Forrester stated that "efforts to define the terms of planning and forecasting long term were not successful"<sup>7</sup>.

"Why is it so hard to define planning?" Wondered A. H. Mintzberg Wildawsky<sup>8</sup> and answered "because ..... its supporters were busy promoting vague ideas than establish viable positions and interested in what might be planning than planning becoming reality. " Therefore, continuous H. Mintzberg "planning lacked a clear definition ..." <sup>9</sup> still making an inventory of formal definitions of planning:

1. *A plan, ....., means finding viitorul*<sup>10</sup>, ie regardless of the future. Planning is an "action prepared in advance" <sup>11</sup>.

2. *Planning means "to control the future."* Planning is to design a desirable future and means for its realization <sup>12</sup>.. The same idea expressed it when I say that others define for planning purposes as "to create a controlled change in the environment"<sup>13</sup> and "to create social

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72 H. Fayol, - "*Administration industrielle et générale*", Dunod, Paris, 1999, pag.52.

73 G. A. Steiner, - „*Top Management Planning*”, New York, MacMillan, 1996, pag.5.

74 Ibidem, pag. 5-6.

75 H. Mintzberg, - "*Grandeur et décadence de la planification stratégique*", Dunod, 1999, pag. 23.

<sup>6</sup> B.J. Loasby, - "*Long-range Formal Planing In Perspective* ", The Journal of Management Studies IV, 1967, pag.301.

<sup>7</sup> J.W. Forrester, - "*Reflections on the Bellagio Conference, in E. Jantsch*" Ed. Perspectives of Planning, Paris, OCDE, 1969, pag. 503.

<sup>8</sup> A. Wildawsky, - "*If Planning Is Everything May Be It's Nothing*", Policy Sciences, 1973, pag. 127.

<sup>9</sup> H. Mintzberg, - "*Grandeur et decadence de la planification strategique*", Dunod, 1999, pag. 23.

<sup>10</sup> O. R. Godschalk, ed. - „*Planning in America: Learning from Turbulence*”, American Institute of Planners, 1974, pag. 12.

<sup>11</sup> G. C. Sawyer, - „*Corporate Planning as a Creative Process*”, Oxford, OH. Planning Executives Institute, 1983, pag. 1.

<sup>12</sup> R.L. Ackoff, - „*A Concept of Corporate Planning*”, New York, 1970, pag.1.

<sup>13</sup> E. Jantsch, ed. - „*Perspectives of Planning*”, Paris, OCDE, 1969, pag. 155.

systems"<sup>14</sup> or compartments company engages in planning "to replace the market" , "to exert control over what is sold."<sup>15</sup>

3. *The plan is to decide "the plan is to choose"*<sup>16</sup>, or "conscious determination to achieve the objectives defined actions. Planning is so decision "<sup>17</sup>, or" specific activities that determine in advance what action and what physical and human resources are needed to achieve a goal. They include identifying alternatives, analyzing each of them and selecting the best "<sup>18</sup> or" is not an action plan that can be recognized only if it can be separated from the others. Any act of a manager, whether it is a mental or physical act is inexorable about planning. The plan is part of any managerial actions just as breathing is a part of human life "<sup>19</sup>. In an annual report of a large retail companies in the U.S. read: The plan is to make difficult decisions before being forced to act under pressure of events, it is to predict what the market will need before request to impose this "<sup>20</sup>.

4. *Planning is an integrated set of decisions.* A plan is "a set of activities to integrate into a whole that makes sense" <sup>21</sup> and "Planning is required when future state that we want to achieve requires a set of interdependent decisions, in a system of decisions"<sup>22</sup>.

5. *Planning is a formalized procedure* that aims to produce an articulated result in the form of an integrated decision "a set of concepts, procedures and tests"<sup>23</sup>.

Action Planning is showing willingness to act on the future of business, it is reflected in the tables, figures, diagrams, statements etc. "The plan is to design a desirable future and the means to get there." In a famous article P. Drucker defines planning in two ways: <sup>24</sup>

a) *what is*

- Action planning is a tool, it provides companies the means to act on the future

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<sup>14</sup> Ibidem, pag. 254.

<sup>15</sup> J. K. Galbraith, - „*The New Industrial State*”, Boston, MA, Houghton Mifflin, 1967, pag. 24.

<sup>16</sup> G.A. Steiner, - „*Strategic Planning, What Every Manager Must Know*”, N-Y, The Free Press, 1999, pag. 346.

<sup>17</sup> H. Koontz, - „*A Preliminary Statement of Principles of Planning and Control*”, Journal of the Academy of Management I, 1958, pag. 45.

<sup>18</sup> N. Snyder, W.F. Glueck, - „*How Managers Plan, The Analysis of Managerial Activities, Long Range Planning XIII*”, II-1980, pag. 70.

<sup>19</sup> G.A. Steiner, - „*Strategic Planning, What Every Manager Must Know*”, N-Y, The Free Press, 1999, pag. 75.

<sup>20</sup> J.R. Schermerhorn, D.S. Chappell, - „*Principes de management*”, Village Mondial, 2002, pag. 88.

<sup>21</sup> H.R. Van Gunsteren, - „*The Guest of Control: A Critique of the Rational Control Rule, Approach in Public Affairs*”, N-Y, Willey, 1976, pag. 2.

<sup>22</sup> R.L. Ackoff, - „*A Concept of Corporate Planning*”, New York, 1970, pag. 2-3.

<sup>23</sup> J.M. Bryson, W.D. Roering, - „*Applying Private Sector Strategic in the Public Sector*”, Journal of the American Planning Association L III, 1, 1983, pag. 223.

<sup>24</sup> P. F. Drucker, - „*Long-range Planning, Management science*”, V, 1959, pag. 239.

- planning is a tool for motivation, it also causes a flow of information that everyone is motivated by the success of the whole;

- planning is a tool for consistency, it provides mutual support between people at different levels in the hierarchy of the organization.

b) *what is not:*

- planning is not forecasting for in addition to this is the will of the company to act on the future;

- planning does not lead to decisions for the future: it makes possible decisions today by their consequences in the future ;

- planning has as main objective the development of a plan: the result of the action (plan) is infinitely less important than the action itself (planning);

- does not prevent planning;

- planning is not something that, once established, even menus from itself, it constantly faced with obstacles;

- on the one hand, managers are overwhelmed by the daily problems of the moment decisions, routine and fail to use only a small fraction of their available time to think, reflect, to reflect,

- on the other hand, this pressure is very strong, time-horizon of a manager not exceed the period in which it is possible to measure its performance.

Firms use planning several motives<sup>25</sup>:

a) Firms should plan to coordinate their activities. One of the major arguments in favor of planning, supporting the thesis that the plan is to decide, is that decisions are taken on a formal process in one single figure some security firms to see properly coordinated efforts. When the various activities of a company are not coordinated is considered the fault is lack of planning or lack of efficiency in the performance of planning. Decomposition strategy and its implications intentions attributed to each of the components of a company, it shall ensure that the company\'s overall objective will be achieved if at least each of its structural links will accomplish his plan. In addition, articulating plans creates a communication mechanism that encourages coordination between different parts of the company. "Planning has value in and of itself ... it due to its ability to increase communication within the firm", eg "enriching the

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<sup>25</sup> A.C. Hax; N.S. Majluf, - „*Strategic Management: An Integrative Approach, Englewood Clifs*”, N-Y Prentice Hall, 1984, pag. 66.

common comprehension of the objectives and scope of the firm"<sup>26</sup>. From this perspective and H. Fayol claimed that "The plan ... creates unity and mutual trust" and that he "leads to a broadening of vision"<sup>27</sup>.

b) Companies should plan to ensure that the future is considered. "The first reason which leads us to face the future in a systematic way is the need to understand the future consequences of present decisions"<sup>28</sup>. What specifically makes planning is to introduce "discipline of long-term thinking in firms"<sup>29</sup>. There are three ways to account for future<sup>30</sup>: to prepare for the inevitable to refer undesirables and control what is controllable. It is obvious that a self-respecting manager will not neglect any of these three activities.

c) Firms should plan to be "rational". The planning efforts are supposedly better than other people because they have the product overall policy proposals that are systematic, efficient, coordinated, consistent and rational. Virtue planning is that it falls in universal norms of rationale choices<sup>31</sup>.

d) Firms must plan to control. In this sense, "core responsibilities" of planners are<sup>32</sup>:

- planners should be responsible for planning, and to ensure that steps are taken in the order provided

- planners must ensure quality, accuracy and completeness of planning led by others.

- planners should be responsible for coordinating all planning efforts and the need to integrate different parts of the plan.

## II. PLAN'S ROLES

If planning is programming, the plans have two roles: they are means of communication and control mechanisms. These two roles come from the analytical nature of the plans, ie their representation strategies in a decomposed form and articulate, often quantifiable, if not quantified. Plans, as shown in the strategic programming as programming,

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<sup>26</sup> A.C. Hax; N.S. Majluf, - „*Strategic Management: An Integrative Approach, Englewood Cliffs*”, N-Y Prentice Hall, 1984, pag. 66.

<sup>27</sup> H. Fayol, - „*General and Industrial Management*”, London, Pittman, 1949, pag.63

<sup>28</sup> B.J. Loasby, - “*Long-Range Formal Planning In Perspective*”, The Journal of Management Studies IV, 1967, pag.301

<sup>29</sup> B.J. Loasby, - “*Long-range Formal Planing In Perspective*”, The Journal of Management Studies IV, 1967, pag.301.

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<sup>31</sup> B.J. Loasby, - “*Long-range Formal Planing In Perspective*”, The Journal of Management Studies IV, 1967, pag.301.

<sup>32</sup> J.S. Schwendiman, - „*Strategic and Long Range Planning for the Multi-National Corporation*”, N-Y, Praeger, 1973, pag. 50.

budgets etc. primary means of communication are not only strategic intentions but what each individual in a company must do to achieve these aims. Planning "forcing managers to communicate consistently on strategic issues"<sup>33</sup>. Communication is "one of the most important roles of strategic planning, if not the most important"<sup>34</sup>. Plan "force employees to recognize the situation of the undertaking in relation to that of competitors ... planning process enables them to better understand who they are and how they are situated to comparable employees in other companies"<sup>35</sup>. Plan "requires government decision makers from business realities and even rationality"<sup>36</sup>.

The second part of the plan is a control mechanism. Substantial objective of strategic planning is to exert deliberate control. Planning decisions and establishes premises "resource control in real terms ..."<sup>37</sup>.

Plans as a means of communication, inform individuals about the intentional strategy and its consequences. However, as a control mechanism, they go further: they specify what behavior is expected of units and individuals related to the strategy and are then available for re-injection in decision making comparisons between expectations and actual performance. Perhaps it is this role incited inspection planning officer at General Electric in the 1980s to characterize the planning department in previous years as "cop group." Even in the context of individual cognitive activities, psychologists GA Miller, E. Galanter and KH Pribranić used the term "plan" for "to refer to the instruction hierarchy" and more specifically "a process located in hierarchical organizations which can control the order in which a sequence of operations to be performed"<sup>38</sup>.

Plans serving companies to control their environment: markets, competitors, suppliers and even consumers<sup>39</sup>. Similarly, sources of external influence may require a business plan as a means of external control. As governments may impose specific intentions of their institutions through action plans. Businesses that have market power over suppliers can do the

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<sup>33</sup> J.B. Quin, - „Strategies for Change: Logical Incrementalism Homewood”, IL, Irwin, 1980, pag. 140.

<sup>34</sup> A. Langley, - „The Role of Rational Analysis in Organization”, Ph D, Theory Paper, Ecole de Hautes Etudes commerciales de Montreal, 1982, pag. 324.

<sup>35</sup> T. Hafsi, H. Thomas, - „Planning under Uncertain and Ambiguous Conditions: The Case of Air France. Document de travail”, Graduate School of Business, Université de l' Illinois, 1955, pag. 33.

<sup>36</sup> Ibidem, pag. 32.

<sup>37</sup> Ibidem, pag. 32.

<sup>38</sup> G.A. Miller, E. Galanter, K.H. Pribranić, - „Plans and the Structure of Behavior”, N-Y, Henry Holt, 1960, pag. 16.

<sup>39</sup> J.K. Galbraith, - „The New Industrial State”, Boston, M.A. Houghton Mifflin, 1967, pag. 45.



same thing when specify what quantities should be produced, what data, which results in coupling its own action plan with suppliers.

### III. PLANNING'S ADVANTAGES<sup>40</sup>

Firms must bear pressures coming from various sources. Externally, there are competitive forces, the increasing number of laws and regulations, the complexity of increasingly high technology, global market uncertainty and high costs of labor in property and other resources. Internally, the challenges are also numerous: new structures operational increasing diversity of the workforce, operational efficiency and other related management challenges. In this context, planning has a number of advantages likely to improve company efficiency and foster the professional development of those working there<sup>41</sup>.

#### *a) Better focus efforts and increased flexibility.*

A successful planning means better focus efforts and greater flexibility. Focused companies know their strengths and needs of their customers, they know how to meet their requirements. Employees of these companies can set professional goals or situation accurately aiming their career and maintain equilibrium rent toughest conditions. Flexible firms are able to adapt and evolve according to the political situation, economic, social, they looked forward looking rather than the past and present. Employees adaptable, given the circumstances and events include professional development planning challenges and opportunities that arise both professionally and organizationally.

#### *b) Orientation to action*

Planning guides to action; company as a whole, and employees are more than ever:

- focused on results which favors an orientation regarding return,
- focused on priorities to ensure that the most important things to be solved first;
- focused on benefits to ensure that all resources are optimized,
- focused on changes to the situation before the issues and opportunities to

address them in the most efficient way.

Planning avoids deadlocks complacency, which means to carry out punctual events or failures. It aims to preserve the spirit of efficiency and to remind everyone that the best decisions are often taken before events force managers to react.

#### *c) Improve coordination.*

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<sup>40</sup> J.R. Schermerhorn Jr. – „*Management*”, Fifth Edition, John Willey sons, NY, 1996, pag. 91.

<sup>41</sup> H. Mintzberg – „*Grandeur et décadence de la planification stratégique*”, Dunod, 1999, pag. 356.

Planning facilitates better coordination. If each of the persons, groups or subsystems of the firm their duties and tend to achieve their goals, these achievements must converge to individual needs assembly. Effective planning establishes a hierarchy of objectives as they are joined by an echelon to another both as a means and as a result. Objectives superior endings directly related to the objectives of next lower level, which is the means that allow them<sup>42</sup>

*d) Improving control*

Improving planning control facilitates control. It paves the way for defining desired outcomes and objectives that determine the measures to be taken to achieve the objectives. If the results are below expectations, goals will be assessed from the start, so that the measures adopted be amended if necessary to improve results. Without planning process lacks control reference framework to allow him to evaluate the results and determine actions to be taken to improve them.

*e) Improve time management.*

Planning promotes better time management. Every day, managers are swamped with tasks to be undertaken and the requirements to be met in situations where interrupts are frequent crises and unforeseen developments. The work of a manager is subject, in particular, such complications. In these circumstances, it is easy to let the contents of activities or minor requirements, but wasting time. From this point of view managers\ firefighters feel they are merely waiting for the fire"<sup>43</sup>. What can be taken in such situations right decisions when the time is insufficient and the decisions to be taken are the most urgent? In fact, effective management requires a better use of his time.

#### **IV. PLANNING FORMS AND TYPES OF PLANS USED**

Complex companies use different forms of planning varies considerably according to the directions, the nature of the problems it solves, the duration, the extent of their application. Application forms duly companies develop different plans.

Whatever type of plan used, to be successful, plans must be drawn accurately and carefully operationalized. Depending on the location and nature of tasks to be solved are three main types of planning: strategic planning or long-term perspective or, medium-term planning, and tactical planning and current planning (budget) or short-term.

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<sup>42</sup> Ibidem, pag. 93

<sup>43</sup> „Les Affaires”, 13 oct 2001, pag. 39.

#### **IV.1. Strategic planning (long term)**

Strategic planning is primarily to establish the main objectives of the company's activity and is orientate to certain final results taking into account the means of achieving the objectives and ensure the necessary resources. At the same time developing new business opportunities, for example, increasing production capacity by building new businesses, the location of new equipment, changing the profile of the company or a radical change in technology. Strategic planning includes a period of 10-15 years, has ramifications far, affecting the functioning of the entire management system and relies on huge resources. Strategic planning refers to long-term business needs and it sets a global orientation of the company. Top managers are the ones who set the goals in the strategic planning for the entire company, they are the ones who decide the measures to be taken and the allocation of resources.

Companies have lately begun to pay more attention to planning perspective, that of a centralized management tool. It provides for general principles of company orientation perspective - concept development, sets the strategic direction and development programs, the content and sequence of implementation of main measures for achieving the objectives. Planning ahead facilitates decision making in complex issues of international business activity:

1. establishing directives and size of investments and their financing sources;
2. introducing scientific and technical innovations and advanced technologies;
3. diversification of production and replacement products;
4. embodiment border business investment in acquisition of business conditions;
5. planning management organization in different structural links and human resources policy.

The long-term planning is used in 70-80 in Japanese corporations, where planning is organized as follows: choose 5-10 and around key strategies that develop long-term development planning, while plans are medium in which the strategies form a whole, are the links to the allocation of resources

The top management of the company establishes each organizational subdivision and these plans are quantitative objectives to achieve these goals through "bottom-up method."

A strategic planning objective aims provide a scientific foundation complex problem the company may face in the future and, on this basis, to develop indicators of firm development plan period.

The bases for the strategic plan are:

1. analysis of business development prospects, which consists of revealing trends and factors influencing these trends develop;
2. analyze company's position in the competitive struggle, whose task is to determine how the company's products competing in different markets and what the company can do to improve the results of its activity in specific directions if you apply optimal strategies in all areas of activity;
3. election strategy based on analysis of company development prospects in various fields and setting priorities on specific types of activity in terms of efficiency and ensure resources,
4. analysis of diversified directions of activities, finding new types of work more efficient and to establish the desired results.

The choice of strategy is necessary to consider some strategies, both in traditional industries and into new areas of business, must comply accumulated potential of the company. As shown in Figure 4 perspectives and objectives are linked to policy development. Current programs oriented subdivisions in their everyday insurance current profitability, strategic programs and budgets foundations of future profitability, which requires creation system designed based performance management projects.

#### **IV.2. Medium planning (tactical planning)**

If the main problem of strategic planning is to determine what the company wants to achieve in the future tactical planning reflected how, in what ways the company plans to achieve this situation. The distinction between strategic and tactical planning is the difference between goals and means of achieving these situations.

Between these two forms of planning there are other differences:

- Decision making at the tactical planning usually is less subjective because managers involved in planning tactics available to them accurate, concrete. In tactical planning using quantitative methods based on electronic computing equipment
- fulfilling the tactical planning decisions is monitored more closely, closely, is subject to less risk, as such decisions relate mainly to internal problems
- the decisions taken, as a rule, be expressed in figures concrete results.

Medium-term plans include five years, considered the most appropriate time to renew the unit of production and product mix. These plans are formulated the main tasks for the period, for example, the whole company business strategy and structural links components

(expansion of production capacity, assimilation of new products and expanding the assortment) dissolution strategy (selling network structure and development, degree of control over the market, entering new markets, taking measures to compete widening dissolution) financial strategy (volume and direction of investment, financing, securities portfolio structure) human resources policy, (composition and human resource structure, preparation and use thereof), determining the volume and structure of material resources and forms of supply taking into account the specialization and cooperation in production. Provide medium-term development plans, to some sequence of measures aimed at achieving the objectives of long-term plans. Medium-term plans typically contain quantitative indicators including the allocation of resources. They develop the structural links of production.

### **IV.3. Current planning**

It is achieved by detailed development (usually one year) operational plans for the company as whole and structural links components, particularly marketing program, plan research - development, production plan, material and technical supply plan. Main link current production plan plans are calendar-monthly, quarterly, half-yearly, which are detailed realization of the objectives and tasks set by the plans and medium-term perspective. Calendar plans of production shall be based on information on the existence of controls, to ensure their raw materials etc... laden production capacity, taking into account the time of completion of each command. The calendar plans of production costs are provided for the reconstruction of existing production capacity, replacement of machinery, construction of new businesses, training a new workforce. The retail plan - products and services - are provided indicators on export of products, licenses, services, and service.

Top managers responsible for approving the budget and the efficiency of its development. The base budget is the weather on sales and production costs. Based on sales forecasts are prepared plans for production, supply, inventory, research - development, investment, financing, collections, etc... Company budgets reflect all sides of her business and operational plans of links based on structural components, for which they provide a means of coordinating all organizational sub-company links.

### **IV.4. Organizational forms of internal planning within the firm**

The methodological basis of planning in a firm approach is the use of target program, which provides that the precise wording of the objectives of the company and their correlation with resources. Typically, long-term goals are set and determine the main directions of the

company's development program. At the same time, establish clear tasks, each subdivision precise organizational and determine the place and role in the overall objectives of the company. Especially determine not only the total amount of profit or rate of return, but also different normative indicators linked to performance of the functions of marketing, financing, etc.. Therefore, both strategic and tactical plans drawn up by companies are the main tasks of economic policy for a certain period and concrete ways to solve them: they establish the necessary financial and material resources and the most effective uses of their taking into account the prevailing conditions in the world.

From an organizational perspective centralized internal planning process in most large companies, there is "top down". To be able to correctly determine the objectives and tasks of each link structural components, top management must have information on the status and development of each market and each product on the market. This information typically found in marketing programs that underlie development plan in all verge. Device which handles internal planning firm includes functional compartments of the different levels of management. Link leading business planning system is the steering committee or steering committee. In some companies this body is called the committee planning the development committee or other central direction of development.

Of these bodies fall usually top company management representatives who prepare decisions on the most important issues of policy and strategy firm set of functions analytical, technical coordination and participate in the formulation of the main objectives and tasks of the company ahead of time. The reports prepared by these bodies are analyzed Steering Committee and, after approval, shall be included in the form of concrete action plan for future development of the company. One can say that at this level of management forms the main ideas, theses optimal allocation of internal resources over a certain period of plan.

The next link in the planning unit at the company's service planning with responsibility for formulating future plans and current, correct and accurate indicators and monitoring plan to achieve them. Planning departments are almost all major companies. But the organization and structure of these bodies may be designed differently and can be distinguished by the character of the functions performed. In some companies planning service functions they perform planning departments that are part of other central services. In cutting machine production planning is the planning department which is based on drawing up plans monthly, quarterly, half-yearly and annual results and summary of current plans for the whole department.

The organization planning firms is particular due to differences in the organizational structures of management and production processes character. These differences relate both to plan times periods and procedures dealing with planning issues. In developing plans of firms, often, are the different plan periods parent company for its companies located in other countries and Subsidiaries as well as various areas of activity (eg, for 15 years Research Plan - developing strategies and 7 years).

## **V. The strategic process planning**

Strategic process planning is divided into a few main points:

1. plan development process (direct process planning) decisions on the future objectives of the company and establishing the means and methods of achieving them,
2. work for implementing the decisions of the plan: the results of these activities are real indicators of business activity,
3. control results when there is actual comparison of the indicators established by the plan, and training actions to correct the firm\'s premises for the necessary direction.

The planning process should not be seen as merely establishing succession development operations plan and procedures whose purpose is that an event must necessarily follow after another event. This process requires flexibility, elasticity and art of leading specialists. Participants in the planning process not only fulfill the functions entrusted to them, but are called to act creatively, to show ability to change the character shares the situations demand it.

The strategic planning process to establish the mission starts and runs the following stages:

- company doing research, studies on its environment and its internal environment, determines the main components of the organizational environment, demonstrate those components that have particular importance to firm provides collecting information about these components, develop forecasts about the future state of the environment and evaluating the company's real market

- the company establishes guidelines work: direct marketing actions, complex objectives. Sometimes, this step is preceding the environmental analysis step. Then do the strategic analysis, determine the objectives (desired outcomes) and results of studying the internal and external features (limiting achievement of the set);

- Company, with strategic analysis methods, develop different versions of strategy, choose one of these options and studying carefully prepare the final version of the strategic

plan of the business firm, medium-term plan and develop such programs and the plan strategic planning and medium-term results, develop operational plans and annual reports and projects, establishes prerequisites plan to develop new programs that will take into account what the company has achieved in the implementation of its plans, which is the gap between plan and indicators their actual performance.

The whole planning process is a closed loop with a direct connection (from strategy development and establishment of operational plans to achieve the strategy implementation and control) and reverse (from record accurate results at the plan).

### **CONCLUSION**

Planning is geared towards the optimal use of business opportunities including, for the best use of all kinds of resources and to prevent erroneous actions that can result in reduced efficiency of business activity.

Planning includes determining:

- final and intermediate objectives;
- tasks whose solution is necessary to achieve objectives;
- the means and ways of solving these tasks;
- resources, sources of these resources and how to distribute them.

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# **LEADERSHIP ADAPTED TO THE CONTEXT OF MISSION COMMAND**

*LTC Cecilia RAMBA*

## **LEADERSHIP ADAPTED TO THE CONTEXT OF MISSION COMMAND**

### **I. Introduction**

#### **1.1. Since When ?**

As it was told, despite the overall differences between defense planning and operations planning there is a common ground that must be attained regarding decision making in both processes. And, as the concept of mission command has the advantage to be proved functional in the latest operations it is a normal question that can be raised.

Why not generalize the concept within the other branches in the military?

The most common sense link between domains brought up in topic is leadership. So this is the starting point: defining the adaptive leadership in the context of mission command.

Chaos, chance, and friction dominate land operations as much today as when Clausewitz wrote about them after the Napoleonic wars. In this environment, an offensive mindset - the predisposition to seize, retain, and exploit the initiative to positively change the situation - makes combat power decisive. The quality of leaders and soldiers is best exploited by allowing subordinates maximum latitude to exercise individual and small-unit initiative. Tough, realistic training prepares leaders for giving them the maximum latitude to accomplish the mission successfully. This requires a climate of trust in the abilities of superior and subordinate alike.

It also requires leaders at every level to think and act flexibly, constantly adapting to the situation. Subordinates' actions are guided by the higher commander's intent, but not circumscribed by excessive control. This is a continuing tension within armed forces, aggravated by advanced information systems that can provide higher commanders with the details of lower echelon operations. The temptation for senior leaders to micromanage subordinates is great, but it must be resisted.

The two types of command, mission oriented and detailed are characterized as shown in the Table 1.

<i>Mission command</i>		<i>Detailed command</i>
<ul style="list-style-type: none"> <li>• Probable</li> <li>• Nonpredictable</li> </ul>	Suppose war is	<ul style="list-style-type: none"> <li>• Determined</li> <li>• Predictable</li> </ul>
<ul style="list-style-type: none"> <li>• Disorder</li> <li>• Uncertainty</li> </ul>	Deal with	<ul style="list-style-type: none"> <li>• Order</li> <li>• Certainty</li> </ul>
<ul style="list-style-type: none"> <li>• Decentralization</li> <li>• Spontaneity</li> <li>• Informality</li> <li>• Self-discipline</li> <li>• Initiative</li> <li>• Cooperation</li> <li>• Acceptable decisions faster</li> <li>• Ability all echelons</li> <li>• Higher tempo</li> </ul>	Leads to	<ul style="list-style-type: none"> <li>• Centralization</li> <li>• Coercion</li> <li>• Formality</li> <li>• Imposed discipline</li> <li>• Obedience</li> <li>• Compliance</li> <li>• Optimal decisions, but later</li> <li>• Ability focused at the top</li> </ul>
<ul style="list-style-type: none"> <li>• Implicit</li> <li>• Vertical and horizontal</li> <li>• Interactive</li> </ul>	Types of communication used	<ul style="list-style-type: none"> <li>• Explicit</li> <li>• Vertical</li> <li>• Linear</li> </ul>
<ul style="list-style-type: none"> <li>• Organic</li> <li>• Ad-hoc</li> </ul>	Foster types of organization like	<ul style="list-style-type: none"> <li>• Hierarchic</li> <li>• Bureaucratic</li> </ul>
<ul style="list-style-type: none"> <li>• Delegating</li> <li>• Transformational</li> </ul>	Encourages leadership styles as	<ul style="list-style-type: none"> <li>• Directing</li> <li>• Transactional</li> </ul>
<ul style="list-style-type: none"> <li>• Art of war</li> <li>• Conduct of operations</li> </ul>	Proper for	<ul style="list-style-type: none"> <li>• Science of war</li> <li>• Technical/procedural task</li> </ul>

**Table1** - Concepts of command and control

Always dynamic, military doctrine balances between the current capabilities and situation with the projected requirements for future operations. At the same time, the doctrine forecasts the immediate future in terms of organizational, intellectual, and technological developments. The military experience makes it clear that no one can accurately predict the nature, location, or duration of the next conflict. So we need to address the needs of an

Army responsible for deploying forces promptly at any time, in any environment, against any adversary.

A leadership function that holds primacy in latest doctrinal publications is the concept of mission command. Although it entails the word command this is more a leadership philosophy than a reflection of authority. Mission command is the philosophy of decentralized conduct of operations, where subordinates are given latitude to operate more independently than in traditional military structures. Mission command entails the explicit expressing of the commander's intent, which states the purpose of the task ahead and the conditions that are to be reached in order for a mission to be considered a success. This appears to be a function of operations, but in reality it is a way of exercising leadership in a unit.

The question is raised about what is adaptive leadership within the context of mission command?

The United States Army published the TRADOC Pam 525-3-3, *Functional Concept for Mission Command* on October 13, 2010. The pamphlet describes how the Army must reshape its approach to the exercise of authority and direction over its forces. Commanders apply mission command concepts, which enable them to utilize decentralized authority over their forces and succeed in three critical areas of military operations: the contest of wills, strategic engagement and the cyber/electromagnetic contest.

This pamphlet acts as a base for future force development regarding mission command and the mission command warfighting function. The pamphlet renders guidance on the application of mission command by focusing on developing agile and adaptive leaders at all echelons while emphasizing the development of unique and innovative solutions to military problems by empowering leaders at the lowest practical level.

On the other hand, real leadership is about *transforming* the system, not just succeeding *within* or *despite* the system. Today, it is known how to run organizations in ways that lift up the human spirit, both for those doing the work and those for whom the work is done.

A possible answer to the question raised could be that there is a need for “new mental models”, models that embrace the tensions between discipline and freedom, management and leadership, and nurtures the possibilities for growth and creativity in the space between them.

## **1.2. Mission command**

First, it is important to understand the evolution of mission command. Most military

personnel in modern armed forces, certainly in the West, understand it. It constitutes a style of military command promoting decentralization, freedom, speed of action, delegation and initiative. Subordinates, understanding the commander's intentions, their own missions and the context of those missions, are told what effect they are to achieve and the reason why it needs to be achieved. Indeed, most civilians will recognize it, practicing 'management by objectives' or the management concept of empowerment.

Originating in Clausewitz's 19th century German armed forces, known as *Auftragstaktik*, mission command works ideally in high tempo and complex warfare. Although the 'thousand-mile screwdriver' is still commonplace in military operations, and in corporate affairs, high ranking political officials would never dream of attempting to dictate to the soldier on the ground how to achieve his objective – even though, as per Clausewitz, "war is an extension of politics by another means". It works because of highly specific objectives and a confidence in highly trained and experienced operatives, allowing for a serious degree of delegation.

The concept has just recently reached its full potential due to the advancement in battlefield communication, access to information and knowledge, and the decentralized nature of counterinsurgency and stability operations. Full spectrum operations require continuously generating and applying combat power. The evolution of mission command encompasses the Army's philosophy of command aimed at adapting and achieving an advantage in complex and uncertain operating environments, and an integrating function that combines the capabilities of all warfighting functions to accomplish the mission.

Combat power is the total means of destructive, constructive and information capabilities that a military unit or formation can apply at a given time. Army forces generate combat power by converting potential into effective action<sup>76</sup>.

As commanders conceptualize capabilities in combat power there can be identified eight elements: leadership, information, mission command, movement and maneuver, fires, protection, intelligence, sustainment. Here there are the six warfighting functions that are applied and it can be said multiplied by commander's ability to lead and to use information.

Mission command integrates the six warfighting functions in the conduct of full-spectrum operations by enabling commanders, supported by their staffs, to exercise authority and direction, using the art of command and the science of control. Mission command uses mission orders to ensure disciplined initiative within the commander's intent, enabling agile and adaptive commanders, leaders and

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<sup>76</sup> FM 3-0, *Operations*, 27 February 2008

organizations<sup>77</sup>.

The beginnings of mission command for the US Army trace back to the German concept of *Auftragstaktik*, meaning mission-type orders or tactics. According to Pam 525-3-3, *Auftragstaktik* held every commissioned and non-commissioned officer duty bound to do whatever the situation required, as he personally saw it. The broader purpose to be accomplished was the confining mechanism. This system disdained omission and inactivity. The system also allowed for the disobedience of orders if the broader purpose called for it.

The US Army adopted mission orders and mission command into its doctrine in the early 1980s to provide subordinates the freedom to find and employ unique and innovative solutions to mission problems. Mission command accounts for the fog and friction of war and promotes the cohesion that bonds individuals and groups in times of conflict. Mission command is broad enough to apply to all levels of war, specific enough for each echelon of command and compliments the Army's warfighting philosophies.

The concept of mission command has evolved based on five strategic and operational factors: the broad range of potential missions, increasingly uncertain and complex operating environment, ill-structured situations, replacement of the command and control warfighting function with mission command, and the establishment of the Mission Command Center of Excellence.

According to the mission command pamphlet, the Army must be prepared to fulfill a broad range of missions while remaining ready to conduct full-spectrum operations. Army forces must be prepared to conduct operations in the interests of the nation against adversaries employing a broad range of capabilities.

Along with being prepared for a broad range of missions, the operating environment may be just as broad, encompassing uncertainty, complexity, social change and a wide range of clever, adaptive and networked adversaries. Army forces must be able to adapt their execution to meet this threat in the face of reduced decision-making time, increased ambiguity and complexity, while operating in degraded conditions. This proves to be a non-permissive environment for centralized decision making. Army leaders will have to use mission command to prevail in the three dimensions of military operations: the contest of wills, strategic engagement and the cyber/electromagnetic contest.

The Army must also be prepared to operate in ill-structured mission situations, whose operational variables must be analyzed and understood to frame problems and develop approaches to solving these problems. Soldiers must apply the design methodology in these environments in order to understand the problems associated with them.

### 1.3. Aim

This paper will analyze the concept of mission command for components of the definition of adaptive

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<sup>77</sup> *The United States Army functional concept for mission command*. Fort Monroe, VA: Headquarters, United States Army Training and Doctrine Command, October 2010.

leadership, within the mission command context, in order to piece together a coherent meaning. The frame of reference is mission command as described in the Army TRADOC Pam 525-3-3, *The Functional Concept for Mission Command*. It will also analyze other literature to uncover meaning for the term adaptive leadership.

There must be a definition for adaptive leadership within the context of mission command. In explaining and discussing mission command, the Army discusses adaptability and adaptive leaders. The Army must accurately and precisely define adaptive leadership in order to accurately and precisely describe how leaders should behave within the framework of mission command.

Agile and adaptive leaders must carry out the Army's functional concept of mission command. The idea that agile and adaptive leaders are key to mission command is important. However, the functional concept for mission command fails to define what adaptive leadership is. Although one might be able to draw logical conclusions as to what adaptive leadership is, every soldier's idea might be slightly different.

Since the idea of doctrine is to form a standard platform from which to deviate, there must exist a common definition for adaptive leadership in the context of mission command.

#### 1.4. Hypotheses

It is supposed an undergoing cultural shift by executing the mission command concept as outlined in TRADOC Pam 525-3-3.

Accepting adaptive leadership and mission command as a norm towards transformation of Army culture will take time. The time spent may be years.

The ability to assess individual leader qualities of agility and adaptability and the leader's effect on small unit agility and adaptability means leaders competencies assessment. In order for the Army to assess adaptive leaders, the Army must know what an adaptive leader is and the qualities of adaptive leadership.

The Army's ability to recruit agile and adaptive leaders will be key. The ability to recruit adaptive leaders implies the Army's recruiting system can identify agile and adaptive leadership qualities during screening for entering of civilians into military system. The Army's ability to develop agile and adaptive leaders will depend upon Army leaders and organizations adopting and applying the true concepts of mission command and adaptive leadership as well as fostering an environment where this type of leadership exists. This could prove to be a challenge in environments and organizations where clear direction or orders have existed in the past.

The Army's ability to track agile and adaptive leaders will prove a challenge for senior Army leaders and the Army organization as a whole. Many of the qualities of agile and adaptive leadership are intangible and difficult to measure at best. Leaders again can track agile and adaptive leadership development in 360 reviews and performance reports. Much of the performance will remain subjective to senior leaders as well as the organization making these behaviors difficult to quantify.

The Army's ability to retain agile and adaptive leaders will rest with the overall retention strategy of the Army. The Army must ensure the climate supports agile and adaptive leadership if these are indeed the officer qualities of value. The Army must foster, encourage and support a climate where individual initiative exists and reward officers and units who can achieve a commander's desired end state with general guidance along, absent of specific orders or direction.

The Army's ability to inculcate a climate of mutual trust and prudent risk-taking will need to exist in almost every facet of Army life not only deployed, but in garrison. The Army must analyze almost every aspect of operation to ensure an environment of trust and prudent risk-taking exists.

## II. Analysis

### 2.1. Patterns and Trends

Both business organizations and the Army are tending to emphasize the importance of adaptive leadership in their operations. Literature describes the greater importance of paying attention to the variables surrounding leaders.

These readings diverge from the traditional top-down approach to leadership within organizations based on several factors external to a leader's inherent leadership philosophy. Most of this divergence stems from the fact that the work force or the people inside a leader's organization are better educated and better informed than in the past.

Current literature supports these trends. Current Army leadership doctrine, along with the mission command concept, draw on adaptive leadership ideas from the business world and vice versa. Similar to the Army adjusting its doctrine to counter insurgencies, asymmetric and unknown threats in a changing environment, the business community continues to adjust with technological advances to survive and thrive in an uncertain economic future.

Whether it is Army doctrine or business examples, common themes emerge. Organizations and businesses exist to accomplish things: succeed at the mission, sell products, make money etc. Leaders run these businesses and organizations. Businesses and organizations are made up of different people from different backgrounds. These businesses and organizations operate in constantly changing environments. In order for these businesses and organizations to be successful, leaders must adapt themselves to their people and their approach and organization to the ever-changing environment in order to be successful.

### 2.2. Develop Criteria

The approach of this paper is divided into four steps focused on answering the following points:

1. Understanding Mission Command.
2. Understanding Adaptability in Leadership.
3. Understanding Adaptability in Leadership in Army Operations and the Operations Process. This step will identify and summarize mission command-like aspects and situations where adaptability in



leadership is required.

4. Adaptive Leadership in the Context of Mission Command. This final step will combine the results of the previous steps, where aspects of adaptability in leadership and mission command or mission command-like situations were uncovered. The end result of this step will produce a concise definition for adaptive leadership in the context of mission command.

This is to provide an overview of the methodology for discovering a definition for adaptive leadership within the context of mission command.

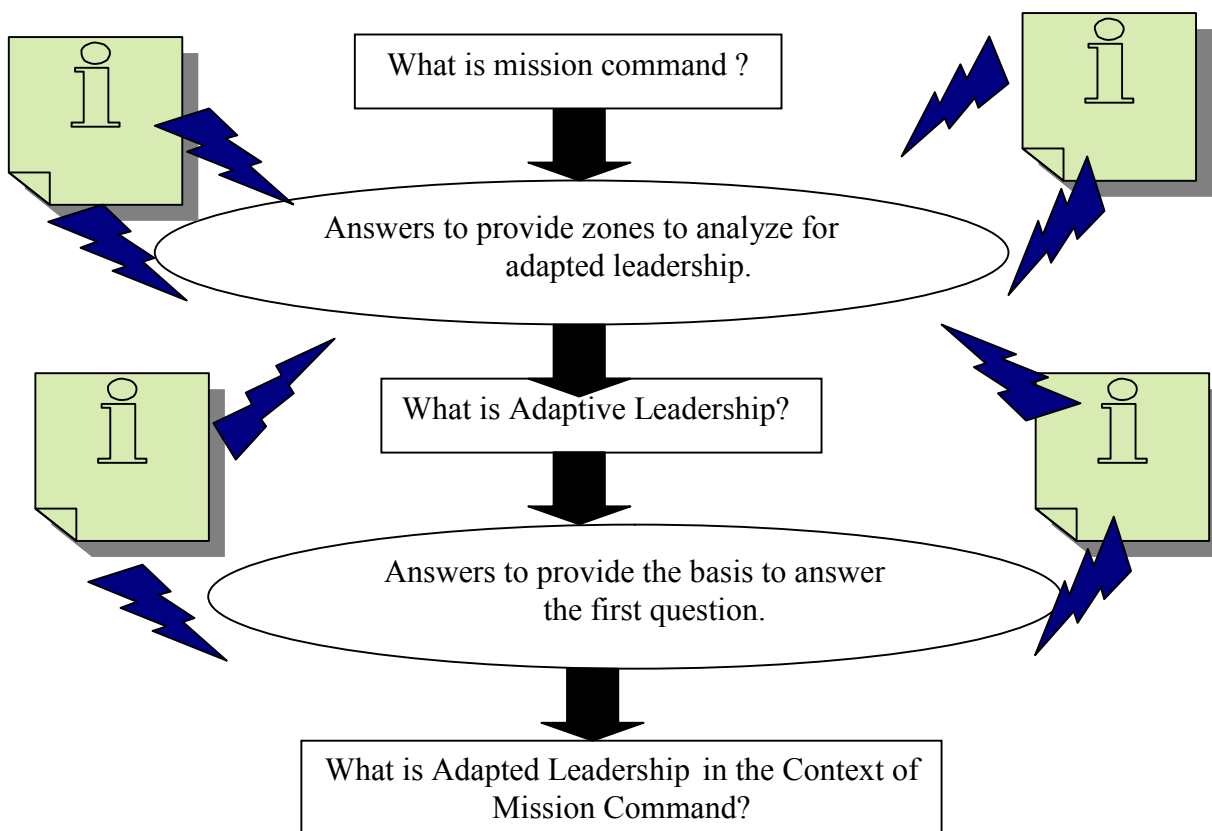


Figure 1. Visual description of the analyzed issue.

## 2. 3. Findings

### 2.3.1. The Definition of Mission Command

The analysis of mission command begins with understanding its definition as described in ADP 6-0. Mission command is —the exercise of authority and direction by the commander using mission orders to enable disciplined initiative within the commander’s intent to empower agile and adaptive leaders in the conduct of full spectrum operations<sup>78</sup>. It is commander-led and blends the art of command and the science of control to integrate the warfighting functions to accomplish the mission<sup>79</sup>.

The subject in this definition is the - exercise of authority and direction. The actors in the definition are the - commander and - agile and adaptive leaders. The method which the commander exercises authority and direction is through - mission orders. Mission orders - enable disciplined initiative within the commander’s intent. For further analysis, comparison with the previous definition of mission command provides some contrast. Previous Definition of Mission Command

The 2003 definition of mission command is: the conduct of military operations through decentralized

<sup>78</sup> Army Doctrine Publication No. 6-0 Headquarters Department of the Army Washington, DC, 17 May 2012, Glossary

<sup>79</sup> Idem

execution based upon mission orders for effective mission accomplishment<sup>80</sup>. Successful mission command results from subordinate leaders at all echelons exercising disciplined initiative within the commander's intent to accomplish missions<sup>81</sup>. It requires an environment of trust and mutual understanding<sup>82</sup>. In this definition, the subject is - the conduct of military operations. The method is: decentralized execution based upon mission orders.

The similarities of these definitions are the use of mission orders, disciplined initiative, commander's intent and mission accomplishment. All these terms are presented and utilized in the definitions in the same fashion. Differences exist however.

Two main differences exist: the terms - agile and adaptive leaders and - the conduct of unified land operations. The term agile and adaptive leaders appears in the latest version of the mission command definition as more precise descriptor of - subordinate leaders which appears in the 2003 version of the definition. The term - unified land operations appears as opposed to the term - military operations as in the 2003 definition. The addition of the term - unified land operations along with the basic fundamentals of mission command, provide insight into what exactly adaptive leaders are and adaptive leadership is. Unified land operations is Army's warfighting doctrine and is defined as: How the Army seizes, retains, and exploits the initiative to gain and maintain a position of relative advantage in sustained land operations through simultaneous offensive, defensive, and stability operations in order to prevent or deter conflict, prevail in war, and create the conditions for favorable conflict resolution<sup>83</sup>. They employ synchronized action -lethal and nonlethal - proportional to the mission and informed by a thorough understanding of all variables of the operational environment<sup>84</sup>. Mission command that conveys intent and an appreciation of all aspects of the situation guides the adaptive use of Army forces<sup>85</sup>. There exist important aspects of this definition that relate to the fundamentals of mission command. Before these connections are made, it is important to understand the fundamentals of mission command.

### 2.3.2. Fundamentals of Mission Command

The 2012 version of ADP 6-0 focuses on the fundamentals of mission command instead of the details by reinforcing the human aspects of command instead of the technological or procedural aspects. Four

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<sup>80</sup> FM 6-0, *Mission command: Command and control of army forces*. Washington, DC, 2003, August, Glossary.

<sup>81</sup> Idem

<sup>82</sup> Idem

<sup>83</sup> Army Doctrine Publication No. 3-0, Headquarters Department of the Army, Washington, DC, 10 October 2011, Glossary.

<sup>84</sup> Idem, 5.

<sup>85</sup> Idem, 6.

new areas of emphasis that lead into the fundamentals are:

1. Emphasizing the commander's role in combining the art of command and science of control.
2. Emphasizing how mission command fosters operational adaptability - a quality that Army leaders and forces exhibit based on critical and creative thinking, comfort with ambiguity and uncertainty, a willingness to accept prudent risk, and their ability to rapidly adjust to changing circumstances.
3. Incorporates the methodology of design to assist commanders in understanding complex operational environments and ill-structured problems.
4. Provides an expanded discussion on the importance of team building among modular formations and interorganizational partners throughout the conduct of operations.

In analyzing these fundamentals, common themes emerge. The emphasis on the commander's role in combining the science of command and the art of control harkens back to the definition of leadership as it is a process of influencing people to accomplish the mission. The second emphasis provides insight as to how a commander provides this leadership in mission command to foster operational adaptability—based on critical and creative thinking, comfort with ambiguity and uncertainty, a willingness to accept prudent risk, and the ability to rapidly adjust to changing circumstances. The emphasis on design, by its definition, provides a creative and critical thinking avenue for leadership, within the context of the second emphasis, to understand the environment in which they lead. Finally, the emphasis on the importance of team building among modular formations and interorganizational partners describes the people the leader must lead: different and unfamiliar; different people as in people from outside the leader's organization who are from different cultures, backgrounds and have different norms; unfamiliar as in people who the leader is not acquainted with as a result of modular formations being pieced together for full spectrum operations.

### 2.3.3. Categories of Mission Command

For further understanding, the analysis of the fundamentals of mission command result in the separation into four categories: nature of operations, mission command as a philosophy, mission command as a warfighting function and operational adaptability<sup>86</sup>. All of these fundamentals or principles serve to describe mission command, provide a context for leaders exercising mission command and provide groundwork for understanding adaptive leadership in the context of mission command(see Annex 1, ADP 6-0)

### 2.3.4. Nature of Operations

The nature of operations as a fundamental of mission command is characterized in two ways: *complex, ever changing environments and uncertainty*.

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<sup>86</sup> Army Doctrine Publication No. 6-0 Headquarters Department of the Army Washington, DC, 17 May 2012, iv.

First, the operational environment is described by the Joint definition as a composite of the conditions, circumstances, and influences that affect the employment of capabilities and bear on the decisions of the commander<sup>87</sup>. Therefore, mission command exists where all of these entities of the environment are *complex and ever changing*. The description further states that complexity describes situations with diverse, connected, interdependent, and adaptive parts and subparts. Secondly, the environment is ever changing and continually evolving. It is logical if mission command is the exercise of authority and direction by the commander, characterized by a complex and ever changing environment, it must take into account the factors of complexity and change.

The second part of the nature of operations in mission command is *uncertainty*. This uncertainty is described as what is not known about a given situation or how the situation may evolve. In this sense, uncertainty manifests itself in the form of unknowns about the enemy, the people and the surroundings, with chance and friction contributing to these areas. In this environment in mission command, effective leaders accept that they conduct operations in operational environments that are inherently uncertain. The factors of complex and ever changing operational environment and uncertainty provide a hurdle for leaders to overcome as they exercise direction and authority to accomplish their mission in full spectrum operations.

#### 2.3.5. Mission Command as a Philosophy

Along with the nature of operations, mission command is also characterized as a philosophy. To account for the uncertain nature of operations, mission command (as opposed to detailed command) tends to be decentralized and flexible. Using mission orders, commanders concentrate on the purpose of the operation, which allows subordinates the greatest possible freedom of action to accomplish assigned tasks. This freedom of action is necessary in uncertain and ever changing environments due to the fact that commanders and leaders can not be everywhere in the operational environment to understand all the factors and impacts on operations as they rapidly change.

In keeping with this philosophy of mission command, the concept operates more on self-discipline than imposed discipline. Due to the nature of this decentralized execution style and significant freedom of action, commanders and leaders consider the following fundamentals to the effective exercise of mission command:

1. Build cohesive teams through mutual trust
2. Create shared understanding
3. Provide a clear commander's intent
4. Exercise disciplined initiative
5. Use mission orders

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<sup>87</sup> Army Doctrine Publication No. 6-0 Headquarters Department of the Army Washington, DC, 17 May 2012, 3.

## 6. Accept prudent risk

All of these fundamentals for the effective exercise of mission command reflect the decentralized nature of the method. Building cohesive teams through mutual trust emphasizes the nature of relying on other people and subordinates for mission accomplishment in an environment of decentralized execution. Creating a shared understanding is realized in part by providing a clear commander's intent. Leaders and subordinates at all levels exercise disciplined initiative with mission orders as their guide. Prudent risk is a deliberate exposure to chance of injury or loss when the commander can visualize the outcome in terms of mission accomplishment or damage to the force, and judges the outcome as worth the cost. Accepting this prudent risk is made possible by all involved through teams built on mutual trust, a shared understanding through clear commander's intent, and disciplined initiative framed by mission orders. All of these components aid commanders in the exercise of mission command to accomplish missions in an uncertain and ever changing operating environment.

### 2.3.6. Mission Command as a Warfighting Function

Mission command, as well as existing as a philosophy, is also a warfighting function. The third fundamental of mission command is its existence as a warfighting function that acts to assist commanders in blending the art of command with the science of control, while emphasizing the human aspects of mission command. The mission command warfighting function integrates the other warfighting functions into a coherent whole to achieve objectives and accomplish mission. The mission command warfighting function consists of the mission command tasks and the mission command system<sup>88</sup>. Although the warfighting function is a critical aspect of mission command, analysis in this section focuses on the philosophy of mission command and will not analyze mission command as a warfighting function.

### 2.3.7. Operational Adaptability

The final fundamental of mission command is operational adaptability. Again, operational adaptability is the ability to shape conditions and respond effectively to a changing operational environment with appropriate, flexible and timely actions. Operational adaptability requires a mindset based on flexibility of thought essential to creating shared situational understanding and seizing, retaining and exploiting the initiative under a broad range of conditions. Operational adaptability reflects a quality that Army leaders and forces exhibit based on four areas:

1. Critical and creative thinking
2. Comfort with operating under conditions of uncertainty
3. Willingness to accept prudent risk

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<sup>88</sup> Army Doctrine Publication No. 6-0 Headquarters Department of the Army Washington, DC, 17 May 2012, 9.

#### 4. An ability to make rapid adjustments based on continuous assessment

##### 2.3.8. Critical and Creative Thinking

First, operational adaptability requires timely and effective decisions based on applying judgment to available information and knowledge. Commanders and staff apply critical and creative thinking in order to increase their understanding and decision-making throughout the conduct of operations. Critical thinking is a deliberate process of thought whose purpose is to discern truth in situations where direct observation is insufficient, impossible or impractical. In analyzing this concept, it becomes clear that critical thinking fits well in an environment that is ever changing and uncertain as described as part of mission command. As critical thinking assists commanders to make timely and effective decisions, creative thinking involves creating something new or original, especially when faced with unfamiliar problems or old problems requiring new solutions. As previously stated, this environment is uncertain and ever changing, which requires leaders to adopt novel solutions. Leaders view different options to finding solutions by using adaptive or innovative approaches, applying imagination and departing from the old way of doing things. One approach to critical and creative thinking that assists commanders with understanding, visualizing and describing ill-structured problems and developing ways to solve them is Design<sup>89</sup>.

Design, as defined in ADP 5-0, The Operations Process, is a methodology for applying critical and creative thinking to understand, visualize and describe complex, ill-structured problems and develop approaches to solve them<sup>90</sup>. Innovation, adaptation, and continuous learning are central tenets of design. The manual goes on to describe the tenets of design as they relate to critical and creative thinking. Innovation involves taking a new approach to a familiar or known situation, whereas adaptation involves taking a known solution and modifying it to a particular situation or responding effectively to changes in the operational environment. Design helps the commander lead innovative, adaptive work and guides planning, preparing, executing and assessing operations. The pamphlet states that design provides an approach for leading innovative, adaptive efforts from which to effectively act on and efficiently solve a complex, ill-structured problem. All of these aforementioned excerpts from ADP 5-0 are examples of how adaptability is a key to design, which involves understanding and adapting to a changing environment.

A creative design tailored to a unique operational environment promises, among other things, effective adaptation once the situation changes. Design requires the commander to lead adaptive, innovative efforts to leverage collaboration and dialog to identify and solve complex, ill-structured problems. Once again, both statements mention adaptation as necessary along with a changing environment. With

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<sup>89</sup> Army Doctrine Publication, No. 5-0, Headquarters Department of the Army, Washington, DC, 17 May 2012, 7.

<sup>90</sup> Army Doctrine Publication, No. 5-0, Headquarters Department of the Army, Washington, DC, 17 May 2012,1.

these facts, design is an excellent method of understanding complex problems in the environment of mission command.

Success requires learning and iterative adaptation to inform and refine the problem frame. In this case, the different people and operating environment the adaptive leader must take into account are not necessarily under his control.

#### 2.3.9. Comfort with Uncertainty

In analyzing the operational environment as uncertain and ever changing, the future becomes hard to predict even if commanders know most factors and elements that exist. This kind of environment creates the necessity to adapt operationally, while applying critical thinking and using creative approaches. In this type of environment, commanders can draw on past experiences, but also need to anticipate change and adapt their leadership accordingly.

The defining problem of mission command is the need to operate effectively within conditions of uncertainty. Operationally adaptive leaders accept that they conduct operations in operational environments that are inherently uncertain. Likewise, it is difficult for leaders to understand the motivations and reactions of various population groups with respect to the enemy and friendly forces. Analyzing leaders operating in this environment, it becomes clear they must execute a process of constant assessment to adapt as situations evolve in order to maintain their situational understanding, so as to empower people in their command through mission command. Commanders must constantly ask if the plan of operation or mission goals are still relevant considering the constant changing environment. As commanders assess and learn throughout the operation, they determine if achieving their original objectives leads to the desired end state.

The particular aspects of this environment include timely, constant assessment, collaboration with the people around the commander, as well as quantitative and qualitative analysis which contribute to the commander's understanding<sup>91</sup>. The combination of these things prepares the commander to adapt to changes and better direct the force to mission accomplishment.

#### 2.4. Common Themes of Mission Command

In analyzing mission command based on the previous fundamentals, common themes appear which lead to discovering a definition for adaptive leadership within the context of mission command. In summing up mission command the following are five concepts that a commander or leader exercising mission command must embrace:

1. Uncertain environments
2. Operational adaptability

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<sup>91</sup> Army Doctrine Publication No. 6-0 Headquarters Department of the Army Washington, DC, 17 May 2012, 3.



3. Influencing different people
4. Critical and creative thinking (design)
5. Teams built on mutual trust, which enable disciplined initiative that allows for prudent risk taking

#### 2.4.1. Understanding how to adapt leadership

TRADOC Pam 525-3-3 mentions adaptive leadership several times. The forward of the pamphlet states the idea is toward developing agile and adaptive leaders throughout the Army, along with imparting essential guidance on the application of mission command at every echelon and while promoting the development of unique and innovative solutions to military problems by empowering leaders at the lowest practical level.

The pamphlet goes on to declare mission command represents a significant step forward in an ongoing campaign of learning and directly contributes towards the achievement of a greater institutional adaptation across Army.

Leadership, as defined by ADP No. 6-22 is the process of influencing people by providing purpose, direction and motivation while operating to accomplish the mission and improve the organization<sup>92</sup>. Within the context of this paper this definition of leadership will remain the foundation. Pam 525-3-3 also includes three solutions to the mission command concept: empower the lowest practical echelon; become skilled in the art of design; educate and train the force for the uncertain and complex future operational environment. These solutions contain elements of adjusting to people and changes in an uncertain environment.

Commanders must understand their operational environment before determining the level to centralize or decentralize. Understanding the international, national and host nation legal, political and cultural authorities and caveats, formal and informal, will assist in institutionalizing the cultural bias for a risk-acceptance mindset and unconditional trust and confidence vertically and horizontally across the force. This statement implies a leader must adjust to the environment again, as well as the people around him in order to be successful.

Regarding the people aspect of the proposed definition of adaptive leadership within the context of mission command, ADP 5-0 indicates that design requires effective and decisive leadership that engages subordinate commanders, coordinating authorities, representatives of various staff disciplines, and the higher commander in continuing collaboration and dialog that leads to enhanced decision-making.

Design requires agile, versatile leaders who foster continuous organizational learning while actively engaging in iterative collaboration and dialog to enhance decision making across the echelons. This

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<sup>92</sup> Army Doctrine Publication No. 6-22, Headquarters Department of the Army Washington, DC, 1 August 2012, 1.

statement implies the adaptive leader using design is engaging and influencing different people within the organization in a critical and creative fashion. The discussion of the importance of design ties in collaborative, critical, and creative thinking amongst trusting team members in order to better anticipate and react to changes in an uncertain environment. With this said, a further understanding of adaptability from the Army leadership manual is warranted.

To understand adaptive leadership in the Army, a natural place to start is the ADP 6-22. The specific definition for adaptive leadership does not exist in the ADP 6-22, however contains a section titled - Achieves, which provides an adequate starting place in defining adaptive leadership.

Adaptability is - an individual's ability to recognize changes in the environment, identify the critical elements of the new situation and trigger changes accordingly to meet new requirements. Separating the definition reveals the distinct entities in it: the individual's ability to recognize changes in the environment; the individual's ability to identify the critical elements of the new situation; and the individual triggering changes accordingly to meet new requirements. Breaking the definition up into these three distinct parts begs more questions. What are the changes in the environment that the individual must recognize? What are the critical elements of the new situation? Finally, what changes must the individual trigger accordingly to meet the new requirements?

#### 2.4.2. Tools For Adaptability

The ADP 6-22, *Army Leadership* acts as a springboard and a starting point as to how Soldiers can apply the concept of mission command. It provides doctrine and principles regarding Army leadership. Here is described the importance of being an adaptable leader in the Army today. It defines adaptability as: an effective change in behavior in response to an altered situation.

There are several statements about adaptive leaders to include the following:

1. Adaptive leaders scan the environment, derive the key characteristics of the situation and are aware of what it will take to perform in the changed environment.
2. Highly adaptable leaders are comfortable entering unfamiliar environments.
3. Adaptive leadership includes being an agent of change.
4. Leaders lacking adaptability enter all situations in the same manner and often expect their experience in one job to carry them to the next.
5. Deciding when to adapt is as important as determining how to adapt.
6. Adaptable leaders are comfortable with ambiguity.

Adaptability has two key components. First is the ability of a leader to identify the essential elements critical for performance in each new situation. Second is the ability of a leader to change his practices or his unit by quickly capitalizing on strengths and minimizing weaknesses.

Adaptability concept identifies three things leaders should do to become more adaptable:

1. Learn to adapt by adapting
2. Lead across cultures

### 3. Seek challenges.

Finally adaptability is defined as: an effective change in behavior in response to an altered situation. While adaptability is an important tool, leaders at all levels must leverage their cognitive abilities to counteract the challenges of the operational environment through logical problem solving processes which ADP 5-0, *The Operations Process* discusses.

#### 2.5. Connecting Tools for Adaptability to Areas of Mission Command

An analysis of the tools for adaptability reveals several connections to mission command which are important to understand in finding a definition for adaptive leadership in mission command. Operational adaptability is one of the categories of mission command and it contains the areas of critical and creative thinking, uncertain environments, prudent risk taking and the ability to assess and make rapid adjustments. Even a quick comparison to the tools for adaptability reveal linkages between the two.

The first tool, scanning the environment, deriving key characteristics and being aware of what it will take to perform in the environment speaks to the areas of operational adaptability, especially uncertain environments and the need to make adjustments. This point reinforces this tool of adaptability to be included with a definition of adaptive leadership within the context of mission command.

The second tool regarding how adaptive leaders are comfortable in uncertain environments again emphasizes the point of uncertainty regarding operational adaptability.

The third tool, adaptive leaders are agents of change, reinforces the point of operational adaptability regarding the ability to make rapid adjustments based on continuous assessment. The third tool also provides an indication as to the way a leader can be an agent of change, and that way is through the critical and creative thinking component of operational adaptability.

The fourth tool, leaders lacking adaptability enter all situations in the same manner and often expect their experience in one job to carry them to the next, acts to emphasize all the components of operational adaptability in mission command: the need for critical and creative thinking, uncertain environment (not entering the situation the same way), prudent risk taking along with the need to make rapid adjustments based on continuous assessment.

The fifth tool, deciding when to adapt is as important as determining how to adapt, points to the area requiring the ability to make rapid adjustments based on continuous assessment, regarding operational adaptability as a fundamental of mission command.

The final tool of adaptability regarding a leader's comfort with ambiguity once again reinforces the quality of being comfortable with operating under conditions of uncertainty as a component of operational adaptability being a fundamental of mission command. As one can see, all the tools of adaptability reinforce the four areas of operational adaptability as a fundamental of mission command. This fact validates the applicability of the tools for adaptability to be used by leaders and incorporated with a definition for adaptive leadership within the context of mission command.

## 2.6. Combining the Army Definitions of Adaptability and Leadership

At this point in the research and analysis, can one simply combine the Army's definition of adaptability and leadership together to reach an adequate definition of adaptive leadership in mission command? The Army's defines leadership as - the process of influencing people by providing purpose, direction, and motivation, while operating to accomplish the mission and improve the organization<sup>93</sup>. Adaptability is an individual's ability to recognize changes in the environment, identify the critical elements of the new situation and trigger changes accordingly to meet new requirements (see Annex 2). When combined the two definitions could appear as: in order to accomplish the mission and improve the organization, adaptive leadership is the process of recognizing the differences in people and the changes in the environment, identifying the critical elements of both and determining changes by adjusting how the leader influences to provide purpose, direction and motivation.

## 2.7. Leadership in the Context of Mission Command

In order to analyze the definition of adaptive leadership within the context of mission command, it is necessary to once again display the definition and break it down into its components.

**Adaptive Leadership:** the ability to anticipate and react to change in an uncertain environment by critically and creatively influencing people while fostering trusting teams to accomplish the mission.

**Adaptive Leaders** anticipate the need to adjust to changes in the uncertain environment and apply critical and creative thinking to the process of influencing people. Adaptive leaders, in some cases, lead their superiors to change their goals or even change the mission, in order to achieve organizational success, based on the adaptive leader's first hand knowledge of the people and the changing environment around him. Adaptive leadership, within the framework of mission command, has several components: the leader, people within the leader's organization, people outside of the leader's organization, the changes in an uncertain environment and mission accomplishment. The people within the leader's organization are: the leader's subordinates, the leader's fellow —peer leaders, the leader's superiors and people within the organization but outside of the leader's chain of command.

## 2.8. Summary of Analysis: Leadership in the Context of Mission Command

The analysis in this chapter deconstructed mission command and adaptive leadership into their component parts, connected common themes and supported ideas with Army publications.

To answer mission command, the analysis compared and contrasted the current definition with the

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<sup>93</sup> Army Doctrine Publication No. 6-22, Headquarters Department of the Army Washington, DC, 1 August 2012, 1.

previous definition to discover differences in which to focus. Next, four fundamentals of mission command were analyzed to provide further areas for analysis. From these fundamentals tied in four categories of mission command, with particular emphasis on operational adaptability and mission command as a philosophy. These aspects of mission command provided common areas to link a leader's tools of adaptability to develop common threads for a definition of adaptive leadership in the context of mission command.

The tools for adaptability serve to highlight the previously mentioned fundamentals and categories of mission command, which provide areas to examine when searching for an adaptive leadership definition. All boiled down, the common themes of adaptive leadership and mission command result in the following areas: the Army root definition of leadership, uncertain environments, anticipating and reacting to change, critical and creative thinking and trusting teams. Once again, these ideas combine to give us the definition of adaptive leadership in the context of mission command:

The ability to anticipate and react to change in an uncertain environment by critically and creatively influencing people while fostering trusting teams to accomplish the mission.

Starting with the fundamentals of mission command and then analyzing the categories of mission command, the most prominent similarity was operational adaptability. Analyzing the components of operational adaptability and linking them to the traits of the mission command leadership philosophy and the leadership tools for adaptability, many strong connections and similarities became apparent. As these connections developed through the analysis, prominent themes for adaptive leadership in the context of mission command emerged.

Leaders who lead by way of critical and creative thinking require people and teams that trust one another. These trusting teams make coping with and preparing for uncertain and ambiguous environments more tolerable. A leader who has fostered and maintained a trusting team of people is more willing to accept prudent risk himself and let subordinates accept prudent risk as well. This trusting team better enables the adaptive leader in a mission command environment rapidly adjust to the changing circumstances.

A leader with a trusting team is better able to use critical thinking methods like design and lead Soldiers in his unit critically. A trusting team is better able to flex with the needs of an uncertain environment when they know they can count on each other. The trusting team also supports creative thinking and creative methods necessary in design to solve the ill-structured problems an uncertain and ambiguous environment poses.

All the leadership areas of operational adaptability are reinforced in a mission command environment and provide the basis for an adaptive leader to adapt his leadership methods. There will not be a textbook answer for the problems the Army will face all the time. By training and developing his trusting team of leaders, the adaptive leader will have subordinates willing to listen to his creative methods required for novel situations, which he derived through critical thinking. With these methods practice, fostered and institutionalized, the adaptive leader and his subordinates will be more

comfortable with uncertainty and be ready to anticipate and adjust to changes in the environment in order to accomplish the mission.

### III. Conclusion

Adaptive leadership in the context of mission command is:

The ability to anticipate and react to change in an uncertain environment by critically and creatively influencing people while fostering trusting teams to accomplish the mission.

After analysis, all the components of the definition relate to concepts of leadership in doctrine and the environment of mission command. The leader, the people in the organization and outside the organization, the uncertain environment, the need to anticipate and react to changes and mission accomplishment are all valid components needed to make the definition relevant.

Within the context of mission command, the leader must adapt to the other variables: different people, uncertain environment, changing goals and the changing mission. To be an adaptive leader in the mission command construct, the leader must adjust the way he influences people in his organization by applying critical and creative thinking. He must adjust to the people who are his subordinates, peers and superiors in order for his organization to be successful. He must adapt to the people outside the organizations with whom he must collaborate to achieve mission success.

The leader must use the tools for adaptability, which lead to adaptive leadership with people who are in favor, neutral or opposed to the mission of his organization.

The adaptive leader in mission command must detect changes and adjust to the uncertain environment he exists in for mission accomplishment and to realize the success of the organization. He must also adjust to how the uncertain environment might appear in the future. He may have little to do with how much the environment changes or whether the environment changes in his favor, but he must anticipate and react nonetheless to realize the full success of the organization.

The adaptive leader must be able to influence change in his environment through the people around him or by adapting his organization's goals or mission.

The adaptive leader in the context of mission command must be prepared to adjust his organization's goals to meet the needs of his people, the uncertain environment and the mission in order to achieve success. The he must realize when his organization's goals are out of reach or when they are set too low.

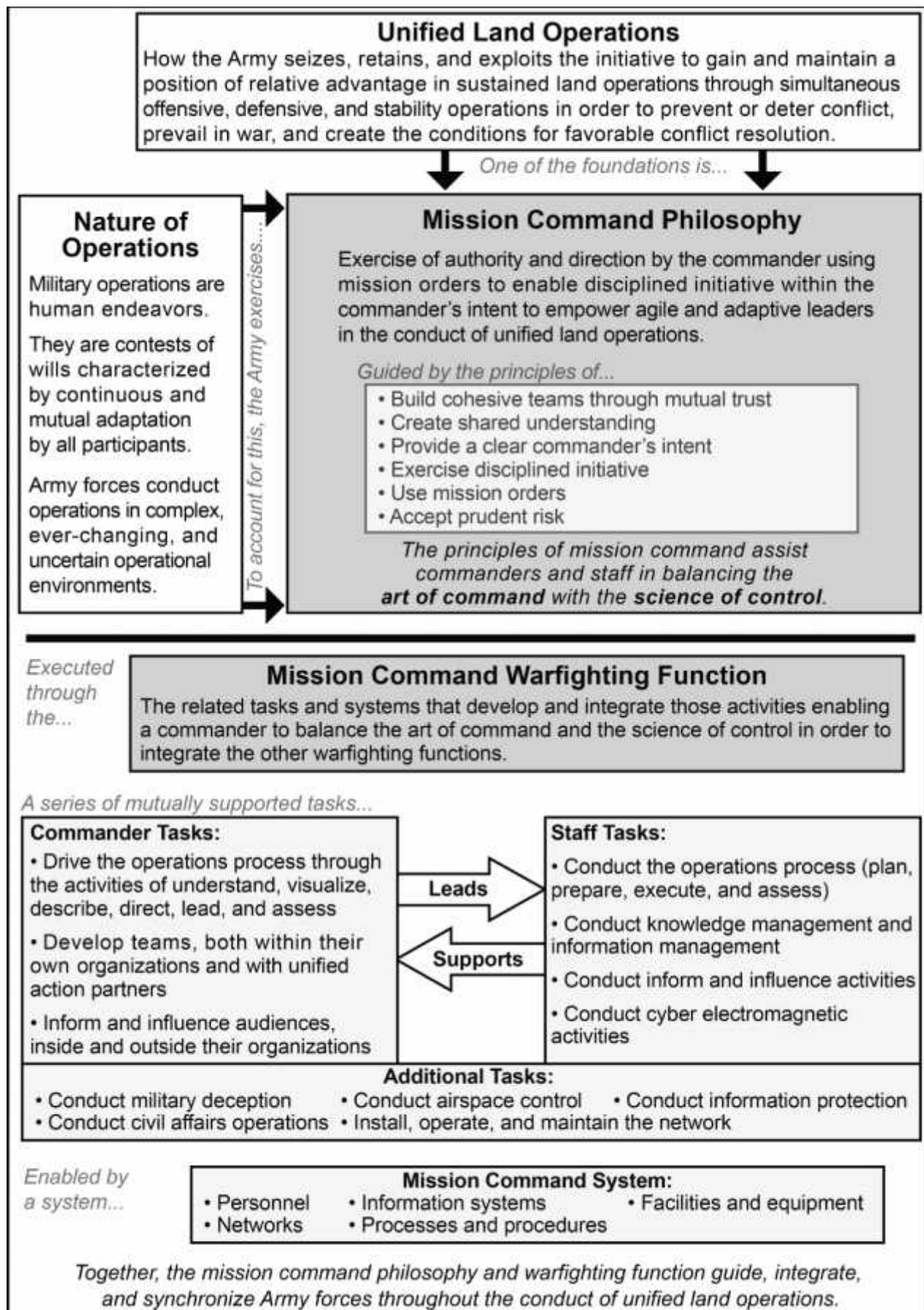
He must also adjust to the people and the uncertain environment when the organization's goals are adjusted to accomplish the mission and achieve success. The adaptive leader in mission command must also be prepared to adjust the mission in with regard to the people, the environment and the goals established for organizational success. He must know when he will be unable to adjust to influence the people in and out of his organization or adjust the goals of the organization to meet the mission.

The only constant, unchanging aspect in the definition of adaptive leadership in the context of mission command is the success of the organization. The success of the organization is the very reason the

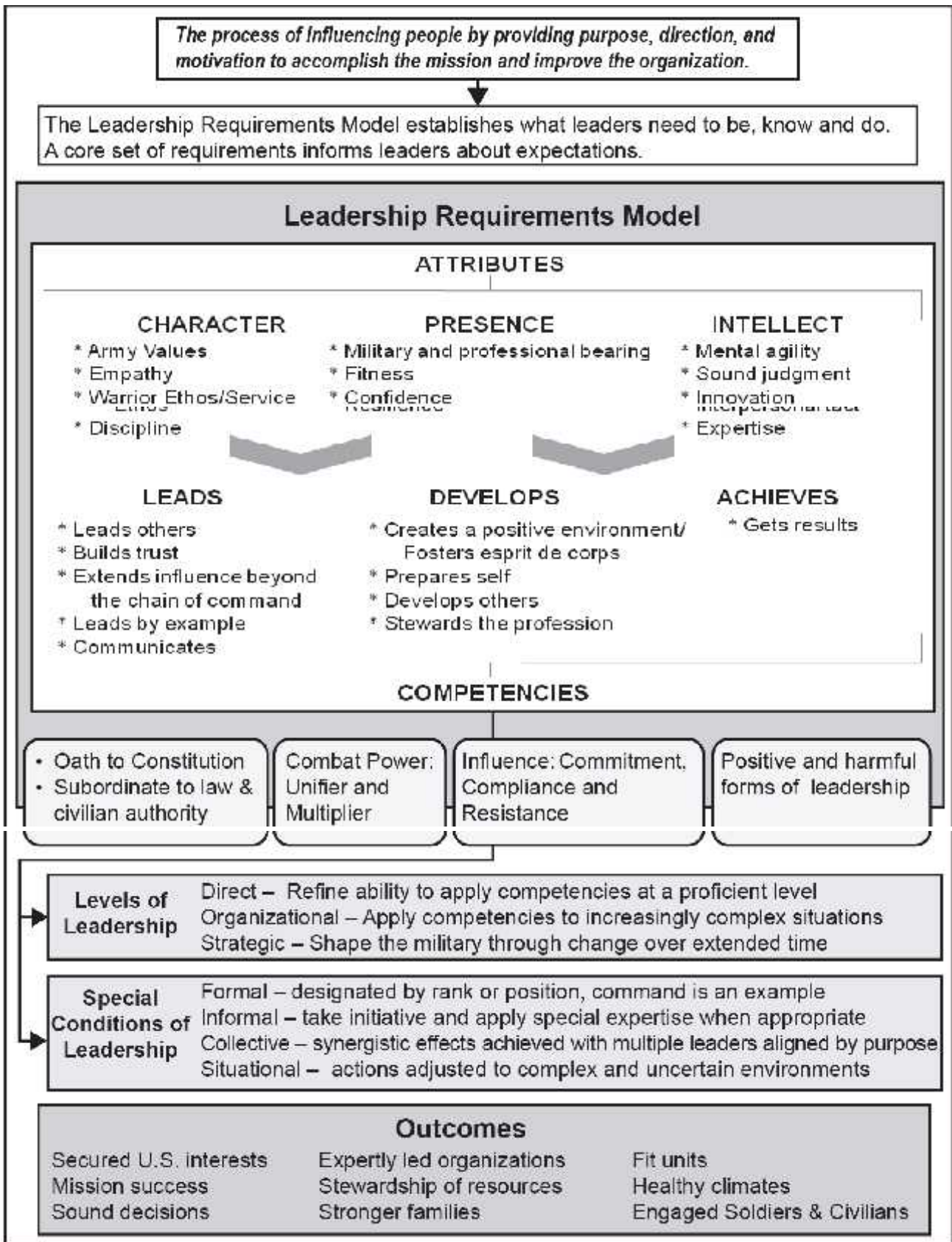
adaptive leader is in his position within the organization. The people an adaptive leader influences, inside and outside the organization may change, the environment may change and the organizational goals may change. He must be able to anticipate, respond and adjust so he can influence and harmonize all the components in order to and achieve organizational success. The definition of success or mission accomplishment may change depending upon the people, environment or goals. Some or all of these may be out of the leader's control entirely and he may not be able to realistically adjust. The definition of organizational success may change slowly or be rapidly changing. In any, mission accomplishment and organizational success are the leader's purpose.

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## **LEADERSHIP AND MANAGEMENT, THE SAME CONCEPT?**

*LTC Eugen STĂNESCU*

*A leader is one who knows the way,  
goes the way and shows the way.*

John Maxwell

### **INTRODUCTION**

A leader is a person who has a vision, a drive and a commitment to achieve that vision, and the skills to make it happen. A leader has a vision. Leaders see a problem that needs to be fixed or a goal that needs to be achieved. It may be something that no one else sees or simply something that no one else wants to tackle. Whatever it is, it is the focus of the leader's attention and they attack it with a single-minded determination.

Whether the goal is to double the company's annual sales, develop a product that will solve a certain problem, or start a company that can achieve the leader's dream, the leader always has a clear target in mind. This is a big picture sort of thing, not the process improvement that reduces errors by 2% but the new manufacturing process that completely eliminates the step that caused the errors. It is the new product that makes people say "why didn't I think of that", not just a toaster that lets them select the degree of darkness of the toast. Edison did not set out to build a better candle; he wanted to find a whole new way to illuminate the darkness. That is the kind of vision a leader has.

It is not enough to just have a vision. Lots of people see things that should be done, things that should be fixed, great step forward that could be taken. What makes leaders different is that they act. They take the steps to achieve their vision. The question is if it is a passion for the idea, an inner sense of drive, or some sense of commitment. Whatever it is, it is the strength that lets leaders move their vision forward despite all the obstacles, despite all the people saying it cannot be done, it is too costly; we tried that before, or a dozen other excuses. The true leader perseveres and moves forward.

Management is defined as a group of people that run an organization. They are responsible for organizing, executing and following order in order to fulfill obligations set by an organization, most commonly earning profits. It is in charge of accomplishing desired goals and objectives of the company they work for. A manager is charged with utilizing all

resources efficiently and effectively with more output and less input. The jobs of management include: planning, organizing, staffing, leading or directing, and controlling an organization. Dictionary.com defines 'management' as, "the act or manner of managing; the person or persons controlling and directing the affairs of a business, institution, etc."

## **I. LEADERSHIP**

### **I.1. What a Leader is**

Kotter (1990) said "Leadership is a set of processes that creates organizations in the first place or adapts them to significantly changing circumstances. Leadership defines what the future should look like, aligns people with that vision, and inspires them to make it happen despite the obstacles".

Senge (1990) describes leaders as designers, stewards, and teachers. The designer develops the vision and shape, the steward oversees the welfare of the organization, and the teacher is always seeking opportunities for learning.

Behavioral Scientist Bernard T. Bass (1985) defines leadership as "the observed effect of one individual's ability to change other people's behaviors by altering their motivations."

A leader is a change agent. Zeeck (1999) said "Leadership is essentially innovative in character. It sees the need to change to meet the new information age or changes in readers or the community. It wants to create something different. It looks forward and asks how we might change to be reflective of today's and tomorrow's needs". And he added to his idea that "Leadership has a focus on effectiveness, that is, making sure the organization is doing the right things. Leaders create the vision, or the overriding strategic goals and objectives. Leaders specify the direction for the organization".

There are things that set leaders apart from other people. Some people are born with these characteristics. Others develop them as they improve as leaders. These are not magic bullets. They are things people can do and be if they want to be a leader.

There are as many traits of a leader as there are lists of what makes a leader. The fundamental traits of a leader from my perspective are the following:

- Has integrity. People have to believe that the leader is pursuing his dream because it is the right thing to do, not just because he is ego driven.
- Is a people person. He understands the differences that make people unique and is able to use those individual skills to achieve the goal.

- Is positive. A leader encourages and rewards people and makes people want to do it and do it right. A leader is not a negative person and doesn't waste time and effort telling everyone what they are doing wrong.

## **I.2. Leader's Skills**

There are many important skills any leader needs to have and many traits that good leaders display.

A leader is one who makes his subordinates feel comfortable to talk openly. He must lead from the front, identify key issues and address them. His vision should be to show the path to people he is responsible for. He should be able to make his people feel respected. He should never show partiality in working environment. A very important trait which he must inculcate among his men is to always accept their mistake without fear.

Beyond the personal traits of a leader, there are specific skills someone must master if they want to be a leader:

- Effective communication – it is more than just being able to speak and write. A leader's communication must move people to work toward the goal the leader has chosen.
- Motivation - a leader has to be able to motivate everyone to contribute. Each of us has different "buttons". A leader knows how to push the right buttons on everyone to make them really want to do their best to achieve the leader's goal.
- Planning - the leader has a plan to achieve the goal. He/she doesn't get too bogged down in the details, that are what managers are for, but rather uses a high level plan to keep everyone moving together toward the goal.

In addition, a great leadership has to be:

- Self-aware, and honest with themselves as to their own strengths, weaknesses, and sincere efforts to improve.
- Infused with humor and humility, and by nature inclined to treat individuals in their organizations equally, without “smiling up and kicking down”.
- Inquisitive and approachable enough so that others feel safe offering honest feedback and new ideas.
- Open-minded and capable of respecting their competitors or adversaries and learning from them, in both leadership situations and general business conditions.
- Action-oriented, which surfaces not as a desire to move for movement's sake but to move directly toward a clear goal with a relentless follow-through.

Although leaders must adapt to a specific and ever-changing set of circumstances, the most successful leaders exhibit a common set of behaviors. Those leaders will:

- Act and be unwilling to rationalize inaction, with relentless follow-through to ensure that the action is implemented.
- Create and shape change, rather than passively accepting it, and challenge the status quo, refusing to accept the response, 'We've never done that before'.
- Seize the opportunities of the present without compromising the need to invest and build for the future.
- Flourish in a boundary-less work environment by focusing on results, knowing that much can be done if it doesn't matter who gets the credit.
- Evaluate and deploy people based solely on strength, performance, and potential.
- Think positively, never give up, seek out the opportunities that lurk in every challenge, and realize that things are never as bad as they seem.
- Be detailed-oriented enough to know whether the objectives are being met or the course is correct, but not so detail-oriented that they 'miss the forest for the trees'.
- Seek consensus without being paralyzed by the thought of making a mistake or intolerant of those who make them.
- Communicate constantly - influencing, encouraging, critiquing, and listening.

## **II. MANAGEMENT**

### **II.1. What a Manager is**

A manager, according to the Handbook of the American Management Association (AMA), is one whose power is derived from the position he or she holds and who is accountable for achieving organizational objectives through the actions of subordinates.

“Manage” comes from the Latin word meaning “*hand*” in the context of handling something. Management usually implies the handling or carrying out of policies and plans laid down by someone else. It is more of a science than an art, where procedure and protocol are both important and satisfactory fulfillment of the management role is highly reliant upon calculation, statistics, methods, timetables, and routines.

According to C.S. George, traditionally management has been defined in a narrow sense as the art of getting things done by others; a manager is one who accomplishes the objectives by directing the efforts of others. This definition is lacking in two ways:

- No realistic goal is set in this sense.
- A suitable internal environment is also not created.

Management is a combination of an organized body of knowledge and skillful application of this knowledge. Much of this knowledge can be found in various academic disciplines, including business and the social sciences. Effective performance of various management functions is dependent on an adequate basis of knowledge and a scientific approach. Thus management is both science and an art. It is a science because it requires continuous practice and an art because it requires personal skills.

Like other social sciences, management is an inexact science. Management deals with human behavior which is subject to constant changes and cannot be predicted on the basis of absolute laws and experiments. Because of this, the degree of inexactness in the case of management is quite high, and the principles of management are still evolving. It is said that “the art of management starts where the science of management ends”. Management is neither a complete science nor a complete art because only by training and practice an art can be mastered. Constant experimentation by training and practice is essential for an art. A person cannot become a successful manager without learning the systematized body of knowledge and principles of management. Similarly, a person cannot become a successful manager without learning the principles of management in a scientific manner. He also needs scientific training and practice in the field of management.

Kepner (1976) described the role of management as: “to create and support a culture throughout the organization where staff freely access and supply information.” This approach to management utilizes expert information of staff to help develop and implement changes to enhance work processes and outcomes that are responsive to the customers’ needs. However, the development of a “culture” is also often seen as a function of leadership.

A manager’s role is to plan, implement, monitor, and control activities over relatively short time frames from a few months to a few years. Tasks include budgeting, managing workflows and systems, and coordinating resources. Definitions, as expected, vary. For example Peter Senge (1990) viewed the manager’s role as changing from one of organizing and controlling to a new dogma of shared vision, values, and mental models.

## **II.2. Manager’s skills**

- Coaching - is one of the essential skills of a good manager. Employees cannot learn if their manager does their work. Manager has to let people make mistakes if they are to learn. He cannot just let them flounder on their own.

- Communication - The most critical skill a manager needs is the ability to communicate well, both at horizontal and vertical level. He needs to be understood by his employees and his subordinated related on his options and his standards.
- Managing conflict and workplace violence – Manager is responsible for creating a work environment that enables people to thrive. If disagreements and differences of opinion escalate into interpersonal conflict, he must intervene immediately.
- Customer management tip - The first obligation of a manager is to the customer. Without customers a business cannot exist. This is why the customer has to be treated with the same respect the manager expects when as a customer. The manager has to make sure everyone in his organization understands the importance of customer service.
- Mentoring - A good mentor is willing to teach what he/she knows and accept the mentee where they currently are in their professional development. Good mentors can remember what it was like just starting out in the field. The mentor does not take the mentoring relationship lightly and understands that good mentoring requires time and commitment and is willing to continually share information and their ongoing support with the mentee.
- Public speaking - Some people are terrified to speak in public or in front of a group. To be successful in this domain, the manager has to follow some steps: to know the subject of speaking, to rehearse before speaking, to be relax, to catch the audience, to share his enthusiasm when speaking.

These are some of the skills a good manager needs. Obviously, there are more many other skills to complete a complete profile of a manager, including the skills a leader has.

### **III. LEADERSHIP VERSUS MANAGEMENT**

There is a difference between managers and leaders. The difference between being a manager and being a leader is simple: management is a career, whereas leadership is a calling.

People do not have to be tall, well-spoken and good looking to be a successful leader. They do not have to have that "special something" to fulfill the leadership role. What they need is clearly defined convictions and, more importantly, the courage of their convictions to see them manifest into reality. Only when they understand their role as guide and steward based on their own most deeply held truths, people can move from manager to leader. Whether the group leader oversee is called employees, associates, co-workers, teammates or anything else, what they are looking for is someone in whom they can place their trust, who is

working for the greater good, for them and for the organization, someone not only that they can, but that they want to follow. This is the reason why it is only when a leader has followers, people who have placed their trust in him, that he knows he has moved into that leadership role. And the way he sees it is that his organization is transcending all previous quality, productivity, innovation and revenue achievements. The leader are operating at such a high level of efficiency that he is giving budget back to the corporation and he is still beating his goals. Beside the leader, there are people in whom he has put his trust and who have happily and safely reciprocated to help him to create organizational success.

Leadership and management are considered to be worlds apart by many people in the business world. This is mostly because of the old definition of leader, which claims him to be smart, intelligent and all these other amazing things, but it may not be it. A leader could be any humble person with a good cause. Many business specialists also state that leadership and management go hand-in-hand as they indirectly require each other. A leader could also be a manager and vice-versa; it all depends on the qualities.

Leadership often represents a group of special, individuals that are responsible for inspiring, guiding and leading a group of people that are joined for a common cause. Dictionary.com defines 'leadership' as, "the position or function of a leader, a person who guides or directs a group; ability to lead; an act or instance of leading; guidance; direction." A leader is someone who is looked upon and is followed blindly. He is expected to listen to only the people and nothing else. A leader is also believed to be the good for the people and not only looking for his benefit. The leader is essentially idolized.

American author and scholar, Warren Bennis in his 1989 book "On Becoming a Leader," listed the differences between a manager and a leader. The list is as follows:

- The manager administers; the leader innovates.
- The manager is a copy; the leader is an original.
- The manager maintains; the leader develops.
- The manager focuses on systems and structure; the leader focuses on people.
- The manager relies on control; the leader inspires trust.
- The manager has a short-range view; the leader has a long-range perspective.
- The manager asks how and when; the leader asks what and why.
- The manager has his or her eye always on the bottom line; the leader's eye is on the horizon.
- The manager imitates; the leader originates.



- The manager accepts the status quo; the leader challenges it.
- The manager is the classic good soldier; the leader is his or her own person.
- The manager does things right; the leader does the right thing.

Though they mean different things, they are commonly considered to work together as they are required in order to accomplish certain objects or goals. A manager is not always, only limited to taking work from his subordinates and following order. Many managers these days inspire, shape, train and help their subordinates. In the same case, not all leaders are always looking out for the benefits of the people, for example politicians. Many leaders are just misusing the title and taking advantage of their positions. It is believed that a leader and manager must work together or take up additional roles, as they are no longer just limited to the set definitions. A mixture of both provides the best results in running an organization.

Issues	Leadership	Management
Definition	A leader is responsible for leading, inspiring, guiding and influencing a group of people to complete a certain task.	Management is the art of getting things done through others by directing their efforts towards achievement of pre-determined goals.
Nature	Leadership is responsible inspiring and innovating other people to work.	executing function, doing function
Scope	Leaders make their own rules and guidelines.	Decisions within the framework set by the administration.
Level of authority	Top level	Middle level activity
Status	Leaders use their power to bring about massive change or something that is new and innovative.	Group of managerial personnel who use their specialized knowledge to fulfill the objectives of an

Issues	Leadership	Management
		enterprise.
Usage	Popular with government, military, educational, and religious organizations.	Used in business enterprises.
Influence	Influenced by public opinion, government policies, customs etc.	Decisions are influenced by the values, opinions, beliefs and decisions of the managers.
Main functions	Leading and inspiring people to follow them.	Motivating and controlling
Abilities	Should be authoritative, influential, commanding and effective.	Handles the employees.
Appeals to	Heart	Head
Risk	Risk-taker	Risk-adverse
Power attained through	Influence and Charisma	Position

The roles of leaders and managers are complementary. The role of the manager is one of stewardship, necessitating qualities of good administration, abilities to make efficient and effective use of resources. Managers like and tend to preserve the steady state. They don't like anything that “rocks the boat.” They are expected to handle crises (“fire fighting”), but it is expected that they should have enough forethought to be able to avoid them. This is where leadership is necessary.

Effective leaders are often described as “dynamic,” which is regarded as beneficial because it denotes movement and change. The function of leadership is not only to produce change but to set the direction of that change. Management, however, uses the function of planning to produce orderly results to the change. Leadership is involved in developing the vision and mission of the organization, initiating change in the organization. Management is

involved with the planning, organizing, staffing implementation, and evaluation of the change.

Leadership is a role someone assumes. You do not have to be appointed as leader to be the driving force in a group or organization. There are many examples of evident leadership in schools by people (teacher leaders) other than superintendents and principals, those who have been appointed as leaders. Management responsibility, however, is more likely to be assigned by others or by the system. Both are important to a successful enterprise and are not mutually exclusive. Kotter (1990) contrasts management and leadership this way: “Management is a set of processes that can keep a complicated system of people and technology running smoothly. The most important aspects of management include planning, budgeting, organizing, staffing, controlling, and problem solving.”

Leadership is about change and movement, perceiving the need for a new direction, figuring out where the organization needs to go, formulating a strategy to get there and motivating employees to make it happen. Management is a matter of consistency and order, setting goals, laying out specific plans and budgets, organizing and staffing with qualified people, and controlling deviations.

Dunford, Fawcett, and Bennett (2000) made the following distinguishing points between leaders and managers:

- Leadership is concerned with the long term and the strategic, management with the immediate and short term. Vision is articulated and set by the leader, whilst the manager is required to design and implement procedures which enable the vision to be achieved
- Leaders need to engage staff by inspiring them with a vision, navigate them using the strategic plan, enable staff by reallocation resources according to the needs of the organization and mobilize staff through reallocation according to skills and empowerment through inclusion in the change process and in furthering their education. Managers and leaders must encourage and support the team as well as individual changes/challenges.
- Managers and leaders need to acknowledge that complex organizational structures mean that single leaders cannot deliver the requirements alone. They need a network of leaders that are interdependent and responsive to each other’s skills and needs.
- Managers and leaders need to signal the need for change. Managers and leaders should be aware of their ability to use external factors/demands as a fulcrum for motivating change within the organization.

The assumption that management and leadership are either coterminous or else that one is part of the other, has been challenged in the past decade by several writers, including

Bryman, Bennis and Nanus (1985), Bennis (1989) and Kotter (1988, 1990). Agreement is lacking as to whether the roles can be complementary in the same person. Bennis (1989), in particular, sees clear distinctions between a manager, who maintains systems, relies on controls, has a short range view, accepts the status quo, and a leader, who energizes, motivates, has a long range and even visionary view, and challenges and changes the status quo. It is difficult to see how such different roles can be combined in the same person.

The roles of leadership and management differ depending upon the level in the administrative hierarchy. Executive management should be primarily a leadership position, secondarily a management position. Middle management positions need some leadership, but are primarily involved with management. Lower-level management positions do need some leadership and management, but are primarily involved with administrative-level activities, and perhaps secondarily with individual contribution. Once one has determined the balance of leadership, management, administrative and individual contribution activity appropriate for the position, then you can determine what is needed, i.e., how much a “manager” and how much a “leader”.

Kotter (1990) stated that management is about coping with complexity, while leadership is about coping with change. The functions of management are focused on order and control in order to make the organization efficient and effective within agreed objectives. School administrators may exercise both the functions of leadership and management in support of change in the organization, but successful change cannot be imposed by fiat. It is the task of leadership to clarify the direction of change and to make the members of the organization willing, even enthusiastic partners in the change process.

## **CONCLUSIONS**

Leadership and management are two separate but complementary roles, each with their set of skills and knowledge. However, a good leader knows when to manage and a good manager knows how to lead.

Management and Leadership are two different mentalities that cannot and should not be separated, because all successful organizations require managers and leaders. Many organizations are reasonably well managed, but poorly led. Competent management is essential in any organization, given the need for well-documented objectives, reports, evaluations, plans etc. Leadership is not confined to one or two people at the top of a pyramid. Strong leaders should be distributed throughout the entire organization.

To sum up, managers are people who are doing the things right, whereas leaders are people who are doing the right things.

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# **E-LEARNING : FEATURES AND OPPORTUNITIES IN TRAINING MILITARY PERSONNEL**

*LTC Stan TOMA*

## **INTRODUCTION**

In the world there has to be a effervescence activity which affects modernization and educational processes more efficient, is needed more particularly those which relate to the preparation continues (lifelong learning) on both segments of education, as well as formal and informal.

It is considered that in a society with a dynamic change of increasing individuals can cope only under conditions which can adapt quickly, and this can be solved only through lifelong learning and processing continues.

It is also fully known that today modern society is characterized by a growing speed change in almost any field.

This tendency for change is present and in the field of education which now supports a radical transformation as regards current educational needs and how to offering these in the context of lifelong learning.

Students, teachers and trainers, are increasingly anxious to learn how to use the potential means IT&C , in order to adapt to new developments in education and also new educational requirements.

Virtual Education (eLearning) is a factor which generates these major changes and audited in general by the interaction between the process of teaching/learning and information technologies - IT &C.

A role as spearheads of this profound process of reconfiguration on educational system is represented by the EU and the US.

Terms and conditions for this procedure are somewhat different in the USA and EU, but having regard to the process of European integration in which is engage Romania requires European model as the most appropriate procedure to reconsider and transformation educational system of Romania.

Using the means IT&C in education will lead to moving the stress from a learning environment centered on teacher to one centered on student (trained), teachers are no longer is

the source of these key information and the transmission of knowledge, but collaborators of students and students are no longer receptors facts of information, but also involves active in their own education. A key role in this respect is learning from to interact and collaborate in the context of a learning environment based on your IT &C technology.

IT&C technologies can provide an incredible number of opportunities in the field of education. Groups of students can communicate via the Internet with other groups of students in any location, professor having such an opportunity to pursue their trends, alike to rediscover the fascination your handwriting and the publication of various materials educational and can generate an audience increased and by default achieve educational success increased.

The World Wide Web space provides facilities for research and a great expansive resource for teachers and students.

Educational materials in electronic format have become a true source and imaging bibliographical presentation lessons in the field of education.

From research to publication of educational materials, simulations and multimedia scientific demonstrations and the creation of virtual communities, location on the World Wide Web of information relating to education, the creation of the website of a disciplines, development of courses on-line, methods and tools for testing on-line virtual communities development platforms, e-learning open-source, programs, and national projects, European and world in the area of education, the opportunities that education via IT&C are virtually limitless.

In a study carried out by the company CISCO among Nobel prize winners, in an opinion poll on the matter, with respect to inputs that you will have the Internet and World Wide Web space in the field of education, most of those interviewed they credited role in a positive way for new information technologies in all spheres of range educational. The Internet will improve education, it will change the current learning manner will accelerate the pace of innovation and research. Also, illiteracy and education inadequate will be considerably reduced through the opportunities virtual classes (up to the year 2030).

To be effective, the means IT&C must be combined with traditional technologies and methods, format so to lead to improve quality act of teaching and learning, to share knowledge and information, to obtain a higher degree of flexibility of tertiary education to meet the needs concrete social, to lower the cost of education and to improve effectiveness of the system of education.

In another way, eLearning offers new opportunities for training, which is not required to be granted exclusive but can always the most efficient way would be to use its benefits associated with the results and experience classic educational system.

This material is intended to be a general approach to e-learning systems, any data in the technical field appearing in terms of their content, are inserted for the purpose as comprehensive understanding of what is happening in these systems educational virtual type.

## I. GENERAL CONSIDERATIONS ABOUT E -LEARNING

### I.1. Definitions and concepts

Information and communications technology and unprecedented development of multiple connections, anywhere, anytime, has allowed a new approach in the fields of education, by enabling more effective remote distribution of the information, knowledge and practice.

Thus it became possible to take older concerns of the people, those who learn from a distance, continuously and effectively, giving you also support the teaching staff and authorized educational content of a complete and diversified.

In this context there was a new concept, called "eLearning" the term introduced in 1998 by Jay Cross, Internet Time Group founder.

Literature abounds in definitions of the concept about "eLearning", and the most significant and original definitions are following:

1. E-learning<sup>94</sup> *“is interaction between teaching and learning and information technologies-IT&C, covering a broad spectrum of activities, from computer-assisted education (combination between traditional practices and online learning) up to higher education carried out in its entirety in the manner online”*;

2. E-learning<sup>95</sup> *“refers to the use of electronic media and information and communication technologies (ICT) in education. E-learning is broadly inclusive of all forms of educational technology in learning and teaching. E-learning is inclusive of, and is broadly synonymous with multimedia learning, technology-enhanced learning (TEL), computer-based instruction (CBI), computer-based training (CBT), computer-assisted instruction or computer-aided instruction (CAI), internet-based training (IBT), web-based training (WBT), online education, virtual education, virtual learning environments (VLE) (which are also*

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<sup>94</sup> Brut, M.: Tools for e-learning, the IT&C teacher's Guide, Iasi, Polirom, 2006

<sup>95</sup> <http://en.wikipedia.org/wiki/Elearning>



called learning platforms), m-learning, and digital educational collaboration. These alternative names emphasize a particular aspect, component or delivery method”.

*E-learning includes numerous types of media that deliver text, audio, images, animation, and streaming video, and includes technology applications and processes such as audio or video tape, satellite TV, CD-ROM, and computer-based learning, as well as local intranet/extranet and web-based learning. Information and communication systems, whether free-standing or based on either local networks or the Internet in networked learning, underlay many e-learning processes.*

E-learning can occur in or out of the classroom. It can be self-paced, *asynchronous learning* or may be instructor-led, *synchronous learning*. E-learning is suited to *distance learning* and flexible learning, but it can also be used in conjunction with face-to-face teaching, in which case the term *blended learning* is commonly used.

It is commonly thought that new technologies make a big difference in education. Many proponents of eLearning believe that everyone must be equipped with basic knowledge of technology, as well as use it as a vehicle for reaching educational goals.

3. Also, on the sites of several European eLearning programs, in the glossary attached as to which eLearning is defined as meaning “*use of new multimedia technologies and the Internet for improve the quality teaching, by facilitating access to resources, to the services and the collaboration*”.

Mention that currently the term eLearning course has come to replace virtually all of the terms which defined a new way for the integration of the means IT&C in the process of training.

In the field of eLearning Systems, is needed to present another terms and concepts that are situated in this domain and/or around there.

The most significant terms of the specialty books is following:

**Sharable Content Object Reference Model (SCORM)**<sup>96</sup> “is a collection of standards and specifications for web-based e-learning”. “SCORM is a specification of the Advanced Distributed Learning (ADL) Initiative, which comes out of the Office of the United States Secretary of Defense. They constrain a learner to a fixed set of paths through the training material, permit the learner to “bookmark” their progress when taking breaks, and assure the acceptability of test scores achieved by the learner”.

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<sup>96</sup> [http://en.wikipedia.org/wiki/Sharable\\_Content\\_Object\\_Reference\\_Model](http://en.wikipedia.org/wiki/Sharable_Content_Object_Reference_Model)

**Advanced Distributed Learning (ADL)**<sup>97</sup> ”is the product of the ADL Initiative, established in 1997 to standardize and modernize training and education management and delivery” by the Department of Defense (DoD). “The vision of the ADL Initiative is to provide access to the highest-quality learning and performance aiding that can be tailored to individual needs and delivered cost-effectively, at the right time and in the right place”.

**Learning Management System (LMS)**<sup>98</sup> “is a software application for the administration, documentation, tracking, reporting and delivery of e-learning education courses or training programs”. “Colleges and universities use LMSs to deliver online courses and augment on-campus courses. Corporate training departments use LMSs to deliver online training, as well as automate record-keeping and employee registration”.

## **I.2. Considerations about legal framework in U.E./Romania**

E-learning is a factor which generates major changes in educational system and is defined in general by the interaction between the process of teaching/learning and information technologies - IT &C.

In the U.E. space, are well-known concrete actions carried out in order to fundamentally change educational system (the Lisbon, Bologna process) and the agreement Berlin targets :

- create the conditions for educational network consistent at EU level that combines general aims at Union level with educational and cultural values specific at national level;
- opportunities exploitation of information and communications technology both in the creation of content, as well as the distribution and creation of plus-educational value;
- disposal spatial barriers (borders) and economic (wide access to knowledge with relatively low cost, acceptable to a number of citizens of the European Union countries but also in the other European countries).

The *Lisbon European Council* (23-24 March 2000), set the strategic goal of creating a competitive and dynamic knowledge-based economy and specific objectives relating to IC&T and education, several initiatives have been taken: the *2001 employment guidelines*, the resolution relating to educational multimedia software, the communication on *eLearning* and the *eLearning action plan* and then the *Stockholm Council* (23-24 March 2001) reaffirmed that improving basic skills, particularly IT skills, is a top priority for the EU.

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<sup>97</sup> [http://en.wikipedia.org/wiki/Advanced\\_Distributed\\_Learning](http://en.wikipedia.org/wiki/Advanced_Distributed_Learning)

<sup>98</sup> [http://en.wikipedia.org/wiki/Learning\\_management\\_system](http://en.wikipedia.org/wiki/Learning_management_system)

The “*e-Learning: Designing tomorrow’s education*” initiative was adopted by the European Commission on 24 May 2000.

The *e-Learning* initiative was welcomed by the Ministers of Education and by the Feira European Council in June 2000.

The *e-Learning* initiative is also of relevance for the candidate countries given the interest they have shown for the e-Europe action plan. The purpose of this Action Plan, which covers the period 2001-2004, is to present ways and means of implementing the *eLearning* initiative.

First of all, the proposed Action Plan explains how *eLearning* fits into the context of *eEurope*, identifies the areas in which it will contribute, and mentions the programs and instruments that will enable EU Member States and other European countries participating in these programs to act.

Secondly, the Action Plan sets out concerted key measures for each of its lines of action (infrastructure, training, services and content, cooperation).

One of the most important documents of U.E. about *eLearning* framework is Decision no. 2318/2003/EC of the European Parliament and of the Council of 5 December 2003 with regard to the adoption multiannual program (2004-2006) for an effective integration of information and communications technology in the system of training and education in Europe - *eLearning* course Program.

In the case of Romania education reform started to take shape more on grounds of matching with the European education system than by internal efforts to reshape the Romanian educational system.

Because of complete negotiations with U.E., Romania has fully accepted community *acquis* on chapter 18 "Education, vocational training and youth" on 31 December 2000.

Through this document Romania undertakes to comply with the requirements EU documents in the field of education and also to harmonize both the legislative and education system in accordance with the decisions on the U. E.

### **II.3 The models framework of *eLearning* systems**

Initially, at the beginning of the twentieth century XX, had appeared distance learning (supported on the original communication facilities offered by e-mail phone, and then the television station), higher education computer-assisted (Computer-Based Learning-CBL) appeared in the 1970s, using as the main teaching educational software stored on CD-ROM or on the hard drive: dictionaries, encyclopedias, lessons from the various areas, e.g.

With the rapid growth of digital technologies, the Web has become a learning environment and remote training<sup>99</sup>.

The eLearning course models have evolved from a replication class rooms to models that integrate technology and pedagogical approach. While first models eLearning course place emphasis on the use of technology to deliver content, the e-services and access, newer models are focused on pedagogical approaches, design training on-line and the creation of learning communities on-line.

Khan<sup>100</sup> has developed the theoretical model framework for eLearning course, which contains eight dimensions: institutional, pedagogical, technological, design interface, assessment, management, support resources and ethics. Each dimension has subdimensions, with particular emphasis on environmental aspects specific to an eLearning course.

Educational environments Web (Web-Based Course Enviroment-WBCE) teaching systems are very complex, suitably equipped a platform of learning on the Web. Some institutions projected his own educational environment Web, but this is generally done a commercial eLearning platform.

In order to implement eLearning solutions have been developed framework models. One model of eLearning framework has been developed by eLearnity Ltd. in England, an organization that provides private companies and public institutions consulting solutions in the implementation of the eLearning course<sup>101</sup>.

In our country one of the pilot framework models has been implemented is MEDSCEN research conducted by a consortium coordinated by the National Defense University of Romania “Carol I” (UNAP) and financed by ANCS (the National Authority for Scientific Research) through CNMP (the National Centre for Program Management)<sup>102</sup>.

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<sup>99</sup> **KHAN, B. H.**, *Managing e-learning: design, delivery, implementation, and evaluation*, Information Science Publishing, 2005.

<sup>100</sup> **KHAN, B. H.**, *A Framework for E-learning*, 2001, at [<http://www.bookstoread.com/framework/>]

<sup>101</sup> \*\*\* - “Learning Management and Portals”, White Paper, eLearnity Ltd, UK, 2001.

<sup>102</sup> Roceanu, I: *Framework model for the design, implementation and securing access within a system elearning Course*, Bucuresti, 2010.

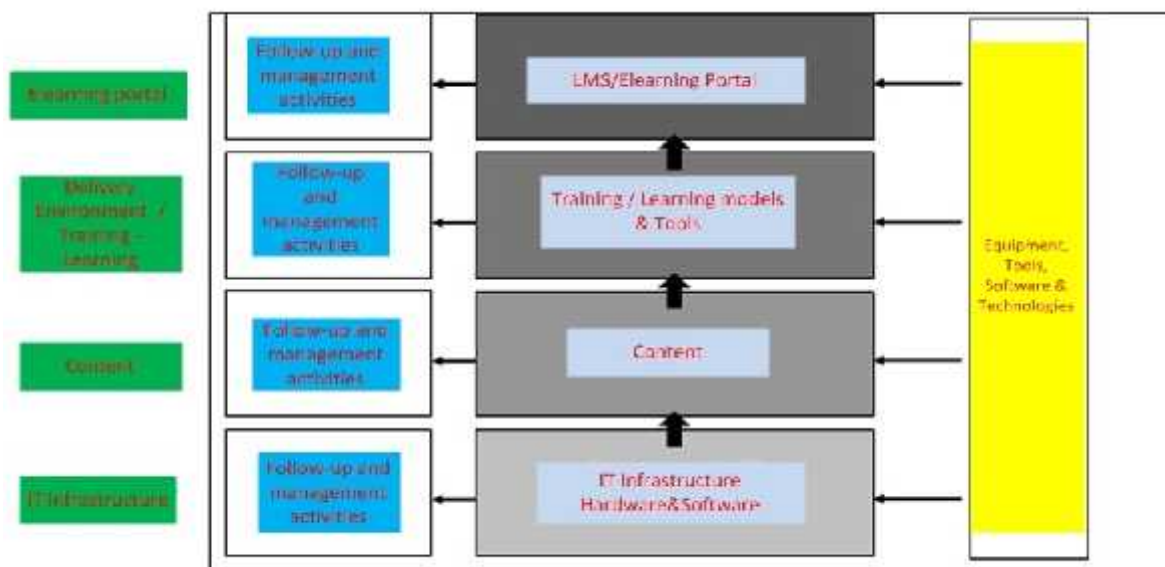


Figure nr. 1 (Taken from Roceanu , I: Framework model for the design, implementation and securing access within a system eLearning course, Bucharest, 2010.

In the lowest level are placed processes, technologies, and equipment's they ensures your IT&C infrastructure of the solution eLearning course.

The upper layers of the framework model have a support in to a computerized infrastructure (the IT&C infrastructure in the model frame) composed of computers, networking equipment, storage devices, basic software (operating systems), and other hardware and software products specific to this level.

Also, in case of portal e-learning companies, IT infrastructure for eLearning solution is integrated into your IT infrastructure.

Technical Solution chosen for the task of implementing IT infrastructure is similar to that used by some of the companies under the concept of data center (Data Center).

## II. FEATURES AND OPPORTUNITIES OF THE E-LEARNING SYSTEMS

### II.1 Features in implementation eLearning systems

E-learning has become a viable alternative to traditional methods of education. Specialized studies published show a continuous increase<sup>103</sup> in the use e-learning within organizations.

When we talk about implementing an eLearning system, is needed to mention the following components necessary to complete the final objective, such as:

<sup>103</sup> <http://www.skillsoft.com/infocenter/research/default.asp>

1. IT&C Infrastructure of eLearning systems;
2. Platform of eLearning system ;
3. Qualified personnel for training assisted and maintenance the e-learning system.

In specialized studies are referred to more than one type of eLearning systems architectures, of whom one at typical may be represented as follow:

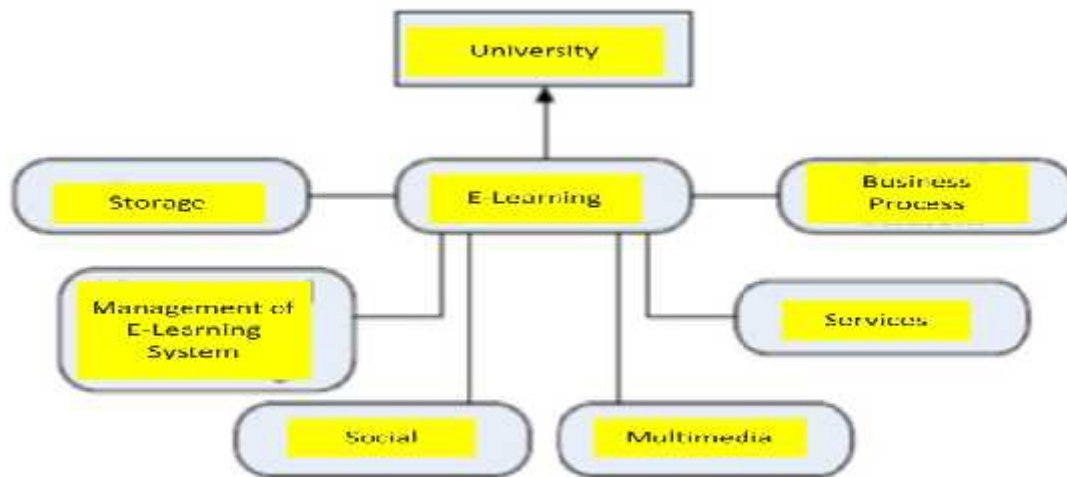


Fig. 2 Typical architecture of a system of eLearning (taken from Iulia, D, Critical study of current systems of e-learning- Bucharest-2010).

Having regard to the diagram above submitted on composing an eLearning system typical, i am going to show how something about educational characteristics of these systems, generally such as:

- a. Courses and seminars can be accessed on the website of institution;
- b. Can read publish records, books, articles;
- c. Can be created a database that will take place of the library;
- d. Examination may be claimed;
- e. May be recorded the progress of students;
- f. For the lab is possible to write programs to simulate different situations with data specific to a works.

In education systems offered to the platforms educational eLearning course, the tutor activity is subject of interest, research, development, and has a very great importance. The tutor is, the only person coming into direct contact with the student, but the role is only mediator between material progress and the trainee, but in no case of replacing a sequence of materials to learn.

We use the term of tutor to designate support activity carried out by a specialist to facilitate progress of trainee/group of people who used in learning ready materials in created with multimedia technology.

This activity may take a variety of forms:

1. Diagnosing problems to trainees;
2. Aid in respect of life-long learning;
3. Support for practical activities;
4. Enrichment course content;
5. The interpretation of the material courses.

Another feature of eLearning systems is the Virtual library that consists is a collection of resources, available on one or more computer systems, which are accessed through a single interface. Educational Resources - consist in the works in electronic format, such as: books, courses, lessons, themes, works of course, tests, presentations, programs of calculation, e.g., which shall be made in teaching materials, research or documentation.

Also, in the eLearning Systems is use Educational Software that means any product (software) in any format that can be used on any computer and which represents a subject, a theme, an experiment, a lesson, being a alternative, or single solution to traditional educational methods (steel, chalk, e. g).

Within the software products meet educational platforms collectively with facilities from simple to complex. We have thus training integrated platforms computer-assisted content management and education.

An eLearning platform is a program having following minimal requirements which allow:

1. Install, configure, and manage;
2. Educational process adaptable interface;
3. The logical support synchronous and asynchronous communication;
4. Affordable management educational content;
5. The modules educational content editing;
6. Manage and monitor information;
7. Facilitating self-assessment offline and evaluation online;
8. Feedback on the quality educational services;
9. Assist users in using the software educational;
10. Continuous training program.

The Web platforms offer eLearning open-source has reached a massive configuration, many universities and prestigious institutions in adopting such a solution for the organization of courses online.

In eLearning systems evaluations will take it also notes some distinct from traditional educational system.

The computer-assisted assessment puts in practice a series of practical benefits. The most important of them is immediate access to the results of the tests and feedback from the students, which is much faster.

However, implementation of assessment by electronic means is closely linked to the infrastructure, the experience of teaching in working with these means.

May also be presented aspects about eLearning research and implementation laboratories.

The eLearning research laboratories and implementation has occurred for the following reasons: in the light of the development of educational programs that are offered on the support virtual and educational materials to be processed and presented in a certain form of digital information, which has recently been standardized according to SCORM standards, which has been presented in Chapter I.

Within the framework of these labs, in addition to technical support which is offered by the departments IT&C (engineers and programrs) in online distribution of educational programs on platforms eLearning course and technical assistance, it is necessary that their work to blend effectively with employment specialists with extensive experience of science education field: teachers, instructors.

The eLearning research and implementation laboratories course has been investigated in many projects of many large universities in the world which provides education on educational eLearning platforms, of which we can remember as examples:

- The International Relations and Security Network's e-learning Project, Swiss Federal Institute of Technology Zurich, 2003;

- Knowledge-based training systems and the engineering of instruction, training and retraining, New York,2000;

- Open University U.K. ;

- Open University of Catalonia.

In our country began research in the field of laboratories eLearning course with the launch national project Computerized Education System launched by the Ministry of



Education and Research, but also in a project very well structured and developed with success at the University of National Defense, beginning in 2004 .

The project that is mentioned started with the creation of a pilot development program which has had to create the basic deployment of advanced distributed learning program (ADL) and this project was completed.

Implementation of the results of pilot system requirements resulting in a draft education eLearning system which may consists of the following components on an as needed basis:

- E-Learning laboratory;
- Management of education (Learning Management System - LMS);
- Educational programs in accordance with the standards SCORM 2004;
- Educational Programs which are not in accordance with the standard SCORM 2004;
- Virtual Library;
- Infrastructure Intranet and Internet.

## **II.2 Advantages and disadvantages of eLearning systems**

Advantages of this type of learning are as follows: accessibility, flexibility and comfort, the user can decide alone, the date and time of which is involved in the activity of learning.

E-learning have many advantages over the traditional education system, as follows<sup>104</sup>:

1. *Geographical independence, mobility* – means the possibility to access the content educational material from anywhere, at any time, with the help of IT&C infrastructure;
2. *Accessibility online* - a major feature specifically for this type of education, means access to education through the Internet in real time, from anywhere, at any time, there is no dependency on time;
3. *Selective and concise presentation of educational content*;
4. *Training methods miscellaneous programs e-learning must be based on various training methods*;
5. *Apart the learning process* - each trained has a learning self-paced courses, browsing can be made gradually and repeatedly, featuring a feedback quickly and permanently;
6. *Online management systems* - using e-learning requires ensuring security users, for them to be recorded, monitoring of students and of the services offered in the network;

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<sup>104</sup> Iulia, D, Critical study of current systems of e-learning- Bucharest-2010.

7. *Low-cost distribution of software educational and learning electronic solutions*- their costs are lower than those involved in the learning session "Classic", because they are eliminated travel expenses, rental of premises for courses, accommodation and meals;
8. *Reduced time of study* - the subject will not interrupt work to follow a course, but will "lost" only a few hours daily to learn online or offline, on your computer;
9. *Asynchronous and synchronous interactions* - the two types of interaction between trainers and students to be completed;
10. *Dynamic technologies miscellaneous* - they allow a feedback pronounced, in real time, carried out in a manner and by easy assessors most prompted.

All these advantages there was show, are implemented within the education eLearning system course which is being implemented at the University of National Defense, under the coordination of professor Phd. Roceanu Ion.

The main disadvantages of education e-learning type are following:

1. There is no direct interaction with teachers during educational activities;
2. *High rate of abandonment of the students*<sup>105</sup> - this type of education requires consistent and sustained efforts on the part of all participants in the process instructional. Students must be highly motivated, otherwise this installs the phenomenon of school abandonment which is much more frequently in distance education than traditional education;
3. *Requires experience in the field of the use computers* - trainees are required certain knowledge in IT&C;
4. *Substantial costs for design and maintenance* - these include and expenditure with the technology, the transmission information in the network, the maintenance of the machine, production materials necessary. Compared, however, with all the costs involved in educational classic, these are clearly smaller. The Structural Diagram of this system eLearning course which may be implemented in various institutions to provide educational programs offered on the support virtual could be.

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<sup>105</sup> <http://www.irrodl.org/index.php/irrodl/article/view/192/274>.

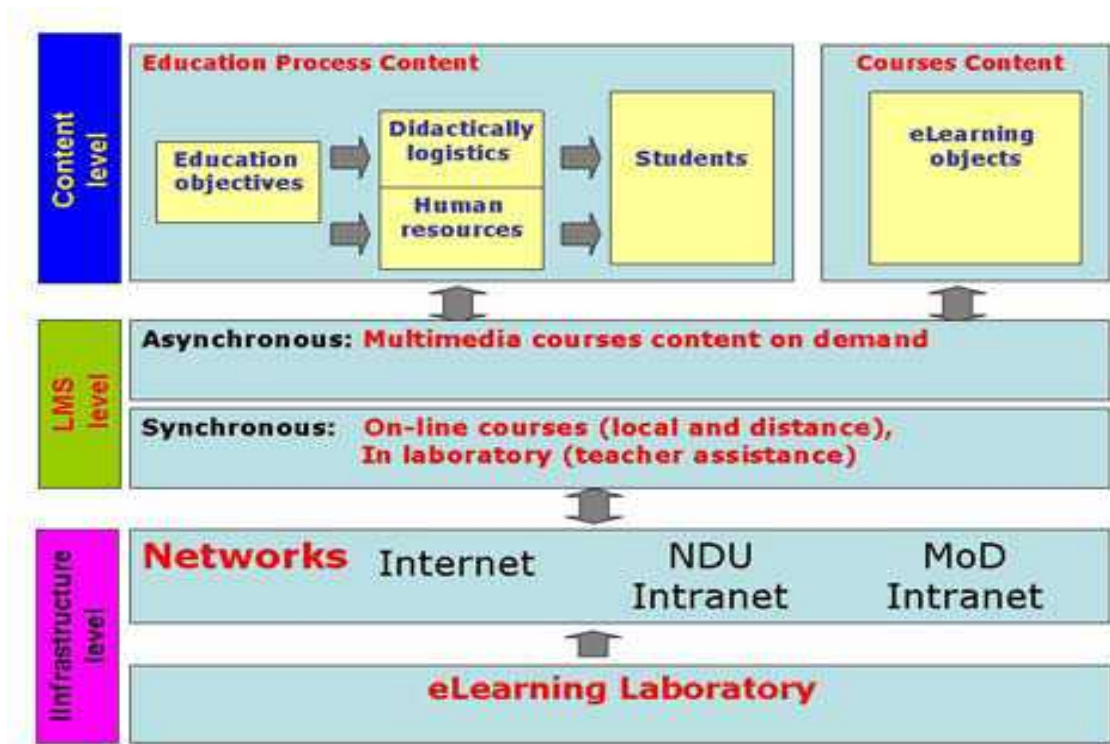


Fig. nr. 3 (taken by Roceanu ,I, ” The basic elements of an e-learning system based on the principles ADL" - the session of scientific communications "challenges of security and strategy at the beginning sec XXI" -section "e-learning and educational software", UNAp Publishing House,Bucuresti, 2005.

Finally the main steps to work the eLearning systems are the following:

- 1.) Instructional designer creates content;
- 2.) Content is loaded into LMS;
- 3.) Content is deployed to a content server;
- 4.) Learner requests content;
- 5.) Content is launched;
- 6.) Results are passed back to LMS.

### II.3 Opportunities in training with eLearning Systems

It no longer has necessarily a novelty that virtual training opportunities are practically very numerous in the world but also in our society.

The main opportunities to training personnel using eLearning systems may be grouped as follows:

- 1.) Participating in various courses of the various universities offering virtual education programs;
- 2.) Participating in various refresher courses in the various fields of activity (IT&C, technical, various domain, e.g. ) that are offered by virtual education programs;
- 3.) Access to various educational resources: portals, libraries virtual, online dictionaries, etc.

Many of traditional academic institutions have purchased or have designed their own eLearning system, accessible not only to students enrolled in the E-Learning courses, but also with those from the day courses.

Universities as well as L'université Rennes 2 - haute Bretagne in France , Universitat de Barcelona. autonomous from Spain or University of Hull in the UK provide many ease of training, information or teaching teachers and students of all forms of education.

University of New England in Australia uses the same programs, manuals, tests, exams, and teams professor committees to prepare students from courses by day and those of eLearning course, this type of integrated educational system being adopted and of the United States, Israel and New Zealand.

There are also universities operating exclusively in eLearning regime, whose prestige is perfectly similar to that held by the universities traditional: Open University UK , located on top of the first ten universities in the UK, Virtual Open University and University of Phoenix Online in the United States, the African Virtual University , Universidad Nacional de Education a Distancia in Spain , The Virtual Lund University in Sweden or Open University of the Netherlands.

In the case of Romania, have occurred in the last few years several institutions provide training exclusively through eLearning, as well as Academia Online or Timsoft, Cisco Academy, and some projects that they support and material for the purpose of modern methods of education (School Online, 1educated, etc. ).

National Defense University, Regional Department of Defense Management Studies and Special Telecommunications Service have implemented our eLearning systems based on Ilias integrated platform.

As regards eLearning systems developed for military personnel of the specific institutions, they do not much different features listed anterior, with the specification that because classified information that sometimes it can make wheeling requires a specific

accreditation on educational networks and a powerful system of data protection (authentication, encryption, means of protection against cyber-attack, e.g.).

Also, many traditional universities in our society developed a Web portal, providing authenticated access to various materials and sections, as well as virtual library, email account, online catalog, training materials, e.g.

Regarding to participating in various refresher courses in the various fields of activity may be mentioning the following examples: Cisco Academy <http://www.cisco.com>, Academia Online: <http://www.academiaonline.ro/>, Timsoft: <http://www.timsoft.ro/>, eg.

Other significant educational resources to training and learning personnel can be exemplified:

1. Portals: Portal SEI: <http://portal.edu.ro/>, Portal 1educat – [www.1educat.ro](http://www.1educat.ro), Portal [www.edu.ro](http://www.edu.ro), e. g;
2. AEL - native platform, integrated computer-assisted training;
3. World Lecture Hall –gateway to the supports the progress of the universities around the world.; Fathom - free resources and courses paid by a great quality, Wikipedia is a free online encyclopedia that is offered in Romania since to 2003, BBC Languages, e.g.

## CONCLUSIONS

The new information and communication technologies are having a profound impact on the way in which we obtain information, communicate and undertake training.

The challenges they present for education and training are many, and affect highly diverse sectors of society.

Challenges for employment presented by the new jobs created and the new skills required.

Challenges for the cultural environment brought about by the Internet-based development of new services which influence cultural patterns and are perceived sometimes as a threat to, sometimes as an opportunity for cultural and linguistic diversity in Europe.

Challenges for education particularly that of ensuring that technological innovation really serves education and can be seen to be of genuine value in teaching and educational terms in highly diverse learning contexts, while respecting linguistic, cultural and social differences.

Information and communications technology influence educational practice. E-Learning Education courses have appeared as an alternative to the traditional type, which we can say that he must embrace opportunities because its use very large in the new technology.

Also, they can say that it is still the dualism, of the existence together of the two forms of education.

If you do not want to embrace eLearning education must evolve on the traditional, applying the techniques of teaching and learning generated by the information society.

From its appearance, education eLearning course has evolved continuously; In an environment based on a new technology, the teachers must form and subsequently to develop skills in the use for handling computer information, this fact and not only by becoming a problem sometimes.

Romania's integration in U. E. advertisement on the one hand an upgrade of continuing vocational training of the teaching staff as well as a matching forms of training of the Treaty. Also in the effort of harmonization with EU member countries, may appear as needed to keep the content of training.

Currently virtual education system has many followers that we can identify as agents of change to traditional education.

In this context, it may be considered appropriate and of great importance this process of change the traditional education system with the virtual educational system.

In the Romanian education are many technical implementation begins with computerized educational system (IT equipment, access to the internet) and resources for the development of digital content.

The most issue in implementation of the new educational system is changing, and success depends, in the first place, if conceptually is a clear picture of the new educational system, and its implementation management is well-researched and supported.

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# AERONAUTICAL DECISION-MAKING

*CAPT CDER Gheorghe STANCU*

## INTRODUCTION

Life is full of decisions. Some are so naturally that we are hardly aware of making them. Others take more effort because they have significant and lasting implications. Flying is also full of decisions. Many may appear to be routine, but even “small” decisions made in the cockpit can have a large impact on flight safety<sup>106</sup>. Good aeronautical decision-making (ADM) is therefore an essential pilot skill.

For over 25 years, the importance of good pilot judgment, or ADM, has been recognized as critical to the safe operation of aircraft, as well as accident avoidance. Research in this area prompted the Federal Aviation Administration (FAA) to produce training directed at improving the decision-making of pilots and led to current FAA regulations that require that decision-making be taught as part of the pilot training curriculum. ADM research, development, and testing culminated in 1987 with the publication of six manuals oriented to the decision-making needs of variously rated pilots. These manuals provided multifaceted materials designed to reduce the number of decision-related accidents.

The effectiveness of these materials was validated in independent studies where student pilots received such training in conjunction with the standard flying curriculum. When tested, the pilots who had received ADM training made fewer in-flight errors than those who had not received ADM training. The differences were statistically significant and ranged from about 10 to 50 percent fewer judgment errors. In the operational environment, an operator flying about 400,000 hours annually demonstrated a 54 percent reduction in accident rate after using these materials for recurrent training.

The importance of learning and understanding effective ADM skills cannot be overemphasized. While progress is continually being made in the advancement of pilot training methods, aircraft equipment and systems, and services for pilots, accidents still occur. Despite all the changes in technology to improve flight safety, one factor remains the same:

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<sup>106</sup> Safety is the state in which the possibility of harm to persons or of property damage is reduced to, and maintained at or below, an acceptable level through a continuing process of hazard identification and safety risk management.



the human factor, which leads to errors. It is estimated that approximately 80 percent of all aviation accidents are related to human factors, and the vast majority of these accidents occur during landing (24.1 percent) and takeoff (23.4 percent). ADM helps reduce risk. To understand ADM is to understand also how personal attitudes can influence decision-making and how those attitudes can be modified to enhance safety in the flight deck. It is important to understand the factors that cause humans to make decisions and how the decision-making process not only works, but also can be improved. Contrary to popular belief, good judgment can be taught.

### **I. What is Aeronautical Decision-Making?**

To fly an airplane safely, you need three sets of separate, but related, aeronautical skills:

*Physical Airplane*-you need basic stick-and-rudder skills to safely control the airplane itself. When you learn to fly, work on a new pilot certificate, rating, or endorsement, or transition to a new airplane, the emphasis naturally tends to fall on manoeuvres (“air work”) that help you develop the necessary “physical airplane” skills.

*Mental Airplane*-you need to fully understand and correctly operate the various aircraft systems, which some experts characterize as the “mental airplane” component. These include avionics, hydraulics, fuel, electrical, and other systems that help you fly, navigate, and communicate.

*Aeronautical Decision-Making (ADM)*-many pilots get in trouble not because of deficient “physical airplane” or “mental airplane” skills, but because of faulty ADM and risk management skills. Why should that be so? One reason is that ADM, unlike physical airplane and mental airplane skills, is an invisible process. An instructor or examiner can easily observe and evaluate your ability to land the aircraft (physical airplane) or your proficiency in programming the GPS (mental airplane).

ADM, on the other hand, is a process that takes place inside the pilot’s brain. Because ADM is harder to observe and evaluate than basic aircraft control and systems skills, it sometimes gets less emphasis than it deserves.

So what exactly is ADM? In AC 60-22, the FAA defines ADM as a

*Systematic approach to the mental process used by all involved in aviation to consistently determine the best course of action for a given set of circumstances.*

Although this sentence provides a good description of the ADM process, you may be asking yourself how to translate this formal definition into practices that you can easily use in

real world flying. Tradition held that good judgment was a natural by-product of experience, and as pilots continued to log accident-free flight hours, a corresponding increase of good judgment was assumed. Building upon the foundation of conventional decision-making, ADM enhances the process to decrease the probability of human error and increase the probability of a safe flight. ADM provides a structured, systematic approach to analysing changes that occur during a flight and how these changes might affect a flight's safe outcome. The ADM process addresses all aspects of decision-making in the flight deck and identifies the steps involved in good decision-making.

ADM results in helping to manage risk. When a pilot follows good decision-making practices, the inherent risk in a flight is reduced or even eliminated. Since ADM enhances management of an aeronautical environment, all pilots should become familiar with and employ ADM.

### **I.1. ANALYTICAL DECISION-MAKING**

Analytical decision-making is a form of decision-making that takes *both time and evaluation* of options. A form of this type of decision-making is based upon the acronym "**DECIDE**" which provides a six-step process for the pilot to logically make good aeronautical decisions:

**Detect** a change or hazard. Key in any decision-making is detecting the situation and its subtleties as a hazard; otherwise, no action is taken by the pilot. It is often the case that the pilot fails to see the evolving hazard. On the other hand, a pilot who does see and understand the hazard, yet makes a decision to ignore it, does not benefit from a decision-making process.

**Estimate** the need to counter or react to the change. This requires that the team verify its information and the affect the information has on the situation. It also requires us to determine if we need to react to the change. Questions that help estimate the significance include:

- Who is affected; who is not?
- What situation is affected; what related things are not affected?
- Where is the problem?
- When did the problem occur?
- Do areas affected by the problem affect other areas? To what extent?

Pitfall: Too often, teams detect change and want to immediately take action without a thorough analysis.

Choose a desirable outcome for the flight. Selecting a desirable outcome requires objectivity, and this is when pilots make grave errors. Instead of selecting the course of outcome with consideration to challenges of airmanship, pilots typically select an outcome that is convenient for both themselves and others. And without other onboard or external input, the choice is not only faulty but also reinforced by their rationale.

Identify actions that can successfully control the change. The more choices available to decision-makers, the more likely an optimal solution can be found. Given that teams are composed of more than one person, the resources required to identify more than one alternative are usually available.

Pitfall: Too often, team members believe that they don't have the time to make suggestions, even when they see other alternatives. Usually the first course of action considered is the one taken.

Do take the necessary action. The risk to safety of each alternative should be assessed along with its conformance to established standards. Effective teams routinely update contingencies during the mission so that the time it takes to affect this step is minimal. Act in accordance with the alternative that best satisfies mission and safety criteria.

Pitfall: Too often, teams take shortcuts in choosing the best alternative by deliberately not complying with known practices of prudent pilots and/or ignoring effective risk management principles.

Evaluate the effect of the action. In many cases, the pilot is so sure of his decision that the evaluation phase of his action is simply on track and on glide slope, despite impossible conditions. Because the situation seems in control, no other evaluation of the progress is applied.

## **I.2. AUTOMATIC DECISION-MAKING**

In an emergency situation, a pilot might not survive if he rigorously applied analytical models to every decision made; there is not enough time to go through all the options. But under these circumstances, does he find the best possible solution to every problem? For the past several decades, research into how people actually make decisions has revealed that when pressed for time, experts faced with a task loaded with uncertainty, first assess whether the situation strikes them as familiar. Rather than comparing the pros and cons of different approaches, they quickly imagine how one or a few possible courses of action in such situations will play out. Experts take the first workable option they can find. While it may not be the best of all possible choices, it often yields remarkably good results. It appears the

expert's ability hinges on the *recognition of patterns* and consistencies that clarify options in complex situations. Experts appear to make provisional sense of a situation, without actually reaching a decision, by launching *experience-based actions* that in turn trigger creative revisions. This is a reflexive type of decision-making based on training and experience and is most often used in times of emergencies when there is no time to practice analytical decision-making. Naturalistic or automatic decision-making improves with training and experience, and a pilot will find himself using a combination of decision-making tools that correlate with individual experience and training.

## **II. The 3-P Model for ADM**

Making a risk assessment is important, but in order to make any assessment the pilot must be able to see and sense surroundings and process what is seen before performing a corrective action. To help pilots put the concept of ADM into practice, the FAA Aviation Safety Program developed a new framework for aeronautical decision-making and risk management: *Perceive – Process – Perform*.

This model offers a simple, practical, and systematic approach to accomplishing each ADM task during all phases of flight. To use it, the pilot will:

### **II.1. PERCEIVE**

To navigate to a particular destination, the first step is to determine exactly where you are right now. The same principle applies in ADM: to navigate to a safe outcome, you first need to understand the “given set of circumstances” you face. The first step in the 3-P model, *PERCEIVE*, is about developing a clear and comprehensive awareness of your particular situation. Consider it as PAVE (Pilot, Aircraft, enVironment, External pressures):

#### **II.1.1. PILOT loss of situational awareness**

Situational awareness is the accurate perception and understanding of all the factors and conditions within the four fundamental risk elements (pilot, aircraft, environment, and type of operation) that affect safety before, during, and after the flight. Thus, loss of situational awareness results in a pilot not knowing where he is, an inability to recognize deteriorating circumstances, and the misjudgement of the rate of deterioration.

Accidents often occur when *flying task requirements exceed pilot capabilities*. The difference between these two factors is called the margin of safety. The margin of safety is

minimal during the approach and landing, therefore, at this point, an emergency or distraction could overtake pilot capabilities, causing an accident.

To maintain situational awareness, all of the skills involved in aeronautical decision-making are used. For example, an accurate perception of pilot fitness can be achieved through self-assessment and recognition of hazardous attitudes.

The pilot is one of the risk factors in a flight. The pilot must ask, “Am I ready for this trip?” in terms of experience, currency, physical and emotional condition. The **IMSAFE** checklist provides the answers:

**Illness**-Am I sick? Illness is an obvious pilot risk.

**Medication**-Am I taking any medicines that might affect my judgment or make me drowsy?

**Stress**—Am I under psychological pressure from the job? Do I have money, health, or family problems? Stress causes concentration and performance problems. While the regulations list medical conditions that require grounding, stress is not among them. The pilot should consider the effects of stress on performance. Some of the more important factors affecting individual performance are listed below:

a) Physical factors. These include the human’s physical capabilities to perform the required tasks, e.g. strength, height, vision and hearing.

b) Physiological factors. These include those factors which affect the human’s internal physical processes, which can compromise physical and cognitive performance, e.g. oxygen availability, general health and fitness, disease or illness, tobacco, drug or alcohol use and fatigue.

c) Psychological factors. These include those factors affecting the psychological preparedness of the human to meet all the circumstances that might occur, such as adequacy of training, knowledge and experience, and workload.

d) Psycho-social factors. These include all those external factors in the social system of humans that bring pressure to bear on them in their work and non-work environments, e.g. an argument with a supervisor, a death in the family, personal financial problems or other domestic tension.

4. **Alcohol**-Have I been drinking within 8 hours? Within 24 hours? As little as one ounce of liquor, one bottle of beer, or four ounces of wine can impair flying skills. Alcohol also renders a pilot more susceptible to disorientation and hypoxia.

5. **Fatigue**-Am I tired and not adequately rested? Fatigue continues to be one of the most insidious hazards to flight safety, as it may not be apparent to a pilot until serious errors are made.

6. **Eating**-Have I eaten enough of the proper foods to keep adequately nourished during the entire flight?

### **II.1.2. Flying outside the envelope of *AIRCRAFT***

Flying outside the envelope is an unjustified reliance on the mistaken belief that the airplane's high performance capability meets the demands imposed by the pilot's (usually overestimated) flying skills. While it can occur in any type aircraft, advanced avionics aircraft have contributed to an increase in this type accident.

Advanced avionics aircraft includes a variety of aircraft from the newly designed to retrofitted existing aircraft of varying ages. What they all have in common are complex avionics packages. The availability of global positioning system (GPS) and moving map systems coupled with traffic and near real-time weather information in the flight deck, may lead pilots to believe they are protected from the dangers inherent to operating in marginal weather conditions.

While advanced flight deck technologies may mitigate certain risks, it is by no means a substitute for ADM. The challenge is this: How should a pilot use this new information in flight to improve the safety of flight operations? The answer to this question lies in how well the pilot understands the information, its limitations, and how best to integrate this data into the ADM process.

What limitations will the aircraft impose upon the trip? Ask the following questions:

- Is this the right aircraft for the flight?
- Am I familiar with and current in this aircraft? Aircraft performance is based on a brand new aircraft flown by a professional test pilot. Keep that in mind while assessing personal and aircraft performance.
- Is this aircraft equipped for the flight?
- Can this aircraft carry the planned load?
- Can this aircraft operate at the altitudes needed for the trip?
- Does this aircraft have sufficient fuel capacity, with reserves, for trip legs planned?
- Does the fuel quantity delivered match the fuel quantity ordered?

### **II.1.3. Operational pitfalls due to environment**

Operational pitfalls are traps that pilots fall into, avoidance of which is actually simple in nature. A pilot should always have an alternate flight plan for where to land in case of an emergency on every flight. For example, a pilot may decide to spend a morning flying the traffic pattern but does not top off the fuel tanks because he is only flying the traffic pattern. Make considerations for the unexpected. What if another aircraft blows a tire during landing and the runway is closed? What will the pilot in the traffic pattern do? Although the odds may be low for something of this nature to happen, every pilot should have an alternate plan that answers the question, “Where can I land?” and the follow-up question, “Do I have enough fuel?”

*Weather* is a major environmental consideration. Earlier it was suggested pilots set their own personal minimums, especially when it comes to weather. As pilots evaluate the weather for a particular flight, they should consider the following:

- What are the current ceiling and visibility? In mountainous terrain, consider having higher minimums for ceiling and visibility, particularly if the terrain is unfamiliar.
- Consider the possibility that the weather may be different than forecast. Have alternative plans and be ready and willing to divert.
- Consider the winds at the airports being used and the strength of the crosswind component.
- If flying in mountainous terrain, consider whether there are strong winds. Strong winds in mountainous terrain can cause severe turbulence and downdrafts and be very hazardous for aircraft even when there is no other significant weather.
- If there are clouds, is there any icing, current or forecast? What are the temperature/dew point spread and the current temperature at altitude?
- If icing conditions are encountered, is the pilot experienced at operating the aircraft’s deicing or anti-icing equipment? Is this equipment in good condition and functional?

*Terrain* - evaluation of terrain is another important component of analyzing the flight environment. To avoid terrain and obstacles, especially at night or in low visibility, determine safe altitudes in advance by using the altitudes shown on charts during preflight planning. Use maximum elevation figures and other easily obtainable data to minimize chances of an in-flight collision with terrain or obstacles.

*Airport:*

- What lights are available at the destination and alternate airports? Is the terminal airport equipped with them? Are they working? Will the pilot need to use the radio to activate the airport lights?

- Check the Notices to Airmen for closed runways or airports. Look for runway or beacon lights out, nearby towers.

- Choose the flight route wisely. An engine failure gives the nearby airports supreme importance.

- Are there shorter or obstructed fields at the destination and/or alternate airports?

***Airspace:***

- If the trip is over remote areas, are appropriate clothing, water, and survival gear onboard in the event of a forced landing?

- If the trip includes flying over water or unpopulated areas with the chance of losing visual reference to the horizon, the pilot must be prepared to fly under instruments.

- Check the airspace and any temporary flight restriction along the route of flight.

***Nighttime***-night flying requires special consideration:

- If the trip includes flying at night over water or unpopulated areas with the chance of losing visual reference to the horizon, the pilot must be prepared to fly under instruments.

- Will the flight conditions allow a safe emergency landing at night?

- Preflight all aircraft lights, interior and exterior, for a night flight. Carry at least two flashlights-one for exterior preflight and a smaller one that can be dimmed and kept nearby.

***II.1.4. External Pressures*** are influences external to the flight that creates a sense of pressure to complete a flight-often at the expense of safety. Factors that can be external pressures include the following:

- Someone waiting at the airport for the flight's arrival.

- A passenger the pilot does not want to disappoint.

- The desire to impress someone (Probably the two most dangerous words in aviation are "Watch this!").

Emotional pressure associated with acknowledging that skill and experience levels may be lower than a pilot would like them to be. Pride can be a powerful external factor!

Management of external pressure is the single most important key to risk management because it is the one risk factor category that can cause a pilot to ignore all the other risk factors. External pressures put time-related pressure on the pilot and figure into a majority of accidents. The use of personal standard operating procedures is one way to manage external



pressures. The goal is to supply a release for the external pressures of a flight. These procedures include but are not limited to:

- Allow time on a trip for an extra fuel stop or to make an unexpected landing because of weather.
- Have alternate plans for a late arrival.
- For really important trips, plan to leave early enough so that there would still be time to drive to the destination.
- Advise those who are waiting at the destination that the arrival may be delayed. Know how to notify them when delays are encountered.
- Manage passengers' expectations. Make sure passengers know that they might not arrive on a firm schedule, and if they must arrive by a certain time, they should make alternative plans.
- Eliminate pressure to return home, even on a normal day flight, by carrying a small overnight kit containing prescriptions, contact lens solutions, or other necessities on every flight.

The key to manage external pressure is to *be ready for and accept delays*. Remember that people get delayed when traveling on airlines, driving a car, or taking a bus. *The pilot's goal is to manage risk, not create hazards.*

All four elements (**PAVE**) combine and interact to create a unique situation for any flight. Pay special attention to the pilot-aircraft combination, and consider whether the combined "pilot-aircraft team" is capable of the mission you want to fly.

## **II.2. PROCESS**

In the second step, the goal is to *process* learned and practiced information to determine whether the identified hazards<sup>107</sup> constitute risk<sup>108</sup>.

The degree of risk posed by a given hazard can be measured in terms of exposure or potential mishap and death. As you receive information, it is filtered through the five senses: sight, sound, smell, touch, and taste. Not all information makes it through the system. You might not hear correctly, or some of the errors prevalent in human decision making might come into play. In this step, however, the goal is to organize the information, interpret it, and

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<sup>107</sup> A hazard is a present condition, event, object, or circumstance that could lead to or contribute to an unplanned or undesired event.

<sup>108</sup> Risk is the future impact of a hazard that is not controlled or eliminated.

try to match the alternatives with situations from your experience. To analyse in a structured way, process with **CARE**:

- **Consequences**<sup>109</sup> of each hazard associated with the **PAVE** elements (e.g., departing after a full workday creates fatigue & pressure).
- **Alternatives** available (e.g., delay until morning; reschedule meeting; drive).
- **Reality** of the situation or hazard (e.g., dangers and distractions of fatigue could lead to an accident).
- **External** factors that might influence your analysis (e.g., business meeting at destination might influence me).

A realistic evaluation of each situation should result in a simple go or no-go decision. There are a few very good tools and rules that can help you make those decisions objectively. Consistent use of these tools can also help with quick recognition of errors we do make, and safe management of the resulting situation.

Some pilots like to use a pre-flight risk assessment checklist to help with the ADM and risk management processes. This kind of form assigns numbers to certain risks and situations, which can make it easier to see when a particular flight involves a higher level of risk.

What is risk management? *Risk management is a decision-making process designed to systematically identify hazards, assess the degree of risk, and determine the best course of action.* The level of risk (Fig. 1) posed by a given hazard is measured in terms of *severity* (extent of possible loss) and *probability* (likelihood that a hazard will cause a loss). Another element in assessing risk is exposure (number of people or resources affected).

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<sup>109</sup> A consequence is defined as the potential outcome (or outcomes) of a hazard. The damaging potential of a hazard materializes through one or many consequences.

<i>Severity</i>			<b>Higher</b>		
<i>Likelihood</i>			<b>Lower</b>		
↑	AC	CE	UN	AC	C
↑	A	TA	BLE	EP	TA
<b>More</b>	C	C	WITH	MIT	BLE
<b>Less</b>					
↓	E	P	T	IGA	TI
↓	A	B	L	E	ON

(Fig. 1 ) Level of risk

### ***II.2.1.Principles of Risk Management***

As you work through the ADM cycle, especially the “*process*” step in which you analyse the information you have perceived in preparation for the “*perform*” step, it might help you to remember the four fundamental principles of risk management.

1. Accept no unnecessary risk. Flying is not possible without risk, but unnecessary risk comes without a corresponding return. If you are flying a new airplane for the first time, you might determine that the risk of making that flight in low weather conditions is unnecessary.

2. Make risk decisions at the appropriate level. Risk decisions should be made by the person who can develop and implement risk controls. Remember that you are pilot-in-command, so never let anyone else-not air traffic controller and not your passengers-make risk decisions for you.

3. Accept risk when benefits outweigh dangers. In any flying activity, it will be necessary to accept some degree of risk. A day with good weather, for example, is a much

better time to fly an unfamiliar airplane for the first time than a day with low weather conditions.

4. Integrate risk management into planning at all levels. Because risk is an unavoidable part of every flight, safety requires the use of appropriate and effective risk management not just in the pre-flight planning stage, but in all stages of the flight.

### **II.3. PERFORM**

Once you have *perceived* a hazard and *processed* its impact on flight safety, it is time to *PERFORM* by taking the best course of action, and then evaluating its impact. Your goal is to:

- Mitigate or eliminate the risk.
- Evaluate the outcome of action.

*Safety risk management is a generic term that encompasses the assessment and mitigation of the safety risks of the consequences of hazards that threaten the capabilities of an organization, to a level as low as reasonably practicable.* The objective of safety risk management is to provide the foundation for a balanced allocation of resources between all assessed safety risks and those safety risks the control and mitigation of which are viable. Safety risk management is therefore a key component of the safety management process.

Its added value, however, lies in the fact that it is a data-driven approach to resource allocation, thus defensible and easier to explain. Figure 2 depicts a broadly adopted generic visual representation of the safety risk management process.

Safety risks assessed as initially falling in the intolerable region are unacceptable under any circumstances. The probability and/or severity of the consequences of the hazards are of such a magnitude, and the damaging potential of the hazard poses such a threat to the viability of the organization, that immediate mitigation action is required. Generally speaking, two alternatives are available to the organization to bring the safety risks to the tolerable or acceptable regions:

- a) Allocate resources to reduce the exposure to, and/or the magnitude of, the damaging potential of the consequences of the hazards; or
- b) If mitigation is not possible, cancel the operation.

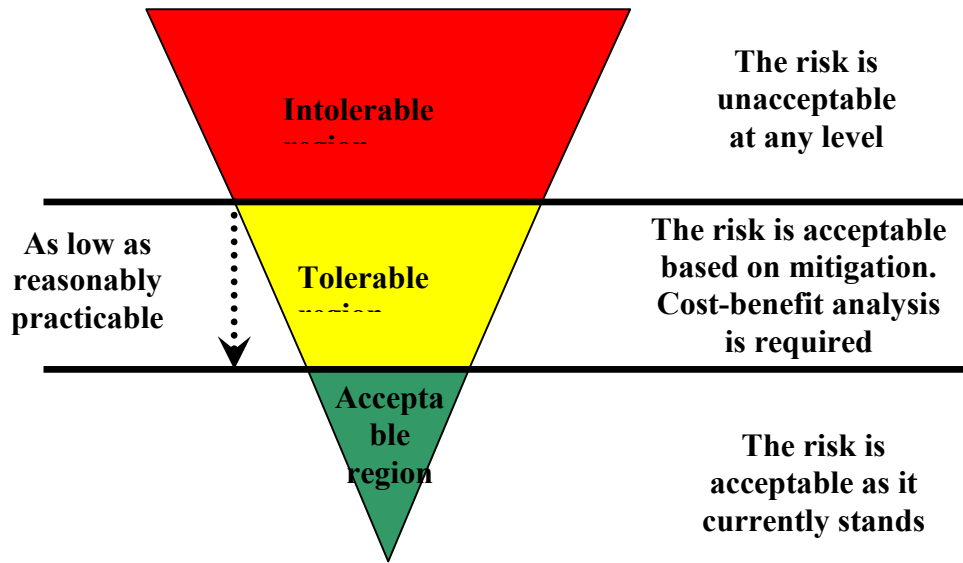


Figure 2 Safety risk management process

Safety risks assessed as initially falling in the tolerable region are acceptable, provided mitigation strategies already in place guarantee that, to the foreseeable extent, the probability and/or severity of the consequences of hazards are kept under organizational control. The same control criteria apply to safety risks initially falling in the intolerable region and mitigated to the tolerable region. A safety risk initially assessed as intolerable that is mitigated and slides down to the tolerable region must remain “protected” by mitigation strategies that guarantee its control. In both cases, a cost-benefit analysis is required:

- a) Is there a return on the investment underlying the allocation of resources to bring the probability and severity of the consequences of hazards under organizational control? or
- b) Is the allocation of resources required of such magnitude that will pose a greater threat to the viability of the organization than bringing the probability and/or severity of the consequences of hazards under organizational control?

The process of bringing the safety risks of the consequences of hazards under organizational control starts by assessing the probability that the consequences of hazards materialize during operations aimed at delivery of services. This is known as assessing the safety risk probability<sup>110</sup>.

The definition of the likelihood of a probability can be aided by questions such as:

- a) Is there a history of similar occurrences to the one under consideration, or is this an isolated occurrence?

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<sup>110</sup> Safety risk probability is defined as the likelihood that an unsafe event or condition might occur.

- b) What other equipment or components of the same type might have similar defects?
- c) How many personnel are following, or are subject to, the procedures in question?
- d) What percentage of the time is the suspect equipment or the questionable procedure in use?

Based on the considerations emerging from the replies to questions such as those listed above, the probability that an unsafe event or condition might occur can be established and its significance assessed using a safety risk probability table. Figure 3 presents a typical safety risk probability table, in this case, a five-point table. The table includes five categories to denote the probability of occurrence of an unsafe event or condition, the meaning of each category, and an assignment of a value to each category.

	<b>Meaning</b>	<b>Value</b>
<b>Frequent</b>	<b>Likely to occurs many times (has occurred frequently)</b>	<b>5</b>
<b>Occasional</b>	<b>Likely to occurs sometimes (has occurred infrequently)</b>	<b>4</b>
<b>Remote</b>	<b>Unlikely to occur, but possible (has occurred rarely)</b>	<b>3</b>
<b>Improbable</b>	<b>Very unlikely to occur (not known to have occurred)</b>	<b>2</b>
<b>Extremely improbable</b>	<b>Almost inconceivable that the event will occur</b>	<b>1</b>

**Figure 3 Safety risk probability table**

Once the safety risk of an unsafe event or condition has been assessed in terms of probability, the second step in the process of bringing the safety risks of the consequences of hazards under organizational control is the assessment of the severity of the consequences of the hazard if its damaging potential materializes during operations aimed at delivery of services. This is known as assessing the safety risk severity<sup>111</sup>. The assessment of the severity of the consequences of the hazard if its damaging potential materializes during operations aimed at delivery of services can be assisted by questions such as:

- a) How many lives may be lost (employees, passengers, bystanders and the general public)?
- b) What is the likely extent of property or financial damage (direct property loss to the operator, damage to aviation infrastructure, third-party collateral damage, financial and economic impact)?
- c) What is the likelihood of environmental impact (spillage of fuel or other hazardous product, and physical disruption of the natural habitat)?

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<sup>111</sup> Safety risk severity is defined as the possible consequences of an unsafe event or condition, taking as reference the worst foreseeable situation.

Based on the considerations emerging from the replies to questions such as those listed above, the severity of the possible consequences of an unsafe event or condition, taking as reference the worst foreseeable situation, can be assessed using a safety risk severity table. Figure 4 presents a typical safety risk severity table, also a five-point table.

Severity of occurrence	Meaning	Value
Catastrophic	- Equipment destroyed - Multiple deaths	A
Hazardous	- A large reduction in safety margins, physical distress or a workload such that the operator cannot be relied upon to perform their tasks accurately or completely - Serious injury - Major equipment damage	B
Major	- A significant reduction in safety margins, a reduction in the ability of the operators to cope with adverse operating conditions as a result of increase in workload, or as a result of conditions impairing their efficiency - Serious incident - Injury to persons	C
Minor	- Nuisance - Operating limitations - Use of emergency procedures - Minor incidents	D
Negligible	- Little consequences	E

Figure 4 Safety risk severity table

Once the safety risk of the consequences of an unsafe event or condition has been assessed in terms of probability and severity, the third step in the process of bringing the safety risks of the consequences of the unsafe event or condition under organizational control is the assessment of the tolerability of the consequences of the hazard if its damaging potential materializes during operations aimed at delivery of services. This is known as assessing safety *risk tolerability*. This is a two-step process.

First, it is necessary to obtain an overall assessment of the safety risk. This is achieved by combining the safety risk probability and safety risk severity tables into a safety risk assessment matrix, an example of which is presented in figure 5.

Risk probability	Risk severity				
	Catastrophic A	Hazardous B	Major C	Minor D	Negligible E
Frequent 5	<b>5A</b>	<b>5B</b>	<b>5C</b>	<b>5D</b>	<b>5E</b>

Occasional	4	<b>4A</b>	<b>4B</b>	<b>4C</b>	<b>4D</b>	<b>4E</b>
Remote	3	<b>3A</b>	<b>3B</b>	<b>3C</b>	<b>3D</b>	<b>3E</b>
Improbable	2	<b>2A</b>	<b>2B</b>	<b>2C</b>	<b>2D</b>	<b>2E</b>
Extremely Improbable	1	<b>1A</b>	<b>1B</b>	<b>1C</b>	<b>1D</b>	<b>1E</b>

Figure 5 Safety risk assessment matrix

Second, the safety risk index obtained from the safety risk assessment matrix must then be exported to a safety risk tolerability matrix that describes the tolerability criteria. The criterion for a safety risk assessed as 4B is, according to the tolerability table in figure 6, “unacceptable under the existing circumstances”. In this case, the safety risk falls in the intolerable region of the inverted triangle. The safety risk of the consequences of the hazard is unacceptable. The pilot must:

- a) Allocate resources to reduce the exposure to the consequences of the hazards;
- b) Allocate resources to reduce the magnitude or the damaging potential of the consequences of the hazards; or
- c) Cancel the operation if mitigation is not possible.

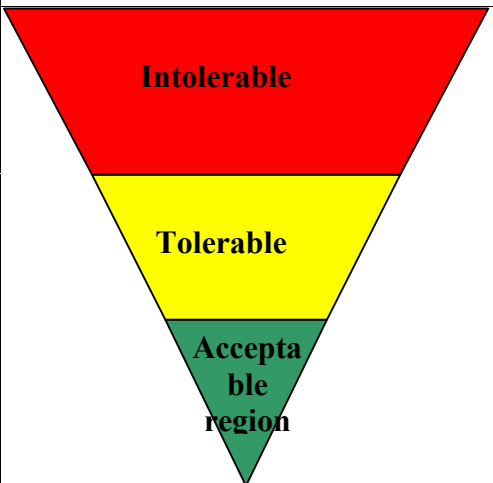
Suggested criteria	Assessment risk criteria	Suggested criteria
	<b>5A, 5B, 5C, 4A, 4B, 3C</b>	Unacceptable under the existing circumstances
	<b>5D, 5E, 4C, 4D, 4E, 3B, 3C, 3D, 2A, 2B, 2C</b>	Acceptable based on risk mitigation
	<b>3E, 2D, 2E, 1A, 1B, 1C, 1D, 1E</b>	Acceptable

Figure 6 Safety risk tolerability matrix



In the fourth and final step of the process of bringing the safety risks of the consequences of an unsafe event or condition under control, control/mitigation strategies must be deployed. Generally speaking, control and mitigation are terms that can be used interchangeably. Both are meant to designate measures to address the hazard and bring under organizational control the safety risk probability and severity of the consequences of the hazard.

There are three generic strategies for safety risk control/mitigation:

- a) Avoidance. The operation or activity is cancelled because safety risks exceed the benefits of continuing the operation or activity. Example: Operations into an aerodrome surrounded by complex geography and without the necessary aids are cancelled;
- b) Reduction. The frequency of the operation or activity is reduced, or action is taken to reduce the magnitude of the consequences of the accepted risks. Example: Operations into an aerodrome surrounded by complex geography and without the necessary aids are limited to daytime, visual conditions;
- c) Segregation of exposure. Action is taken to isolate the effects of the consequences of the hazard or build in redundancy to protect against them. Example: Operations into an aerodrome surrounded by complex geography and without the necessary aids are limited to aircraft with specific performance navigation capabilities.

## **EVALUATE**

The relative success or failure of the flight-maybe even the life-or-death moment-may hinge on how well you have perceived, processed, and performed in the ADM process. There is one more important step in the model: EVALUATE. Constantly consider the outcome of every decision that you make. Question your judgment and your action (or inaction) at every step, and then start the 3-P process all over again. As with a good instrument scan in instrument meteorological conditions, the ADM process should not stop until your airplane is parked, shut down, and securely tied down.

The 3P model is intended to be a constant loop within which the pilot measures his actions through perception of the current, dynamically changing situation. Failure to do so results in error, an accident, and possible death.

Another important tool-overlooked by many pilots-is a good post-flight analysis. When you have safely secured the airplane, take the time to review and analyse the flight as objectively as you can. Mistakes and judgment errors are inevitable; the most important thing is for you to recognize, analyse, and learn from them before your next flight.

## **CONCLUSIONS - Common Errors in ADM**

The importance of learning effective ADM skills cannot be overemphasized. While progress is continually being made in the advancement of pilot training methods, airplane equipment and systems, and services for pilots, accidents still occur. Despite all the changes in technology to improve flight safety, one factor remains the same, the human factor<sup>112</sup>. It is estimated that approximately 75 percent of all aviation accidents are human factors related.

No matter how hard we try, it is simply not possible for human beings to avoid errors entirely, especially when complex systems are involved. By using a systematic approach to continuous ADM, however, and developing awareness of common types of human ADM error, we can seek to minimize mistakes. Pilot mistakes are often called “pilot error”<sup>113</sup>.

Sometimes, pilot error involves deficiencies in aircraft control, or "physical airplane," skill. These errors can be prevented through manoeuvres-based training and practice.

In other cases, accidents attributed to pilot error result from shortcomings in the pilot's "mental airplane" systems knowledge. Examples might include wrong programming the autopilot, or turning the wrong knob on the GPS navigator. Use of aircraft training devices, computer-based training, and regular practice in the aircraft can help prevent these errors.

At least in part, the act of perception relates to physical elements-everything from your eyesight to the condition of the audio system in the rented airplane you are flying. The five senses of sight, sound, smell, touch, and taste are the conduits for 100 percent of the external information going to your brain. These sensory filters are those circumstances that block some or all of that information from making the journey from outside your head to inside your head. Perception (i.e., the act of acquiring information) is also affected by limitations of the human brain:

- Processing in the human brain is limited to about four bits of information per second.
- Working memory capacity is limited to about seven (plus or minus two) chunks, or pieces, of information at a time. However, our experience, education, and intuition give us the ability to “fill in gaps” in what we really obtained through the five senses. For example, you

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<sup>112</sup> Human Factors-the study of how pilot performance is influenced by such issues as the design of cockpits, the function of the organs of the body, the effects of emotions, and the interaction and communication with the other participants of the aviation community, such as other crewmembers and air traffic control personnel.

<sup>113</sup> Pilot error is an action or inaction that leads to a deviation from intentions and expectations.

may not have heard exactly every single word of the ground controller's taxi instructions, but your experience, training, intuition, and expectation help you fill in the missing words.

Internal influences, such as motivation, attitude, emotion, distraction, and predisposition (e.g., expectation) also play a role in how your brain compensates for missing information. The problem, of course, is that you might fill in the gaps incorrectly and that, because the fill-in activity is so smooth and automatic, you may not even be aware that it has occurred. The pilot should examine decisions carefully to ensure that the choices have not been influenced by a hazardous attitude<sup>114</sup>.

Type of attitude	Hazardous attitude	Antidotes
<p><b>1. Anti-Authority:</b> "Don't tell me."</p>	<p>This attitude is found in people who do not like anyone telling them what to do. In a sense, they are saying, "No one can tell me what to do." They may be resentful of having someone tell them what to do, or may regard rules, regulations, and procedures as silly or unnecessary.</p>	<p>Follow the rules. They are usually right.</p>
<p><b>2. Impulsivity:</b> "Do it quickly."</p>	<p>This is the attitude of people who frequently feel the need to do something, anything, immediately. They do not stop to think about what they are about to do; they do not select the best alternative, and they do the first thing that comes to mind.</p>	<p>Not so fast. Think first.</p>
<p><b>3. Invulnerability:</b> "It won't happen to me."</p>	<p>Many people feel that accidents happen to others, but never to them. They know accidents can happen, and they know that anyone can be affected. They never really feel or believe that they will be personally involved. Pilots who think this way are more likely to take chances and increase risk.</p>	<p>It could happen to me.</p>
<p><b>4. Macho:</b> "I can do it."</p>	<p>Pilots who are always trying to prove that they are better than anyone else are thinking, "I can do it –I'll show</p>	<p>Taking chances is</p>

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<sup>114</sup> Attitude is a personal motivational predisposition to respond to persons, situations, or events in a given manner that can, nevertheless, be changed or modified through training as sort of a mental shortcut to decision making.

	them." Pilots with this type of attitude will try to prove themselves by taking risks in order to impress others.	foolish.
<b>5. Resignation:</b> "What's the use?"	Pilots who think, "What's the use?" do not see themselves as being able to make a great deal of difference in what happens to them. When things go well, the pilot is apt to think that it is good luck. When things go badly, the pilot may feel that someone is out to get me, or attribute it to bad luck. The pilot will leave the action to others, for better or worse. Sometimes, such pilots will even go along with unreasonable requests just to be a "nice guy."	I am not helpless. I can make a difference.

Human limitations can play a significant role in how we perceive, process, and perform in complex activities, like flying. For example:

*Filtering:* The brain's working memory capacity is limited to about seven (7) pieces, or “chunks,” of information at one time, so one of the life skills we acquire is the ability to filter the flood of information arriving through our senses. In any flight, especially one with challenging weather, we may unconsciously screen out vital information. Use of the **PAVE** checklist as a guide to your ongoing mental hazard scan can help prevent inappropriate filtering, because it provides a comprehensive and methodical approach to the information gathering process.

*Filling in the gaps:* When there is more information than the brain can accurately perceive and process, it compensates by filling in the gaps and producing an interpretation that is not correct.

*Patterns and Expectations:* The brain uses existing knowledge and experience as a shortcut to processing new information. This tendency can be useful, but it can also be dangerous. Example: If previous experience at a familiar airport leads you to expect a clearance to land on runway 10, you may "hear" a clearance to land on “one-zero,” even if the controller in fact clears you to land on runway 01.

*Confirmation Bias:* Human beings also have a tendency to look for information that confirms a decision we have already made. For example, imagine that you have decided to continue a flight you have already started. You call Flight Watch for updated weather information on several nearby airports, but you might unconsciously give more weight to the information that supports your decision to press ahead.

The "reality" part of the systematic ADM process is especially useful in countering errors associated with patterns, expectations, and confirmation bias. Make a conscious effort to identify your expectations, and then be alert to how reality differs.

*Framing:* When you evaluate options for a decision, be sensitive to how you state, or "frame," your alternatives. Assume you are deciding whether to continue a flight in deteriorating weather. If you frame the "continue" decision in positive terms (e.g., "I can save a lot of time and inconvenience if I go on"), you are probably more likely to decide on continuing. If, on the other hand, you frame the decision in negative terms (e.g., "I could get myself in real trouble if I push on"), you are more likely to divert to a safer destination.

So, what exactly ADM is? From the moment your feet hit the floor in the morning until the key is safely back in your pocket at the end of each flight, you as the pilot (or crew member) have a never-ending series of decisions to make. This process begins long before the master is switched on. The process of good ADM is a continuous flow of information in and actions out.

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# THE RISK MANAGEMENT IN THE GOVERNMENT QUALITY ASSURANCE FOR THE DEFENSE PRODUCTS

*Capt cdr eng. Gheorghe STOICA*

## INTRODUCTION, DEFINITIONS

**Government Quality Assurance (GQA)** is the process by which NATO Nations provide each other and NATO organizations Quality Assurance *services on defense products*, to establish confidence that the contractual requirements relating to quality are met.

**GQA** is performed on those contractual requirements either posing risks to or required by law of the acquiring Nation.

The GQA process is implemented by authority of NATO Standardization Agreement **STANAG 4107** “Mutual Acceptance of Government Quality Assurance and Usage of Allied Quality Assurance Publications” that has been ratified by each of the participating NATO Nations.

The GQA process is initiated after a contract and/or a derived subcontract is issued and a **risks assessment** determines that GQA is necessary.

Risk assessment is an effective means of determining the appropriate amount and type of Government resources to be applied to a GQA delegation.

**Risk**, within the context of GQA, is an uncertain event or condition that has both a likelihood of occurring and a negative effect on the fulfillment of the contractual requirements relating to quality.

GQA is not intended to replace or replicate Supplier activities, including inspection and Quality Management System (QMS) auditing. GQA is intended only to provide **confidence** that the Supplier activities related to quality are performed effectively, giving confidence to the Acquirer that contractual requirements relating to quality will or have been met.

**Delegatee** is the appropriate authority of a NATO Nation *performing* GQA after acceptance of the RGQA.

**Delegator** is the appropriate authority of a NATO Nation or NATO Agency *requesting* GQA in a NATO supplying Nation.

The **Risk Identification, Assessment and Communication** (RIAC) or other GQA records shall be used by the *Delegator* to review, revise or adjust current **Request for Government Quality Assurance** (RGQA) requirements, as necessary, and for enhancing the quality of future GQA requests and by the *Delegatee* to adjust GQA plans accordingly.

Delegatee with **Government Quality Assurance Representative** (GQAR) will pursue Delegator requirements formulated in RGQA

## I. INTENT AND SCOPE

The intention of this paper is to present the processes by which NATO Nations request and provide mutual GQA. **GQA process** is implemented by NATO Standardization Agreement 4107, which was ratified by each of the participating NATO Nations.

The **GQA process** is initiated after a contract and/or a derived subcontract is issued and a risk assessment determines that GQA is necessary.

Romania, as part of NATO country ratified STANAG 4107 - Mutual Acceptance of Government Quality Assurance and Usage of the Allied Quality Assurance Publication.

According to the Government Decision HG no. 1073/ 1996 for assessment, certification and quality surveillance of military product suppliers, Romania MoND organizes and performs quality evaluation and certification of armed forces suppliers by Military Body for Certification, Accreditation and Surveillance (MBCAS) –OMCAS within the Armaments Department.

Surveillance of quality assurance at suppliers for defense systems and equipments during contract validity shall be performed by Quality Surveillance Service (QSS), in accordance with GQA plan. QSS is Armaments Department subordinate structure and working under the direct coordination of the Contracts Management Directorate.

GQA process is performed after the signing and starts of the contract, through the evaluation of risks, it is determined that the GQA is needed. The method of planning and development of the GQA depends largely on the kind of the contract (for example: development, production and maintenance contract), on the complexity of the product and the resources the supplier has.

The GQAR activities must be based on the analysis of defined risks (by contract or RIAC received from the Delegator), of risks identified after the analysis of the contract requirements, of procedures and work instructions applicable by the supplier and from other sources.

GQAR will perform the identification and analysis of risks based on the contract requirements (RGQA and RIAC when they are received), using all available data and information sources like:

- Customer Feedback-Risk Information gained from the customers or users of products previously produced by the supplier, i.e. customer complaints;
- Supplier Past Performance - Systems or processes which, based on the supplier's performance on previous contracts, are likely to have an adverse impact on the product or on contract performance, schedule, or cost requirements;
- Previous Risk Feedback – Risk information and recommendations received from the Delegatee on previously completed RGQA or the current RGQA;
- Pre-award Surveys - Risk information (or lack thereof) that may have been identified during contract pre-award QA surveys or QA audits;
- System or Process Certification - Risk information associated with 2nd or 3rd party certifications, product or process certification, use of product testing laboratories etc.
- Project Office - If the contract is managed by a project office, risk information may be available from the risk manager;
- Key or Critical Product Characteristics or Processes – Processes or Product elements or features which, if not properly controlled, can have an adverse impact on the product delivery, cost and performance;
- Supplier Inexperience - Systems or processes which, based on the supplier's inexperience, can have an adverse impact on the product or on product delivery, cost and performance;
- Contract Review – Reviewing the contract may identify additional risks that may have an adverse impact on the product or on product delivery, cost and performance. Include reviews of associated documents e.g. Supplier quality, risk, configuration management plans if available.

The purpose of risks assessment is to identify factors that might have a negative influence on output elements of the GQA process.

The risks are identified, analyzed and evaluated in regard to the product, process and organization.



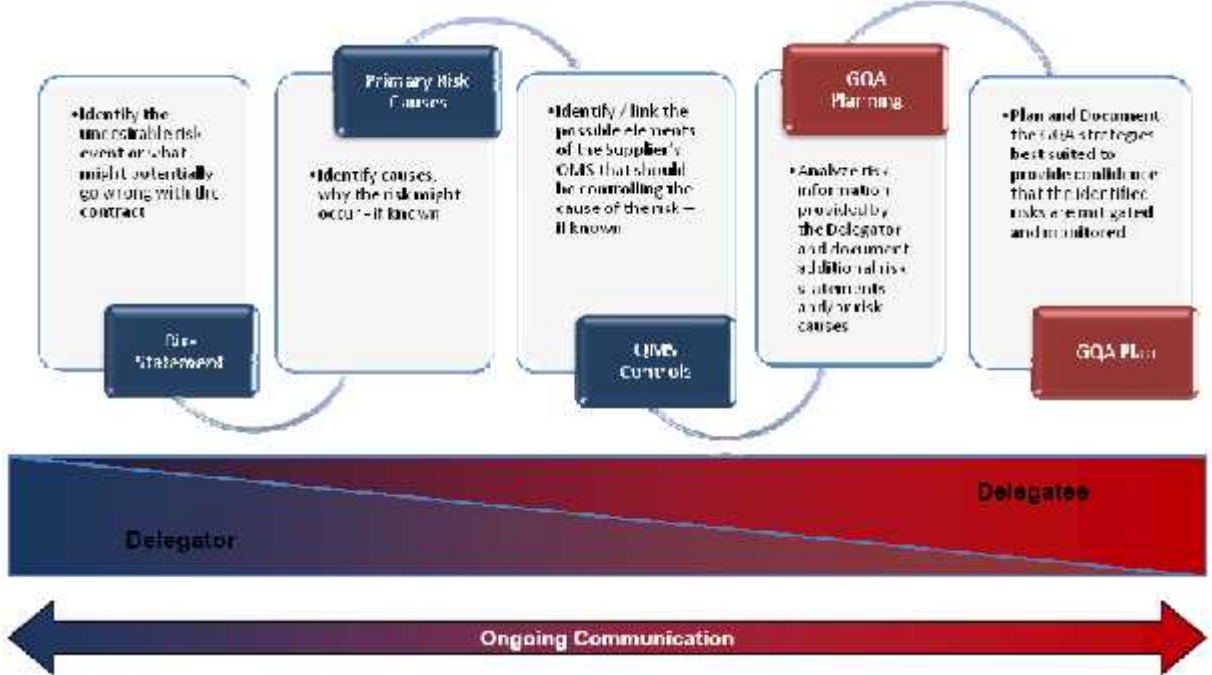
In order to control the identified risks, GQAR must establish a GQA plan, which will be updated based on the GQA results.

For simple products with low potential risks (spare parts, accessories, consumables) or shelf products, the GQA plan is not developed.

**II. RISK IDENTIFICATION AND ASSESSMENT**

The Delegator and Delegatee need to communicate to develop as accurate as possible reflection of the risk, based on their joint perspectives.

Figure<sup>115</sup> below illustrates how the accuracy of risk information can be improved by the input of both the GQAR and the Delegator and used in GQA planning.



The **Risk Identification, Assessment and Communication (RIAC)** form contains all the necessary fields to effectively record and communicate the results of initial risk assessments and ongoing reviews. The RIAC is to be used to communicate current risk information between the GQA Participants and shall be attached to all RQGA forms.

The information from the RIAC shall be used by the GQA Participants to generate and maintain records of risk information throughout the life of the GQA Delegation.

In order to plan and perform risk based GQA it is important to understand the constituents of risk, their attributes, controlling processes, influences and interrelationships.

The constituents of risk are:

<sup>115</sup> AQAP 2070 NATO Mutual Government Quality Assurance (GQA), Ed.2, 2009, pag.C1

- a) *Risk Statement*
- b) *Risk Cause*
- c) *Risk Impact*
- d) *Risk Likelihood*
- e) *Risk Index*

For the purposes of GQA the **risk statement** describing ‘what might go wrong’ should be expressed as an event having a negative effect on the product’ delivery schedule, cost and/or performance. The risk statement should reflect concerns with fulfillment of the contractual requirements related to quality. In developing the **risk statement**, it is often helpful to consider the reasons for specific product specifications or contractual Quality Management System (QMS) requirements, as they should relate directly to what is important to the product user. This is the primary reason why the Acquirer or Delegator has more insight into the risk impact.

The **risk statement** may, especially for new programs or Suppliers, be quite general. As GQA is performed the risk information should mature and the risk knowledge should increase. Risk should be reassessed and the RIAC revised, if appropriate.

Identification of the **risk causes** ‘Why might go wrong?’ is necessary for GQA planning. For GQA purposes the **risk causes** are expressed in terms of the processes that, if ineffective, could lead to the negative effect on the product delivery schedule, cost and/or performance. The risk causes should be linked to the contractual QMS requirements e.g. AQAP or equivalent. Any pertinent information from previous occurrences should be provided, directly or by reference. There may be numerous processes and sub-processes that contribute to the effective control of product delivery, cost and/or performance and therefore, numerous **risks causes**.

Identified risks require a quantitative assessment to determine whether GQA is necessary and support GQA planning. The risk assessment should take account of the impact of the risk and the likelihood of its occurrence. Assessment of each, leading to the risk index, shall take into account three levels for both impact and likelihood.

The **risk impact** represents how critical the consequence of the risk occurring would be, High (9), Medium (4) or Low (1), according AQAP 2070. Normally the Delegator has greater insight into the risk impact. It should be noted that GQA can have

little or no influence on the risk impact. Table<sup>116</sup> below shows typical attributes of high, medium and low **risk impacts** to aid GQA participants to quantify risk impact.

<b>Risk Impact</b>	<b>Attribute</b>
<b>High (9)</b>	<p>The risk event could reasonably result in loss of human life or serious injury or complete failure of mission.</p> <p>Typically, designators such as critical safety item (CSI), flight safety item, submarine first level. Are used to identify products or characteristics with this attribute. The event would be the result a single point failure.</p> <p>Serious or permanent environmental damage, for example radiation leak or widespread chemical contamination.</p> <p>The loss of critical assets for example, assets critical to military operations that are not easily replaced or secret information.</p> <p>The product would not fulfill the intended purpose and cannot be satisfied by alternative means, e.g. another product or system.</p> <p>Product lead time is long, it is single source supply or procuring redundancy is prohibitively expensive.</p> <p>Lack of equipment availability would impact current military operations.</p>
<b>Medium (4)</b>	<p>The risk event would result in injury or disruption of the mission, for example, a significant delay, increased cost.</p> <p>The product capability would be restricted so that 1 or more key capabilities would be compromised.</p> <p>Non critical, but key characteristics or special requirements affected.</p> <p>Product lead time is long and procuring redundancy is expensive.</p> <p>Lack of equipment availability would impact future military operations and/or Life extensions to existing systems would be necessary.</p> <p>Localized or temporary environmental damage.</p> <p>Significant increase of the life cycle costs.</p>
<b>Low (1)</b>	<p>Only non critical, non key characteristics or special requirements affected.</p> <p>Increased costs, within budgetary constraints</p> <p>Manageable project delays, not impacting operations</p>

<sup>116</sup> AQAP 2070 NATO Mutual Government Quality Assurance (GQA), Ed.2, 2009, pag.C4

	<p>Product appearance would be adversely affected; it is not a critical characteristic.</p> <p>Easily recoverable localized environmental impact.</p> <p>Product is widely available and not prohibitively expensive so can be replaced easily, for example consumable items, commercially available products and services.</p>
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Risk by definition is uncertain, so needs to be rationalized by an assessment of the likelihood of its occurrence to provide a balanced criterion for GQA planning. The **risk likelihood** is a quantitative assessment of the how effectively the Supplier's QMS might control product delivery, cost and/or performance. It is expressed as high (9), medium (4) or low (1), according AQAP 2070. The risk cause and the risk likelihood are closely linked by the Supplier's processes.

The assessment of risk likelihood is highly dependent on the knowledge and experience of the assessor and the available evidence. Where there is little or no evidence available, it is reasonable to assume that risk likelihood is high. In these cases GQA can be used to gather sufficient evidence to make an informed assessment.

Table<sup>117</sup> below shows typical attributes of high, medium and low risk likelihoods. Normally the GQAR, having more knowledge of the Supplier, has a greater insight into the risk likelihood.

<b>Risk Likelihood</b>	<b>Attribute</b>
<b>High (9)</b>	<p>It is highly likely to occur. A system or process is not in control. Performance data for example GQA results, current or recent experience show that the system or process will not fulfill the contractual requirements relating to quality.</p> <p>There is no evidence available of the Supplier's capability to perform the required activity.</p> <p>The uncontrolled process is used very frequently leading to increase of occurrence of the risk.</p> <p>The process is seldom used, so rarely practiced, leading to a lack of</p>

<sup>117</sup> AQAP 2070 NATO Mutual Government Quality Assurance (GQA), Ed.2, 2009, pag.C5

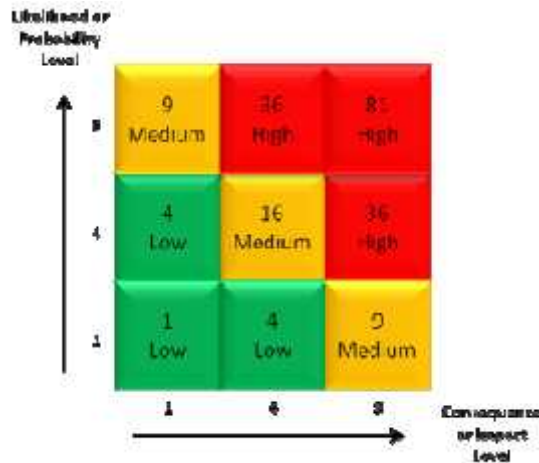
	<p>control, e.g a lack of experienced operators.</p> <p>The process is either new to the Supplier or very difficult to control. There is little or no evidence of past performance that could provide confidence of the process control.</p>
<p><b>Medium</b> <b>(4)</b></p>	<p>It is probable or likely that the risk will occur. A system or process is not in complete control or performance data, for example recent GQA results, recent experience and/or the Supplier, cast doubt on the ability of the system or process to meet the contractual requirements relating to quality.</p> <p>The process is either new to the Supplier or difficult to control. There is some evidence of control but it is insufficient to provide confidence of the process control.</p>
<p><b>Low</b> <b>(1)</b></p>	<p>It is unlikely that the risk will occur. The system or process is under control or performance data, current or recent GQA results or the Supplier provides evidence that the contractual requirements relating to quality will be met.</p>

The **risk index** is a quantitative measure of how significant a risk is and is used to priorities GQA effort. The **risk index** is the product of the **risk impact** and **likelihood**.



Figure<sup>118</sup> below, the **Risk Index Matrix**, is used to illustrate the different risk indices.

<sup>118</sup> AQAP 2070 NATO Mutual Government Quality Assurance (GQA), Ed.2, 2009, pag.C6



The Risk Index Matrix, where the project or contract involves any system part, assembly or equipment where a failure will result in catastrophic or critical failure resulting in loss of life or significant operational capability the risk impact and therefore, the risk index can never be less than 9.

It is essential that the Delegator and Delegatee conduct their own risk identification and assessment to provide a balanced view of the risks and enable the GQAR to plan GQA appropriately. Supporting comments or recommendations on the RIAC will enhance the mutual understanding of the joint risk identification and assessment.

Each time the RIAC is revised and exchanged, either from the Delegatee to the Delegator or vice versa, its issue number and date needs to be updated to assure configuration of the information.

### III. RISK BASED GQA PLANNING

#### III.1. GQA Planning

**GQA planning** is to plan appropriate activities based on identified risks.

The **risk index** is the indicator of risk priority used in **GQA planning**. Any resource spent on GQA shall be addressed to a risk and proportionate to its risk index. Normally, risks with a low index require little or no GQA. There are exceptions and so each case should be considered on its merits. Where GQA is not performed the Acquirer should be informed. The Acquirer should consider monitoring product delivery, cost and performance in order to detect variance that might affect risk status and the need for GQA. Once it is determined that GQA is to be performed, further analysis is necessary to plan GQA.

Analysis of the **risk impact** can influence the type of GQA activity, or more specifically, **depth** of the GQA activity. For **low impact** risks, QMS reviews to assure that processes are operating in accordance with planned arrangements can be sufficient to provide

confidence that contractual requirements relating to quality will be met. For **medium impact** risks process reviews and verifications should be included. For **high impact** risks the type of GQA should be expanded to include the monitoring of Supplier's product verification activities, especially for key characteristics.

Closer analysis of the **risk likelihood** should influence the *frequency* of GQA activity; the higher the likelihood, the greater the frequency of GQA that has to be considered.

The **risk cause(s)** drives GQA planning to specific *areas* of the Supplier's QMS. The details from the **risk statement** will provide the *relationship* to the product, contract, or issue of concern, providing the necessary focus on the relevant:

- a) Processes/ production lines
- b) Product life cycle stage;
- c) Sub-assembly;
- d) Departments/Teams and
- e) Sub-suppliers.

**GQA activities** should address the Supplier QMS as it is applied to the contract; to appropriate depth and frequency and at the appropriate stage of the project to gather sufficient evidence:

- a) To assure that the Supplier QMS, processes and plans are capable of meeting the contractual requirements relating to quality (review);
- b) Of the Supplier continuing fulfillment of the contractual requirements relating to quality (verification) or
- c) To assure that the Supplier takes appropriate action to correct non-conformities; Prevent their recurrence (review and verification) and
- d) Mitigate risks.

A variety of **techniques** can be used by the Delegatee (GQAR) in accordance with national practice GQA techniques should be selected based on the sources of evidence under review or verification i.e. documents, processes, products, tests etc. they include:

- a) Formal Audit;
- b) Informal audit;
- c) Interviews;
- d) Document reviews or verifications;
- e) Witnessing of any Supplier processes and/or activity and
- f) Participation/attendance of meetings.

**Reviews** are a proactive approach conducted if confidence in the suitability, adequacy and effectiveness of planned Supplier activities or actions is required; it is the comparison of the ‘required’ and the ‘to be implemented or provided’. The GQAR is typically looking for evidence to influence decision on the acceptability of Supplier plans and proposed actions, examples include:

- a) QMS or quality plan reviews;
- b) Process reviews;
- c) Planned corrective and prevent action reviews.

The parts of the QMS or the processes to be reviewed should be determined by the risk statement and the risk cause. Reviews are normally conducted during the earlier stages of a contract or process; when there is insufficient evidence or knowledge of the Supplier to provide confidence that contractual requirements relating to quality will be met.

As GQA is performed the Delegatee/ GQAR should be continually learning more about the risks that are being monitored. It is important that the GQAR uses this knowledge to review the risk status and revise the RIAC as appropriate. Changes in risk status should be supported by brief comments explaining the reason for the change.

There is a **obligation** between the GQAR and the Delegator to continually share information that might influence GQA planning throughout the life of the GQA delegation. GQA is intended to *reduce risk likelihood*, but greater knowledge might lead the GQAR to conclude that the initial assessment underestimated the risk likelihood so it might increase in the short term. GQA is not expected to influence the risk impact. If, during a GQA delegation, risk likelihood increases, it should be considered as an indicator that the type of planned GQA activity is not appropriate.

Accordingly to the GQA activity results the ‘Ongoing risk status’ shall reflect the GQAR view on the risk index (normally limited to the risk likelihood):

- a) Decreasing
- b) Stable
- c) Increasing

Each time the RIAC is revised and exchanged, either from the Delegatee to the Delegator or vice versa, its issue number and date needs to be updated to assure configuration of the information.



### III.2. GQA Plan

It is the GQAR's responsibility to determine the GQA activities and techniques best suited to monitor the identified risks and influence the Supplier's risk mitigation. The GQAR shall plan appropriate activities, taking in account relevant supplier plans and schedules, to satisfy the accepted requirements of the RGQA. All GQA activities to be performed by the GQAR shall be traceable to the risk documented in the **GQA plan**. Any identified risks not addressed by the GQA plan shall be communicated to the Delegator so that other arrangements can be made.

The GQA Plan is a dynamic document based on the initial RGQA and RIAC. Throughout the life of the GQA delegation the risk status is expected to change. The RIAC will be revised accordingly. The GQA plan shall be revised to maintain alignment to ongoing risk status.

The GQA plan<sup>119</sup> shall be prepared in accordance with national practices but shall include as a minimum:

- a) Reference to all risks being monitored;
- b) Identification of the specific systems (or elements thereof), processes and/or products requiring GQA;
- c) GQA activities for each identified Risk;
- d) Schedule of the GQA activities;
- e) Intensity of GQA, e.g. periodicity, sampling and FWD; and
- f) Other GQA activities to be performed.

Example of a GQA Plan Template

Government Quality Assurance Plan			Date:	Revision:	Copy to Delegator: Yes <input type="checkbox"/> No <input type="checkbox"/>								
Contract No:			GQAR Name:										
RGQA Ref. No:			GQAR Phone No:										
Supplier:			GQAR E-mail:										
Risk Statements:	Risk Index:			Risk Causes:	Type of GQA Activity:			Frequency:					GQA Activity Including Planned Dates:
	High	Moderate	Low		System	Process	Product	FA	6 Monthly	Quarterly	Monthly	Each 1st	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

The GQA activities identified shall be planned and performed by the GQAR without the need for specific tasking in the RGQA:

<sup>119</sup> AQAP 2070 NATO Mutual Government Quality Assurance (GQA), Ed.2, 2009, pag.B12

- a) Reviewing the Supplier QMS documentation;
- b) Establishing and maintaining GQA records;
- c) Reviewing the results of GQA;
- d) Initiating and processing of Quality Deficiency Reports; including verification of preventive and corrective actions;
- e) Initiating sub-supplier RGQA, as required and
- f) Verifying the supplier's investigations of customer complaints on current delegations.

The **GQA plan** shall be adjusted throughout the life of the GQA delegation if risk status changes or as confidence in the Supplier's ability to fulfill contractual requirements changes.

### **III.3. GQA Reports**

The GQA process is intended to provide Acquirers with confidence that their contractual requirements relating to quality will be or have been met. Confidence can be gained through the knowledge that GQA is being performed. Where the Delegator requires more visibility, GQA reports should be requested. The Delegator should recognize that the GQAR's primary task is the performance of GQA and so reporting requirements should be proportional to the project or contractual risks.

**Reports** that may be requested include:

- a) Ongoing Risk Status (RIAC Form);
- b) GQA Reports for specific activity or periodically and
- c) Quality Deficiency Reports (QDR).

Reporting details, frequency and format should be agreed through the RGQA.

A **GQA Closure Report** including the risk status at closure is mandatory and shall be provided by the GQAR without request.

If the GQAR finds that, at any time during the course of the order, GQA cannot proceed because of deficiencies in the Supplier's quality system or product and such deficiencies are of major importance or will be a cause of excessive delay, the GQAR will **immediately advise** the Delegator.

### III. GQA WITHIN ROMANIAN MoND

Romania, as part of NATO country ratified STANAG 4107 - Mutual Acceptance of Government Quality Assurance and Usage of the Allied Quality Assurance Publication.

In Romanian Armed Forces, **Military Body for Certification, Accreditation and Surveillance (MBCAS)** is responsible for management of certification, accreditation and surveillance activity. MBCAS has the obligation to organize and conduct the activities that result from STANAG 4107 requests.

Based on 2004 NATO admission, Romanian Armed Forces had to adapt **Government Quality Assurance** to fulfill the NATO requests. The main goals of the Romanian Armed Forces were interoperability with other Alliance Armed Forces and the common denominator in discussions between different quality assurance structures.

In order to fulfill these goals, Armaments Department through MBCAS, was responsible for adapting national standard and regulation. These requests oblige MBCAS to ratify STANAG 4107 and to adopt AQAP 2000 series.

The challenge was to be sure that Romania MoND suppliers are able to deliver NATO interoperable products to the Armed Forces and to have similar procedures with other countries.

AQAP 2000 series represents ISO 9001 family plus specific, supplementary, requests. The ISO 9000 family of standards is related to Quality Management Systems and designed to help organizations ensure that they meet the needs of customers and other stakeholders while meeting statutory and regulatory requirements related to the product.

The aim of this STANAG 4107 is:

- to set the process, procedures, terms and conditions under which Mutual Government Quality Assurance of defense products is to be performed by the appropriate National Authority of one NATO member nation, at the request of another NATO member nation or NATO Organization, and
- to standardize the development, updating and application of AQAP on the basis of the concept of quality assurance in the procurement of defense products.

By ratifying STANAG 4107, participating nation agree that the appropriate National Authority in a supplying country will provide in its country, upon request by the appropriate National Authority in an acquiring country or NATO organization, a **Government Quality Assurance (GQA)** service to orders in all areas of defense products and subject to the conditions contained in this STANAG 4107.

The procedures for requesting GQA and selecting an appropriate AQAP are:

- AQAP shall be requested in accordance with AQAP 2070;
- This request shall contain all necessary information;
- The Delegator shall ensure that the delegate receives a copy of the contract;
- The selection of AQAP shall be in accordance with AQAP 2009.

GQA shall be implemented based on the guidance given in AQAP 2070 and according to agreement between the Delegator and the Delegation. GQA shall address the following topics, unless otherwise agreed:

- Notification of unsatisfactory conditions;
- Certificate of conformity (CoC);
- Release for delivery;
- Deviation permits and concession;
- Delegator's participation at the performance of the contract at the supplier premises.

As a consequence of signing STANAG 4107, the GQA activity in Romanian Armed Forces is governed (but not limited) by the guidance defined in following publications:

- AQAP 2070 – Mutual Government Assurance Process. The intent of this publication is to standardize and harmonize the process by which the Participating Nations request and provide GQA to each other. Also, this publication provides instruction detailing what is considered the minimum to fulfill Nations' commitments within STANAG 4107.
- AQAP 2105 – NATO Requirements for Deliverable Quality Plans. The purpose of this publication is to define the requirements for Quality Plan in accordance with AQAP 2110/2120/2130;
- AQAP 2110 – NATO Quality Assurance Requirements For Design, Development and Production; This publication contains requirements which, if applied appropriately, provide confidence in the supplier's capability to deliver products that conform to Acquirer contract requirements.
- AQAP 2120 – NATO Quality Assurance Requirements For Production; This publication contains the requirements that address to the system that provide products, in order to satisfy the contract requirements.

- AQAP 2130 – NATO Quality Assurance Requirements For Inspection and Tests; This publication is mainly focused on requirements for inspection and tests for systems that provide products that have to satisfy the Acquirer contract requirements.

Also during the process of GQA we use the following publications:

- AQAP 2131 – NATO Quality Assurance Requirements For Final Inspection;
- AQAP 2210 – NATO Supplementary Software Quality Assurance Requirements to AQAP 2110;

The MBCAS performs GQA based on MoND Suppliers requests.

Based on certifies emitted, the MBCAS have realized the List of Certified Suppliers (LCS). The LCS shows that the suppliers have been certified by the OMBCAS and fulfilled the AQAP requests.

Due to ratification of STANAG 1407 and AQAP 2000 series adoption, combined with MBCAS audits, suppliers modified Quality Management System, being now competitive and compatible with suppliers from other NATO countries.

By adopting AQAP 2070, MBCAS founded common and conform procedures with the rest of NATO countries in order to answer on time and correctly to the GQA requests.

## **CONCLUSIONS**

NATO nations have developed their national systems for GQA to gain confidence in the quality of a product or service. The range of activities associated with these systems may include the evaluation of the capability of potential suppliers quality management system and surveillance of the contract-related activities at an appropriate level. The most important aspect of GQA is the action of assuring that all contract requirements are fulfilled by the supplier.

In a specific project the primary role of the personnel with an appointed responsibility for quality management, usually the Government Quality Assurance Representative (GQAR), is to support the acquirer GQA.

GQA cannot be performed in an exhaustive manner by GQA staff alone. For this reason GQA in NATO nations' procurement is based on co-operation with the other life-cycle participants and the allocation of resources where they are expected to be most effective.

Appropriate contract paragraphs (containing appropriate AQAP and other) and the complete visibility of the supplier's quality activities, supported by objective evidence, are necessary for the National Quality Assurance Authority to perform its task efficiently.

GQA in the supplying country should only be requested when areas of risk, associated with, for example, the product or the supplier, have been identified. The Delegatee should evaluate whether GQA is necessary based on the information from the Acquirer. If necessary, the Delegatee should define the minimum requirements for GQA.

If standards from the ISO 9000 series are used in contracts, NATO needs additional contractual quality requirements. These requirements are incorporated into the AQAP documents.

The present set of contractual AQAP 2000 series therefore includes requirements of the respective international standard plus NATO supplements as necessary.

### **REFERENCES**

1. Standardization Agreement, STANAG 4107, Mutual Acceptance of Government Quality Assurance and Usage of Allied Quality Assurance Publications (AQAPs).
2. ISO 9000:2005 Quality Management Systems - Fundamentals and Vocabulary.
3. Allied Quality Assurance Publications (AQAP 2000 series).
4. The MBCAS responsibilities

# INTEGRATED AIR BASE MANAGEMENT SYSTEM - IABMS

*CPT. CDOR. Marius ȘERBĂNECI*

## INTRODUCTION

Air forces are probably among the most expensive and valuable assets that a nation possesses. To keep the Air Force and its assets intact in peacetime is one of the most difficult tasks of both, for commanders who are directly implied to maintain necessary defense capabilities for Air Force and, for politicians who have to decide about the national budget appropriations expenditure.

By way of consequence Air Forces are looking for means and solutions to keep under control the following directions of action that are directly related to resources expenditure:

- To reduce daily operational cost;
- To maintain combat readiness of unit;
- To increase the efficiency level;
- To increase level of safety in order to avoid mishaps and loss.

Some of Allied and Non Allied States chose to implement the system generic named „Integrated Air Base Management System“ (IABMS). This IABMS, hereinafter called MSWS represents a tool available on-line at Air Base decision makers level (e.g. commanders, flight managers, chief of maintenance / logistics etc.) in order to help them to chose among optimal solutions from the efficient consumption of resources point of view, taking into account directions of action named above at bullets.

### 1. Generalities

Air Base resources:

- Human Resources (HR): pilots, maintenance personnel, auxiliary personnel and the associated qualifications;
- Material Resources (MR): airplanes, auxiliary/ground equipment, flight simulators, maintenance simulators, maintenance testers, petrol oil and lubricants (POL), sorties, flight hours, consumables, spare parts, ammunition etc.

Air Base activities: alert (e.g. QRA), pilots training in order to obtain / maintain the necessary level of qualification for missions, maintenance, technicians training, auxiliary

personnel training, search and rescue, airfield Hydrazine/emergency team, medical services, feed, transportation, accommodation, etc.

Most of the activities at the Air Base level are related to flight. These activities are organized into streams and for each activity can be associated a resource consumption (e.g. sorties generation for fighters, means whole maintenance activities for launch and recovery of aircraft).

## **2. Document Structure**

This document describes what features should have this software system in order to become end – to – end solution, the available options for obtaining and populate its' data base and some conclusions / recommendations. This section will present the concepts and features of the system that constitute its unique value. Section 1 describes in some detail the features of the system and each of its subsystems. Section 2 briefly describes system architecture, and the underline technology. Section 3 describes offline tools available for customizing and configuring the system to each unit/user's needs.

## **3. MSWS Concept and Features**

Concept: MSWS is an information technology (IT) product that must provides the end-to-end solution for the Operational (real-time) Management of any kind of military aviation unit (Wing / Squadron – Air Base level).

Features that MSWS must to ensure:

- Fully support for every step in the management of flight operations – planning, scheduling, briefing, maintenance activities, real-time execution, debriefing, and reporting;
- Fully support for every steps of adjacent tasks management that other personnel must be accomplished (e.g. especially maintenance operations for sorties generation);
- Feeding of databases and other systems as a consequence of that work, not as a separate activity (SWS is not a reporting system that people must use to report the results of their work to a database). That means that data should be entered once (and once only) at the primary source and then be immediately shared throughout the system and tailored according to specific user requests;
- Scalable to support squadrons, wings, air bases, and all of the support activities associated with the real-time management of flight & maintenance operations and their associated tasks;



- Bringing of all personnel with a role in the management of flight & maintenance operations online in a single management system tailored both to their individual roles and the entire process;
- Providing a tailored, online information gathering and decision support to each user for the collaborative management of resources, rules, changes, and risks at every step of each task in the process;
- Fully customizable for the support of any aircraft, including mixes of multiple types, models, and series of aircraft in a single squadron, wing, air base;
- Designed from the architecture through its implementation to be fully compliant with United States Department of Defense (DoD) and NATO technical standards (interoperability);
- Exchanging data readily with both migration and legacy systems, and being a timely, accurate, and coherent single point source of information on flight operations for the operational and administrative chains of command;
- Easily interfaced with command, control and intelligence systems and other management systems;
- Using both in peace and war.

## I. MSWS FEATURES/MODULES

### I.1 System Deployment

The following figures provide typical deployment of an Air Force structure at squadron and wing levels and internal / external interdependencies:

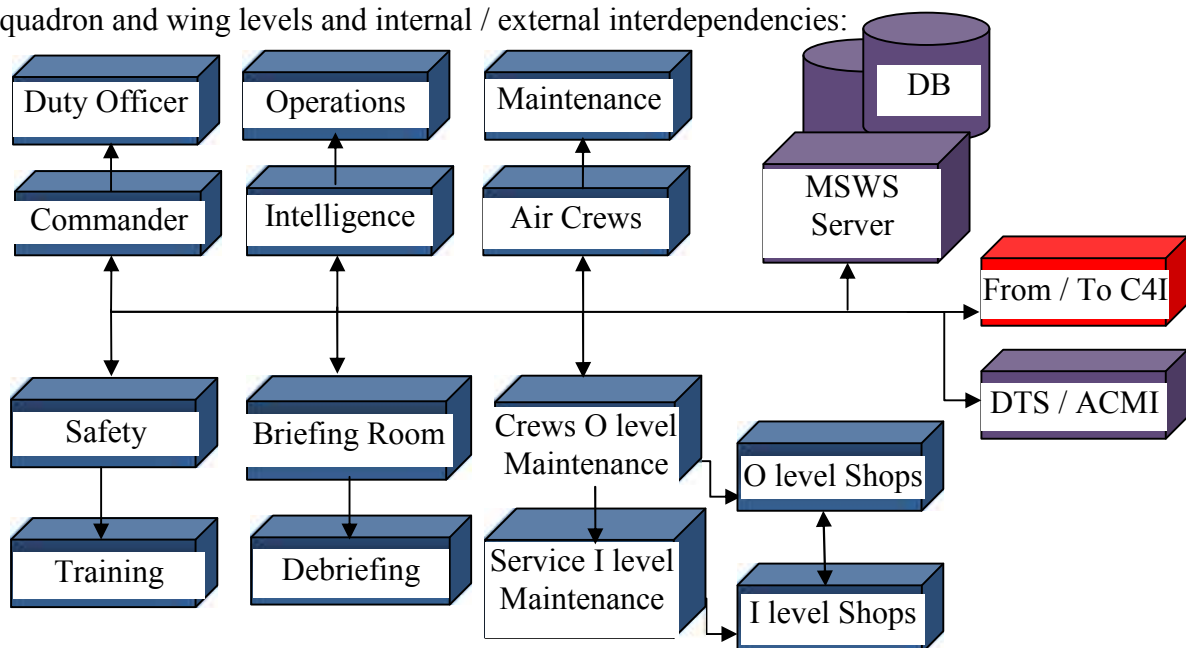


Fig. 1: Typical deployment at squadron level and internal / external interdependencies.

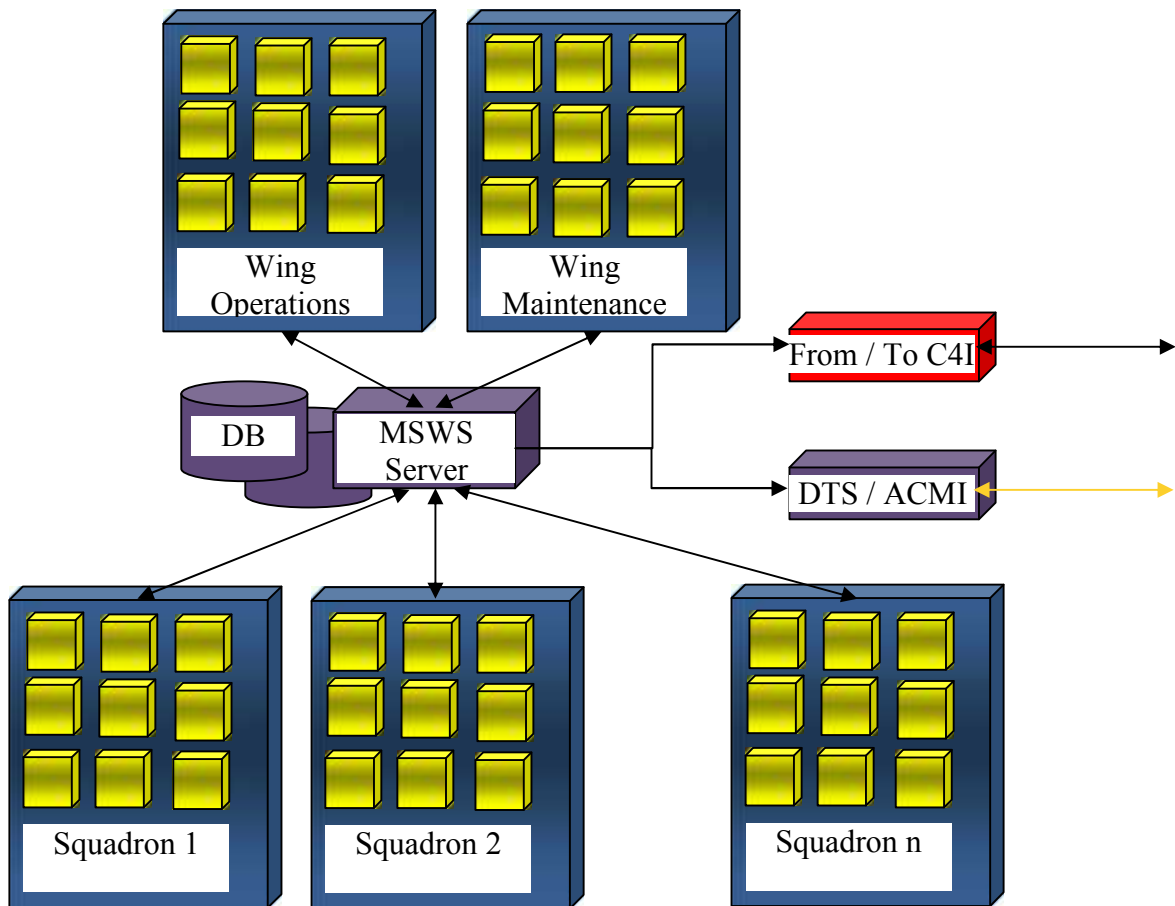


Fig. 2: Typical deployment at wing level and internal / external interdependencies.

## I.2 Means for Productivity and Collaboration

Each MSWS workstation has to have possibility to be configured to support operational functionality of specific set of tasks and users in the flight & maintenance operations management process and also has to be tailored in accordance with the customer's specific needs. Accordingly, the selected application has to be supported by one or more online decision and collaboration aids. These aids and associated features include:

**Change Notification (CN):** the system has to monitor at Object-level and has to warn changes which represent key information for a specific role.

**Approval Process (AP):** the CN mechanism has to support tracking of approvals. Each role will have the possibility to monitor and to be alerted when one (or more) of the roles did not respond to the changes generated earlier (collaborative work in interactive and distributed operational management).

**Resource management decision aids (RMDA):** two software tools - **Aircrew Posting Expert (APE)** and **Aircraft Allocation Expert (AAE)** which assist managers in selecting the right resources for each mission in full consideration of a wide range of multi-

dimensional decision factors. These tools have to be adjusted to the qualifications requirements associated to each specific mission and can be defined at Air Base level.

**Rule violations (RV):** rules monitoring and prevention or warning of actions that override rules. The rules monitored by the system are derived from force-level, aircraft type-model series, and mission-related policies and regulations. Override authority will be assigned by internal policy, and also should be controlled by the administrator (SYSAD module).

**Operational Risk Management (ORM) models:** these models should be created in collaboration with user. As soon the model is load, the system should provide online monitoring of risk at the levels of both individual resources and missions. The manager using ORM should be able to supervise not only levels of aggregate risk, but also its object-level components, and is then enabled to adjust such factors to optimize the solution.

### I.3 Solutions Map

The figure describes the end-to-end solution available for aerospace and defense.

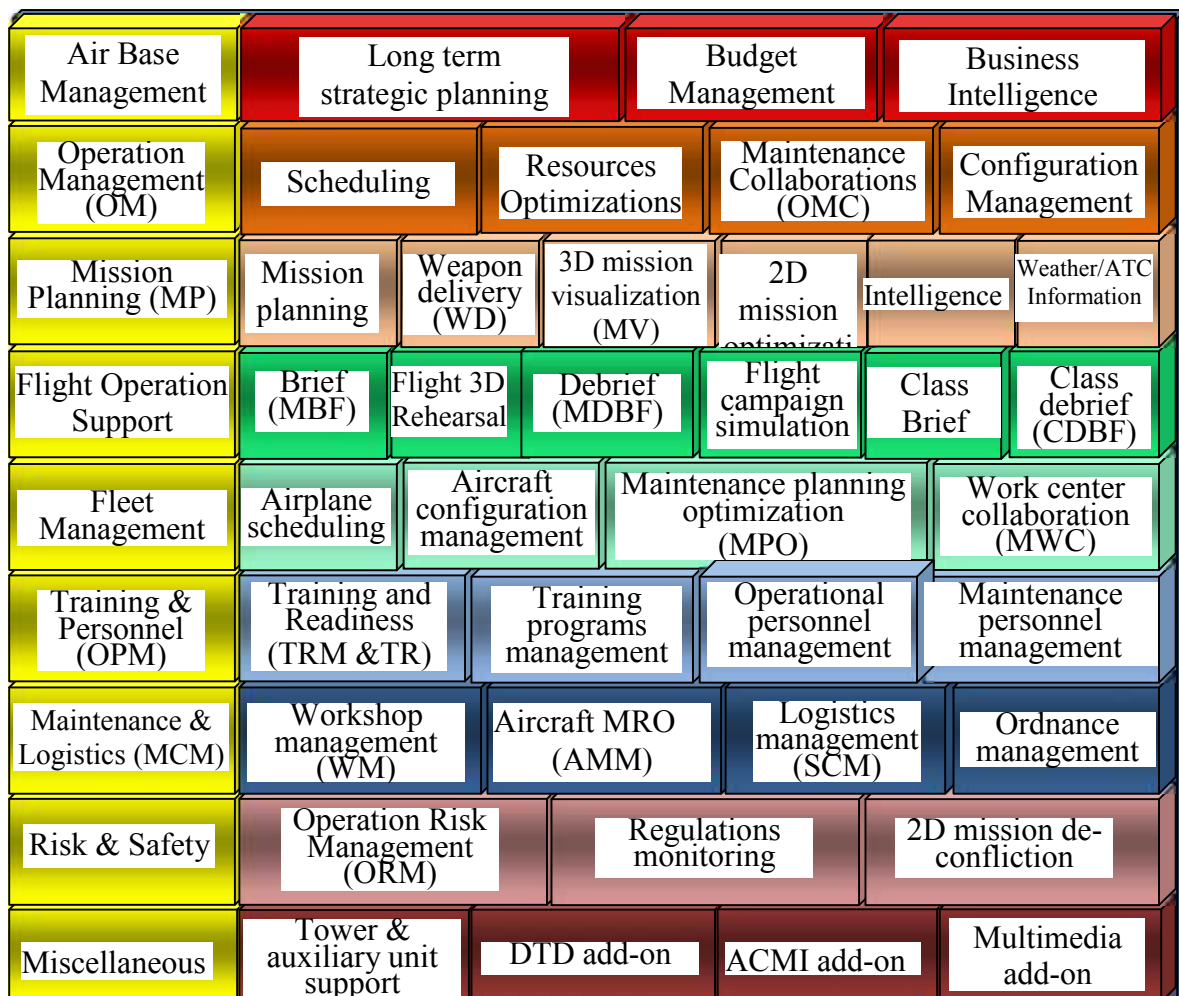


Fig. 3: The functional modules / the subsystems of IABMS.

#### **I.4 MSWS Functional Modules (Subsystems)**

MSWS' modules and their briefly description is:

- **Air Base Management** is management of the unit development processes enabling an efficient way of managing, optimizing and tracking budget, resources utilization aspects of the organization.
- **Operations Management (OM)** is the main module for operations center, planning and scheduling all kinds of orders: flights, training, simulators, ground tasks and flight support orders.
- **Operations Personnel Management (OPM)** - manages unit operations personnel availability, workload, skills/qualification hierarchies, flight performance and quotas;
- **Maintenance Center Management (MCM)** - supports maintenance center work processes such as: aircraft and weapon systems allocation to events, sortie generation, MRO management;
- **Operations – Maintenance Collaboration (OMC)** – pipeline that enables seamless data exchange and full collaboration between **operations center** and **maintenance center** of the unit;
- **Workshop Management (WM)** - supports maintenance workshop (Hangar) work processes such as: allocating technicians to maintenance tasks, aircraft and other weapon systems management, MRO (Maintenance, Repair, and Operations / Overhaul) activities management;
- **Maintenance Personnel Management (MPM)** – same as OPM for maintenance personnel;
- **Maintenance – Workshop Collaboration (MWC)** – set of automation and collaboration features enables seamless data exchange and full collaboration between maintenance center and workshops;
- **Aircraft Maintenance Management (AMM)** - manages specific aircraft, weapon system' MRO records, providing up-to-date logbook and statistics;
- **Logistics Management (LM)** - extends MSWS boundaries toward the supply chain management (SCM) related to spare parts, consumables, and other items associated to the MRO operations;
- **Maintenance Planning Optimization (MPO)** - enables long term planning of maintenance of resources (aircraft & mounted systems) while taking into consideration operational and capacity constraints;

- **Mission Planning (MP)** – the MP module supports the planning of the geographic facet of the mission. It supports basic activities such as planning of the flight route while using its route editor, and through campaign planning the MP is a foundation for WD, MV, and MCO modules;

- **Weapon Delivery (WD)** - provides the mission planner with complete and comprehensive weapons delivery capability including weapon delivery attack planning from The Initial Point (IP) through the weapon delivery escape maneuver;

- **3D Mission Visualization (MV)** – the 3-Dimensional mission visualization module enables real-time “on-the-fly” rehearsal of the planned mission route providing aircrew with realistic view of the mission from every selected point-of-view;

- **2D Mission Conflict & Optimization (MC&O)** - supports de-confliction and tactical optimization of multi mission air campaign via the rehearsal of those multiple missions prior to their performance;

- **Mission Brief (MBF)** - The brief module is used for briefing of any type of order, typically for flight mission orders;

- **Mission Debrief (MDBF)** - supports debrief procedures of all types of orders. Link performance to training events (if any), capture video clips and associate them with debrief data;

- **Class Debrief (CDBF)** – manages debrief data aggregation to unit level and provides tools for unit level multiple mission debrief;

- **Training Management (TRM)** - supports management of training programs and training groups linked with actual activities and training grades.

- **Training and Readiness (TR)** – manages cost-effective training focused in readiness goals, sustained by the lifetime, at unit level defined readiness events.

- **Tower Management (TWM)** – enables management of control tower activities.

- **ORM Add-on** - Operational Risk Management (ORM) Add-on enables the definition of comprehensive risk models to be assessed in real-time by any principal module of MSWS. This Add-on should be a field proven safety contributor.

- **VR Add-on** - enables the storage and manipulation of selected airborne VR clips, association of those clips to alphanumeric/graphical debrief record enhancing debrief quality.

- **On Line Analytical Processing (OLAP) Add-on** - OLAP Add-in enables introduction of Commercial-Off-The-Shelf (COTS) OLAP engine and viewers to work in conjunction to the system.

- **Integration Connectors Add-on** - A generic framework provided with the system enabling the customer to rapidly customize its own connector(s) to interface any kind of existing / future systems in its organization.

- **ACMI connector Add-on** - In the event of Air Combat Maneuvering Instrument (ACMI) or other sources of actual mission data exists, this connector enables to obtain relevant parts of the recorded information from those systems thus significantly increase debrief quality and reduce debrief effort and time.

MSWS main auxiliary functions should be:

- **System Administration (SYSAD)** - supports easy and user friendly configuration of the system to any kind of unit: Fighter, Cargo, Transport, Helicopters, any kind of personnel categories, skills, missions hierarchies, maintenance hierarchies, training programs and more.

- **Analysis & Reporting Components** – standard tools for reporting should be available and easily customized in accordance to unit request.

The following sections and subsections details the functional modules of MSWS.

#### **I. 4. 1. Air Base Management.**

MSWS shall provide support for Air Base development management processes enabling an efficient way of managing, optimizing and tracking budget, resources utilization aspects of the unit. It enables unit commanders to optimally plan for use of its resources, make sure budget is kept and unit operates according to plan, analyze trends and proactively implement corrective measures. It shall provide commanders and decision makers in the organization with advanced decision support tools. MSWS will transform the endless amount of operational data into information and knowledge that was unavailable prior this system.

##### **Supported tasks:**

- Create the unit multidimensional (fuel, flights, flight hours, ammunition, consumables, etc.) budget plan according to unit training plans and readiness requirements;

- Optimization of annual scheduling plan of unit staff members in order to achieve required readiness level subject to resource availability;

- Track execution of plan according to its various resources - fuel, flights, flight hours, ammunition, consumables, etc;

- Overall management and goals definition for unit human resources quantities, qualifications and readiness;

- Creating a flight campaign for training drills, season, week and day;

- Analyzing trends of safety, tactical achievements, maintenance (Mean Time Between Failures - MTBF, Mean Time To Recovery – MTTR the average time that a device will take to recover from any failure, etc.).

#### **I. 4.1.1. Long term strategic plan.**

MSWS shall support long term planning of the unit operations, readiness and budget as described below:

- Training and readiness requirement and status – build the unit level qualifications and readiness matrix;
- Break down the individual staff readiness and qualifications to satisfy the unit level readiness goals;
- Managing the staff availability, qualifications, training syllabus, and all human resources management needs;
- Managing unit airplanes and systems usage according to training plans, budget, resources availability, MTBF, etc;
- Building and distributing air campaigns for training times.

#### **I. 4.1.2. Budget management.**

MSWS shall support managing the unit budget as described below:

- Unit budget is defined as set (basket) of resources such us: fuel, flights, flight hours, ammunition, consumables, etc. SWS budget management enables tracking the budget and spending plan of the unit in multidimensional budget plan according to the unit training plan;
- Tracking the execution progress versus planned in consumption of resources as well as the progress of training plans and readiness level.

#### **I. 4.1.3. Business intelligence.**

MSWS shall support business intelligence and performance analyses as described below:

- Analyzing trends in unit performance including safety, MTBF, turnaround times and any parameter that is important to the unit performance;
- Predicts end of „training seasons“ position and resources usage according to current performance;
- Enables OLAP and other decision support tools for „What If“ analysis.

**I. 4.2. Operations Management (OM)** is the main module for operations center, planning and scheduling all kinds of orders: flights, training, simulators, ground tasks and flight support orders. OM supports the various aspects of the unit day-to-day operational management, including external tasking coordination, creation and management of a flight schedule from either a training plan or an operational tasking. Features include display of operational or training tasking, building of mission tasking details, assigning aircrew to missions, assigning aircraft to the missions, the creation of aircraft configuration requests (ACRs) for aircraft providers, and the online management of changes to these schedules through mission completion.

The OM features include:

- Creating Flight Mission Orders (FMO) locally at the unit and/or receipt of FMO from higher echelons;
- Supports FMO approval processes;
- Ability to create, receive, and manage additional mission types other than flights, such as: simulator training, flight support, ground duties, academic training;
- Creation of Aircraft Configuration Request (ACR) to maintenance control;
- Ability to link Flight Order(s) to the ACR(s);
- Allocating aircraft to missions;
- Ability to expand and view ACR and aircraft status;
- Management of schedule execution;
- Mission support data entry;
- Advanced aircrew display, flight data and statistics (available only with DBF module);
- Mission building module – route planning and approximate fuel computation at levels of fidelity for scheduling.



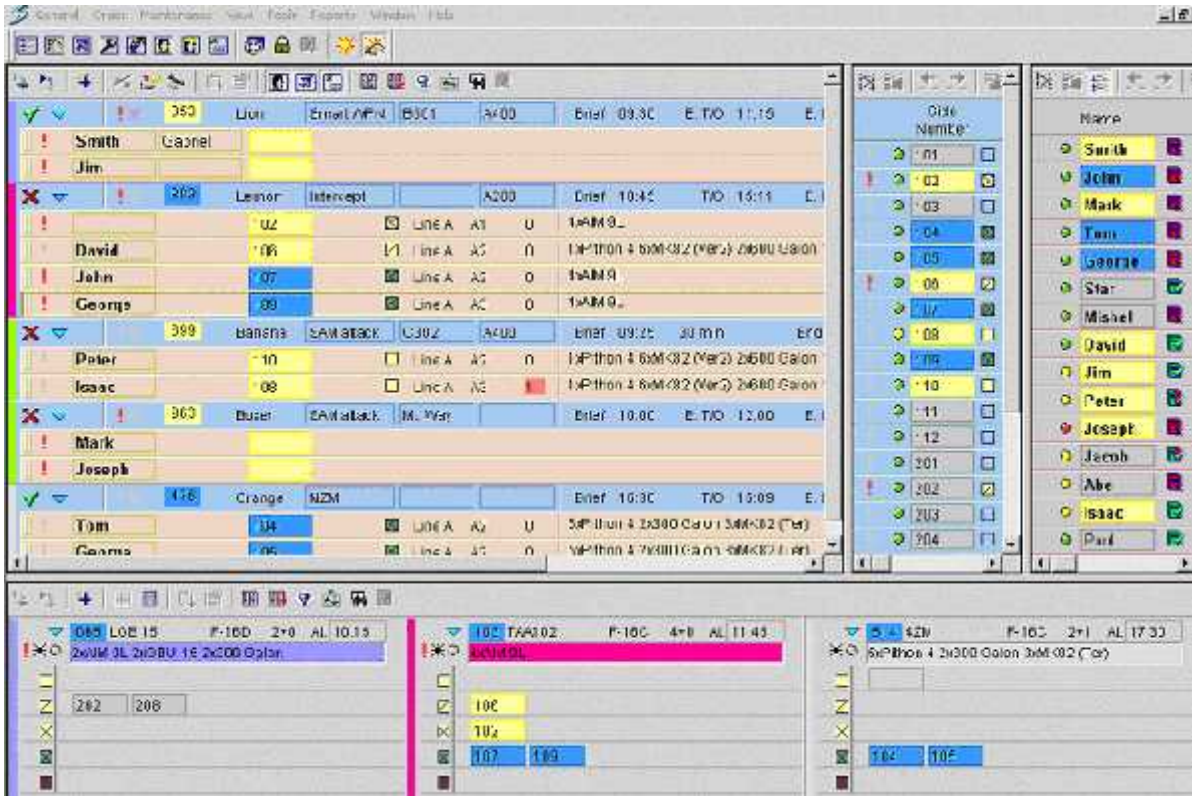


Fig. 4: - OM Dashboard View.

### I. 4.3. Operations Personnel Management (OPM)

The OPM supports the management of operations unit personnel. All relevant populations (aircrew, ops, clerks) and professions within each population.

The OPM features include:

- Allocating aircrew and other ops. personnel to missions;
- Aircrew Posting Expert (APE) that supports the allocation of aircrew to missions;
- Gantt chart aid view for allocating and managing personnel, aircraft and missions.

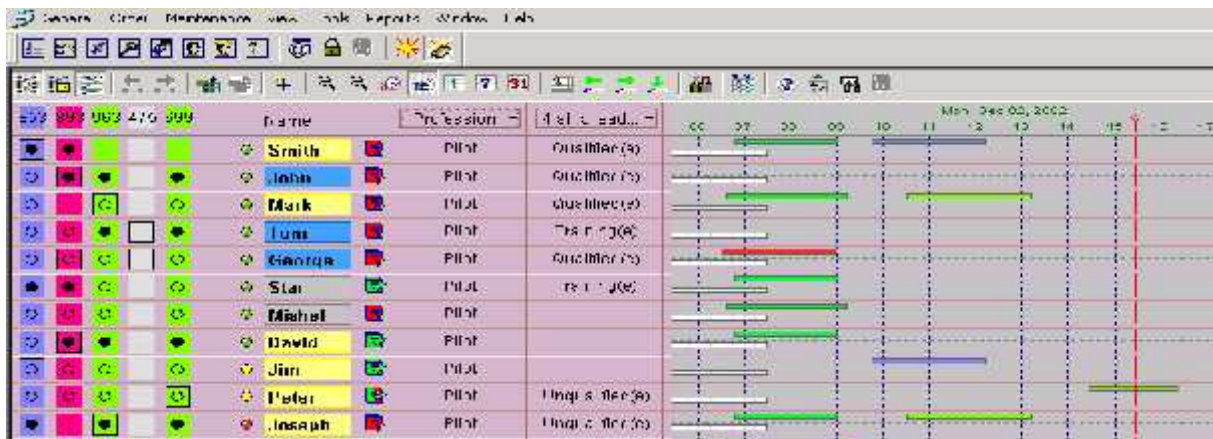
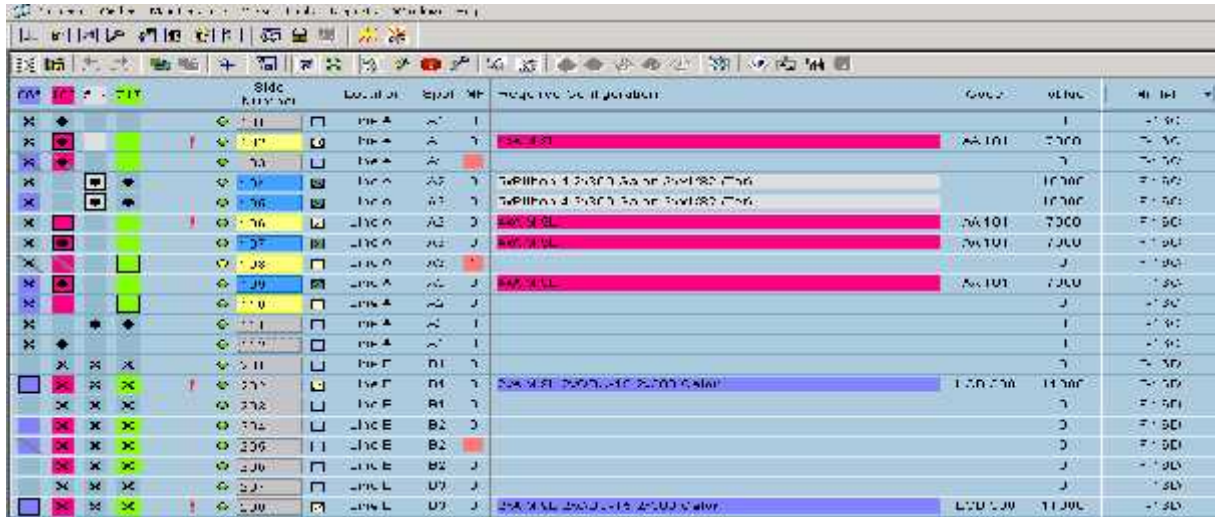


Fig. 5: - OPM View.

#### I. 4.4. Maintenance Centre Management (MCM)

The MCM module is the main tool used by the Maintenance Control Centre (MCC) for the purpose of managing MRO operations of the unit. It receives ACRs from the unit duty officer or scheduler using the OM, presents them to the user and allows the user to direct the maintenance workshops that are in charge of aircraft preparation.



The screenshot displays the MCM View interface, which is a software application for managing maintenance requests. The main window contains a table with the following columns: 'Side', 'Location', 'Serial', 'Request Description', 'Status', 'Priority', and 'Time'. The table lists various aircraft requests, including those for 'A320', 'A321', and 'A323XLR'. Each row is color-coded (e.g., red, yellow, blue) to indicate its status or priority. The interface also features a toolbar at the top with various icons for navigation and actions.

Fig. 6: - MCM View.

The MCM features include:

- Receives Aircraft Request from OM (via OMC);
- Supports approval and handshake processes between operations and maintenance;
- Assigning aircraft to ACRs with support of the Aircraft Allocation Expert (AAE);
- Management of aircraft configurations, Installations, Malfunctions, check-up and special maintenance procedures.

#### I. 4.5. Operations – Maintenance Collaboration (OMC)

Main channel for collaboration between flight operations and MRO operations centers of the organization. It allows seamless flow of orders for resources from OPS to MCM and real time monitoring of their progress via approval, reject, and track changes mechanisms.

#### I. 4.6. Workshop Management (WM)

Using this module at the workshops level it is enabled the automatic generation of specific, detailed work orders from each resource order. It also enables specific orders as a result of MRO unscheduled and scheduled activities. The module is used for maintenance

personnel allocation for such activities. The WM module features include maintenance workshop operations monitoring and coordination, including:

- Receiving of aircraft preparation orders from MMS;
- Receiving special maintenance tasking from MMS;
- Allocating maintenance personnel to Maintenance and Repair Operations (MRO);
- Monitoring MRO tasks progress.

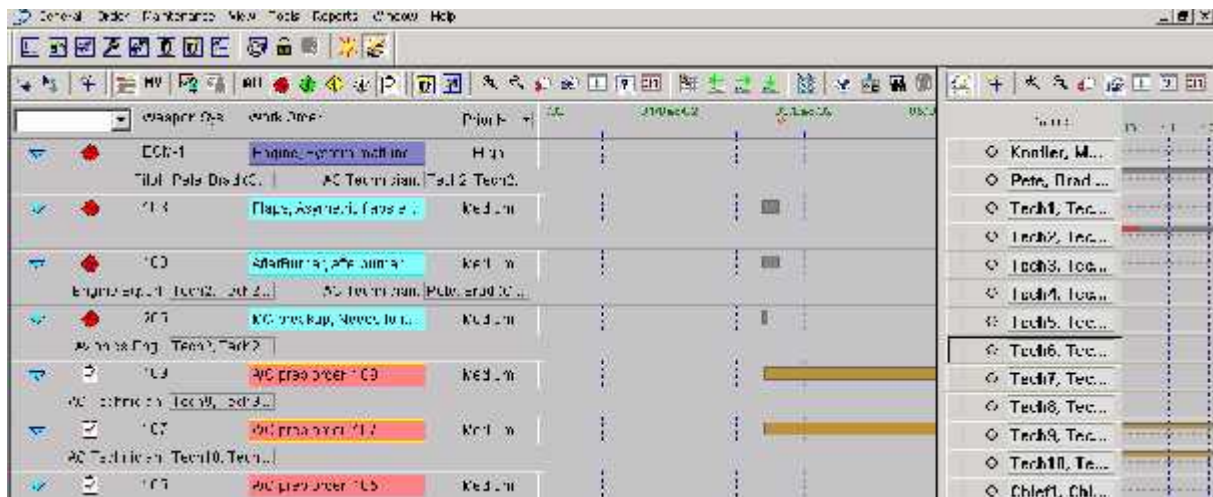


Fig. 7: WM View containing MRO data.

#### I. 4.7. Maintenance Personnel Management (MPM)

This module manages personal details of maintenance personnel. It allows the definition, tracking and monitoring their skills, availability (presence), allocations, and more. It also supports resource allocation optimization. Resources are displayed with user-configured items and workload Gantt chart.

#### I. 4.8. Maintenance – Workshop Collaboration (MWC)

Generates detailed task orders out of maintenance orders. Transfer requested aircraft configuration for each aircraft and enable tracking and monitoring progress of each task until completion. This is the main collaboration channel between Maintenance Centre and the Workshops of the unit.

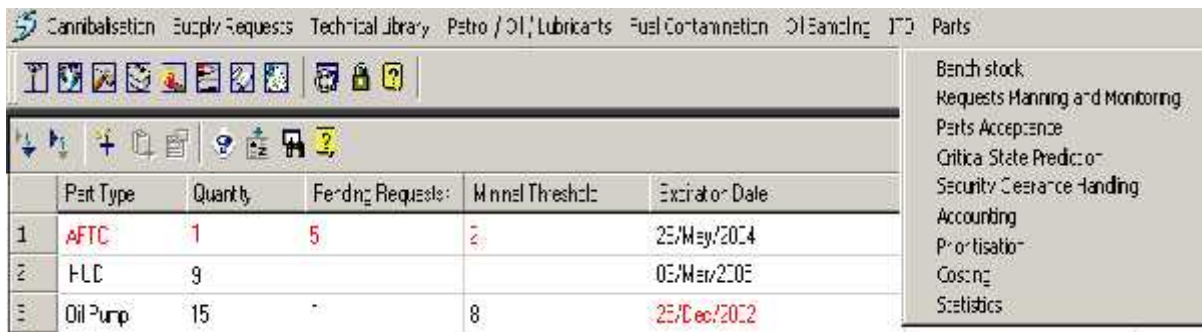
#### I. 4.9. Aircraft Maintenance Management (AMM)

AMM manages the specific resource (aircraft, weapon system) MRO records. It provides up-to-date logbook, detailed statistics of MTBF, MTTR and other performance factors to support the resource allocation optimization.

#### I. 4.10. Logistics Management (LM)

The LM module extends MSWS boundaries toward the Supply Chain Management (SCM) related to spare parts, consumables, and other items of the MRO operations. It provides tools for ordering of supply; monitor the orders, shipping the supply to workshops. It supports the management of the following areas:

- Supply requests and order issuing;
- Stock and consumption levels monitoring and alerting;
- Accounting and budgeting of supply;
- Technical library maintenance;
- Liquid sampling, laboratory tests and results, fuel contaminations;
- Assets cannibalization.



The screenshot shows a software interface for 'LM Stock Management Mode'. At the top, there are menu items: 'Cannibalisation', 'Supply Requests', 'Technical Library', 'Petro / Oil / Lubricants', 'Fuel Contamination', 'Cleaning', 'ITD', and 'Parts'. Below the menu is a toolbar with various icons. The main area contains a table with the following data:

	Part Type	Quantity	Pending Requests	Minnet Threshold	Expiration Date
1	AFTC	1	5	2	25/May/2014
2	FLLC	9			05/May/2015
3	Oil Pump	15		8	25/Dec/2012

On the right side, there is a sidebar menu with the following items: Bench stock, Requests Planning and Monitoring, Parts Acceptance, Critical State Prediction, Security Clearance Handling, Accounting, Prioritisation, Costing, and Statistics.

Fig. 8: LM Stock Management Mode.

#### I. 4.11. Maintenance Planning Optimization (MPO)

The MPO module enables long term planning of maintenance of resources such as aircraft & mounted systems while taking into consideration constraints such as planned scheduled maintenance, flight mission orders rate, garage capacity, etc. The module through OM and MCM recommends on the right scheduling of airplane and system to lower the maintenance cost to minimum.

#### I. 4.12. Mission Planning (MP)

This module is a comprehensive Mission Planning System (MPS) provides all functionality required for the planning of the geographical facet of the mission. It utilizes geographic background display of maps/photos (aerial/satellite), unlimited foreground layers of any kind to include objects of intelligence, ATC, weather information and others. It provides for the mission route(s) planning, manages routes and sessions (intelligence, ATC, others) libraries. Outputs of this module can be printed as combat folders, transferred to DTD for airborne avionics, exchanged with other organizations.

This module should be operated as part of MSWS for maximum efficiency and/or as stand-alone system.

#### **I. 4.13. Weapon Delivery (WD)**

The WD supports the calculation (and display) of weapon delivery envelopes, in vertical and horizontal projections. It provides the user with various entry and release maneuvers, Minimum release altitude to guarantee arming of fuses, battery and other devices, Safe escape and Safe weapon release to minimize the chance of self-fragmentation by the delivering aircraft. Main features of this module:

- Release envelopes for guided weapons such as GBU's through a guided weapon delivery model, vertical and horizontal views of these envelopes will be displayed with respect to selected target location enabling mission planner to plan appropriate weapon delivery pattern;
- Support for various entry and release maneuvers such as Pop Up, Pop to Level, Mapping, and Escape Maneuvers;
- Provides a plot of the release envelope on a map for route study and weapon card generation.

#### **I. 4.14. 3D Mission Visualization (MV)**

The 3D mission visualization module enables real-time "on-the-fly" rehearsal of the planned mission route. It provides the aircrew with realistic view of the mission from every selected point-of-view, while displaying 3D background, and 3D display of other objects of interest such as SAM battery killing zones, ground targets, air corridors, and restricted areas.

Using this 3D component enables the production of tailored/customized air photos and other aids for the aircrew.

#### **I. 4.15. 2D Mission Conflict & Optimization (MC&O)**

This module enables the rehearsal of multiple missions and actually a complete air campaign prior to their / its performance. The 2D rehearsal component enables "flying" of multiple missions and/or complete air campaign, checking the relative geometry between packages and formations, change their relative position and re-schedule them to enhance tactics as well as to and avoid safety risks. The MC&O supports formation attack planning that allows for multiple ship elements to be flown in flexible formation positions and attack profiles against different targets and tactics, taking in consideration:

- Safety margins for navigation stage as well as weapon delivery maneuvers;
- Air intercept capability, response time and airborne radar coverage for mutual packages defense.

#### I. 4.16. Mission Brief (MBF)

The brief module should be used for briefing of any type of order, typically for flight mission orders. It provides the crewmembers with the required flight information as well as kneeboard card & combat folders. The system enables the crew to rehearse & visualize the planned mission.

#### I. 4.17. Mission Debrief (MDBF)

The MDBF module should be used for debriefing of any type of order, typically for flight mission orders. It supports the detailed debriefing of every event occurred during the mission, mission grades, and consumption of any disposable resources such as fuel and wheels. MDBF supports the collection of post flight operational and training data such as:

- Post flight data and scores;
- Scores in all types of missions;
- Safety events;
- Fuel and flight hours data display;
- Link to multimedia clips;
- Reports summarizing the squadron activities (if report client is installed).

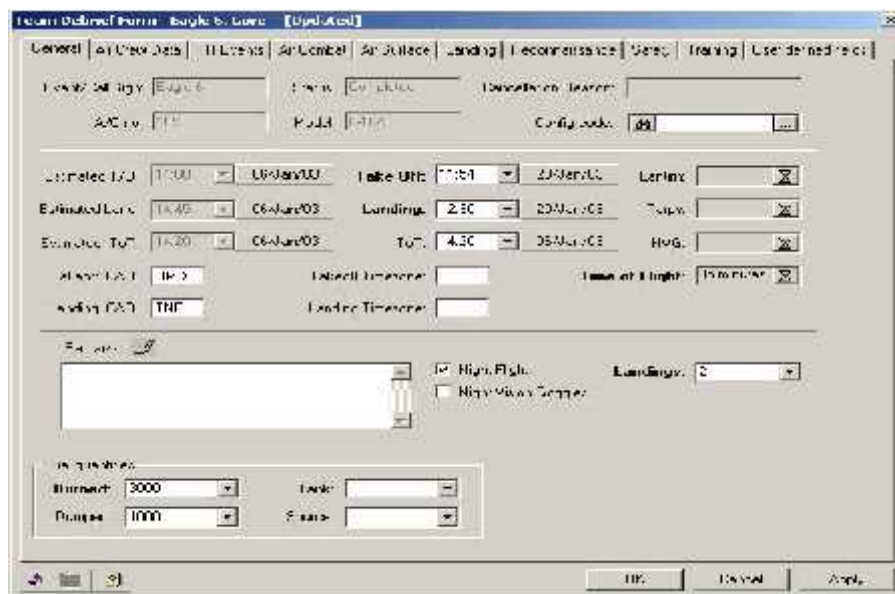


Fig. 9: Mission Debrief dialog used for all mission kinds.

### I. 4.18. Class Debrief (CDBF)

The Class debrief module should be used for general overview of squadron daily / weekly results, it summarizes mission & events statistics for flight & non-flight orders and enables to drill down into a specific mission debrief data, it also provides a link for reviewing VR clips.

CDBF view displays all missions/events subject to debrief and those already debriefed. It supports dynamic columns mechanism that enables class / unit debrief to focus on data of interest out of the variety of data captured during the mission debrief itself. The next screenshot depicts CDBF view configured to air combat debrief (A/A missile firing parameters and scores).

ID	Event	Tactics Task	Area Target	ID time	→ Damage IP	→ Alliance IP	→ vs. mib IP	→ vs. fir IP	→ Score IP
430	Eagle 3	Abt veot	2LJ	16:26					
	Turner	002	-16%						
	George	002	-16%						
433	Harada	Sum A...	111	11:14	377	13000 13075	343 317.5 350	110 170.75 3...	1 126 2
	Shuf	004	-16%		272	12300 1333...	370 360 300	120 181 335	1 1 1
	Pitabar	001	-16%		177	11511	441	211	2
438	RAF 8	Abt veot	2CT	14:57	377	11600 13675	343 332.5 450	110 170.75 3...	1 126 2
	A ar	009	-16%		272	12300 1333...	370 360 300	120 181 335	1 1 1
	Shuf	006	-16%		177	20700 21000	330 420 450	110 137.5 225	1 1 2
407	Orange	001c	003	10:00	377	11000 11500	441 454 474	120 115 341	1 1 2 2
	Pitabar	007	-16%		272	11700 12000	440 445 450	120 250 240	1 1 2 2
	Harada	008	-16%		377	15300			
							Weight [Average All Events]: Min: 110, Average: 145		
50	Kango	000 Ind	Target 2	10:15					
	Duo 1	009	-16%						

Fig. 10 CDBF View – A/A Scores.

### I. 4.19. Training Management (TRM)

The TRM module enables the definition and monitoring of training programs (syllabi) and training groups (courses). It allows creation of training programs; training events, training parameters for every event, link these training events to either ground activities and/or flight activities. Debrief of such activities automatically updates student grades and status within its training program. Comprehensive statistics and data analysis are available per student, event, and group.

TRM supports:

- Creating and planning course activities, including required ground activities as well as required flight syllabus;
- Assignment of group level and squadron level training programs;

- Construction of personal training program and quotas;
- Monitoring planned and actual measures of performance in various aspects of training plan execution (syllabus events, scores etc.);
- Creation of training records for the entire squadron or groups within the unit;
- Creation and online update of individual training records and aircrew logbooks.

Subjct	CFT RST 1	OFT RST 2	OFT RST 3	Patrol	Intercept	Intercept A	Intercept B	Intercept C	F-avg	F-100	CO-avg	CO-100
Sam	75.00	80.00	85.00	75.00	80.00	90.00	--	75.00	78.89	80.00	78.89	80.00
John	80.00	70.00	40.00	--	70.00	80.00	85.00	--	70.00	71.67	70.00	71.71
Karl	1.00	15.00	15.00	10.00	20.00	15.00	25.00	25.00	20.00	20.00	20.00	20.00
Tom	50.00	70.00	80.00	50.00	80.00	75.00	70.00	85.00	80.00	80.00	72.00	7.89
Paul	70.00	70.00	80.00	60.00	70.00	--	75.00	70.00	65.83	68.75	68.83	72.63
Garrod	35.00	85.00	70.00	75.00	75.00	78.00	80.00	80.00	77.50	77.60	74.29	75.22
Alex	90.00	80.00	80.00	75.00	70.00	--	--	80.00	75.67	75.67	80.83	80.43
Total	425.00	460.00	400.00	250.00	415.00	420.00	410.00	400.00	74.24	75.00	70.00	75.00

Subjct	Flight	Other	Intercept 1	Intercept 2	Dogfight	Normal refuel	Intercept A	Intercept B	Intercept C	Dogfight E	Intercept D	Dog Fight A
George	1	1	50.00	70.00	70.00	--	1.00	1.00	1.00	2.00	9.00	15.00
Alex		2	80.00	75.00	75.00		75.00	80.00	70.00			55.00
David	3	2	85.00	70.00	80.00	--	75.00	80.00	80.00	--	--	80.00
Franky	1	2	75.00	50.00	60.00	--	70.00	75.00	--	80.00	--	--
Blair	3	2	85.00	50.00	70.00	--	80.00	80.00	80.00	--	--	70.00
Steve	2	1	10.00	10.00	25.00	--	2.00	1.00	2.00	--	--	15.00
Total	10	11	450.00	490.00	415.00	--	60.00	62.50	70.00	65.00	90.00	70.00

Fig. 11 Training View.

#### I. 4. 20. Training & Readiness (TR)

This module supports Training and Readiness models customized upon request. The system optimizes the training syllabus of the unit personnel in order to maximize the unit readiness with minimum budget and resources. The module enables the definition of user-defined readiness events to be associated with each and every mission type. Once a mission of that type is performed that performing team is awarded with those readiness events. These events have a predefined lifetime that is faded during time. The overall result of this T&R module is cost-effective training focused in readiness goals, sustained by the lifetime of those readiness events.



### I. 4. 21. Tower Management (TWM)

The TWM enables the tower full visibility of flight operations managed by MSWS at the squadrons. It enables the tower staff full visibility of planned and actual flight operations as well as updating real events such as take-offs and landings as they occur. The TWM is saving manual entries and updates of these events in the squadrons, increase accuracy and serves as prime (and single) source of information for these events. The TWM also enables management of the tower flight support activities (shifts, alerts, training, etc.).

### I. 4. 22. ORM Add-on

Operational Risk Management (ORM) add-on enables the definition of comprehensive risk models to be assessed in real-time by any module of MSWS. The ORM models should be user defined and fully controlled by the user; the individual risk factors are set either manually or calculated by the system. Every entity managed by the system is a legitimate candidate for the ORM model. This Add-on is a field proven safety contributor. For example the ORM could display its risk levels in two fashions:

- Overview – by a single stoplight changing its color according to aggregated risk at the entity level.
- Detailed – by a dialog box displaying a detailed and comprehensive aggregation tree visualized the current ORM model in action and a risk value for each node in the tree.

Next figure illustrates both overview stoplight and detailed risk tree.



Fig. 12: ORM alarm and detailed dialog.

### I.4.23. VR Add-on

VR Add-on enables the storage and manipulation of selected airborne VR clips. It allows direct association between alphanumeric/graphical debrief record and the relevant VR clip.

#### **I.4.24. OLAP Add-on**

OLAP (On Line Analytical Processing enable users to analyze multidimensional data interactively from multiple perspective being part of the broader category of business intelligence, which also encompasses relational database, report writing and data mining - is computer processing that enables a user to easily and selectively extract and view data from different points of view.) Add-in enables introduction of Commercial-Off-The-Shelf (COTS) OLAP engine and viewers to work in conjunction to the system. This OLAP improves data mining and supports long-term (out-process) decision making based on its multiple dimension capabilities.

#### **I.4.25. Integration Connectors Add-on**

This add-in is actually a framework provided with the system enabling the customer to rapidly customize its own connector to interface any kind of existing / future systems in its organization. Few connector samples are provided with this add-in to accelerate customization and provide the customer with head start on the customization of additional connectors.

#### **I.4.26. ACMI Connector Add-on**

In the event of ACMI or other sources of actual mission data exists, this connector enables to obtain relevant parts of the recorded information from those systems thus significantly increase debrief quality and reduce debrief effort and time such as:

- Weapon delivery events – A/A missiles firing, A/G weapons delivery;
- Navigation events – Designations and other events;
- Actual flight path to be re-flown via Mission Visualization (MV) module;
- Aircraft and weapon systems malfunctions data.

## **II. MSWS ARCHITECTURE**

MSWS architecture could be classic n-tier architecture, combining both rich and light clients tailored to roles/users needs. All clients are connected through an application server / web server thus enabling full decoupling from the data layer (the commercial database). External systems are interfaced to MSWS through an adapter called interface client. This interface client is connected to the application server as a regular client provides unified transaction schema to both internal users and external systems.

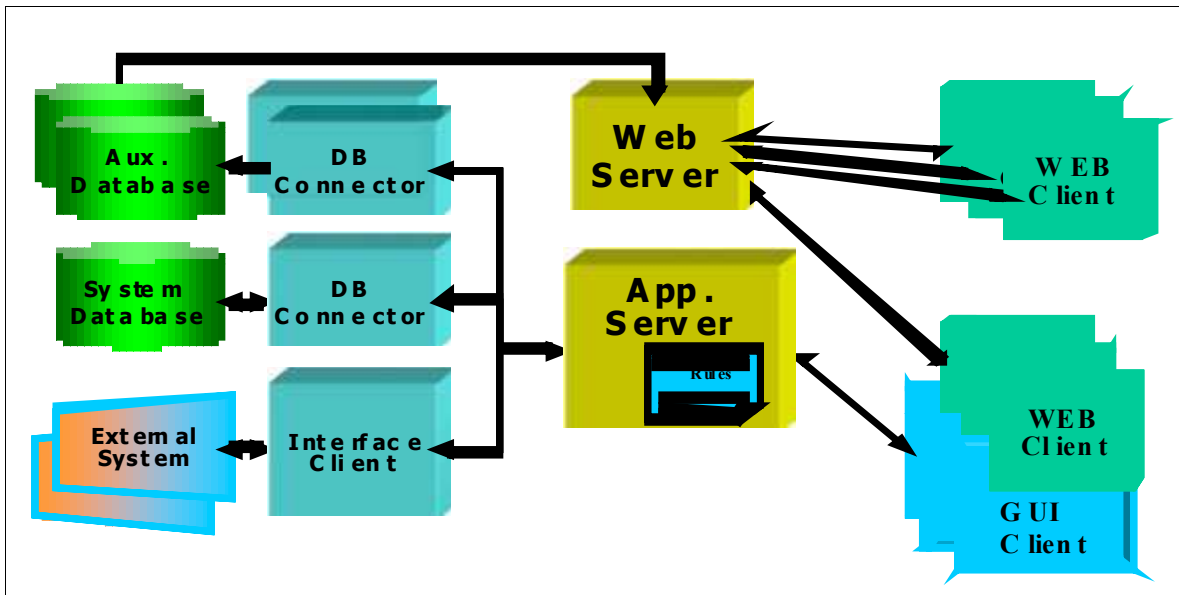


Fig. 13: - System Architecture.

## II. 1. Server Package Components

### II.1.1. Application Server

MSWS could use multi-tier architecture, which enables each of the system's clients to respond almost instantaneously to different users' needs, and the maintenance by the server of common data (and data integrity) and the central enforcement of rules and regulations. The Server component constantly keeps all clients synchronized online without the need for user refresh requests. In other words, updates are pushed to users, increasing user productivity.

### II.1.2 System Availability

The server package comprised of a magnetic queue (MQ). This queue is actually a file in which all transactions processed by the application server are recorded. It also includes a system monitor (SM) that is constantly monitoring all package components performance.

Working with these SM and MQ, together with appropriate configuration of the commercial database engine in use, enables the MSWS application as a whole to recover from most of failure scenarios such as: (1) MSWS Application fault – system recovery through system monitor; (2) database Engine fault and/or database hardware fault – the application server is decoupled from the database thus on database failure the system still available and data is stored in the magnetic queue. After database recovery the system automatically updates the database with the missing data stored in the MQ; (3) MSWS Application hardware fault – recovery through invocation of “silent” instance of Server Package already installed on a different (backup) machine.

### II.1.3. System Administration (SYSAD)

The SYSAD module brings a powerful configuration tool to the user community. It offers unit-level system managers an unprecedented level of local control of system support. They are enabled to:

- Edit, add, and create users and roles.
- Create, modify and delete domain entities, and domain parameters to create and adapt entire data model for their specific unit (squadron, wing, base).
- Users, groups (roles) administration, handle system security.

Grant individual users and system clients within the full range of capabilities in any client permission to read, write, create, and approve individual transactions and to be alerted of changes to any designated object.

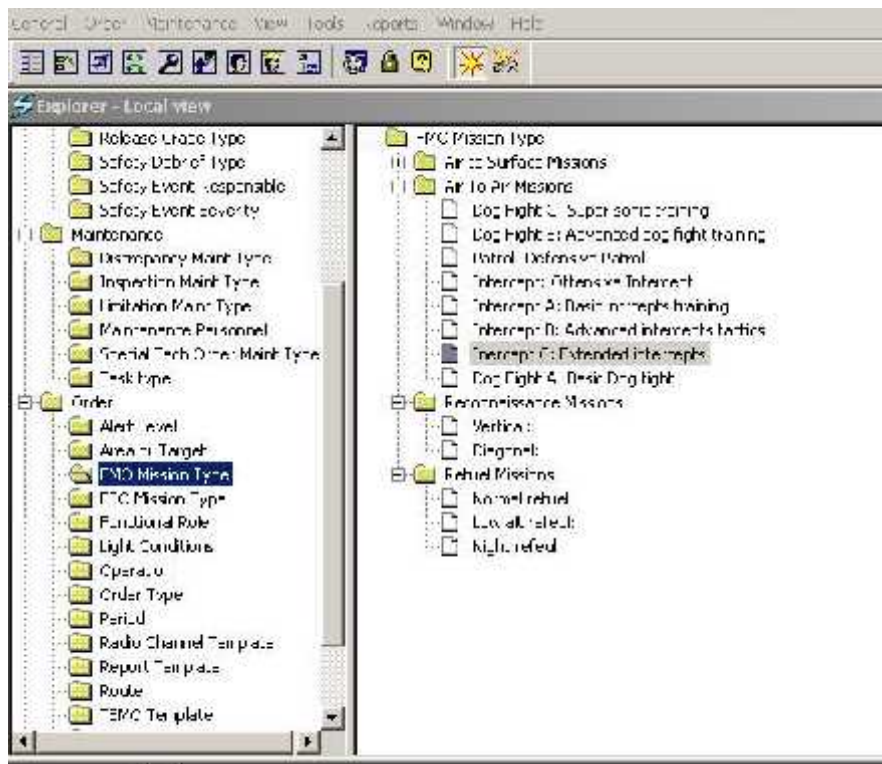


Fig. 14: Domain Entities Management View.

## II.2. Computer, Network and Database Requirements

### II.2.1. Computer Requirements

MSWS server applications could run on a PC or laptop running Windows 2000 / XP and requires:

- Intel Pentium III 1000 MHz (or higher);
- 512MB Random Access Memory (RAM) (or higher);

- 500 MB hard drive space for executables and system files. (60GB when MPS is installed, for geographical data);

- Hard drive space for data (typical unit will need 4GB per year).

MSWS clients will run on a PC or laptop running Windows 2000 professional and require:

- Intel Pentium III 500MHz (or higher)

- 128MB RAM (or higher), 256MB for workstation running MPS

- 200MB hard drive space for executables and system files, 60GB for workstation running MPS.

Web clients require any browser from Netscape 6.0 / MS Internet Explorer 5.5 and are platform independent.

### **II.2.2. Local Area Network (LAN) and Database Environment**

MSWS, as an object-based system, requires very little bandwidth and will operate easily alongside other applications on standard LANs. It supports TCP/IP communications, and perhaps uniquely, it simultaneously can read from and write to multiple Structured Query Language (SQL) databases from any vendor. The system uses any commercial database (e.g., Microsoft, SQL Server, Oracle, and Sybase) as a data repository.

## **III. CONFIGURATION TOOLS**

MSWS should be a configurable system, can be configured for the use of any type of unit without the need of software code modifications. This section briefly describes the main (offline) configuration tools which should be provided with MSWS.

### **III.1. ORM Function**

The ORM (Operational Risk Management) Function it will be used to create new ORM models, modify existing ORM models. These ORM models are stored in a central/local repository and may be tailored for specific operational role. The user selects and loads the models at runtime directly to MSWS application client.

The ORM Function defines the weight of each type of entities in the risk model. Risk factors are set and/or dynamically calculated for each entity by MSWS at runtime. The following figures give an example of the ORM Function main window:

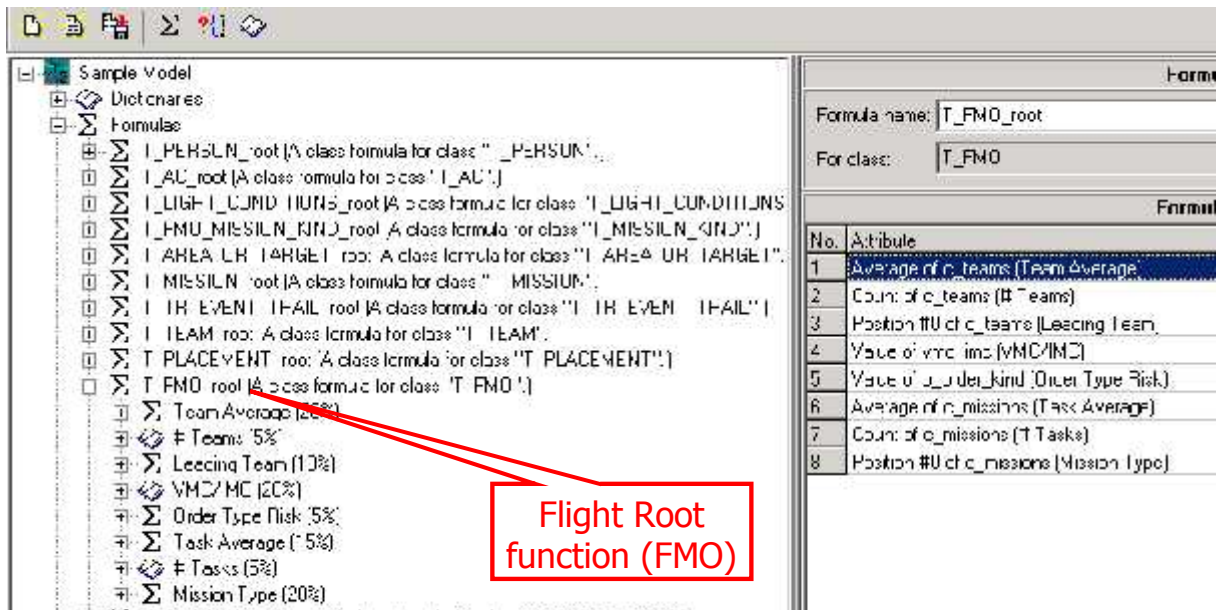


Fig. 15: - Sample ORM Model.

### III.2. Relational Interface Definition Utility (RIDU)

The RIDU is used to map SWS Object-Oriented domain to relational database schema. The resulting map is stored in a file that is later loaded by MSWS server package in order to update in real time additional database if required. This unique tool enables the customer to easily export (in real time) MSWS data to external / legacy database in other schema, other vendor. The RIDU also creates SQL script for the generation of the said additional database (if needed). The following figure illustrates sample mapping (schema level):

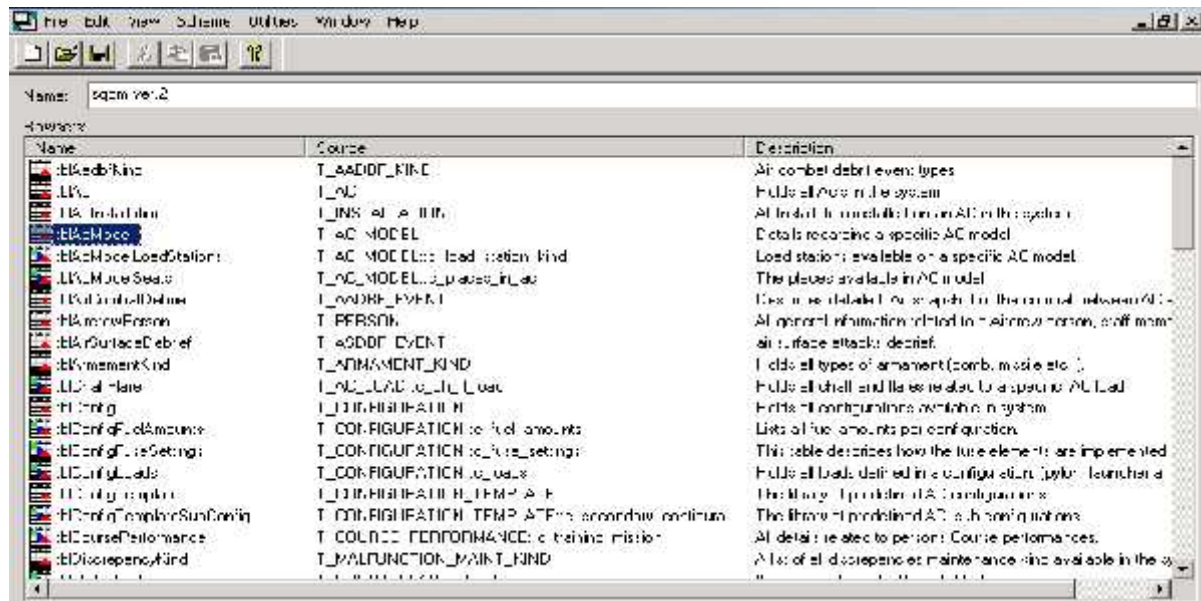


Fig. 15: - Mapping (Schema level).

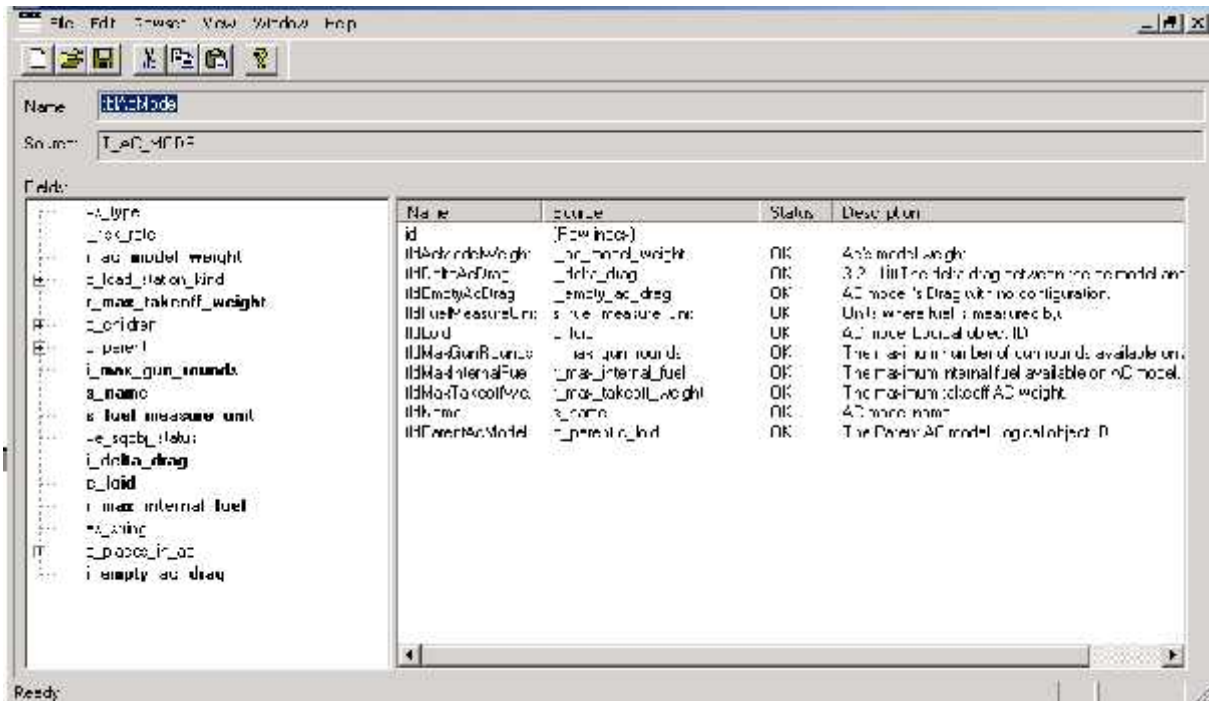


Fig. 16: - Mapping of a class to a DB table.

### III.3. Rule Factory

The Rule factory is used to associate rules packaged in the rules repository (usually in a DLL) with relevant domain entities. This association defines when and how the rule check is performed by MSWS application server.

The rules can be associated to single/multiple domain entities and can be checked (invoked) upon event, a transaction that includes a change in the associated entity or upon time period expiration.

Note: most of operational logic should be embedded in MSWS through domain design. The set of rules are to fill the small gap that may arise between this design (and implementation) of the domain and specific customer requests. Specification, design, and development of new rules are recommended following customer gained enough operational experience with MSWS.

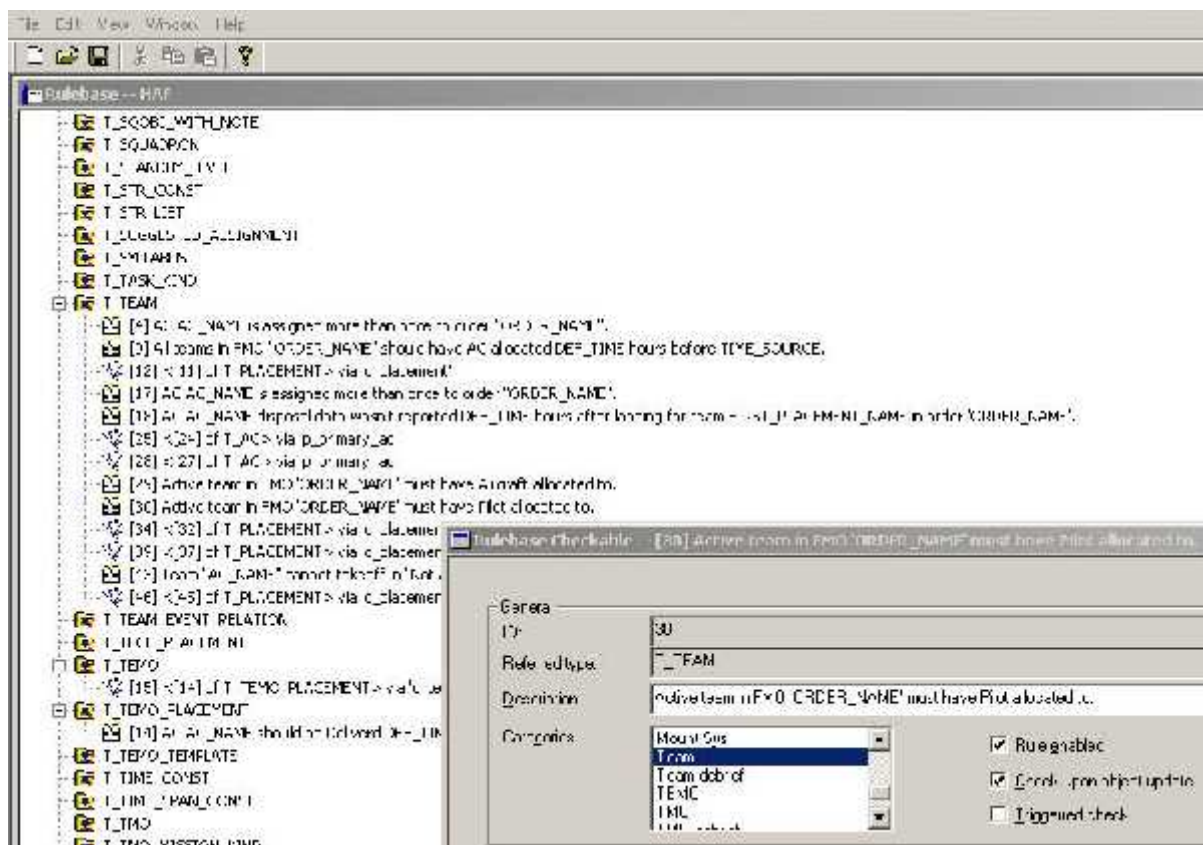


Fig. 17: Rules Definition.

## CONCLUSIONS

1. The MSWS obeys the interdependence relationship already created into the frame of an optimal organization structure.

2. For those organizations who has not implement this kind of system, as RoAF is, the recommendation is to establish, at list at experiment level, this optimal organization structure (Fig. 1 and Fig. 2) and try to cover all the function associated to modules and subsystems (Fig. 3) into their functional interdependency/collaboration, in order to observe the phenomena without using the SWS (to develop the common management concept). If there will be registered a rise in the level of efficiency versus the existing structure organization, by way of consequence, the personal will start to be confident to apply this new concept.

3. It is strongly recommended the stability of the new structure organization due to the fact that all parties have to work interactively into the MSWS for initial phase of development and implementation and for further routine operation.

4. A Chief Information Officer (CIO) or Information Technology (IT) Director at Air Base level is required, in order to supervise and report directly to the commanding officer



the status of implementation and development, for the first phase of program, and current operation / maintenance etc. for further.

#### **REFERENCES**

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# THE EMPLOYEE – EMPLOYER RELATIONSHIP: A HUMAN RESOURCE AND HUMAN CAPITAL PERSPECTIVE

*MAJ. Gheorghe-Ionel BERARI*

*“The human being shall be the sum of his actions, of what he did and what he can do. Nothing else.”*

*Mahatma Gandhi*

## INTRODUCTION

The employer – employee relationship, is the binder of any type of organization, regardless of the state of societies progress over time.

As any long-term relationship<sup>120</sup> in which each wants from the other a thing, the beginning, as the cornerstone, should be mutual understanding. Thereafter, depending on mutual understanding of the needs of each of them: for the employer – to see favorable outcome and the potentially benefit or the productivity of that activity performed by the employee; for the employee – to see its efforts rewarded in the sense of being motivated or paid for what he has achieved and, in addition, to want to continue that activity and achieving performance; this relationship could support improvements in benefit of both.

So, to speak about a human resource or later on human capital, we must understand of course, a person as a employee, human nature, its need to be part of society or group and its wish to see made certain expectations, personal needs or ambitions and at the same time to provide skills for achieving the needs, expectations and requirements of the other person, the employer.

To end this introduction: how well they manage to understand each other’s needs and expectations, we can speak of an effective employer – employee relationship. When one’s waiting is focused on the opportunity to provide or ensure of the other.

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<sup>120</sup> or so it should be considered depending, of course, about the length of a contract or commitment.

## **I. Organization of employee from the generation perspective**

### **I.1. Section: Particularities of “traditionalist generation”**

In the category of “traditionalist generation” seems<sup>121</sup> to belong to people, employees and employers which were born in the period from 1925 to 1945 and which was raised and educated started with that time, with fears and anxieties specific to period before and after World War II.

Perhaps because of specific environment from that period and evolution of society, they are characterized as human resource concerned about thinking of “S”<sup>122</sup>: safety, security, stability, structure. That was what they wanted individually and together, both as employees and as employers.

Here are some of the particularities of this generation in terms of what was their motivation at the time and beyond<sup>123</sup>:

- *Overcoming Generational Gap in the Workplace: team players, indirect in communicating, loyal to organization, respect the authority, dedication and sacrifice, duty before pleasure, obedience, respond well to directive leadership, seniority and age correlated, adherence to rules.*

- Consistent with those describe above, here are some of the features that represents the typology of this generation as employees or even employers: formal attire; office only work environment; self-worth motivators; not necessary mentoring; loyalty retention; personal contact in relation with client orientation; dictates documents, e-mail only in the office, use library instead of web, limited phone use – concerning attitude towards technology; build a legacy, a life-time career with one company – with regard to career goal.

Everything regarding their attitude starts from the social constraints of the period in which they were born and were afterwards educated. This is their belief in addressing social and obviously employer-employee relationships. This was followed typology model for what was the scale of values specific to that period.

*“The Veteran Generation, born between 1925 and 1945, were brought up in a more challenging time with life experiences that included WW II. The economic and political uncertainty that they experienced led them to be hard working, financially conservative, and cautious. Organizational loyalty is of an essence and they have advanced with the premises that the seniority is important to advance in one's career. They do not like the change, they*

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<sup>121</sup> [www.un.org/staffdevelopment/pdf](http://www.un.org/staffdevelopment/pdf), United Nations Joint Staff Pension Fund.

<sup>122</sup> Mugurel Poleanschi, *Motivation – a practical approach.* - ppt. presentation.

<sup>123</sup> [www.un.org/staffdevelopment/pdf](http://www.un.org/staffdevelopment/pdf), United Nations Joint Staff Pension Fund.

*are not very risk tolerant, have a respect for authority and hard work. This tends to lead to a command and control style of leadership. This generation set and obey the rules”<sup>124</sup>.*

## **I.2. Section: Particularities of “baby boomers”**

From the so-called generation “baby boomers” we have people born in the period from

1946 to 1964, which were concerning about thinking of “P”<sup>125</sup>: prestige, power, perks, process.

The particularities of this generation in terms of what was their motivation at the time and beyond until nowadays<sup>126</sup>:

*- Overcoming Generational Gap in the Workplace: big picture/system in place, bring fresh perspective, do not respect the titles, disapprove absolutes and structure, optimism, team orientation, uncomfortable with conflict, personal growth, sensitive to feedback, health and wellness, personal gratification.*

- And here are some of the features that represents the typology of this generation as employees or employers: business-casual attire; long hour-office only work environment; salary motivators; does not handle well negative feedback in addition to mentoring; again salary but this time retention; telephone client orientation; documents prepared by the associates, e-mail primarily in the office, web use to “google” – concerning attitude towards technology; build a perfect career, excel even – with regard to career goal.

As we can see, their attitude exudes confidence and increased optimism specific of the years after World War II, when people began to be moving in terms of economic growth without having to see a specific fear. About them, changing in attitude already concerned individual prestige, need to hold power or control, bonuses as perks included in the job offer and patience to follow a process that is in their benefit. Is what they want and what motivates them about the work performed.

*“The Boomers, born between 1946 and 1964, were brought up in an abundant, healthy post-war economy, becoming an egocentric generation. They saw the world revolving around them. Nuclear families were the norm. More than anything, work has been a defining part of both, their self worth and their evaluation of others. Their life style revolves around the fact that they live to work. Balance is a quaint idea but not really a possibility. As such, they see the workday at least 8 a.m. to 5 p.m. This is a significant tension point between them*

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<sup>124</sup> Idem no. 4.

<sup>125</sup> Mugurel Poleanschi, *Motivation – a practical approach*. - ppt. presentation.

<sup>126</sup> [www.un.org/staffdevelopment/pdf](http://www.un.org/staffdevelopment/pdf), United Nations Joint Staff Pension Fund.

*and the newer generations, as they expect others to have the same work ethic and work the same hours. The earlier part of this generation followed the “bent” rules set by the traditionalists”<sup>127</sup>.*

### **I.3. Section: Particularities of “X generation”**

To the third category, called “X generation”, it belongs the human resource born between 1965 to 1980, who are now between the ages of 30 and 45 years or even slightly over this age limit. This category which includes all those born under communism in Romania, as well as those born after 1989 given the delays in generation evolution because of the same period aforementioned, is characterized as being concerned with “F”<sup>128</sup>: flexibility, freedom, family, fun.

Specific to this generation is the need to adapt to the information flow generated by the unprecedented evolution of technology in the scope socio-professional and obviously employee-employer relationship.

What motivates them or rather what motivates us, can be seen in the next paragraphs<sup>129</sup>:

*- Overcoming Generational Gap in the Workplace: positive attitude, impatience, goal orientated, multi-tasking, self-reliance, flexible horse in informal work environment, just a job, techno-literal, informal-balance, give them a lot to do and freedom to do their way, question the authority.*

- And these are some of the features that represents the generation typology, in terms of attitude: also business-casual attire; office, home, desires flexible schedule in work environment; security motivators; not necessary to receive feedback in mentoring; security and salary retention; e-mail client orientation; creates own documents, uses mobile and laptop, use web to research, review, e-mail or mobile 24 hour a day and 7 days a week – concerning interest towards technology; build a transferable career, variety of skills and experiences.

It seems to be a perfect example of a human being which is good at all, but that will not long remain anchored in a job that does not offer the flexibility needed or that will force him to do the same thing without the possibility of innovation or own fingerprint.

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<sup>127</sup> Idem no. 7.

<sup>128</sup> Mugurel Poleanschi, *Motivation – a practical approach*. - ppt. presentation.

<sup>129</sup> [www.un.org/staffdevelopment/pdf](http://www.un.org/staffdevelopment/pdf), United Nations Joint Staff Pension Fund.

This can be a challenge in an uncertain world in terms of a chosen job, to make them stay if they do not feel financially motivated, but especially if they do not have their value recognized. But about this we as a generation will be object of the study in the coming years due to the evolving employee-employer relationship and the feedback generated by it.

*“The generation X, born between 1965 and 1980, was the first generation raised on “to do lists” and grew up with high rate of blended families. They were also brought up in the shadow of the influential boomer generation. They witnessed their parents sacrifice greatly for their companies. As a consequence, they developed behaviors (not values) of independence, resilience and adaptability more strongly than previous generations. In opposition to the hard driving Boomers who live to work, they work! to live and view the world with a little cynicism and distrust”<sup>130</sup>.*

#### **I.4. Section: Particularities of “Y generation”**

Finally we reached the “Y generation”. They were born between 1981 and 2000 and are between 13 and 32 years old. For that reason we will speak about them as the generation under 30 years. This generation is focused on “C”<sup>131</sup>: cause, community, creativity, connection.

This generation is for sure in training as a human resource and is certainly located at the beginning of the activity in terms of employment, regarding the form that it takes on or takes place.

Presented here are some of the issues that might motivate in what they do and would be their strengths<sup>132</sup>:

- *Overcoming Generational Gap in the Workplace: confidence, sociability, morality, street smarts, diversity, collective action, heroic spirit, tenacity, technological savvy, lack of skills for dealing with difficult people, multitasking, need flexibility.*

- in addition of what we already said, here is generation typology, in terms of attitude: whatever feels comfortable attire; office, home, desires flexible schedule in work environment; maintain personal life as motivators; constant feedback needed in mentoring; personal relationship retention; e-mail, IM and text dealing with client orientation; creates own documents, creates databases, use web to research and network, use of e-mail, IM or text

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<sup>130</sup> [www.un.org/staffdevelopment/pdf](http://www.un.org/staffdevelopment/pdf), United Nations Joint Staff Pension Fund.

<sup>131</sup> Mugurel Poleanschi, *Motivation – a practical approach*. - ppt. presentation.

<sup>132</sup> [www.un.org/staffdevelopment/pdf](http://www.un.org/staffdevelopment/pdf), United Nations Joint Staff Pension Fund.

24/7 – concerning interest towards technology; build several parallel careers, have several jobs simultaneously.

From my point of view, I think it is and will remain a challenge to motivate this young people and I do not mean in getting positive results, but to succeed in retaining them for a longer period in a company, business or organization.

“The Y generation, born between 1981 and 2000, has been portrayed as the next big generation, an enormously powerful group that has the sheer numbers to transform every life stage it enters. They were brought up during the ‘empowerment’ years where everyone won and everyone got a medal.

Raised by parents who nurtured and structured their lives, they were drawn to their families for safety and security. They were also encouraged to make their own choices and taught to question authority. This group was also raised in a consumer economy, and as such, expects to influence the terms and conditions of their job. As a result, they expect employers to accommodate their ‘consumer’ expectations in this regard. This is the basis for the expecting more style that characterizes this generation. They do not necessarily see that they should get more, but that an employer should give more to their employees. They were brought up with an ‘empowered’ parenting style and therefore they are not afraid to express it their opinion.

Generation Y (as well as X, to a lesser degree) is also the first to grow up with computers and the Internet as a significant part of their lives. Constant experience in the networked world has had a profound impact on their style in approaching problem-solving situations. This generation of worker is coming into the workforce with networking, multiprocessing, and global-minded skills that the traditionalists and baby boomers could not have imagined.

The advent of interactive media such as instant messaging, text messaging, blogs, and especially multi player games have generated new skills and styles of collaborating in the generation X and the generation Y to such degree that it has made them different. This *“‘always on’ or ‘always connected’ mind-set is at the heart of some of the friction that exists between the generations. The x and y generation is challenged by the rigidity of the eight to five workdays”*<sup>133</sup>.

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<sup>133</sup> [www.un.org/staffdevelopment/pdf](http://www.un.org/staffdevelopment/pdf), United Nations Joint Staff Pension Fund.

This will certainly have to produce a change as regards the work program for the purpose of its flexibility. So, farewell to the eight hours spent somewhere namely because it requires work program.

## **II. Employees as Human Resource**

### **II.1. Section: Inheritance**

What do we inherit? At least three generations of people, a human resource built in different times, with different possibilities, with different needs, with different conditioning and even different expectations both from employees or employers.

As to the fourth generation, this cannot be considered legacy but it should be seen as the human resource in training. According to this new employee typology, the employers have to modify or adapt their attitude and needs for the benefit of expected outcome for both of them.

We inherited and learned the need and ability to motivate just two generations mentioned above, because for “traditionalist generation” they are retired nowadays and for the “baby boomers” generation it is time to balance between motivating the others, and trying to keep up with the employees’ desires from this age of the explosion of the information and accelerated technologies or to think about retiring in the next few years. The “baby boomers” generation seems to have reached the adulthood of managerial level and they are forced to adapt their motivational methods in favor of the new generation of employees to make them get the results they expect.

The factors taken into account in motivating employees according to their group particularities and in relation with their generation expectations, that is generation X and Y, are as follows:

- to motivate “generation X” is about taking into account the following indicators of attitude or behavior as regards work performed<sup>134</sup>: they tend to avoid corporate politics; they are generally not very interested in traditional perks; they are motivated by the prospects of independence, the lack of corporate structure and lack of rigidity; they are motivated by the possibility of the latest technological advances; they need to be made clear what you are looking for and finally allow them to question the experts and the authority.

- to motivate “generation Y” is about providing them with the opportunity to make changes: they love a challenge; they function well as team members; they want to be heroes;

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<sup>134</sup> [www.un.org/staffdevelopment/pdf](http://www.un.org/staffdevelopment/pdf), *United Nations Joint Staff Pension Fund*.



they want to be surrounded by bright, creative people; they want it right now and they are looking for the empowerment.

## II.2. Section: Development

Evolution of management thinking in terms of employer – employee relationship from manager’s approach and expectations from the employees, has known transition through several distinct stages – the traditional approach, the human relations approach and the human resources approach. What is remarkable in motivating the employees is that the management thinking itself on employee motivation has passed through three phases also – from concern for production to concern for people and finally to concern both production and people.

Until the current moment, employer-employee relationship has undergone the following relevant changes to the evolution and development of assumptions, policies and expectations<sup>135</sup>:

<b>Traditional model</b>	<b>Human Relations Model</b>	<b>Human Resource Model</b>
<i>Assumptions</i>		
1. Work is inherently distasteful to most people. 2. What they do is less important than what they earn for doing it. 3. Few want or can handle work that requires creativity, self-direction or self-control.	1. People want to feel useful and important. 2. People desire to belong and to be recognized as individuals. 3. These needs are more important than money in motivating people to work.	1. Work is not inherently distasteful. People want to contribute to meaningful goals that they have helped establish. 2. Most people can exercise far more creative, responsible self-direction and self-control than their present jobs demand
<i>Policies</i>		
1. The manager’s basic task is to closely supervise and control subordinates. 2. He/she must break tasks down into simple, repetitive, easily learned operations. 3. He/she must establish detailed work routines and procedures and enforce these firmly but fairly.	1. the manager’s basic task is to make each worker feel useful and important. 2. He/she should keep subordinates informed and listen to their objections to his/her plans. 3. The manager should allow subordinates to exercise some self-direction and self-control on routine matters.	1. The manager’s basic task is to make use of “untapped” human resources. 2. He/she must create an environment in which all members may contribute to the limits of their ability. 3. He/she must encourage full participation on important matters, continually broadening subordinates self-control and control.

<sup>135</sup> <http://www.legacy-irc.csom.umn.edu/faculty/jbudd/research/buddbhave2.pdf>, & <http://www.hrsguide.co.uk/hrm/chap1/ch1-12.htm>, <http://www.legacy-irc.csom.umn.edu/faculty/jbudd/research/buddbhave2.pdf>

<i>Expectations</i>		
1. People can tolerate work if the pay is decent and the boss is fair. 2. If task are simple enough and people are closely controlled, they will produce up to standard.	1. Sharing information with subordinates and involving them in routine decisions will satisfy their basic needs to belong and to feel important. 2. Satisfying these needs will improve morale and reduce resistance to formal authority; subordinates will “willingly cooperate”.	1. Expanding subordinates influence, self-direction and self-control will lead to direct improvements in operating efficiency. 2. Work satisfaction may improve as a “by-product” of subordinates, making full use of their resources.

This ways of thinking and acting for the benefit of both, the employer and the employee have influenced over time even the military organization, although in our view this change in favor of military employees could occur since early 90s as a result of socio-cultural changes from Romanian society.

### **II.3. Section: Trends**

Talking about trends we just examined what we inherit from the past corresponding to each side generations, with transformation and features of each one and even with structural changes caused by the evolution of society, of technologies and of improving employer-employee relationship in the benefit of both.

From genetic inheritance, with specific modeling provided by various stages of education and then the interests of each individual, employee or employer have had to adopt to each other by finding the middle path to achieve mutual benefits through communication and availability one in favor of the other.

I will try to cover a bit of the expression right human at the right place, to understand the typology of certain employees in their work relationship<sup>136</sup>:

Types	Characteristic features	Positive qualities	Weaknesses allowed
Company worker	Conservative, not deviate from duty and is predictable	Ability to organize, practical common sense, hard working, self disciplined	Lack of flexibility and is unresponsive to the ideas that are not approved
Office man	Calm, with self control and self confidence	Ability to treat and receive according to their merit on potential contributors-all without prejudice, strong targets meaning	No more than normal in terms of intellect or creative ability

<sup>136</sup> Lucrul cu oamenii – EU-CoE youth partnership, [http://youth-partnership-eu.coe.int/youth-partnership/documents/Publications/T\\_kits/1/Romanian/3\\_managing\\_people.pdf](http://youth-partnership-eu.coe.int/youth-partnership/documents/Publications/T_kits/1/Romanian/3_managing_people.pdf)

Man with give shape	Really strong, which is on the starting point, dynamic	Energetic and ready to cause inertia, it locks in certain situations, is animated by a personal disappointment	Inclination towards impatience, irritation and provocation
Man the plant	Individualistic, serious and unorthodox	Genius, imagination, intellect and knowledge	Head in the clouds, inclined to overlook the practical details or protocol
Resource investigator	Extroverted, enthusiastic, curious and communicative	Ability to contact people and exploring anything new. An ability to respond to change	May lose interest once the initial fascination has passed
The evaluator	Sober, unemotional and prudent	Judgment, discretion and stubbornly	Lack motivation and ability to motivate others
Man who works in teams	Social orientation, relatively gentle and sensitive	Ability to respond to people and situation and to promote team spirit	Indecisive in times of crisis
Man who finalizes	Diligent, orderly, anxious and conscientious	Ability to follow you, meticulous and perfectionist	A tendency to worry about anything in opposition to “leave it that way”

In order to improve employee-employer relationship, let us see how the human resource of those two generations that we talked about and which will provide the basis of human resources in the labor market should be prepared and trained.

How to effectively train “generation X”<sup>137</sup>: web-based training; allow them to ask questions and challenge the concepts; keep the training materials brief and easy to read; offer multi-media learning opportunities; ensure access to simple logically organized knowledge database; sensitive to design and graphics; this group maintains short attention span.

And so we can see the difference here is how it should be trained “generation Y”: they thrive in multi-media environment; they can learn any time anywhere; they need flexibility; multi-tasking; enable internet reliance (Web, IM, Blogs, Podcasts, Avatars, YouTube); enable social networking through internet (My Space, Friendster); provide with simulations; provide with the structured learning regardless of the form; connect me with everything; true team players.

<sup>137</sup> [www.un.org/staffdevelopment/pdf](http://www.un.org/staffdevelopment/pdf), *United Nations Joint Staff Pension Fund*.

Which should be the way forward when most today's jobs are faced with stress. Now more than another time, the need for results, time constraints and opportunities are factors contributing to the migration of workers, perhaps even because of a yet rigid work schedule.

*“GenX and GenY is making today the most significant impact in the workplace. They are empowered, consumer oriented, technologically savvy and they are not afraid to speak up for change in their workplace. GenX and GenY's are advocating for a more 'fluid' use of time in their workday. They think, why not work from morning till noon, take off part of the afternoon and then restart again at 5 p.m. and continue to midnight? In their minds and in their 'always on' world, they see this arrangement as perfectly legitimate as long as they get their work done and meet customer expectations”<sup>138</sup>.*

Their pragmatic way of looking at things and to do the job effectively is the trend and represent the mobility that it gives and who they want from this information age.

#### **II.4. Section: Specific questions**

Which are the most common questions about employee motivation and consequently the relationship between employee and employer? Is a question in itself and covers the whole field of possible conflicts that may arise in terms of workplace inefficiency, lack of trust in staff employed and even further lack of confidence in verticality of the employer.

What should be the limits of distrust, inefficiency limits, permissible tolerance limits, fulfilling job description limits, working time limits for accomplishing a given task, and so on. But especially, until where can go the employee willingness to tolerate abuse or the employer to tolerate unwillingness of the employee to do the job on time and quality.

Another series of questions are strictly those of motivational sphere: how important hierarchy is, who is right and who is not, ego represents an advantage or a handicap, can be combined service and personal relationship without having repercussions, represents mercy and pity a motivator and if so, until when, it is punishment efficient, if so to what type of employee, the pressure of the job requirements is constructive, if so until when, and many others.

The answers or results to these questions can be improving the legal framework for contractual relationships, improving internal regulations where applicable and eventually improve each employee's job description.

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<sup>138</sup> [www.un.org/staffdevelopment/pdf](http://www.un.org/staffdevelopment/pdf), United Nations Joint Staff Pension Fund.

Surely, the question of overlapping functions, how should be properly rewarded, because if someone can work harder should be better rewarded. And last but not least, there is or may be about a conflict between generations, when and why someone feels threatened in this regard.

I guess no one will accuse me that I have not answered all these questions. These and all that we have definitely missed may be a feedback about what is motivation, employee-employer relationship and how it can transform a relationship by combining gainful business with pleasure.

### **III. A paradigm change: Employees as Human Capital**

#### **III.1. Section: Definition**

To understand employee as human capital we will try to make a distinction between human resources definition and the definition of human capital in the hope that we find the defining element in favor of the second one.

According to the Dictionary of Human Resource Management, human resources are employees which an organization has available, also called personnel.

The same dictionary calls human capital – the employee of an organization, and their skills, knowledge and experience, considered one of the organization's assets.

In other words, the difference between human resource and human capital is not only a paradigm or a change, in fashion, given to the human resources in favor of human capital.

Andrew Mayo in his book titled *Human Resource or Human Capital?*, mentions the employee contribution as stakeholder within the organization as been personal capital offered to that organization.

A first approach in favor of human being as a possible human capital belongs to Scottish economist Adam Smith, who believes that “*economic activity was fuelled not by workers as a collective mass*” but by “*the acquired and useful abilities of all the inhabitants or members of the society*”. In favor of those already stated, he also adds “*an individual had to pay a price to gain such talents and abilities*”, but once attained they stood as “*a capital fixed and realized, as it were, in his person*”<sup>139</sup>.

Andrew Mayo even recognizes the exchange of value between the employee and the organization to which it belongs, as below:

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<sup>139</sup> Brian Keleey, “*Human capital – How what you know shapes your life*”

<b>Type of human capital</b>	<b>Nature of the value offered to the organization</b>	<b>Financial value received</b>	<b>Non financial value received</b>
Contracted employees	Knowledge, skills, experience, contacts, values, commitment. Potential	Salaries, bonuses, benefits	Wide range of possible categories
Temporary or subcontracted employees	Specific capabilities, no long-term obligations	Fees	Re-applicable experience, training(possibly)
Consultants	Specific knowledge and skills, cross-company benchmarking, best practice, reputation of the firm, flexibility	Fees	Relationships. Reputation, prestige. Learning, re-applicable methodologies

Human resource becomes human capital because each worker will offer his own personal human capital “in exchange for an agreed combination of financial and non-financial value received in return for their time and effort” as noted Andrew Mayo.

### **III.2. Section: Schools of thought**

According to specialty literature obviously inspired by managerial style of people in positions of decision, project on human resource at their disposal, are found two types of schools of thought: the traditional one and the advanced school of thought.

According to the traditional school of thought, of the old generation of managers, human resource that we have available at some point, should be used by the principle of “everyone should know how to do everything”.

Is the managerial style of centralized institutions, in which you must exploit what you have available, as well as possible. It is the kind of short term management in which the organizational objectives are pursued step by step, following the principle of installment responsibilities from the manager level to the regular staff.

The idea of these managers, moreover pragmatic, is that each one gets paid for what he or she works and therefore motivational problem is a useless waste of time and money, not to say that it is strictly considered a weakness of the managers who have adopted it.

This kind of approach suits organizations in which employees labor is limited to a certain type of activity, often repetitive, which does not involve thinking or an elaborate process. Is the organization where several persons held the same activity and where the

responsibility and initiative, regardless of its nature, lies to superiors, if they can show and take initiative in front of the manager which headed that organization.

By carrying out this activity, the employee can not grow within the organization and probably nobody will ask him this. Then maybe personal ambition, but it is back on the level of education that could reach and to give impetus to move forward in its career.

Second one, the advanced school of thought, which fits to now a day organization, fits organization that develops advanced principles of competition in the market economy, accept innovation as a growth and they have made a culture of investing in human capital for the benefit of the organization, of the individual and hence of both.

Managers of these organizations appreciate each individual ability and understand that its potential and value can be used optimally. This long-term strategy envisages the development and growth of individuals within the organization, from where they will receive the support and assistance and who in return will be the beneficiary of individuals' engagement in projects to achieve outstanding results.

Andrew Mayo has a theory about the individuals<sup>140</sup> which "need the freedom to build" and where he rebuild the Maslow's pyramid by having on its bottom, social capital and emotional capital and on the top intellectual capital.

The increase of an individual's personal capital will move from bottom of the pyramid to the top of it, through the following steps: satisfaction, motivation, commitment and engagement.

### **III.3. Section: The current employee role within Human Resource Management System**

In order to understand the role of the employee within the organization and how it is perceived by the manager, we got to go to answer t Andrew Mayo's<sup>141</sup> question: "*Can we say that people truly are the most valuable assets we have? Or should this engender the cynical response it often gets?*" The same author continues to give an answer to the question that should go in understanding organizational mechanism, in that, once accepted and understood human resource as a capital, who became asset for the organization and thus to manager which leads it. "*Without people, for sure, no value for stakeholder will be provided and increased. In this sense, they are the foundation of the whole value creation enterprise, whether commercial or public*".

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<sup>140</sup> Andrew Mayo - *Human resources or human capital?*, Gower Pub., 2012

<sup>141</sup> Idem no. 22

Concerning human resource as an investment that will bring added value to the organization, an effective and efficient manager will definitely want to improve this capital having the idea to determine employee engagement in the business he runs, business success becoming personal success for both the employee and employer.

In favor of those presented Andrew Mayo has the following explanation: *“Human capital management is primarily concerned with optimizing the assets value of our people, and the value they create. It is this which distinguishes it from resource management – which is concerned with the day management of people processes”*.

Employee’s role within the organization where it is perceived as human capital is to offer *“their personal human capital in exchange for an agreed combination of financial and non-financial value received in return for their time and effort. They become both an asset – able to generate value for others – and a stakeholder in their own right”*, concludes Andrew Mayo when saying that the employee it is a stakeholder.

*The role of the manager, this time, adopting a positive position in people’s life within the organization, you will earn their appreciation for sure, you will have their attention and you’ll earn respect in terms of what you have to offer as a manager, this aspect influencing even the financial gain of business or organization”<sup>142</sup>*.

This time it is about people’s needs within the organization: the need to achieve, the need to belong, the need to learn new things and the need of feeling safe which the organization and being part of it gives to the employee.

#### **III.4. Section: Perspectives**

Depending on the evolution of relationships, the influence of technology in activities carried out, the individual needs of each individual in relation to the evolution of society, the need of efficiency for each organization and about leverage within reach of the manager to engage constructively in social and professional relationship homogenization, in favor of employees who make up that organization, may be identified individual solutions especially to make efficient and at the same time to maintain within the organization any employee who wishes to engage it self constructively for that organization and for him personally.

Among specific developments in human resource management related to the employee employer relation field, include the following<sup>143</sup>:

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<sup>142</sup> <http://lumeaafacerilorinformationale.com/cum-sa-ai-o-influenta-pozitiva-imensa-in-vietile-oamenilor/>

<sup>143</sup> W. David Rees & Christine Porter, *Skills of Management*. Editura Tehnica 55., 2005.



- Use of information management systems to facilitate staff planning and cost control;
- Development of individual employment contracts more than collectively;
- Direct communication with the workforce, rather than through unions;
- Adjustment of labor policies in terms of better customer orientation – this may involve attempts to change the culture and commitment;
- An increased focus on value added by individuals and activities – that involving the use of the performance payment;
- Ensuring that training and development activities are perfectly aligned to organizational objectives;
- Skills development of internal consulting and action as an agent of change;
- Distribution of individual activities that encourage individual responsibility and involvement;
- Internal inspections and establishing standards for evaluating the effectiveness;
- Adopting of flexible working practices, whether in terms of flexible function, flexibility of location or numerical flexibility.

The other dimension of employer-employee relations, labor relations in this case, is about employee participation, availability and interest in their work. “It can be defined as a way to involve the workforce in those issues that affect the organization. It is different from the concept of control of employee, this time, control is transferred to them”<sup>144</sup>, they are controlling their own personal involvement.

The prospects of management evolution tend to move from rigid approach of X theory followers to addressing the malleable employee-employer relationship which belongs to Y theory followers, both developed by McGregor<sup>145</sup>. Evolution itself can pass from strict control of employee to the empowerment of each individual, obviously reported to the specific of activities carried out.

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<sup>144</sup> W. David Rees & Christine Porter, *Skills of Management* Editura Tehnica 55., 2005

<sup>145</sup> Idem no. 26.

## **Conclusions and impression**

The challenge in the field of employer-employee relations on working with four generations of employees, of which one is already in the senior age, is itself the change of organizational environment, meaning the manager's art of modeling within the organization, by being able to include them all and manager's behavior to evolve from authoritarian-rigid style to the flexible motivator one.

The binder of the growing employer-employee relationship will be extracted from learning formal-informal information circulated within the organization and outside with customers relations as potential beneficiaries.

A special role will have to be played by feedback, regardless of its origin, the employee, the employer or the client in the sense of finding a solution to streamline organizational flexibility to rebuild mutual trust between the three categories of social sphere: manager-employer, employee-organizational stakeholder and customer loyalty in terms of confidence in the organization or business.

Human resource available, once inside the organization, will gain valences of human capital through the exchange of value within that organization: through trust, through volunteer involvement, through mutual motivation and through the training, as a method for flexibility, efficiency and organizational growth.

The talent of manager within employer-employee relationship will be to know how to find answers to a series of questions that could arise inside an organization with multi generation employees<sup>146</sup>:

- How to train across multigenerational workplace?
- How to shape between performance and capacity by training?
- How to maintain the older workers in the training in spite of technological environment?
- How to design the effective training policy?
- How to find mentors from developing staff to train others?
- How to design knowledge database and multimedia learning opportunities for all generations involved?

The long and difficult challenge remains to identify the possibility of combining

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<sup>146</sup> I adapted a text published on [www.un.org/staffdevelopment/pdf](http://www.un.org/staffdevelopment/pdf), *United Nations Joint Staff Pension Fund*.

impatience of younger generation of employees, efficient and pragmatic, with patience and thoroughness of older-senior generation, making them work together as human capital and as partakers of the same organization.

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# THE EFFICIENCY ASPECT OF MILITARY EFFECTIVENESS

*Maj. Adrian IORDACHE*

## INTRODUCTION

Efficiency and effectiveness. These two words increasingly find their place in the vocabulary of a manager. Are they used just because it is fashionable to use them as fancy words? Many times people use them as synonyms, not perceiving any difference between them and it is a challenge not to become ridiculous when using them together. Paradoxically, some dictionaries translate them as synonyms ... but the reality is different, there are subtle nuances between them, minimal but crucial for the field of strategy and strategic management. In this respect,

**efficiency** = doing things right

**effectiveness** = doing the right things

Often in developing a strategy there is the need to analyze the notion of effectiveness, as there is the tendency to focus directly on the actions geared towards achieving efficiency. Unfortunately, whether you do the things right (meaning with the least consumption of resources), it is relatively difficult to get excellence and the competitive advantage required (meaning to do the right things).

For a better understanding of the two concepts, I consider that the following short story is extremely relevant. The story refers to a Chinese dynasty, lead by a very distinguished king. The Empress, a very wise woman, was challenged by her husband who asked her to choose between his two great generals the most efficient one. The Empress smiled and politely asked the first general to give her a toothpick. The general, willing to impress, immediately jumped up, hit the first tree he saw with his sword, he cut it down in one stroke and he carved a toothpick out of the wood and offered it to the Empress. With the same smile, the Empress asked the same thing to the second general, who with the same speed and respect, stood up, broke a twig from a tree, carved it into a toothpick and handed it obtained to the Empress.

In front of all, the Empress congratulated both generals for fulfilling their mission (so they were both effective), but only one had also been efficient, the one who was also concerned with achieving the same result with the lowest cost or consumption of resources.

The Emperor understood this immediately and without further hesitation he named the second general as the head of his army.

In order to emphasize the importance of these two concepts in the military history, I would also like to emphasize a brief quote from the famous Chinese author Sun Tzu, who said in his book entitled "The Art of War": "He who wishes to fight must first count the cost. When you engage in actual fighting, if victory is long in coming, then men's weapons will grow dull and their ardor will be dampened. If you lay siege to a town, you will exhaust your strength. Again, if the campaign is protracted, the resources of the State will not be equal to the strain. Now, when your weapons are dulled, your ardor dampened, your strength exhausted and your treasure spent, other chieftains will spring up to take advantage of your extremity. Then no man, however wise, will be able to avert the consequences that must ensue... In war, then, let your great object be victory, not lengthy campaigns."<sup>147</sup>

After this brief incursion in history, emphasizing the importance of the two concepts from the most ancient times, I would like to focus on a more in-depth analysis of each of the two concepts.

### **I. The concept of Efficiency**

Daily we hear the word effective in all environments and instances, from the seller at the market, the company manager, the military commander, up to the highest state authorities; the word is sometimes repeated obsessively, it is pursued with passion, but sometimes it is not very clear what it means. After all, what means to be efficient? One definition views efficiency as "the ability to work well and produce good results by using the available time, money, supplies, etc. in the most Effective Way"<sup>148</sup>. This means, in common language, to get the most results with the least costs. From an economic point of view, a more detailed analysis provides five types of efficiency:

- Technical efficiency;
- Productive efficiency;
- Allocative Efficiency;
- Pareto efficiency;
- Social efficiency;

If we were to use formulas, we may write this as a relationship between inputs and outputs, as follows:

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<sup>147</sup> Sun Tzu, the Art of War

<sup>148</sup> <http://www.macmillandictionary.com/dictionary/british/efficiency>

$$\text{Efficiency} = \frac{\text{Input}}{\text{Output}}$$

In this context, output is viewed as the quantifiable **result** of the activity, while the inputs are resources such as people, raw materials, energy, information, or finance that are put into a system (such as an economy, a manufacturing plant, a computer system, a military unit) in order to obtain a desired output. Inputs are more easy to identify than outputs, as they are classified in accounting under cost categories.

*a. Technical efficiency*

Technical efficiency refers to the way in which a given set of inputs is used to produce an output. A firm is said to be technically efficient if it is producing the maximum output from the minimum quantity of inputs, such as labour, capital and technology.

For example, a firm would be technically inefficient if a firm employed more workers than necessary or used outdated capital.

The concept of technical efficiency is related to the concept of productive efficiency. Productive efficiency refers to producing at the lowest point on the short run average cost curve. Thus productive efficiency requires technical efficiency.

The concept of technical efficiency is also related to X-inefficiency. X-inefficiency is said to occur when a firm fails to be technically efficient because of an absence of competitive pressures. e.g. a monopoly employs inefficient working practises because it has no incentive to cut costs.

Technical efficiency is necessary for allocative efficiency to be achieved. However, allocative efficiency also requires the optimal allocation of resources”<sup>149</sup>

*b. Productive efficiency*

“Productive efficiency is concerned with producing goods and services with the optimal combination of inputs to produce maximum output for the minimum cost. The concept of productive efficiency is closely related to the production possibility frontier, meaning that the output of the economy, or the company can not exceed this ceiling (in other words, you can only produce more of one good without diminishing the quantity produced from another good, with a set quantity of factors of production).

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<sup>149</sup> <http://www.economicshelp.org/dictionary/t/technical-efficiency.html>

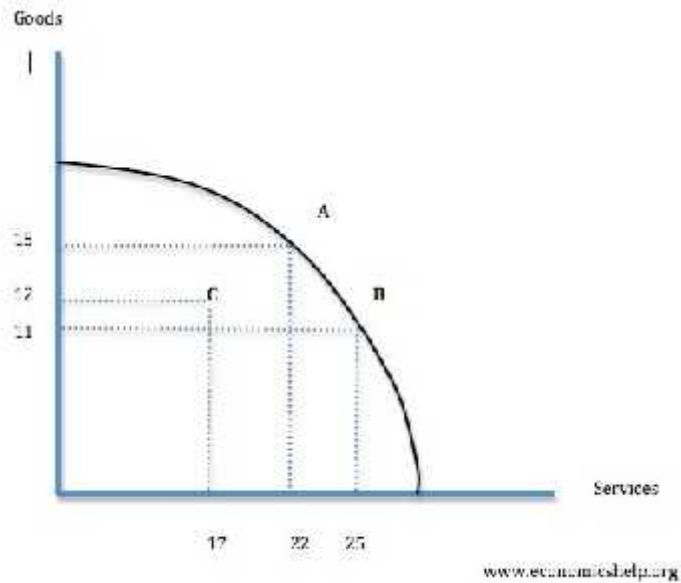


Figure 2

Points A and B are productively efficient, because they are situated on the production possibilities frontier, while Point C is inefficient because it is well below this limit – in other words, the company could produce more goods or services with no opportunity cost. For example, it would be possible to produce 12 units of goods and 23 units of services (if we increased production so that point C would be situated in the production possibilities frontier, instead of the current combination of 12 units of goods and 17 units of services which defines the current point C).

A company is said to be productively efficient when it is producing at the lowest point on the average cost curve (the point where the marginal cost curve meets the short run average cost curve) – see figure below.

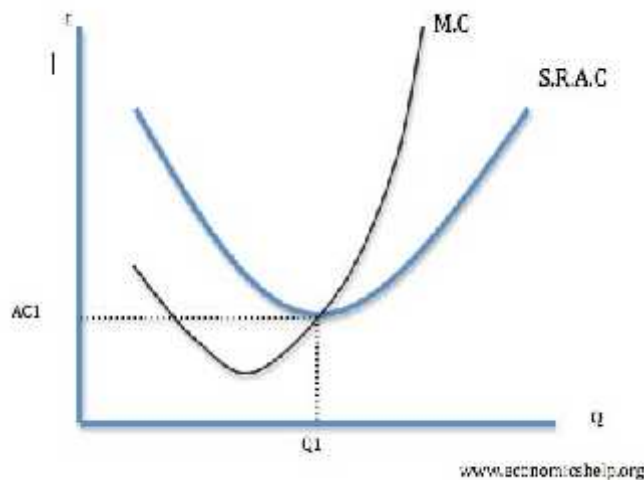


Figure 3

Productive efficiency is closely related to the concept of Technical Efficiency. A firm is technically efficient when it combines the optimal combination of labour and capital to produce a good. i.e. cannot produce more of a good, without more inputs. At the same time, an economy or a company can be productively efficient but have very poor allocative efficiency.

Allocative efficiency is concerned with the optimal distribution of resources. For example, if you devoted 90% of GDP to defence, you could be productively efficient in the field of defense, but, this would be a very unbalanced economy.”<sup>150</sup> Also, this unrealistic percentage from the GDP devoted to defense may lead to severe economic implications, with negative effects both on the economic development but also on the sustainability ( on medium and long term) of such forces.

### *c. Allocative efficiency*

„Allocative Efficiency, also sometimes called social efficiency, means that scarce resources are used in a way that meets the needs of people in a Pareto-optimal way, and is not to be confused with the concept that resources are used to meet the needs as best as possible. Though not explicitly (and all too infrequently explicitly not) a statement about the morally optimum use of resources, there is definitely a moral character to the concept, as it is considered good and socially responsible to use society's resources to meet the needs of its citizenry.”<sup>151</sup>

### **Pareto Efficiency**

Another example of efficiency, with wide implications in areas beyond the economic field, such as games theory, engineering and social sciences, is Pareto Efficiency. The concept has been fathered by an Italian economist in his studies related to economic efficiency and revenues distribution. Given a set of alternative allocations of goods or services to a particular set of individuals, a Pareto efficient allocation means a move from one point to another which should make at least one individual better off, without making any of the other individuals worse off. This is a Pareto efficiency when no Pareto improvement can be made. In other words, a “Pareto efficiency is said to occur when it is impossible to make one party better off without making someone worse off. It is an economic state where resources are distributed in the most efficient way. Pareto efficiency will occur on a production possibility frontier. When

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<sup>150</sup> <http://www.economicshelp.org/microessays/costs/productive-efficiency.html>

<sup>151</sup> [http://www.cs.swarthmore.edu/~eroberts/cs91/projects/economic-pressures/allocative\\_efficiency.htm](http://www.cs.swarthmore.edu/~eroberts/cs91/projects/economic-pressures/allocative_efficiency.htm)



an economy is operating on a simple production possibility frontier, (e.g. at Point A) it is not possible to increase output of Goods without reducing output of Services”<sup>152</sup>

As an example of Pareto Efficiency, building a new airport may result in a greater increase of social benefits than social costs. Therefore, there is a net gain for the society. However, those who live near the new airport will lose, because of the noise pollution and the decrease in the price of the real estate. Therefore, it is not a Pareto improvement. However, if people living near the airport could be financially compensated for the noise, it is possible to have a Pareto improvement. In practice, there are often practical difficulties and high costs of friction compensating losers from a project.

### **Social efficiency**

This is the optimal distribution of resources in society, taking into account all external costs and benefits as well as internal costs and benefits. Social Efficiency occurs at an output where Marginal Social Benefit (MSB) = Marginal Social Cost (MSC). In this context, social benefits = private benefit + external benefit, while Social Cost = private cost + external cost.

## **II. The concept of Effectiveness**

The other side of the coin when talking about the two concepts which make the object of this paper, the effectiveness, refers to “the level of results from the actions of employees and managers. Employees and managers who demonstrate effectiveness in the workplace help produce high-quality results. Take, for instance, an employee who works the sales floor. If he’s effective, he’ll make sales consistently. If he’s ineffective, he’ll struggle to persuade customers to make a purchase. Companies measure effectiveness often by conducting performance reviews. The effectiveness of a workforce has an enormous impact on the quality of a company’s product or service, which often dictates a company’s reputation and customer satisfaction.”<sup>153</sup>

If we were to use a simple formula to describe effectiveness, this can be written as:

$$\text{Effectiveness} = \frac{\text{Outcome}}{\text{Output}}$$

- Output is the quantifiable **result** of the activity;
- Outcome refers to the **consequences** of the organization’s activity

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<sup>152</sup> <http://www.economicshelp.org/dictionary/p/pareto-efficiency.html>

<sup>153</sup> <http://smallbusiness.chron.com/difference-between-efficiency-effectiveness-business-26009.html>

Usually, in order to improve effectiveness, managers choose the course of action to be extremely critical of employees, identifying and outlining their weaknesses and explaining to them that their poor performance can affect the entire organization. It is best to avoid such disruptive moments, so a manager should establish strict rules for hiring personnel and managing the activity, so that the personnel employed shall have the highest competence in their respective area of activity. This in turn shall provide the foundation for improving the overall effectiveness of the organization.

### **III. Military Effectiveness**

“Military effectiveness is the process by which armed forces convert resources into fighting power. A fully effective military is one that derives maximum combat power from the resources physically and politically available. Effectiveness thus incorporates some notion of efficiency. Combat power is the ability to destroy the enemy while limiting the damage that he can inflict in return.”<sup>154</sup>

In this case, the level of military power to be employed depends on the goals, the type of conflict and the characteristics of armed forces (number, equipment, support etc) involved in the conflict. Deriving from these factors, we may identify the resources required, which refer to the entire spectrum of assets important to military organizations: human and natural resources, money, technical progress, defense industry, governmental structure, sociological characteristics, political capital, the intellectual qualities of military leaders, and morale. The constraints under which military organizations operate originate from the strategic environment, the economic and political environment, but also from the social environment. Natural constraints include such things as geography, natural resources, the economic system, population, time, and weather. Political constraints refer to national political and diplomatic objectives, popular attitudes toward the military, the conditions of engagement, and civilian morale.

Theoretically, we can distinguish four levels on which we can analyze military effectiveness:

- System performance
- Engagement;

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<sup>154</sup> Allan R. Millett, Williamson Murray, and Kenneth H. Watman, “*The Effectiveness of Military Organizations*”

- Mission;
- Campaign.

The main characteristic of the *System performance* is that it can be tested directly, as it usually refers to the effectiveness of a weapon system (a fighter plane, a ground to air missile system, a radar station etc). In this context, in order to evaluate the effectiveness of that particular system, we may concentrate on the technical characteristics of that military equipment and their associated measures of performance, such as speed, fuel burn rate, endurance, reliability, radar cross-section, weapon miss distance etc.

*Engagement Levels of Effectiveness* refers to one-on-one or few-on-few engagements between the own systems considered and the enemy systems (the effectiveness in this case can be determined by comparing our own military systems against those of the enemy). This situation, which constituted the base for defence planning in the Cold War era, was based on the idea that no matter how effective you think you are, the real measure of that effectiveness may come only when you engage the enemy (for example in a “dog fight” between Mig’s and F16s). As we do not know for certain what the outcome of this type of encounters may be, in this case the effectiveness is related to a probability, and we may use measures of effectiveness such as the ones mentioned below:

- probability of detecting enemy missile launcher on ground;
- probability of defeating enemy missile in flight;
- probability of avoiding detection by specific radar or sonar;
- probability of surviving hit or near-miss weapon detonation.

The next level of effectiveness, namely *Mission Levels of Effectiveness*, measures how well systems collectively achieve the military missions in many-on-many engagements. In this case, we go beyond comparing “our weapons systems” with the enemy weapons systems; instead we consider success / performance / effectiveness of the entire mission. Some examples of mission level effectiveness indicators may be found below:

- the average time required for search and rescue;
- the percentage enemy weapons defeated in defence against multiple and simultaneous engagements;
- the average number of tons of cargo delivered to theatre of operations by specific day of conflict;
- the number of troops delivered by a transport unit by a certain day.

The highest and most complex level of effectiveness is the *Campaign Levels of Effectiveness*, which measures how well systems collectively contributes to success in overall

military campaign involving other military weapons and vehicles and an example can be time required to secure objectives critical to negotiating conflict termination or probability own forces defeat enemy.

#### **IV. A choice between Efficiency and Effectiveness?**

To better observe how these two concepts (efficiency and effectiveness) work in the military, in this chapter I shall analyze some interesting moments in the history of wars between different nations.

An illustrative example of the importance of considering both efficiency and effectiveness in military operations is a famous battle of Waterloo, where the great Napoleon had to declare defeat.

The battle took place between two armies, namely the French army with a strength of about 120 000 soldiers and the English army (including its allies) of about 90000 soldiers. A simple analysis could have predicted that the battle should be won by the French army, considering that Napoleon's army was superior in numbers to that of the Duke of Wellington.

Probably this is the reasoning Emperor Napoleon had in terms of calculations and strategies, before the onset of the battle. In terms of effectiveness, the result should have been straight forward; the goal to win the battle would have been achieved. The reality could not have been more different. Although numerous French army had a numerical superiority of 30,000 soldiers, it failed to capitalize on this superiority in order to be more effective than the other army. If we were to apply an economic model to this famous battle and simplify a very complex military situation in terms of inputs and outputs, we may consider the two armies as two "production facilities", one with 120 000 employees and one with 90 000 employees, who can both produce the same quantity of goods or services, in other words they deliver the same outcome - in this case winning the battle. The "production unit" headed by Lord Wellington, through a more efficient use of the "factors of production" (the human factor component, combat tactics, motivation, communication, support elements) was able to compensate for its numerical inferiority. As a result, the English army was also more effective, reaching its goal of winning the battle with the best use of resources available, while the French army "wasted" some of its resources (expressed in number of soldiers), through an inefficient use.

Coming closer to the present days, we can analyze from this perspective a story published on a channel CNN, no further this month (April 2013), announcing that the U.S. Air Force decided to hold to the ground a third of its fleet of jet engines aircrafts, due to the

serious nature of the financial problems they are facing in terms of defence budget cuts, which are already severe and are expected to worsen in the future. As a result, dozens of planes will remain on the ground, according to the gen. Mike Hostage, the commander of the Air Force's Air Combat Command.<sup>155</sup>

The source of this dire situation is the economic crisis, which forced the forces involved in flight activity to increase their efficiency at maximum, in terms of using the scarce budgetary resources, till to the end of the fiscal year (September 30), in order to reach the required training level, of about 45 000 hours of training.

The implications of the severe budget cuts are outlined by the above mentioned general: "we must implement a tiered readiness concept where only the units preparing to deploy in support of major operations like Afghanistan are fully mission capable. Units will stand down on a rotating basis so our limited resources can be focused on fulfilling critical missions. The current situation means we are accepting the risk that combat air power may not be ready to respond immediately to new contingencies as they occur ".<sup>156</sup>

It is very clear how budgetary constraints may negatively affect in short-term the efficiency of an organization (which needs to be increased) and how, on long term, they may have a negative influence on the effectiveness of that particular organization. In order to prove this point, according to the definitions of the two concepts provided above, the efficiency is defined by costs and outputs, and the effectiveness is defined by outcomes and outputs.

A practical solution for situations characterized by major budgetary constraints consists of development and application of the concept of "Smart Defense", which in my opinion could create a balance between efficiency and effectiveness.

## CONCLUSIONS

The current technological advance, the geopolitical changes and the ever increasing budgetary constraints are putting an increased pressure on the armed forces, an organization governed by the principle of redundancy, which is intended to help it, no matter the cost, to achieve its aim, meaning to be effective.

In my opinion, the transformation of the armed forces means the process though which the political decision-makers should define very clearly, in documents such as the NSS (National Security Strategy), the NDS (National Defense Strategy), the goals of the armed forces, based on the current reality.

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<sup>155</sup> [http://edition.cnn.com/2013/04/09/politics/air-force-budget-grounding/index.html?hpt=hp\\_t2](http://edition.cnn.com/2013/04/09/politics/air-force-budget-grounding/index.html?hpt=hp_t2)

<sup>156</sup> idem

From my point of view, the transformation of the armed forces also needs to be based on clear and precise definition of objectives for each military level, based on which we should have a clear view on the military capabilities required, with clear levels of readiness and all means, resources and forces which contribute to their development.

I emphasize this because an army can not afford to develop parallel (redundant) structures, “just to be sure” that they achieve their goal – that they are effective. We do not live in a world of unlimited resources, so to focus exclusively on effectiveness is not realistic. History has shown that having a greater number of combat units does not necessarily mean victory, as these resources also need to be used efficiently in order to eliminate waste and ensure sustainability. Maintaining more structures in full state of readiness than it is necessary to fulfil the Minimum Capabilities Requirements defined in the NDS, it is wasteful, and does not mean efficiency.

In conclusion, for a military commander, the application of modern concepts of allocating resources and capabilities (Smart Defense) inevitably leads to the need to take into consideration both the military efficiency and effectiveness.

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**THE ECONOMIC CRISIS INFLUENCE UPON THE PERSONNEL  
RECRUITMENT AND SELECTION FOR THE MILITARY  
ORGANIZATION**

*MAJ Ioan-Doru MĂRIUȚA*

**INTRODUCTION**

Security interests and objectives of the Romanian military missions in the context of geopolitical and economic climate, and the obligations assumed by Romania as a member of NATO and the EU (factors led to the decision to abandon conscription in favor of volunteer since 01.01 .2007), required further restructuring and better human resources.

Organizational change was also necessary, it has created new structures to anticipate trends in military, economic, social development in the Romanian society, European and also global. In this context, human resources are required to ensure the quality that is consistent with the new military missions, with the corresponding activities within the organization and the need for continuous improvement of these processes.

In all the fields of HR activity, the fight to attract the human resource is fierce and it is based on continuous competition. Although, for certain organizations, such as the military, the quantity (the number of people) is important, the focus of the competition is, in particular, on quality. Whether it is an educational institution, be it a company, winning the battle to attract talent - head-hunting - is essential for survival and development. And these battles are wearing, of course, on the labor market recruiters look especially for human quality.

Even if the military is an organization with a specific culture and strict rules, it shares with other civil institutions and companies, the same labor market (external recruitment), especially when it comes to educated workforce and potential high skills, as is the case with officers recruitment. But the problem is not only close competition on the labor market. Potential applicants are becoming better informed, more pragmatic, willing to choose, since they are at the age at which non-conformity outweighs the traditional values such as patriotism.

Human resources are one of the most important investments of an organization, whose results become more evident in time. From this perspective, the analysis and redesign of

recruiting and selecting process of the candidates for the military profession is a priority in the sequence of steps to reform the human resources in the Romanian Armed Forces.

Even if the current economic and political context greatly increases the quantity on the market of this "product", its quality leads to an exponential increase in price.

## **I. STAFF RECRUITMENT**

### **I.1. Conceptual issues**

In order to survive in the economic crisis organizations in general and companies in particular, should address the following issues:

- identifying the skills and choosing or selecting the candidates that correspond better to the requirements for the new or vacant positions;
- identify and attract the competitive candidates using adequate methods of recruitment resources or environments.

A proper solution to these problems leads to the success of the entire staffing process, a process particularly important because of the employment errors can occur. Thus, rejecting a competitive candidate or hiring a poorly prepared one could become a principle for the organization.

HR recruitment refers to the confirmation of the need to hire staff, to some personnel changes in the employment situation and identifies the potential people able to fulfill the job requirements more efficiently. In this context, we can have strategic recruitment needs (restructuring, refurbishment), other needs to solve temporary emergencies (people leaving the organization for various reasons, further studies etc.), or may be related to movements within the personnel (promotions, transfers).

Recruitment can be permanent and systematic or it can be done only when there is a particular need. If recruitment is continuous and systematic, the organization has the advantage of maintaining a constant contact with the labor market.

The search, location, identification and attraction of potential candidates, from where candidates can be elected, is called staff recruitment action.

Recruitment is the process of maintenance management and of the development of adequate internal and external resources needed to ensure the presence of competitive personnel in order to meet the organizational objectives. From this perspective, recruitment can be an active process. So, the organization tries to maintain a network of qualified or potential candidates, even if, currently, there are some job vacancies. It is important to attract



a sufficient number of candidates in order to be able to identify those that correspond most closely to the job requirements.

## **I.2. Recruiting staff in the military field**

Recruiting staff in the military field is an important step in human resource management, which depends largely on the quality of staff called to serve the nation among military personnel.

In the current economic situation, this stage is very important for the future of the Armed Forces, since the people recruited influence the quality of the activity, the military needs motivated and efficient personnel.

For the military environment, recruitment is an integrated set of activities and actions carried out by staff and structures with specific responsibilities, in order to motivate the civilian education graduates for the training and specialization system for officers, NCOs, WOs and professional soldiers for the armed forces, based on two elements acting independently or in correlation and conditioning each other:

- a) the promotion of the military profession in civilian environments;
- b) attracting good candidates to the military profession.

Often the problem is not who to choose, but where (*Table no 1*) and how to attract a large number of competitive and motivated candidates, of necessary people who must be selected. The recruitment activity is considered by many specialists as the base of the entire staffing process outside the organization.

The recruitment of candidates for the military profession is done through specialized military structures (information-recruitment offices). All these structures, with the authorized function of recruitment staff for armed forces, have specialized structures of personnel in this area, and well trained staff.

The officers and NCOs recruiters, besides the professional qualifications and specialization required by the specifics of these functions, have other qualities such as dynamism, positive attitude, written and oral communication skills, synthesis, argumentation, etc.

The success in such an approach is conditioned by, and requires an understanding of military missions, specific knowledge and access routes for military career, admission conditions, training and development, of the advantages and disadvantages the military profession offers.

Permanently located at the contact between the military and society, in direct connection with young people in search of objective information for a crucial option in their life, officer and NCO recruiters must be morally and professionally representative for the military institution. Also, promotion and recruitment activities offer the opportunity of making known the armed forces to the civil society. In this regard a particular importance is the ability to promote a brand image, a process that is a true "art", that military experts have to practice.

### **I.3. The principles of the recruitment system**

The human resource recruitment for the armed forces is based on the following principles:

*The principle of consistency:* The activity is conducted on a global strategy materialized in long-term plans, according to the human resources policy of MoND;

*The conception and decentralization of the execution principle:* The Global Strategy of recruiting is done in accordance with the interests of the Romanian Armed Forces, its execution is done by territorial recruiting structures established for that purpose;

*The continuity principle:* It is a permanent activity;

*The principle of professional efficiency:* Work is done by a structure established for this purpose and by specialized personnel, officer or NCO recruiters staff these positions.

### **I.4. The recruitment process**

The recruitment process is ongoing and it is based on the:

*The recruitment criteria,* general and specific for each category of military personnel (*Table no 2*), have a binding effect and are consistent with the characteristics and requirements of the military profession, career development rules which are in force in the Ministry of National Defence and the existing legislation in our country.

*The annual recruitment plan,* represents categories and numbers of staff needed to fill all staff shortages when it is needed.

Recruiting candidates for the military profession is a complex process of identification, information, guidance and attraction of civil education institutions graduates (men and women), to the training military institutions of officers, and NCOs and the military under contract (professional soldiers).

### **I.5. Negative factors that influence recruitment goals**

Factors that may adversely affect the achievement of the recruitment goals for the military career:

- the civil market for educational and professional offers diversified greatly, new specializations appeared, which give professional flexibility and work places in competitive environments;
- natural decline and population aging, and the external migration of the workforce;
- The impact the restructuring measures have on the image of the military profession is hard to counter by explicative-reassuring speeches and articles appeared in the media, or the popularization of Romanian military successes in military operation theaters;
- Romania's accession to NATO, even if it is a political success and guarantee of the national security, can be a double-edged weapon from the point of view of promoting the military profession. NATO membership implies not only rights but also obligations;
- The military profession is not the one of the most attractive profession by its nature. The main advantages are that it provides a job immediately after the completion of training, free education and a certain social protection;
- Even if the patriotic, national feeling has not disappeared, the patriotic message has lost its credibility in force. Young people of the 2000s are hardly attracted with simple patriotic slogans. They are more lucid and informed when it comes to the world in which they live. Their system of values, attitudes, aspirations are different than those of the generations to which the current military leaders belong;
- Watching what is happening in the armed forces of NATO member countries, which are affected by the crisis, it appears that although the military career is more attractive, in comparison to other professions, the human quality is not growing and young people are attracted by the military career just to secure the necessary social protection for these times.

Table no. 1 Main recruitment environment and sources.

<b>Crt. no.</b>	<b>Recruiting Environment</b>	<b>Recruiting Sources (target groups)</b>	<b>The recruiting reason</b>
1	MILITARY AND CIVIL PREUNIVERSITARY EDUCATION	Graduates of XII class, with a school-leaving degree, from the current series and previous series	Ensuring candidates for the officer training institutions, through the direct path.
2	THE CIVIL AND MILITARY (WOs,NCOs) GRADUATES OF THE STATE AND PRIVATE HIGHER EDUCATION	Reserve military personnel and employees, graduates of higher education institutions	Ensuring candidates for the officer training centres, through the indirect pathway.
2	MILITARY AND CIVIL HIGH SCHOOL GRADUATES	Graduates of XII class, with a school leaving degree, from the current series and previous series	Ensuring candidates for the WOs training institutions, through the direct path.
3	SOLDIERS GRADUATES OF THE STATE AND PRIVATE HIGH SCHOOL EDUCATION	Students in last year of graduate studies or with these forms of education from previous series	Ensuring candidates for the NCOs training institutions, through the direct pathway.
4	ECONOMIC AND SOCIAL STRUCTURES, PUBLIC AND PRIVATE	Graduates of post high school education series	Ensuring candidates for the NCOs training through indirect path
5	ECONOMIC AND SOCIAL STRUCTURES, PUBLIC AND PRIVATE	Mandatory minimum education graduates	Ensuring candidates for training soldiers

(Source: processed by the Minister of National Defence order no. M30 from guidelines for the recruitment, selection, training and career development of military Romanian Army)

Table no. 2 General conditions of recruitment for officer, NCO, military master and PSN career

Crt. no.	Categories of staff	Access Mode	Recruitment Conditions				
			Citizenship	Permanent residence	Age	Studies	Age extent to which they profess
1.	Officers	Directly	Romanian	Romania	Between 18 and 26 years	Highschool with baccalaureate	In rank age limit
		Indirectly			Up to 40 years	University education with license	
2.	NCOs	Directly	Romanian	Romania	Up to 35 years	Highschool with baccalaureate	In rank age limit
		Indirectly			Up to 45 years	Specialized High school with baccalaureate	
3.	WOs	Directly	Romanian	Romania	Between 18 and 28 years	Highschool with baccalaureate	In rank age limit
4.	Soldiers	Directly	Romanian	Romania	Between 18 and 46 years	Minimum education compulsory	Up to 50 years

(Source: processed after the status military - Law no. 80/1995 amended and updated and after the status of soldier and non-commissioned volunteers - Law no. 384/2006 amended and updated)

## **II. STAFF SELECTION**

### **II.1. Conceptual issues**

Selection represents the choice, according to certain criteria, of the most suitable candidate to fill a specific position within the organization and consists in a harmonization between job requirements and candidate traits.

The selection process criteria are:

- *to identify*, from a set of candidates, the person right to freely post and achieve the performances required by the organization;
- *to be effective*, the resources used for conducting and designing of the selection process to be justified by the new employees quality.

To be effective, the selection process must comply with the general criteria and cultural values of the organization, the specific department requirements to which the job/jobs belong as well the imposed particularities of the post (specifications contained in the job description).

### **II.2. The candidates selection for military career**

For any military system, the personnel selection is an important step in human resource management, this depending on the combat potential of the armed forces professionalized personnel necessities, motivation, competency and creativity.

The selection process is conducted in a centralized manner for all the armed forces and decentralized on staff categories.

For the officer corps, the main source is the direct pathway, the selection source is among from the high school graduates. Depending on the armed forces needs, access can be done also through the indirect path, and college graduates being the main source of selection with specialization in equivalent areas and for certain military specialties in areas that are not covered by the military education.

For the NCOs corps, the direct pathway is the main source of the training, and the main source of selection is the enlisted corps. The NCOs corps indirect pathway is made only for areas that are not covered by the military education.

For the WOs body, the direct pathway is the main source of training, the selection source being constituted by the young people who are at least high school graduates.

Depending on the needs of the armed forces, access can be achieved also through the indirect pathway.

### **II.3. The unfolding process of selection**

The selection work consists in psychological testing, skills testing and an assessment interview.

The psychological testing encompasses tests for general aptitudes, which assess the candidate's performance and personality questionnaires to assess the potential to adapt to the specific conditions of the military activity. In addition, the candidates for the officer career will support situational tests, in order to assess aptitudinal potential of leadership.

The physical abilities test contains two parts: running along a specific itinerary and resistance running.

Sample configuration and the scales are differentiated according to the category of candidates, the type of military educational institution and gender.

Assessment interview aims at clarifying certain aspects found throughout the selection, tests the candidate's motivation for the military career, the consistency and clarity of expression and detection of speech defects. Each test is eliminatory.

The candidate declared "rejected" at a test can no longer sustain the following tests. The submission of the results is done after each test and represents the nominalization of persons declared "*pass*".

The end result of the selection is "pass" or "fail" and shall be entered in the certificate of attendance issued by the Regional Center for the Selection and Orientation.

"Rejected" applicants cannot be reevaluated in the same year. They may participate in a new selection in the years ahead, while respecting the recruitment criteria for the military career.

The duration of the selection period is differentiated by categories.

At the entrance examinations organized within the military institutions will participate only candidates declared "pass" after taking of selection tests.

After completing the recruitment and selection process for higher military educational institutions, military schools for WOs and NCOs and military training centers, candidates are scheduled to participate in the competition for admission to military educational institutions they have opted.

### **II.4. Important factors that should not be missing from the selection.**

The selection process as a very important phase of the human resources management for the military organization and must fulfill its missions without being influenced by the geopolitical or economic situation, as follows:

- Determination of potential cognitive and motivational skills of candidates, in relation to the formative requirements of the educational process from the military education system;
- Assessment of motivation for the military profession during school, and removing from the system those unmotivated and / or having poor performance in the educational process;
- Initial testing of skills to lead groups of people;
- Providing skills, abilities and basic skills that ensure a flexible shift from a professional track to another, depending on the results, option and military needs;
- Making the desire to have on all military staff functions professionalized military, according to the military missions and standards of modern armed forces.

### **III. GEOPOLITICAL AND ECONOMIC INFLUENCES**

#### **III.1. Conceptual issues**

The recruitment and selection system implemented in Romanian Armed Forces, meets all the requirements of the efficient models. It is compatible from the point of view of criteria with other systems from the North Atlantic block, the only drawbacks being in the personnel recruiter training and availability of material base.

Our recruitment system comprises the steps of the French system, the Dutch criteria, and the promotion part was inspired in 2006, the year of the "volunteering" in Romania, from the human resources management of the British Armed Forces.

The battle for human resources can not be won just by advertising or nice words. Recruitment must be supported by a program package, including quality of life, vocational retraining, improving working conditions, civilian equivalent of the military profession and the desirability of continuing the civil studies.

Also, near in the future, by removing the conscription, Romanian Army was have to face new challenges and sustained efforts, both human and financial especially.

Military recruitment activity is relatively expensive, but the costs are small compared with the benefits was bring in the long term to military organization.

The lack of a strategy to promote their professional offers as well of appropriate recruitment programs, entails not only loss of truly competitive candidates, but also the waste of financial resources, increased costs, and what is worse, lead to alterations in the organization's image.

Like a vicious circle, image deficit will cause inefficiency recruitment efforts.



## **III.2. Factors influencing recruitment**

### **Positive factors**

Even if we talk about the crisis (economic, financial, political) about geopolitical and economic influences that affect all organizations, institutions and companies, both private and state-owned from Romania, in fact Romanian society as a whole, we can discover the advantages of the labor market.

The advantages that Romanian Armed Forces have today, in the competition existing on the labor market are:

- Triple offer - education, employment, career development;
- Military offer represents in the eyes of civilians, the government's offer, which inspires confidence, it is a guarantee;
- The public confidence in the armed forces is of 70-80%, which also means prestige and confidence.

### **Negative factors**

On the other hand, there are some unfavorable aspects:

- Restructuring and, as a consequence, staff reduction and career length;
- Changes in the economic plan – diversification of the civil offers;
- Recent conflicts have brought in the spotlight the risks of the profession;
- slightly smaller adaptability to change of the military organizations, as compared with the civilian organizations..

## **CONCLUSIONS**

Taking into account the issues presented above, it is absolutely necessary to stimulate and revitalize the interest of the youth in military careers.

This interest oscillates depending on the general economic situation, the perception existing at some point upon the military organization, and marketing strategies of other institutions, for which the recruitment-selection process is much shorter, less demanding and less expensive, and it offers independence and greater professional mobility.

Tens of millions of dollars, euros or pounds spent each year in order to attract and retain candidates, proving that the interest is, primarily, of the military institution, of the State, and that the military profession is one of the most popular not only during the time when there is no choice.

The Romanian Armed Forces recruitment system implemented meets all the requirements of an effective model, with the exception of facilities and funding, the result being inefficiency.

The recruitment and selection, has a peak which lasts about 3 months per year. During this period, staff-recruitment information offices and regional centers for selection and orientation are overloaded and the quality of recruitment and selection suffers.

In order to improve the skills and performance of the military personnel, the diversification of the selection standards is required (physical, psychological), in the beginning by services, and later, by branches and even specialties. The current standards are general, although there are significant differences between the requirements of different services.

To reduce the number of those entering the recruitment process without any chances and not to take the medical examination unnecessarily, it is required that during the time of the first interview, at the recruitment-information office, the candidate be informed of the recruitment criteria, and other eliminatory conditions related to physical characteristics (height, weight, medical conditions, etc..). These specifications can be attached to the current recruitment criteria or can be inserted into another document.

It is necessary from the promotion and recruitment perspective to conduct a study (study packages) concerning the economic, social and cultural needs of each county and delimitation of regions, zones, depending on the attractiveness of the military profession and target- population characteristics.

It is necessary to develop appropriate recruitment policies, supported by a strategy to promote their professional offers and hence the self-image.

It is necessary to pay higher, more appropriately to the military status for the Romanian Armed Forces, to become attractive to young people with intellectual and physical qualities and higher moral who are genuinely interested, and motivated, who are adventurous (in the positive sense), not only those who have not yet found a vocation or a job and see the military as their solution.

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# HUMAN RESOURCES MANAGEMENT – DEVELOPING LEADERSHIP SKILLS

*MAJ Rareș-Mihail PLĂCINTĂ*

## INTRODUCTION

The subject of leadership was and still is a major area of discussions and argues between sociologists, psychologists, historians and other researchers, producing a huge amount of theories, more or less validated, but anchored on realities and actual examples.

When we are thinking about defining a leader, usually it comes in mind the image of somebody, an individual, who managed somehow to redirect or to influence the normal course of events towards his/her purpose, shaping the reality in order to fit with his/her particular perspective. We perceive, on a broader understanding, somebody that was able to convince others of the justness of his/her vision, and to act upon that vision. As a book definition, an actual one from *Leadership, 4<sup>th</sup> edition*, by Robert N. Lussier, Christopher F. Achua “leadership is the influencing process of leaders and followers to achieve organizational objectives through change”.<sup>157</sup>

Nowadays, even if the topic is under debate, more and more companies are recognizing the need to have leaders in positions to achieve desired changes, to develop or to bring companies to the next level of efficiency.

## I. GENERAL LEADERSHIP CHARACTERISTICS

In the *Principles of war*, by Carl von Clausewitz, it is stated in the beginning “We must never lack calmness and firmness, which are so hard to preserve in time of war. Without them the most brilliant qualities of mind are wasted.”<sup>158</sup> This is a very profound judgment, for the 17<sup>th</sup> century, that is still in actuality. The qualities that make a leader perform with a high degree of proficiency are subject to many debates, but the common approach is that you cannot have a leader lacking the following:

- Objectivity, because leaders that tend or head towards effectiveness, have to approach individuals differently but equally. Impartiality is a major issue

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<sup>157</sup> Robert N. Lussier, Christopher F. Achua - *Leadership, Fourth Edition*, South-Western, Cengage Learning, 2010, page 6.

<sup>158</sup> Carl von Clausewitz - *Principles of War*, The Military Service Publishing Company, 1942, page 4.

considering awarding rewards or giving penalties in cases of bad and good performance. As a leader, you cannot have a group of individuals situated in a tight circle of favourites and another that is disregarded on subjective reasons, no matter how qualitative is their work.

- Integrity, meaning that you have to make people believe in you. Trust is a very important ingredient to all human relationships – professional or private. Integrity implies adherence to an order of values beyond yourself, like truth and honour.

- Enthusiasm, meaning proving a great interest in a cause. We cannot think about examples of leaders that do not have the “knack” for inspiring people.

- Toughness. Usually, leaders are quite uncomfortable to have around because they have a high level of expectancies. They are strong and resilient, and most of the time not so popular, but respected.

- Confidence. Developing self-confidence is always preliminary to becoming a leader, because people will feel if you have it or not. A great leader has to overcome the probability to fall in the extreme of overconfidence, and eventually to arrogance. Of course you can develop all these qualities. You can build your self-confidence, discover new wells of enthusiasm and grow in integrity, even though it is a process that takes a lot of time and effort. Also, you have to remind yourself that the quality approach is something to consider further, at least from time to time. Review your progress as the profile of your strengths and weaknesses (in terms of personality and character) begins to unfold and change in the positive direction.

- Social skill, because leadership involves both your mind and your heart. If people are seeing your interest for what you are doing and for themselves, they will perform with better results. Building rapport with others will accomplish the effect of movement towards the organisational objective.

- Humility, with the sense of lacking a false pride, because the opposite of humility is arrogance, and who will prefer to work for an arrogant somebody? A real desire to listen and act upon information received and a lack of a conceited ego are signs of a good leader.

The work to become a leader should start with building the character and the personality of that individual. A leader should possess all qualities expected in a certain organisation, because without them, he/she will lack credibility and his/her performance as a

leader will be compromised. One of the first differences between leaders and managers is that the manager can be appointed over others in a hierarchy even lacking the required qualities. The process of developing all these qualities can be done on a personal level, because you can, in time, build your self-confidence, grow in integrity and find sources of enthusiasm, bearing in mind that the most useful way to assess your performance or leadership development is through feedback, mostly from others.

## **II. CONTEXTUAL LEADERSHIP**

Another approach to leadership states that the importance of generic leadership qualities is very low; stressing out the idea that leadership depends on the situation. The environment will determine if one or another person may emerge as the leader. A very nice example is of Winston Churchill, the former prime minister of Great Britain during the World War II, which was an awesome leader during wartime, but not an imposing one during peace times (his party lost the elections organised after the end of the war, even if Churchill was capitalising on his reputation obtained during the war). The conclusion that can be taken is that some qualities are situation-related, but others – such as enthusiasm, moral courage and stamina – are found in leaders in widely different situations. The situational approach emphasises the importance of knowledge linked to authority in life. There are different forms of authority among people, like the authority of position and rank, the authority of knowledge, of personality or the moral authority.

### **II. 1 Authority**

Knowledge creates confidence in others, so retaining technical and professional knowledge as much as possible is actually part of a leader development. Probably the most important aspect related to performing a certain job is in depth knowledge of it. At this point we have to underline the wrong perception that if you are a very good professional, by default you are also a very good leader. Knowledge is necessary, but not sufficient, because all the parts of authority – position, knowledge and personality – are important. In order to get free and equal people to cooperate and produce great results, you need to rely upon all aspects of authority. In the first phase of your career as a leader, you will find yourself in a fairly well defined field of work, and you will have acquired the necessary professional and technical knowledge. However, you have to consider that we are living in very fast times, with situations changing all the time. The question you have to address is how adaptable you are, and how you can cope with a flexible environment.

## **II.2. Group leadership**

Another way to define leadership focuses on the group, a concept approaching leadership in terms of functions that meet group needs, or in other terms, what has to be done. Concerning matters involving leadership, there are always three elements: *the leader* – with his qualities of personality and character, *the situation* that can be changing or immovable and *the group* – the followers with their needs and values.

In reality, work groups are always different, just as individuals are. After coming together they soon develop a group personality, with common and unique characteristics. In context of the group, their common needs are the turning point when analyzing the performance. Work groups and organizations are set up because there is a task that is too large to be completed by one person. Many of the written or unwritten rules of the group are designed to promote unity and to maintain cohesiveness. In case of perturbations, the group will react with a certain level of resistance, varying from friendly indulgence to anger. The group instinct will be that power is determined by the unity of the group, so good relationships, desirable in themselves, are also considered essential means towards the goal. Individuals bring into the group their own needs – not just the ones situated at the base of Maslow's pyramid, but also from the its top, like psychological ones: recognition; a sense of doing something important; status; and the deeper needs to give to and receive from other people in a working situation. These individual characteristics are very important, coming up from the depths of our life as human beings. They may attract or repel us to or from any given group. Another aspect is that people need one another not just to survive but also to achieve and develop their personality.

## **II.3. Leadership functions**

The relation with leadership is that in order to achieve the common task and to maintain teamwork, certain functions have to be performed; a function is what the leader does, as opposed to a quality, which is an aspect of what he is. For example, someone has to assume the task to define the objectives, make the plan to achieve those objectives and to deal with problematic situation that can affect the unity of the group. So, the leader should learn to provide the functions of leadership that are called for by task, team and individual needs, in an effective way. More than that, a leader can learn to accomplish the functions with skill, developing his leadership skills, that can be used in a variety of situations.

The leader's role can be defined as the expectations that people have of you. Of course, if different people have different expectations, as it happens quite often, you may

experience role conflict. You may find, for example, that there is considerable tension at certain times in your life between the expectations of your family and those of your boss. People expect their leaders to help them to achieve the common task, to create the conditions for building the unity of teamwork and to meet individual's needs.

In conclusion, the leader's functions are to define the issue, plan, brief, control, evaluate, motivate, organize and provide an example to follow, in order to achieve the task, addressing individual and team needs.

### **III. Develop leadership functions into skills**

Taking into consideration each of the main leadership functions, we have to find ways to perform them in better conditions and with better results.

Keeping in mind that all functions are equally important and can interact with individual and group needs, leadership is also defined by the size of the organization:

- team leadership, when the group is no larger than 20 people;
- operational leadership: when you are leading a significant unit in the organization, composed of a number of teams whose leaders are accountable to you;
- strategic leadership, when you are leading a whole organization, with overall responsibility for the two levels of leadership below you.

The functional approach to the leadership is sometimes called action-centered leadership, because function is one of a group of related actions contributing to goal achievement.

#### **III.1 The task**

The issue or task, signifies something that needs to be done, usually something that you are required to do. People in organizations have some idea of what they are supposed to do, but that general sense needs to be focused on to an objective that should be clear, realistic, challenging, and measurable. The measurable part is determined by the need to have a process with a well-defined end state.

Leadership is also about answering the question why as well as what. A boss may tell you what to do in a particular manner, but a leader will explain to you why it is important to accomplish that task, in order to have your free and willing cooperation – the hallmark of all true leadership, overlapping with motivation, or giving others reasons for action. Leaders should be able to relate an objective to the wider aims and purpose of the organization, to



think keeping in mind the broader picture, from the particular to the general, from the concrete to the abstract.

To have a vision of the organization means to see where you are heading to, so you need to understand the why behind the objectives you are being asked to achieve. Change always brings the necessity to think and to evaluate your purpose, your aims and objectives, in the context of the rapid changes in technology, economic and social life. That kind of thinking is mainly the responsibility of strategic leaders, but they cannot do it without inputs from their operational and team leaders.

### **III.2 Planning**

Planning means developing a program or method worked out beforehand for the accomplishment of an objective, a key activity for any team or organization, taking you from where you are to where you want to be when you have achieved the proposed objective. This function answers the group's need to accomplish its task by answering the question *how*. From the leadership perspective, the issue is make the plan by yourself or you should share the planning function with your team and in what amount. Once work has started on the plan, it may be necessary to revise or adapt the plan to new circumstances or conditions. Again, you must mediate between the resistance to change and the need for flexibility as change happens, considering also that maybe too many changes in the plan can dissolve it, making it unfeasible. You have to think on contingencies, search for alternatives, and for that, you need creative external inputs.

### **III.3 Briefing**

Briefing is the function of communicating objectives and plans to the team, involving standing or sitting in front of the team. Like all functions, briefing can be done with skill, for there is a right way to brief a group and a wrong way. In order to perform well, the leader should do at least the following:

- Rehearse and practice. Make use of visual aids: "A picture is worth a thousand words."
- Keep it short and simple. Reduce complicated matter to its simplest form, avoid technical language that your audience will not understand.
- Be clear. Verify that what you are saying is not ambiguous.
- Try to show your enthusiasm towards the topic, make it exciting and fun.
- Be yourself, because not all are great orators. Try to convey the message at the best of your abilities.

Briefing is something that you will do not only at the beginning of a project and then forget about, but also during the process. The importance of communication cannot be stressed enough when we are talking about leadership. Briefing is related only to one skill, public speaking, and you have to remember that listening is also important. In order to have a good and creative team you have to encourage people to come up with ideas and suggestions to best accomplish the plan. During briefings, you will have also opportunities for pointing out significant individual or group contributions to the success of the organization.

Some of the most attractive examples of leadership occur when a leader takes over a defeated group and completely reverses the situation (of course, in a positive way). The initial briefing meeting can be especially important in this process, for first impressions are the foundations of working relationships, because the impression that you make on people at that first meeting will stay with them forever. However, the message is more important and harder to ignore if when following up, people will see actions concurring with your determination, with the initial message.

### **III.4 Controlling**

Controlling is the function of ensuring that all the energy and resources of the team, are focused towards the goal. Sometimes teams are inefficient, doing nothing to advance, so the leaders' job is to identify the issue and change gears in the organization. It is instinctual to rely as much as possible on self-control or self-discipline in others. The better the team and its constituent individual members, the more you can do that. The point about self-discipline is that it is our only way of being both disciplined and free. If control or discipline is imposed, we lose an element of freedom, so probably the individual needs of the people will suffer, with an appropriate decrease in productivity. Control's etymology is Latin - "*contrarotulare*" meaning "copy of a roll of accounts"<sup>159</sup>. Its financial origin is a reminder that finance can be one important means of control. Self-managing teams are defined by having their own responsibility for planning and controlling their own work. Within certain limits, they have discretion on how to use the resources – especially the money – that entrusted to them for achieving their purpose. Success at directing, restraining or encouraging individual and team efforts on the task is the criteria for testing a leader's effectiveness as a 'controller'.

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<sup>159</sup> <http://quizlet.com/16324239/oxford-3000-etymologies-14-flash-cards/>

### **III.5 Evaluating**

Evaluating is that part of organizational processes that deals with values that you have to examine and judge, because the success or the failure of an endeavor can be determined only by comparing the proposed objectives with the actual results. Performance has to be judged in relation to those values, and your function is determined by the need of keeping people aware of their level of achievement. Evaluation is not something done at the end of the process, but a continuous and permanent activity. If you comment on progress – or the lack of it – or invite the team to consider its own agreed success criteria, you are performing the function of evaluating.

When you assess the possible consequences of a decision, you also will be evaluating. The leader will perform individual and group appraisals, because this is the best way to build a team. Moreover, you also evaluate the team and the individual. For evaluating an excellent team, you have to consider some criteria, like:

- Clear objectives. Everyone knows the team's objectives and their part in the plan.
- Shared purpose. Everyone focuses on the objective.
- Best use of resources. All resources belong to the team and are put to work according to priority.
- Good two-way horizontal and vertical communication (leader and members, among members). People can speak without fear of reprisals. All that matters is the higher purpose.
- Set-back approach. A high-performance team after a failure learns the lessons and moves forward.
- Adaptability and flexibility. The true evaluation of teamwork is in the difficult, demanding change situation.

Sometimes, overconfidence can bring failure, because teams with an excellent record can start to act in an arrogant way and make unexpected mistakes that can endanger the whole organization. As a leader, you should maintain your vigilance; develop relationship with each member of the team as well as a relationship with the team as a whole. That will involve you in talking and listening to each individual, and will facilitate your role of a counselor. If you work for an organization, you probably will have to appraise each team member, an activity that you will have to take steps not to become a formal and bureaucratic procedure.

### **III.6 Motivation**

Motivation comes from the Latin verb for “to move”. In order to move people there are many ways, like punishments of one form or another, financial rewards, threats etc. Leaders are supposed to motivate people by a combination of rewards and sanctions.

To motivate others, you will have to:

- Be motivated yourself; be fully committed and enthusiastic;
- Select people who are highly motivated, because it is very hard to motivate the reluctant, so chose your team members well;
- Set up challenging goals. If the team is good, it will respond to objectives that stretch its capabilities, providing realistic targets;
- Progress is a motivator – give feedback on achievements;
- Give rewards in a fair matter and recognize merits.

Inspiration is not quite the same as motivation, but a strong leader will find ways to set a tangible example for all members of the organization, like professional ability, knowledge, and enthusiasm. Sources of inspiration can also be found in the actual situation and the other people involved in the process.

### **III.7 Organizing**

Organizing is the function of arranging or forming of different parts into a coherent image. It can mean systematic planning as well, including structuring that has to be done if people are to work as a team, with each element performing its proper part in an effective way. You can divide a larger group into smaller ones, in order to do concomitantly a greater amount of activities, sharing responsibilities among members of your subgroups. Further analysis of organizing things brings up the concepts of systems, administration and time management.

#### **III.7.1 Systems**

A system is almost a synonym for an organization with the meaning of a multitude of related parts, interconnected and dependent to each other that are making up a whole. But system can refer to *processes* –structured paths to follow to do things – as well as social structures. In large organizations, there is a variety of systems, such as an evaluation system, career management system or an internal control system.

A good leader understands why systems are valuable, because groups have certain ways of doing things, although they are not always immediately apparent, so you have to

work through the systems, changing them if needed, and not being limited by them, recognizing when a system is counterproductive and should be dismissed.

### III.7.2 Administration

Administration is mostly considered as a managerial skill, but today's leaders will often have a big chunk of administrative tasks, especially at team leader level. Approaching this administrative aspect of leadership is a way of becoming a good enabler, for you are thereby freeing the team as a whole and its individual members to be more creative and innovative. Of course, you are not supposed to do all administrative business, you need to delegate so that you will have time to lead. Nevertheless, in doing the administration that cannot be delegated you will have to make an example of yourself, setting up the standard of excellence. And, of course, at a certain point you will notice the amount of work involved in administrative matters, and you will be more able to appreciate at a just value the workload of people delegated to this kind of tasks on a daily basis.

### III.7.3 Time management

Leaders always need time for various reasons: to think, to communicate, to interact with people to plan in order to increase the organizations' results, so they should be very good managers of their own time. If you cannot organize yourself, how can you organize somebody or something else? Administering this resource, your own time, is the priority for any leader. Time management is defined by a few principles – know your purpose, aims and objectives, and the steps to be taken, for example – and some practical policies. Learning to say no, which sounds so simple but so complicated also, can save you a lot of time.

## **III. 8 The power of personal example.**

As a general principle and as a simple observation, we notice more easily bad examples than good ones, you only have to watch the evening news for one hour and you'll notice that the accent is on bad things happening. There are studies made that show people are more interested in tragic occurring than good ones, as a general current. However, it is nice to see a good example, because mostly, it represents the hallmark of your integrity: that unity between what you say and what you do. A hypocrite – one who professes beliefs and opinions that he or she does not hold in order to conceal his or her real feelings or motives – is neither setting an example nor expressing integrity.

Another facet that we will have to consider is we do not accept, as a general rule, leadership in absence of examples. When you consider leadership, almost instantly you will

bring up a memory of somebody that you know or that you read about, with a whole bunch of qualities that made him/her a leader.

One form of leading by example is assuming the privations experienced by the group, maybe trying to protect the members if it is possible. Changing this function into a skill can be very hard endeavor, but with hard work, it can be done. A skill implies a conscious learning of an art, setting an example in a consciously way in order to influence others looks machiavelic and manipulative. Providing an example, rather than setting one can be done in an unselfconscious way, as an expression of who you are as opposed to something done for a carefully calculated effect, and continue and persevere until example becomes a habit, and you will not think about it.

#### **IV. Leadership development – a personal endeavor**

When you are young, at the beginning of your career, the tendency is to focus mostly on developing to the fullness of your own potential as a leader, but when you find yourself in a leadership position at the level of the group, you will have a responsibility towards the members of your team, to support their development in all domains, including their abilities as leaders. Usually, large organisations are interested, and justifiably so, in focusing interest in developing the senior leaders, because at their level you can find and quantify the most remarkable results. This approach forgets the fact that the junior leaders, the ones working at the bottom of hierarchy are also important, because they are the closest ones to the masses, to the customers. In the long term, this approach, focused on the top levels, will prove more expensive in terms of manpower management for the organisation. Trying to shift perspective and bring to attention the need to have capable and high performing junior leaders is a hard and demanding process.

However, from a historical perspective, we can draw the conclusion that leaders emerge, no matter if they benefit of a formal training or guidance towards leadership. In the actual environment, when at the age of 35 you probably went through five or six jobs, in different companies, it is somewhat difficult to ask for commitment from organizations to invest in junior level leaders, which probably in two-three years will work somewhere else. So, the question that remains to have an answer is how do you develop yourself as a leader? Considering the variety of human race, and the unique characteristics of each individual, it is impossible to develop a set of rules applicable to everybody in order to become a leader. Of course, there are certain principles that can facilitate the way to leadership, but the amount of

work and dedication is very large, a symptom of today's lack of real leaders, with all the inspiring qualities.

#### **IV.1 Be prepared**

If you want to become a leader, you have to start by assuming responsibilities, take charge. If you do not believe in yourself, it will be completely impossible to emerge as a leader in any circumstances. Somebody who is not prepared and not willing to assume responsibilities will never be in a position to lead people, only to influence the final outcome, in a behind the scene way. A great researcher, Louis Pasteur was saying, "Fortune favors the prepared mind"<sup>160</sup>. The meaning is easy to grasp. If you will not struggle to gain knowledge in the field of your interest, and through it, confidence, your plan is doomed from the start. Another aspect that you will have to consider is timing your attempts; find the right moment to do the right job in the right situation, in order to maximize your effectiveness. It is a lot easier to be remarked upon when you can show actual results, and people tend to evaluate not only that, but also the way, the path taken to achieve the objective and the level of confidence shown.

#### **IV.2 Be proactive**

Organizations do have a stake in your development as a leader, because they *need* leaders. Share with your superiors your hopes, intentions and ambitions. You should be seeking above all opportunities to lead, no matter at what level. However, experience does not come only from successes. Usually, you will meet with issues, problems that hinder you and your approach towards objectives, and you have to keep your optimism even in case of failure. Growing as a leader is a mixture of failures and achievements. Organizations can help you, beside promotions to leadership positions, with formal training, internal or external. Seize these kinds of opportunities and profit from them, because you will be able to practice your skills and receive feedback. Keep in mind, though, that not all methods and approaches to leadership can be applicable to you, because nobody can say that has found out the definite answer in this domain.

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<sup>160</sup> [http://www.brainyquote.com/quotes/authors/l/louis\\_pasteur.html](http://www.brainyquote.com/quotes/authors/l/louis_pasteur.html)

### **IV.3 Be reflective**

Feedback is a very important tool in personal development. It depends on the way you approach it: with an open mind, looking for the truth in it, it can guide you on your path to excellence in leadership, if not it will lead you to wrong conclusions. Most leaders are dynamic persons and focused on their work, because they like what they are doing and are interested in their results. From time to time, you have to take a step back and look at the broader picture, look at what you are doing and if you are on the right path. These times of reflection and evaluation should include as subject your team performance as well. List the things that are going well and identify some specific areas for self-improvement. This process is a natural one, but while in a leadership position, its importance cannot be disregarded.

Hopefully, it will yield you a mental list of action points aimed at improving your skills and knowledge as a leader and it will help in improving your overall performance. Failures are a fact of life, and maintaining an enthusiastic attitude will help in overcoming all obstacles. As the military recruitment saying goes, “Be all you can be” and try to perform at the best of your abilities, so when you look behind, you will not find reasons for regrets. Developing your basic confidence, enlisting the help of your organization as a partner in your leadership development, and making discriminating use of the feedback coming your way from all sources are some practical ways in which you can improve your leadership.

### **CONCLUSIONS**

The success of individual careers and of organizations is determined by the effectiveness of their leaders. Leadership is associated with accomplishment of organizations goals, as one of the most important multipliers when aiming to success. The job market for leaders is a very large one, especially for the top levels of corporations, so the interest toward finding leaders is increasing. To respond to this demand, measures have to be taken to grow or to educate individuals in order to develop their potential for leadership positions, no matter at what level in an organization.

If you want to be successful, you must know yourself, acknowledge your limits, and act upon your personal development. Being always ready to seize the opportunity, interested in gaining knowledge in your field of activity, constantly evaluating your actions balanced with your goals should help in developing an excellent leader.



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# **THE INFLUENCE OF LEADERSHIP ON CHANGE AND INNOVATION**

*MAJ Eugen SOARE*

## **INTRODUCTION**

Organizations must initiate change processes to meet market requirements, to enhance shareholder value and to fulfil government strategies. Often change processes must be initiated and implemented to maintain organizational stability and to support balanced economic growth and sustainable development. Change management is a process that allows an organization to modify any part of its structure in order to cope effectively in a constantly changing environment. It includes activities designed to provide support, acceptance, approval for the necessary changes and the agreed amendments. The goal is to control changes while maintaining the integrity and quality of the production environment. The concept and practice of change management has become increasingly popular among organizations in recent years.

Similar to the business world, the military organisation is in the midst of unprecedented transformation. The way of thinking the military action, the way of fighting and developing new strategies, and most important, people, are the focus of the Armed Forces future change. The most recent approaches to transformation point out a more complex framework, in which the military transformation process itself undergoes transformations under the pressure of the experiences in the theatres of operations, especially in Iraq and Afghanistan.

The dynamics of the global and regional security environment has had a major influence on the Romanian Armed Forces transformation process, on their structure as well as on the nature and content of their missions. The events in December 1989 found the Romanian Armed Forces engaged in combat preparation, with a view to fulfilling the missions assigned for the country's defence, as well as in carrying out tasks in the national economy, in keeping with the requirements of the policy of the communist regime of that time.

With the strength of more than 250 000 troops and a broad structure at the level of the entire country, with the equipment and procurement level that met the quantitative

requirements, yet, mostly outdated in terms of technology and performance, the Romanian Armed Forces started, right after the events in 1989, a thorough process of reform.

The main determinations that lay at the basis of the Romanian Armed Forces transformation were:

- to join the general reform process of the Romanian society;
- to radically change the overstaffed structure of forces, approximately 250 000 active troops, in order to meet the requirements of NATO;
- to change the role of forces from exclusively proper territorial defence to expeditionary forces, certified and made available to NATO to act anywhere in the world.

These changes were embodied in most cases by models already implemented by western countries, but their success depended largely on the perception of the individual, on how leaders of the structures involved were able to adapt to the new, to improve, to innovate to customize the new requirements to the national specific, without prejudice to the traditions and values but conscious of their belonging to the elite corps of the Romanian Armed Forces.

## **I. CHANGE MANAGEMENT**

### **1. The concept of change**

Changes happen when are triggered by internal or external stimuli and each aimed at delivering some sort of marked improvement in performance. Changes can be incremental or radical; sometimes the gap between the current and future state is small and other times that gap is large. Changes can impact processes, technologies, systems, tools, structures, job roles or any combination of these factors. Some have little or no structure around them, but they still cause changes in the organization. Others take the form of policy declarations. Others are formal projects (with associated project managers, project codes, project charters and work breakdown structures), while still others are programs made up of numerous projects. Regardless of the reason, type or structure of the change, each ultimately impacts how individual employees do their jobs.

There are many definitions of change management. For example, the term *Change Management* is used to describe:

- *The systematic approach and application of knowledge, tools and resources to deal with change. Change management means defining and adopting*

*corporate strategies, structures, procedures and technologies to deal with changes in external conditions and the business environment.*<sup>161</sup>

- *Change management is a structured approach to transitioning individuals, teams, and organizations from a current state to a desired future state. The current definition of Change Management includes both organizational change management processes and individual change management models, which together are used to manage the people side of change.*<sup>162</sup>

The reason for such a broad definition of change management is that it's a comprehensive term used to describe change at both the individual and organizational level.<sup>163</sup> The term, change management has at least three different aspects, including: adapting to change, controlling change, and effecting change. A proactive approach to dealing with change is at the core of all three aspects. For an organization, change management means defining and implementing procedures and/or technologies to deal with changes in the business environment and to profit from changing opportunities.

## **2. The objectives of change**

Organizations always change for a reason, that is to be more effective, to improve selling processes, to cut expenditure or all the above. No matter the size or type of the organization, the objective is to develop the performance in some significant way. Organizational change requires individual change - if individuals do not embrace, adopt or become proficient at the required change, then benefits will not be realized. Therefore, one of the most important aspects is to understand for the organization's staff, managers and subordinates, need for change. Organizational outcomes are tied to the change being realized as a result of individual change; after all, individual employees are the heart and soul of organizations, without them to do the work, the work will not get done.

The change may be to fix a problem or to seize an opportunity. This can lead to customers and internal competitive pressures. It may be incremental in nature or may be a radically new operating system. This can affect a workgroup or may affect the entire organization. This can affect the behaviors, processes, tools, technology, organizational structures and job roles. But whatever the nature of change, organizations implemented projects and initiatives to improve performance - to achieve a future state, which is better than

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<sup>161</sup> SHRM Glossary of Human Resources Terms, [www.shrm.org](http://www.shrm.org).

<sup>162</sup> Wikipedia [http://en.wikipedia.org/wiki/Change\\_management](http://en.wikipedia.org/wiki/Change_management)

<sup>163</sup> <http://www.change-management-coach.com/definition-of-change-management.html>

the current situation. For a change to be a 'success' is significantly improved, which has been designed. There are several terms<sup>164</sup> used to describe this, including:

- Benefit realization
- Value creation
- Return on Investment (ROI)
- Results and outcomes

The objective of any change is this: to realize profit and generate value. To operate, the manager must be familiar with the problem situation to another.

The target of change management is to ensure benefit realization and value creation by driving necessary implementation and usage of change solutions. Change management drives project benefit realization and is necessary whenever a project's results and outcomes depend on individuals adopting and using a result.

### 3. Attitudes and behaviors in the process of change

To gain support for change, an organization leader must understand why people resist change. People resist changes for reasons they consider are significant. The most common is the fear of a bad effect, such as less money or personal trouble. To understand people's behaviour in change process, it is required to examine the phases of this process. Leaders need to know in which phase they have to anticipate what types of situations and inconvenience. In general, people perceive change processes in seven typical phases.



The seven phases of change<sup>165</sup> can be described as follows:

<sup>164</sup> <http://www.change-management.com/tutorial-bluf.htm>

<sup>165</sup> adapted from: Colin Carnall: Managing Change in Organizations

1. Shock. When change happens, people realize that their own patterns of action or doing things are not appropriate for new environment any more. As a result, their perceived own skill decreases.
2. Refusal. People activate principles as support for their confidence that change is not necessary. Their perceived competency increases again.
3. Rational Understanding. People recognize the need for change. Their perceived competence decreases again. People focus on finding short term solutions, thus they only treat symptoms. There is no enthusiasm to change own patterns of behaviour.
4. Emotional Acceptance or 'Crisis'. This is the most important one. Only if leadership succeeds to create enthusiasm for changing values, thinking, and behaviours, the organization will be able to develop their real potentials. In the worst scenario, however, change processes will be blocked or slowed.
5. Exercising. The new acceptance of change creates a new enthusiasm for learning. People start to try new behaviours and processes. This will show the way to enhance in peoples perceived own capability.
6. Realization. People collect more information by learning and practicing. This understanding has a feedback-effect. People realize which behavior is effective in which circumstances. This, in turn, opens up their minds for new experiences. These extended patterns of behavior increase organizational flexibility. Perceived capability has reached a higher level than prior to change.
7. Integration. People totally integrate their newly acquired patterns of thinking and acting. The new behaviours become habit.

## **II. INNOVATION MANAGEMENT**

Innovation management describes the decisions, activities, and practices that move an idea to realization for the purpose of generating value. It is managing the investment in creating new opportunities that are needed to sustain and grow the organization. Generally, innovation focuses on the development of new product (good or service), process, technologies, and new organizational method, workplace organization or external relations. The types of innovation can enhance organization outcomes and go well beyond these. Identifying and making these investments successfully and repeatedly constitutes the key objective of innovation management.

### **1. Innovation content and dimensions**

According to Merriam-Webster, innovation is:

1: the introduction of something new;

2: a new idea, method or device.

One component of modern management - understood as the art of leadership, as a process of rationalization and efficiency - is the one related to innovation in the creative act that way to ensure the existence of any social community, adapting to new demands upon them every the development stage.

Innovation is defined, usually like a 'transformation' resulting from the initiative of one or more individuals and affecting, as appropriate, the economy, politics, science and culture.

Innovation management focuses on the factors that must be activated to achieve the objectives of each type of organization, it seeks the individual human personality with his creative attributes, inclinations, availability, motivation and willingness to seek and identify new solutions, ways and improved ways effective human and material cost and smaller and both group, whose valences such as flexibility, responsiveness, active interaction and positive climate and cohesion can create atmosphere for innovation.

Meanwhile, innovation management has its own philosophy containing a set of guiding principles that need to be known and considered by every leader eager to notable successes, such as:

- Progress is only possible through innovation, increase moral and spiritual values out of change are impossible;

- Innovation is pervasive, there area, sector, side or aspect of the work of an organization that you do not have and can not be subjected to a process of change;

- Innovative capacity of creative potential, are to each man, even if in different proportions;

- 'Production' of ideas, in order to be continue and adequate for the change needs to be organized and deliberately conducted, managed like any other resource;

- All staff should be motivated and encouraged to reach their ideas to formulate new solutions;

- Risk taking, possible failures are inherent in any attempt to change components.

Innovation needs time and is based on trial and error. There are many different theories of innovation: breakthrough, incremental, open source. There are arguments stating innovations have to be disruptive to qualify; others argue that any change - as long as it is measurable - qualifies as innovation. Some people want innovations to be open and available to all as a means of challenging even more growth and ingenuity; others believe that new

discoveries and paths need to be developed privately and secretly. Many of the most enduring innovations have required long term investment and staying power. This must be addressed as part of the organizational decision making approach if an innovative environment is to be sustained. The desire to create long term competitive advantage will often lead to intellectual property and innovation being closely connected. As a result, innovation processes will often have requirements for generation of intellectual property that can protect advantages created by an innovation investment.

## 2. Key ingredients for innovation

*"My job is to listen to, search for, think of, and spread ideas, to expose people to good ideas and role models...When self confident people see a good idea, they love it."*

**John Francis "Jack" Welch, Jr.**, former CEO of General Electric

The responses to a recent survey ran on LinkedIn revealed that people have very different ideas about the key ingredients for successful innovation. The next time you want to make real change happen in your organization, get ready to experience this sequence<sup>166</sup>:

1. How many deny that the innovation is required.
2. How many deny that the innovation is effective.
3. How many deny that the innovation is important.
4. How many deny that the innovation will justify the effort required to adopt it.
5. How many accept and adopt the innovation, enjoy its benefits, attribute it to people other than the innovator, and deny the existence of stages 1 to 4.

Psychology studies highlight the potential of innovation, of change. It is estimated that there are individuals whose behavior shows tend to reproduce, just to apply what they have learned, without express keen interest in the initiative and renewal. The reproductive type manifests responsiveness to what set others, he proves himself reserved, even fearful when to walk on untrodden paths. Other persons are strongly internalized, imagine new things but do not reveal their views, did not even have enough initiative. In environments where leadership is excessively authoritarian - a situation common in military system - his tendency to closing is more emphatic. If only one approach, a proven understanding with calm and confidence can

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<sup>166</sup> Inspired by Alexander von Humboldt's 'Three Stages Of Scientific Discovery', as referenced by Bill Bryson in his book, 'A Short History Of Nearly Everything'.



to manifest its true resources. Highly creative people are characterized by power of generalization and abstraction. People with these traits are found in each group. They should be identified and encouraged to highlight the availability creative to overcome some states inhibition. Factors that favor creativity intellectuals:

- Intelligence (the ability to think in a purpose to solve problems);
- Ability to solve problems;
- Imagination (combining images, using ideas from other fields in the area that you are interested in, using complex and dynamic images)
- Sensitivity to implication;
- The ability to use associative processes (the combination and recombination of separate elements)
- Fluidity of ideas, association, verbal and even graphics;
- Flexibility (ability to change);
- Originality;
- Development - ability to establish stages of problem solving

People can be motivated by the desire to become creative self-improvement, promotion, to assert a collective increase of the social ladder, getting some rewards etc. There may however and bottlenecks constraining creativity: lack of resources, fear of ridicule, public attitudes superiors, etc. They must overcome some obstacles such as fear of failure that blocks the availability of creative individuals and collectivities, paralyzing inventiveness and creativity.

### **3. Stages of innovation**

Peter Drucker, American economist, also the author of concept known as management by objectives, believes the existence of seven sources that drives companies to achieve innovation. Sources are classified into two groups: internal (4) and external (3) company.

#### 1) Internal sources:

- Unpredictable - success or failure as you can have companies calling to innovation;
- Incongruity or discrepancy between the theoretical aspects of innovation and true reality;
- Need product - many products capable of renewal;
- Changes in scope and markets;

#### 2) External sources:

- Demographic changes and that no age group;
- Changes in attitude

- New knowledge in other fields may find applications in existing products or new products

Successful innovation process depends on completing the steps that it requires:

1) gain innovation commitment - the man noticed an area that can bring something new, defines its concerns in that area for gathering information to see if the problem has not been solved, formulate hypotheses;

2) discover new ideas - information processing in mentally, sometimes help with drawings, charts, develop many variants;

3) shape ideas into action - emergence of new ideas and original, the phenomenon is driven by a pleasant, quiet, solitude

4) implement and learn - idea is transformed into collective application or presentation, you can make a sketch of the project, expressed its advantages and disadvantages, cost estimates, estimate of how development practice.

### **III. CHANGE AND INNOVATION IN THE MILITARY ORGANIZATIONS**

For Carl von Clausewitz, the father of modern military thought, military change were a simple matter: "if in warfare a certain means turns out to be highly effective, it will be used again; it will be copied by others and become fashionable; and so, backed by experience, it passes into general use and is included in theory."<sup>167</sup>

Do military change on their own or in response to perceived treats, new technologies or change in the global system; or is some external stimuli required to force the organization and its leaders to "see the light" and adapt. If militaries are resistant to change, what does it could influence their behavior from the outside? Under what conditions might efforts to force the military innovate succeed or fail? If, on the other hand, military do change on their own, what (who) influences the choices they make? Finally, whether the catalyst is internal or external, what explains the failure of militaries to change they need?

The process of reform of a complex organization such as the armed forces can be understood in two ways, one may take either a specific political perspective; or a broader, sociological approach. Reform in the narrow sense of the word is the result of political and managerial decision-making, which includes: ideas for reform, the process of decision-making, and the implementation of the proposed reform itself. This approach is typically a 'top-down' interpretation based on the assumption that reform is a consciously controlled process which can actively intervene in and alter social reality. However, the study of reform

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<sup>167</sup> <http://www.clausewitz.com/readings/OnWar1873/TOC.htm>

as a strictly political and managerial activity can be misleading. The attempt to reform military institutions in the West showed, for instance, that in spite of the relatively benign political circumstances and the availability of sophisticated management skills, it has consistently proven to be an extremely complex and difficult process to carry out. Social change is a complex and diffuse concept; which is the result of a multidimensional process on which active and passive factors (or 'actors' and 'systems') simultaneously intervene.

### **1. The individual & the group: promoting critical thinking**

It is indubitable that, to Romania, Romanian Army, the fundamental institution of the state is the main factor in ensuring national security and guarantor of internal stability of the Romanian society. Is the Romanian Army strong one, well equipped and well trained, with people filled in her job with prestige arising from specific military profession? They are endowed with strength of character, honour, and ability to overcome difficulties they have their own activity or initiative in seeking satisfactory justifications? Society is concerned to create a modern army. Can it be a modern army without an effective, one based on people skills, on their preparation? Army means order, discipline, responsibility, obedience, obedience is not initiative, to know how to quit driving, patriotism, fidelity that mindset that transcends personal interests, culture of respect, courteous attitude, elegance. Today is critically needed in the military feel like air. Nobody can forbid a soldier to think, to act creatively and with initiative. Ideas are not required by violent language, or by order, but for their value. Critical spirit itself is part of the condition of being a fighter. To confront oneself and with others, to learn to fight for an idea, however simple exercises are not only courage, but also a chance to live up to the true condition of the military. The values promoted by the system and military organization are closest to what we define civic reflected by: loyalty, selflessness, personal development, fair play, individual initiative, conscientiousness. Change imposed a natural create conflicts between traditional and new models. Old mentalities are changing slowly or partially, and new mentalities are bought, sometimes quickly, but not in positive terms. We want instant assimilation of new models, but at a satisfactory pace of acceptance and change the new.

One component or another may be subject to change, and the entire system, from strategy, doctrine, tactics, the organizational structures, systems selection, training and evaluation, education, to scientific research, endowment, logistics, mentality, attitude, formal and informal relationships. Management provides a number of guidelines, principles of strategy and programs that actively treated, and promoted to facilitate the necessary change of

the status quo, without much interruptions, waste of time, human and material energies, transforming every man's overall structures in real agents of change. A radical change in the organization cannot be achieved if its members do not understand and if, on the basis of understanding, they need not consent to participate in its achievement.

The above assertion is of utmost practical importance given that the success of any change depends not only realistic on goals, their opportunity, the funds allotted but also on people, as authors who should understand the transformation reasons, determination and the impact for the moment and for the medium and long term. Moreover, they must win this battle, stating reasons and for this fact that at the individual level and the subsystem intervenes resistance to change. Given the occurrence of such matters, customized from one situation to another, from one echelon to another, change management highlights the need for timely military leader to find out the true causes of resistance to change, its sources, using some forms and ways to remove or reduce retention. Beyond a set of principles, norms and criteria of theoretical and practical value appears indubitable master, military leader looked a double role: 1. personality who has some strengths and weaknesses, which are reflected in the attitudes towards new;

2. the decider, leading element of the upgrade, and the leader of the group that achieves change.

Who leads the change, the implementation of new methods of organizing, planning and action should himself have self-control, and to examine their attitudes and behaviour to refer to what extent they are favourable transformations, putting several questions:

- In what amount own behaviour stimulate searching actions that involves his subordinates?

- Does he consider, with proper understanding, their periods of doubt, search an internal unrest?

- Does he properly appreciate the personal points of view of the people?

- Does he assist them during the research activity, during testing and materialization of the new solutions?

- Does he share own information that he holds it for finding the optimum solution?

Change management is recommended to leverage the capabilities of creative people, those that are defined by a number of features such as:

- The ability to formulate alternatives to solve problems, submit to doubt the truths considered obvious at first sight;

- Passion, constant interest level for the activity;

- Perseverance, independence and courage in thinking: Looking forward to the ability to sense and correct grasp the evolution of processes and phenomena;

- Accelerated cognitive curiosity, permanent behaviour investigator intolerance towards preconceptions, favourable attitudes experimental use, checks the solutions recommended in practice;

- Inclination to methodically examine any matter depending on the situation, context, cost implications.

## **2. The leader: promoting new ideas**

In Romania, the military reform has experienced a natural evolution: firstly, in the field of concepts and attitude and then through the structural, operational and infrastructural. The Romanian Armed Forces transformation – from the organization organised, equipped and trained to be part of the Warsaw Treaty into the one able to meet the new risks and threats of the contemporary world. Did this modification and adaptation guided, directed, and supervised by leaders possess the necessary vision and ideals to see it through? How did these leaders understand the very nature of the transformation they were about to undertake? How did these leaders provide direction and purpose during periods of change?

My intent is not to determine which leadership style is more effective for the profession of arms, you to think about what kind of leaders will most likely succeed in a changing environment.

### **a. Transformational leadership**

Leaders set the development direction of the organization - which involves developing the vision and strategy development, mobilize subordinates - informing them of the action directions, winning their devotion and support, motivates and inspires - that is to meet their needs and emotions, to highlight the values.

The makings necessary for transformational leadership may be summarized in many ways. One of the most important distinctiveness of a great leader is his capability to make sound judgments based on their internalized vision. Is this what is preferred in military leaders? People, who dare to think, are creative, come up with the solutions, don't need to be closely supervised and realize what is just because it is the exact thing to do?

The transformational leader is the kind of military leader who deeply understands the place and role of the military in society and in all international military forces, managing to build a perspective view of the goals of the organization, coordinating and controlling changes taking dynamic decisions, grasping opportunities and capitalizing. The existence of

strong forces inimical to favorable changes represents a real change in any organization. In this military organization is materialized through reticent to respond efficiently to any assigned mission, through hard adapt to the new conditions in the environment in which they conduct their activity and to the requirements of the new missions they are required to carry out. Change at the individual disturbances, manifested by the appearance of internal conflicts, anxiety, restlessness due to fear of accepting new directions, low self-esteem caused by inability to find meaning new values. Transformational leader is facing this difficult situation that we have to resolve with tact and diplomacy, using empathic ability and intelligence, finding the fastest and most effective methods by which to influence the subordinates to give up attachment to the values of the past.

The transition to the new structure starts with a slight disruption, which causes disappointment, disorientation, deception in the sphere of subjective feelings of subordinates. This process can not be achieved without the existence of the leader who aims to mobilize subordinates to achieve change. To successfully change strategy the leader should be logical, concise and persuasive, clearly delineating the problems, how it will work, its implications, concrete plan of achievement. Change subordinates is fundamental motivation this time of change is a process that makes it difficult and leaders must have certain physical traits, such as cognitive capacities developed at higher level, charisma, consideration and respect for the values and military organization to subordinates, their inspiring enthusiasm, loyalty and trust. The importance of this complex process is responsive to the needs of subordinates' leader. The military leader must be able to influence subordinates for them to share his point of view. It is an exceptional leader, charismatic, assertive and efficient, which is a professional and moral model for subordinates.

#### **b. Charismatic leadership**

The meaning of the term "charisma" varies in the literature and its connotations differ considerably. A common premise of most theories of charisma is that followers, not leaders, are the determinants of charisma's existence. Thus followers substitute the "charismatic" leader for their own ideal. Organizational theory approaches are predisposed to emphasize the attraction that followers have for the person and abilities of the charismatic leader. The follower is depicted as being in admiration of the leader's.

Ideas and orders of the leader are accepted without question merely because they were issued by the leader (not his office), and an emotional bond, approaching the irrational and not mandated by rules and regulation, is extant between follower and leader. Most charismatic

leaders appear to emerge from crises, suggesting they are major agents of change. And charisma may coexist, however uneasily, with traditional and rational/legal authority.

In accordance with self-concept-based motivational theory of charismatic leader (Shamir, House and Arthur-1993)<sup>168</sup>, charismatic leadership has its effects by strongly engaging followers' self-concepts in the interest of the mission articulated by a leader.

In this respect, charismatic leaders make efforts and objectives meaningful for subordinates and use the motivational force of self-expression, self-confidence, self-esteem. This category of behavior rely on a leader's communication and on symbolic devices (labels, slogans, flags, emblems) displaying high involvement in the task, engaging in self-sacrifice to show comittment to the mission. By demonstarted determination, optimism, and self-confidence, a military leder impowers followers (unit or subordinates) in sense of effectively manage the complex mechanisms of change especially for the values and norms which guide human behavior in military organization. When they admire and identify themselves with the leader, they are likely to emulate the leader's desire for doing changes.

### **3. The internal environment: an enabler or/and constraint in the process of change**

Among psychosocial factors that may stimulate or brake change, are the human relationships existing in the military groups. Creative capabilities will block as long as certain psychosocial and environmental relationships within the team work are not favorable to change. Life provides sufficient evidence showing that those soldiers who conclude that supporting an original idea and its promotion is not endorsed by the collective, but rather it is even considered a risk to their own person, adjust their behavior to avoid disappointment.

Creative elements can fade to reluctance or indifference of the collective, thoughts that have been the subject of numerous reflections and they asked for efforts may be canceled. To reject the ideas, a proposal without proper debate, without arguments means to commit an immoral act, to hit in the dignity of the well-intentioned people. This would be a bad example for others, eager to bring improvement; they would actually prevent unhindered circulation of ideas, the opinions dealing with the rules of respect for different points of view, to the promotion of innovative ideas.

In a climate of suspicion that reigns in the absence of cooperation and trust between members of a team, launching a new idea offer to others occasion for unprincipled and

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<sup>168</sup> Correlates of Charismatic Leader Behavior in Military Units: Subordinates' Attitudes, Unit Characteristics, and Superiors' Appraisals of Leader Performance; Boas Shamir, Eliav Zakay, Esther Breinin and Micha Popper ,The Academy of Management Journal Vol. 41, No. 4 (Aug., 1998), pp. 387-409]

destructive criticism. Heads full confidence in subordinates and vice versa is a psychosocial favorable factor for transformations. Any new idea may occur gradually, at first devoid of clarity, utopian. A closer analysis might generate new ideas or new optical. In knowledge, in the creative process, verdicts do not belong, are counterproductive.

The favorable spirit and actions for change, renewing the content and form of military activity, can occur only in an environment conducive to personal confrontation of views, which present elements such as:

- Ensuring a continuous flow of information;
- Intellectual risk taking as a necessary part of change;
- Communication ascending and descending;
- Adequate reward for innovative behavior.

## **CONCLUSIONS**

This paper emphasized the importance of leadership, the military organization in the particularly, looking from a perspective of change. Some ideas presented here are not new, but their application within the military as part of a more comprehensive approach to innovation suggests that their adoption could benefit a broader audience.

Experience shows that a change effort requires a good start. Having a correct judgment about what should be changed and shared responsibility is not enough. There must be people who have critical and innovative minds, who will love to experiment, to foresee the future, to have the belief that change is possible and to influence others not talking about change, but demonstrating what can be achieved. These ‘innovators’, ‘men of the avant-garde’, or ‘militants’ as sometimes called, can work or not in leadership positions. Organizations interested in change must encourage innovation, experimentation and entrepreneurship. For driving it is not just to tolerate deviations from the routine and tradition and accept that this is not possible without some risk, but also deliberately attract innovative people, giving them a chance to work, observing them during activity and using them as examples to show that the organization can achieve. Individuals or teams play a prominent role in the success of organizational change strategies. These are the main agents of change for the organization.

To sum up, leaders must understand when they must to lead and when they must to manage, as well as provide a train that ensures organizational cultural changes is received throughout the organization. It must be everyone’s objective in the group to have a attitude, to embrace change, and not to allow any blocking obstacles to the achievement change. By



performing as a team that enables change, the self-esteem of the organization will remain high and the organization will grow.

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