KNOWLEDGE MANAGEMENT AND LESSONS LEARNED: A PREREQUISITE FOR ENHANCING DEFENSE CAPABILITIES

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This article deliberates on necessary preconditions for a military organization to transform to a learning organization in order to answer the demands of current operating environment. It scrutinizes Knowledge management in the light of classic theories as well as its implementation in military ranks and files. It also offers some Lessons Learned postulates and proposes limited results that came out of a survey conducted with military personnel from the Bulgarian Armed Forces.

Before starting with my basic points, I would like to deliberate on some global challenges that we all face in contemporary operating environment. Today we experience the effects of global change in all aspects of life. We encounter globalization, uncontrollable technological advances in almost all fields of life, increased industrial production that brings about environmental degradation and world natural resources depletion. In the background of this grim picture we are experiencing widespread financial crisis that degrades way of living and causes social unrest.

All mentioned above requires development of prudent strategies how to cope with the global change. Change has compelled organizations worldwide to adjust to global competitive environment in order to adapt, survive and succeed in the new millennium. Organizations today ought to learn fast to remain in the market or otherwise they will go bankrupt. Like corporate business, the Armed Forces will also have to adopt a learning culture, to answer the demands of global geopolitical environment. More clearly said military will need to transform their rank and files into learning organizations. Thus they will stay attractive as workplaces where unique and fulfilling learning opportunities present incentives for people to stay committed to the Armed Forces.

At the same time we are witnessing a fundamental change in type and scale of the ubiquitous and never-ending conflict. Global change has changed nature of threat as well. Nowadays we witness asymmetric threats like international terrorism, and religious extremism, cyber threats, proliferation of WMD, and many others. This is another raison d'etre for the military to change and learn how to be successful in neutralizing these threats.

The question is: HOW DO WE COPE WITH CHANGE?

One of the answers may be: By adapting to change through creating favorable conditions for our military organizations to transform into fully-fledged learning organizations, where everybody contributes to creation, acquisition, exchange and application of new knowledge into military practice.

In order to cope with all those threats NATO has adopted a new strategic concept that laid the foundation of new security paradigm. In this concept a considerable attention has been paid to management of military knowledge. To this end, at the Chicago Summit last month the allies stated that NATO would continue to pay significant attention to Lessons learned from recent operations.

The Armed Forces as a Learning organization

Global competition has taught corporate business a lesson that no organization can thrive and be successful unless it builds in its subordinate structures a robust learning culture. That is why scholars have developed a plethora of theoretical tools and methodologies about the learning organization.

Peter Senge in his fundamental work „The Fifth Discipline" wrote that learning organizations are: ***„organizations where people continually expand their capacity to create the results they truly desire, where new and expansive patterns of thinking are nurtured, where collective aspiration is set free, and where people are continually learning to see the whole together".*** ...The basic rationale for such organizations is that in situations of rapid change only those that are flexible, adaptive and productive will excel. For this to happen, it is argued, organizations need to „discover how to tap people's commitment and capacity to learn at *all* levels"[1].

Senge advocates that a learning organization ought to have five principle tools for learning: he calls them *disciplines*, namely personal mastery, mental models, building shared vision, team learning, and systems thinking. In essence, the basis of these disciplines is a reexamination of the deeply ingrained assumptions, generalizations and fragmented worldviews that we have come to accept in our thinking. By suspending our assumptions and denying our egos, we can begin to use system thinking as a framework for seeing the learning organization as a pattern of interrelationships rather than things[2]. He elaborated on his ideas about learning organizations as mirroring them as communities **of commitment**.

Another prominent scholar that further developed theory and presented more practical approach towards LO is David Garvin. He defines the learning organization as an entity ***„skilled at creating, acquiring, and transferring knowledge, and at modifying its behavior to reflect new knowledge and insights."*** He further elaborates that learning organizations are skilled at five main activities: systematic problem solving, experimentation with new approaches, learning from experiences and best practices of others, and transferring knowledge quickly and efficiently throughout the organization[3]. Thus he built a methodology that can be used by the military. I believe that his theory gave way and initiated practical implementation of experiential knowledge back to life. Concept development and experimentation (CD&E) is a kind of follow on of this theory. NATO and many other defense establishments implemented it.

There are many other thinkers who worked on the issue and more or less further developed Learning Organizations (LO) ideas. No matter how prudent and proven is, no stand-alone theory, will be sufficient to provide an overarching framework for a specific organization, but a uniformed understanding of the prevalent theories would move us closer to creating and shaping military LO. Some of them (Di Bella)[4] are skeptic about armed forces becoming LO. Taking into account Bulgarian Army's experience I would rather disagree. For the last 20 years the military in the Bulgarian Armed Forces (BAF) had to learn a lot in order to align with the rest of NATO and EU member states. Of course, we are far from perfect, and there is a lot of work to be done to transform into full-fledged LO.

In my previous research I studied in details all important elements that construct the right milieu for developing a learning organization. As an outcome of this research, the most important propellants of a LO came out to be:

• **Dedicated leadership** – Leaders should adopt and promote new knowledge and they must be advocates of building a learning model throughout the organization;

• **Correspondent organizational culture** that fosters continuous learning, creates permissive environment, and encourages straightforwardness and openness. This culture is engrained in the whole organization and establishes standards of constant scanning, inquisitiveness, creativity, and originality.

• **System thinking** – it is all about seeing things in their complexity and interconnectedness, and eventual outcome. What is more, system thinking is about future, so that organization should learn and think for future. System thinking embraces all Senge's disciplines.

• **Clear Vision and Mission** – the Organization (leadership) should create conditions for people to participate in their development (bottom – up approach) and get all involved and devoted. The personnel that understand mission and believe in it persevere its achievement.

• **Experimentation and awarding**- organizational culture and structure need to allow experiments. A straightforward award system for ingenuity, innovativeness, and risk taking should exist.

• **Adequate metrics** – the Organization should have well developed measurement system in order to be able to compare and identify knowledge gaps, as well as to access efficiency of learning.

• **Knowledge sharing** – the paramount „must" for any organization that aspires to become a LO. As Garvin says there ought not to be any scruples in acquiring knowledge: be it internal or external. Information flow must go unimpeded throughout departments and people.

• **Team learning** and problem solving. Organizational learning is about group learning even though most of it happens through individual learning.

Knowledge Management

As Sir Francis Bacon noted in the XVI century „Knowledge Is Power", today corporate business realizes that there is nothing more important in the organization then knowledge. This said organizations put significant resources and pay close attention to knowledge as the most valuable asset of the company.

Knowledge is more than data or information. Knowledge comprises a range of strategies and practices used in an organization to identify, create, represent, distribute, and enable the adoption of insights and experiences. Such insights and experiences comprise knowledge, either embodied in individuals or embedded in organizational processes or practice. Knowledge management (KM) efforts typically focus on organizational objectives, such as improved performance, competitive advantage, innovation, the sharing of Lessons Learned (LL), integration, and continuous improvement of the organization[5]. Therefore KM ought to be applied intensively in the military organizations in all their activities.

There are two schools of thought that look to knowledge from different

perspective. The one (epistemology) looks to knowledge as of „what it is all about". In this perspective knowledge is subdivided to the following categories[6]:

• **Data** are the main constructing elements of knowledge. It comes out of calculation, statistics, experiments or any other study. It simply exists and has no significance beyond its existence (in and of itself). It can exist in any form, usable or not. It does not have meaning of itself.

• **Information** is data that has been given meaning by way of relational connection. This „meaning" can be useful, but does not have to be. I.e. it systemically organized data.

• **Knowledge** is a certain volume of information related to an issue that gives meaning to it. It may be part of ideas, meanings, and more or less clear explanations as to how an object is functioning or a process is happening. Knowledge is also facts, information, experience and skills that any person may acquire through education and training[7].

• **Understanding** is cognitive and analytical capability of people from certain existing knowledge to synthesize new knowledge. People who have understanding can undertake useful actions because they can synthesize new knowledge, or in some cases, at least new information, from what is previously known (and understood). That is, understanding can build upon currently held information. (The first scholar to define understanding is Milan Zeleni).

• **Wisdom** is the highest form of knowledge. This is a way of conduct based upon knowledge. Wisdom embraces all previous forms of knowledge. It calls upon all the previous levels of consciousness, and specifically upon special types of human programming (moral, ethical codes, etc.). It beckons to give us understanding about which there has previously been no understanding, and in doing so, goes far beyond understanding itself. It is the essence of philosophical probing. Unlike the previous four levels, it asks questions to which there is no (easily achievable) answer, and in some cases, to which there can be no humanly-known answer period. Wisdom is therefore, the process by which we also discern, or judge, between right and wrong, good and bad[8].

In this respect we need to concentrate on some main categories of knowledge creation, sharing, and application. Davenport and Prusak referred to four modes of knowledge creation, rather than phases, that are intentionally initiated by organizations: acquisition or rental (knowledge found elsewhere and applied locally), dedicated resources (institutionalized creativity activity such as Research and Development, fusion (adding complexity or conflicts to create new solutions), and adaptation (adjusting to a crisis or a forced change). The authors stated that the common denominator for all these efforts is a need for time and space devoted to creation and acquisition of knowledge[9].

Other scholars consider different stages of KM like knowledge creation, exchange, dissemination, and storage[10]. The predominant studies applicable to military underline seven expanded stages as knowledge transitions from source to use: 1) Knowledge acquisition, 2) Knowledge Storage, 3) Data Mining, 3) Analysis, 4) Knowledge Sharing, 5) Dissemination, 6) Application, and 7) Validation. NATO uses for its LL Program almost the same stages but slightly modified.

On the other hand some knowledge management pundits make a difference between *explicit*—written, codified or documented -- and *tacit* knowledge. The first one to explore this issue was Dr. Michael Polanyi who defined these two ontological terms. While explicit knowledge comes from mere study and defines „know-what", tacit knowledge epitomizes „know-how", i.e. results of experiential learning. It also includes unarticulated subjective insights, judgments, and experience which most people acquire by working within an organization. By its very nature, such tacit knowledge – the unwritten and often unorganized knowledge that we carry around in our heads – is hard to define and harder to extract. As could be expected, there are very real practical issues involved in capturing, storing and – especially – applying tacit knowledge. Yet this kind of organizational tacit knowledge – is highly valuable, although it can be evanescent in today's operating conditions. In effectively managing its tacit knowledge, a firm or agency must develop the capability to garner, share and apply *existing useful knowledge* within its internal structure and with its broader partners and allies, and accelerate the generation of *new knowledge* as different experiences are mixed together[11].

A century later after Polanyi, Japanese scholars Nonaka and Takeuchi expanded concept of knowledge by defining ways of acquiring and transferring of tacit and explicit knowledge. They developed a model that represents a two-dimensional theory of knowledge creation that depicts four modes of knowledge transfer or conversion: socialization, externalization, combination, and internalization[12].

Knowledge transfer process	From	To	Method of transfer
Socialization	Tacit	Tacit	Empathized
Externalization	Tacit	Explicit	Articulated
Combination	Explicit	Explicit	Connected
Internalization	Explicit	Tacit	Embodied

Figure 1: Nonaka and Takeuchi Model

There are many other scholars who are working on processes of KM. Almost all of them consider it as an ***activity that refers to the processes of creating, capturing, transferring and using knowledge to enhance organizational performance.***

Following Senge's communities of commitment people in an organization may create communities of purpose, communities of interest or communities of practice. In the contemporary IT environment social networks like Facebook, Linkedin, Twitter, My Space, Wikipedia and others are being widely used for exchanging knowledge and information.

Lessons Learned Application into Military Practice of the Bulgarian Armed Forces

Change of Military Practice and necessity of LL System implementation

Military practice has changed a lot since the end of the Cold war. Now military face different operating environment, different threats and different type of conflict that needs different approaches to its resolution. To this end military will need to develop, acquire, and implement knew knowledge. This need pushes our organization hard because we need to cope with many factors that influence military education, training and practice, i.e.:

- NATO and EU membership;
- Change of type, format and character of current conflict;
- Technological boost and its application in military domain;
- Presence of well-developed LL Systems in NATO and some of its member states;
- National experience in crisis response operations and peacekeeping.

Experience in building and maintaining LL Systems

Results from previous research show that NATO and some member states have developed and maintained LL systems that contribute a lot to accumulation and application of new knowledge back to practice. To this end NATO has established, maintained and refined organizational LL System through JALLC, JWC, JFTC, ISAF, Centers of Excellence, and other establishments. The US military and other organizations maintain – Defense Knowledge on Line, JCOA, USCALL, XOL, ACCLL, MCCLL, NASA, and DHS. What is more, there are many large civilian corporations that maintain capacity in KM and LL. Canadian Defense Forces have established – JOALL, CFCALL, CFAWC, and MWC. A good example of intergovernmental cooperation in this field is so called ABCA agreement among the US, UK, Canada, Australia, and New Zealand.

We have very humble experience in partly building LL establishments. As a principle advisory body to the minister of defense, Defense staff and its Operations and Training Directorate has functional responsibility to organize and direct LL activities. Joint Forces Command has established a LL and Analysis Cell that works mainly with deployed units. Land Forces (LF) HQ has also established a LL Cell that deals with training, accessing and implementing LL. Other Services and units have functional responsibility on LL. There is a Scientific Section named Military History and LL in Defense Advanced Research Institute at Rakovski national Defense Academy.

3.3. Theoretical Framework

One of the most developed methods of KM in the Armed Forces is the lessons learned concept. It is being extensively used by the military. There are different types of lessons that can mainly be classified as „action centered" or „process centered". The former deal with operations and exercises, and the latter deal with doctrinal and organizational issues.

A Lesson Learned may be defined ***as a knowledge drawn from experience and when applied back to practice alters behavior of military units in order to make their actions more effective and more efficient.*** It needs to be underlined that a lesson is learned when it alters human behavior for the better. Otherwise we may call these lessons drawn, noted, identified or gathered.

Lessons are drawn from experience by observations, insights, lessons, best

practices, haps and mishaps and so on. This distinction is widely observed within military services. There are some definitions:

a. Observation. An observation is a comment about an experience that occurred during an operation, exercise, experiment or other activity. Observations provide the data upon which analysis is subsequently conducted.

b. Issue. An issue is a topic that develops from one of more related observations or through recurring observations.

c. Lesson. A lesson is the knowledge generated from the analysis of an observation to determine the underlying causes, the implications and which can subsequently be used to plan effective remedial action. Lessons support gap analysis.

d. Lessons Learned. A lesson learned is a lesson that, when assimilated, resulted in a tangible change in attitude, capability, behavior, process or equipment acquisition decision."[13]

NATO countries strive to follow suit in LL organizational establishment, implementation, and their application back to practice.

A Proposed Lessons Learned System in the Bulgarian Armed Forces

An Empirical Survey of LL System implementation necessity

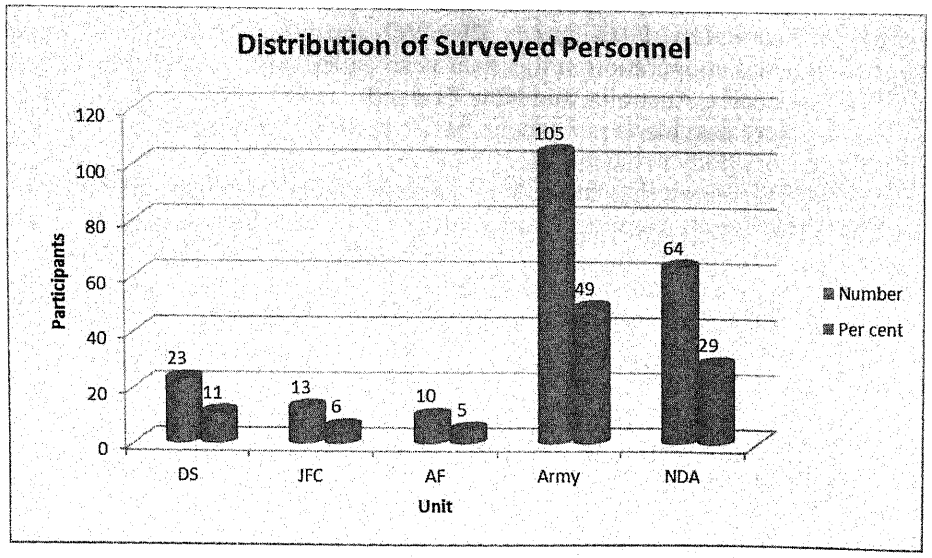

Figure 2: Distribution of enquiry

During the research, a survey was conducted. There were 215 military personnel surveyed: 203 men (94 per cent), and 12 women (6 per cent). (Ref. Fig. Two) A Tentative Model of System was proposed with correspondent working bodies, standard procedures, automated information platform (AIS), LL Database, infrastructure and final products in the questionnaires.

The outcome of this inquiry showed that:

- By the time of the research (Sep 2011) there was not full-fledged system implemented;
- The proposed Model was approved almost unanimously;
- It was necessary to establish working bodies and SOP like in NATO;
- AIS needs to get expanded up to a Battalion HQ level.

A Concise Pilot Model of a LL System

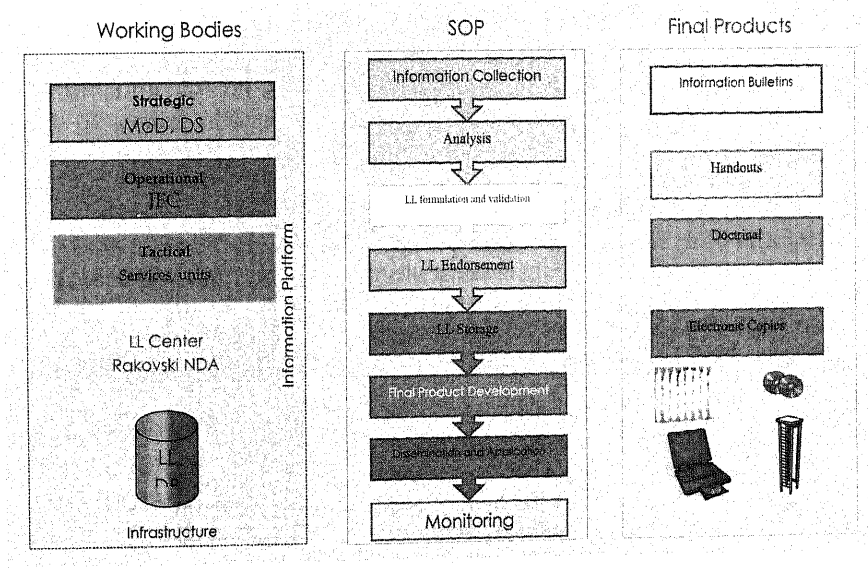

Figure 3: Experimental Model

Working Bodies:

Research outcomes demonstrate a necessity of establishing small working staffs of Subject Matter Experts (SMEs) horizontally and vertically in the Bulgarian Armed Forces. Since LL implementation responsibility rests with CO they will become their advisors and assistants in fulfilling it. As it can be seen in Figure Two level of staffs should be correspondent to level of expertise, i.e. strategic, operational, and tactical.

Working Procedures:

Slightly modified, NATO's JALLC procedures could be used in order for the whole LL process to be implemented: Information collection; O, I, and L analysis; LL formulation, probe and validation; LL endorsement; LL classification, Sorting and Storage, Final products development, Dissemination (promulgation) and implementation in units' practice; and monitoring.

There may be a plethora of products. Most often it is advisable to group them in the following formats: Information Bulletins; Handouts, Research Papers, Electronic Products, Doctrinal Publications.

Contemporary operating environment requires that military learn all its aspects thoroughly and extensively. Military units will be successful in the preparation and conduct of operations to guarantee national and international security if they truly become learning LO. This may be achieved by creation, development, and maintenance of correspondent organizational culture, creative institutional environment and adaptive and dedicated leaders.

There is no doubt that LL contribute to developing new capabilities and enhancing the existing ones. They also contribute to enriching Armed Forces' knowledge and refining doctrinal thought. Implementation of fully-fledged LL System in the Bulgarian Armed Forces will further improve our operational interoperability with allies and partners, and will boost transformation towards the requirements of our time.

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ВОЕННОТО ОБРАЗОВАНИЕ И НАУЧНИТЕ ИЗСЛЕДВАНИЯ В СФЕРАТА НА ОТБРАНАТА И СИГУРНОСТТА: ТРАДИЦИИ, НАСТОЯЩЕ И БЪДЕЩЕ

PROFESSIONAL MILITARY EDUCATION AND DEFENSE STUDIES: PAST, PRESENT AND FUTURE