

MANAGING DEFENSE RESOURCES IN THE KNOWLEDGE ECONOMY

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Abstract: *Knowledge is an essential part of an organization (including the military organization) and all of its components should be taken into consideration by managers and leaders. Considering the above mentioned aspects, the Romanian Armed Forces should develop a framework for enhancing the organizational memory, with emphasis on lessons learned and underlying the intangible value of human knowledge*

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In the current economic, social, political and military environment, an efficient and effective management of the defense resources can not be achieved in isolation, focusing only on the narrow aspects specific only to the military. In this sense, the term “defense resources” has also evolved, from a somewhat narrower view comprising materials and military equipment, manpower, money and infrastructure to a larger view which includes information among the defense resources.

In this respect, although the differences and exact definitions of information and knowledge are still subject to heated debates, we need to take into consideration their importance in the field of defense resources management.

While *information* consists of raw data that has been verified to be accurate and timely, is specific and organized for a purpose, is presented within a context that gives it meaning and relevance, and which leads to increase in understanding and decrease in uncertainty [1], *knowledge* consists of facts, truths, and beliefs, perspectives and concepts, judgments and expectations, methodologies and know-how, accumulated and integrated and held over time to handle specific situations and challenges. In this respect, knowledge is applied to interpret information about the situation and to decide how to handle it." [2]

Popularized by Peter Drucker in his book “The Age of Discontinuity; Guidelines to Our Changing Society”, **knowledge economy** has a dual meaning. It may refer to the **economy of knowledge** focused on the

production and management of knowledge in the frame of economic constraints [3], meaning that knowledge is a product, an output. Another meaning refers to the **knowledge-based economy**, that is an economy directly based on the production, distribution and use of knowledge and information.[4] In this case, knowledge is considered an input, a tool to be used for the purpose of generating economic benefit and its creation is not a goal in itself.

In developing an effective defense resources management in the knowledge based economy, the different types of knowledge have to be considered. Of these, the know how is the most known, but we have to keep in mind that knowledge is a broad concept, encompassing *know-what*, *know-why*, *know-how* and *know-who*.

According to the OECD, **know-what** refers to knowledge about “*facts*”[5] and may be considered as making the link between information and knowledge, as facts are by definition considered to be accurate, and they should lead to increase in understanding and decrease in uncertainty (according to the previous definition of information). This kind of knowledge may provide answers regarding for example the number of officers in the Romanian armed forces, what is the cost of one round of ammunition, how many tanks do we need in order to achieve our goal etc. In some areas of defense resources management (such as logistics, procurement, budgeting, cost estimation etc). Know what can be relatively easily obtained, from operating manuals, regulations, instructions, market research, lessons learned and other means, can be precisely quantified and is essential for the fulfillment of specific objectives and activities in the defense resources management area.

Know-why refers to scientific knowledge of the principles and laws of nature [6] and is usually the result of scientific research. Although its use may be less obvious in the area of defense resources management, many of the theories, models, simulations and concepts which comprise the know why form the basis for a rational and scientific defense management. In addition, the result of the research and development work of the military research institutes, laboratories, weapons and equipment manufacturers etc are also included in the category of know why and an effective resource management has to take into consideration the costs and value (both monetary and non-monetary) of such research in the process of decision making.

Simulation and modelling play a vital role in the defense area, as they are used in a variety of circumstances, from training future pilots and wargames to mathematical models and optimization models used in the field of defense planning in the attempt to narrow uncertainty and increase the efficiency and effectiveness of the resources used.

This type of knowledge, unlike the know what knowledge, is not so easily accessible and a close relationship between the military and the

research facilities and institutes is needed in order to make full use of its potential. Another important difference is that know why is more expensive to acquire than know what – research and development is a field of activity that requires substantial funding and a very specialized workforce and not all armed forces can afford to support a very developed research and development sector. Although the United States and other few countries are able to invest billions in this area, they also try to cover at least some of these expenses through a policy of support for the domestic weapons systems producers and strong marketing on the international markets. Other countries, which have more limited defense budgets (further diminished as a result of the financial crisis) can not afford to support such extended R&D and defense industries and are left with the choice of capitalizing on the collaboration of civilian research facilities or purchasing the know why „off the shelf”. Even when the knowledge already exists on the market, simulators have to be purchased from their producer, simulation and wargames softwares are seldom free of charge. Mathematical and optimization models are less expensive, but to be able to use them to their full capacity requires both a clear framework and skilled professionals, which have to be provided with the necessary incentives to work in the armed forces and government sectors as opposed to a civilian company.

The most widely used term to describe knowledge, **know-how** consists of refers to the practical knowledge of how to achieve something, meaning the skills or the capability to perform certain tasks. Unlike know what and even know why, know how is more difficult to transfer from one person or one institution to another, as it is a form of tacit knowledge, the result of a combination of technical data, methods, procedures, standards, processes, formulae, practices and the skills, abilities and experience of the persons using them.

It is relatively easy to write down and transfer procedures and formulae, but the experience and skills of the personnel using them can not be so easily transferred, they have to be accumulated over the years of study and work. In this sense, know how is close to what is called „intellectual property” and one of the biggest challenges faced by an organization is to ensure its retention and non-disclosure to the competitors, enemies or sometimes even allies.

A fighter pilot may rely on theoretical knowledge (know why), manuals, procedures, regulations etc in the beginning of his/her training, but the true value of that pilot is given by the skills and experience he/she has accumulated during endless hours in a flight simulator or flying a real plane. This type of know how allows the pilot to react properly to situations which may be outside the framework of the regulations and procedures taught during training and is one of the reasons behind the high value the experienced professionals have to an organization.

Although it is not easy to try and retain such type of knowledge, its retention within the company/organization is vital in gaining a competitive advantage. This can be done either through offering incentives for the professionals who possess the know how, by writing down the processes, methods, procedures, formulae etc and developing manuals, regulations and other types of repositories for this particular type of knowledge or by extracting, organizing and disseminating the lessons learned from the more experienced personnel to the less experienced.

The last kind of knowledge discussed here, namely **know-who**, refers to „information about who knows what and who knows how to do what”[7], namely to the social networks formed by an individual during his/her professional life which facilitate the access to information and the use of their knowledge and expertise. This kind of information is the most elusive type, as it does not appear in any manual, regulation or computer file, but none the less is one of the most important assets of that organization. This type of know who may range from a simple list of telephone numbers to more complex social relationships between people developed during their activity together, specialization courses, conferences, meetings, sometimes even during the entire professional course (starting, for instance, as early as the military highschool and continuing up the career ladder until higher leadership positions).

Understanding the types of knowledge used in an organization and taking steps towards enhancing the level of know what, know why, know how and know who are first steps towards improving the performance, but a key issue for the organizational long term development is the organizational memory.

Defined as „largely undocumented experience, insights, knowledge, and skills acquired over the years, passed on to the newcomers through personal contacts, meetings, training courses, and mentor-protégé relationships”. [8] The organizational memory thus consists of the knowledge shared by all members of the organization, knowledge accessible for the company (individual and collective knowledge) and knowledge which is not accessible for the company (individual and collective knowledge other knowledge in the environment of the company). [9] The role of the organizational memory is to “capture, organize, disseminate and re-use knowledge created by the employees of an organization” [10], in the context of a dynamic organizational environment, where employees leave, are fired, promoted and knowledge may be lost in a number of different organizations can even “unlearn” [11], forget lessons already acquired.

This applies to all types of knowledge previously discussed. Concerning the importance of retaining the lessons learned in the form of know what, an example concerns the military who learns through exercises, applications and real conflicts how many soldiers, armed with what type of weapons, using

what type of equipment can cover an area of a certain surface, with certain terrain characteristics etc. Since it is impractical (to say the least) to learn this every time we change of generation occurs (each time an old sergeant or an experienced platoon commander retires), these lessons have been “memorized” in the form of tactical norms. This is true for all other regulations, manuals, norms etc used by the military, which should be changed and adapted every time new input is added, without forgetting what has already been learned and is still applicable.

The military should also be concerned with preserving the know why, namely the result of research and development. This preservation may be achieved first of all by documenting and archiving the discoveries and results of the military R&D, but also through its dissemination and transmission of the relevant information to the various areas in the defense sector which may benefit from it. The transmission and transfer of know why may be done through the military education system, but also through conferences, seminars and exchange of experience between researchers and teachers within the defense sector and the cooperation with civilian universities and research facilities.

The importance of preserving the know how may be illustrated by the importance of disseminating the lessons learned in various peace keeping missions. Participants to these types of missions encounter situations often not mentioned in regulations and manuals and have to use their experience, intuition and common sense to solve them (for instance, how to deal with child soldiers). Without the sharing of lessons learned, this know how is lost when that person leaves the military, which makes the creation of a framework for sharing the lessons learned very important.

From another point of view, “veteran” members of an organization are a valuable asset regarding organizational memory, as they have witnessed and remember past situations (and how they were solved), have a better understanding of the social interactions between the organization’s members and the motives behind their actions etc. This type of knowledge can not be written down in any manual or collection of instruction, but at the same time it should be considered as an asset and capitalized. Managers should recognize that an employee’s value to the organization consists not only in its training and professional experience, but also in its tacit knowledge which is not sufficiently documented and shared with other employees [12], as a repository of the organization’s memory.

The know who is another crucial component of knowledge which should be retained in an organization through the organizational memory. A person who developed working relationships with others (associates, stakeholders, collaborators etc) may sometimes take all that social network with him/her when they leave the organization – not necessarily in the form of an address and phone book, but in respect to the social interactions created

during a fruitful collaboration. The replacement of that person, no matter how skilled and experienced, may not have all the knowledge and information regarding the know who, may not be aware of the anymosityes / conflicts / friendships / alliances between people they are required to interact with and have to start again at the beginning, learn from their own mistakes, generating sometimes considerable costs to the organization in the process.

In conclusion, knowledge is an essential part of an organization (including the military organization) and all of its components should be taken intor consideration by managers and leaders. Considering the above mentioned aspects, the Romanian Armed Forces should develop a framework for enhancing the organizational memory, with emphasis on lessons learned and underlying the intangible value of human knowledge.

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