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Abstract

This study contributes to the literature by integrating agility in knowledge management (KM) operations, especially in military environments via major findings of (a) introducing a new approach to KM with integration of 'agility'; (b) articulating the application of an enhanced process of Agile Knowledge Management (AKM) across the military. The purpose of the study is to explore the conceptual background of agility in KM, re-conceptualize it and extend it to military applications with a special focus on counterinsurgency (COIN). An initial qualitative exploration of agility in KM was performed. Three different concepts and their interrelationships were analyzed: (a) KM, (b) agility in operations, and (c) military organizations in the COIN environment. Findings from this initial qualitative analysis were used to inductively redefine, re-conceptualize, and extend the concept of AKM, as well as, to compare and adapt the AKM concept to the military environment of COIN. An additional qualitative analysis was performed to validate the extended concept of AKM. While this study is mainly focused on AKM in a dynamic multinational and joint military environment of COIN, conclusions may be applicable in a broader context. The results of this research can be used by engineering managers and KM practitioners and academics with particular focus on the military environment as foundation for (a) further research and development in AKM (b) developing customized AKM education programs and (c) extending the concept of AKM and its application to other environments.

Introduction and Background

Exponentially developing and transforming human life mandates an extremely dynamic environment in the world. The changing nature of the life offers highly volatile and ambiguous environment for the organizations. Hite (1999) denotes such environments as 'chaotic'. Every organization, no matter its scale and type, endeavors to adapt rapidly and correctly to this constantly changing environment. In other words, they strive to be agile.

It is generally claimed that the abilities of knowing and learning constitute significant domains for agility (Alberts, 2011; Vandergiff, 2006). Alavi and Leidner (2001) advocated that the organizational knowledge prompted the issue of managing knowledge in favor of organizations. Organizations implement KM practices and technologies in the hope of increasing their effectiveness, efficiency, and competitiveness (Schultze & Leidner, 2002).

However, organizations also need to consider dynamic environmental conditions, and should realize the importance of using KM in an agile manner.

Agile Knowledge Management (AKM)

Very recently, a new term has been introduced in the area of Information Systems (IS) and Information Technology (IT), which try to capture agility requirements and their respective answers in terms of knowing and learning. This term is referred to as AKM.

It is very rare to encounter the term of 'agile knowledge management' in the literature except in some software and project management practices and theoretical studies. The studies and practices are not sufficient to address the conceptual basis of the construct in scholarly literature. Actually, it is difficult to find peer-reviewed publications which explicitly address AKM-related issues or agility integrated with KM.

Nevertheless, there are some studies which use the Term 'AKM' deriving from Agile Software Development (ASD) and imply KM practices.

In his paper, 'Agile Knowledge Management in Practice', Doran (2004) describes some experiences with implementation of KM techniques in an ASD department.

Levy and Hazzan (2009) are the two first scholars to introduce the term 'AKM' in the scope of project management and software development, with the assumption that KM is vital for any project. But still their study is more project-oriented than focusing on organizational knowledge and learning.

On the other hand, although we cannot explicitly find the term AKM in the literature of KM, various scholars imply it by identifying the specifics of the environment, conditions or process of the KM.

Military Context

KM has been applied in various areas including business, public service, and even in the military domain. However, AKM does not have the same extent of application areas due to its new emergence. Therefore, there are vast areas where AKM has promise to contribute to different organizational operations, one of which is the military.

Military operations today are significantly different than in the past. Due to constant change, it is feasible that the nature of the war will not be the same in the future.

There is a trend that warfare is becoming more irregular, with new concepts and tactics emerging everyday as technology becomes available. Current irregular warfare, one of which is counterinsurgency (COIN), has significantly different aspects from regular operations. Threats have international and interagency aspects and are being infused with different actors and organizations in the theatre of operations. Obviously, future threats would be even more complicated.

The transformational aspects of the contemporary warfare promises very rapid change along with a volatile, ambiguous, and unpredictable military environment. Such conditions force the military to adapt and react very quickly. This requires agility which enforces the need for applying the AKM to military organizations.

The US Army Regulation describes the challenge as connecting those who know with those who need to know (know-why, know-what, know-how, and know-who). Additionally it projects military strategy and policy without which units and commands will generate "islands" of information and knowledge that are inaccessible to others (AR 25-1, 2005).

Gap Analysis

Within the military perspective, there are limited applications and understanding of KM. Moreover, there is virtually no application of AKM other than recognizing its need. It is clear that in order to be agile in the COIN environment, military organizations to work with AKM.

The overall summary of the literature review in this research suggests an expansion in the direction of KM. With needs stemming from both the civilian and military environment, expectations of other agile disciplines for KM contribution and insufficient literature about AKM, it is evident that there is a gap in the current body of knowledge. There is also a lack of

a conceptual framework and articulated methodology of AKM, especially in the military environment.

Methodology

This research comprises two phases of analysis: In the first phase, past research is investigated and then analyzed with a 'systematic approach', in order to assess where the body of knowledge stand in terms of AKM and KM applications. This includes military aspects with a special focus on COIN. In addition, there is a 'need to have' for the military environment that can be identified using a systemic approach. This leads to comparing the generic current situation of AKM and the desired level of AKM with respect to military applications. In this comparison the gaps in the current body of knowledge are identified. Dimensions and attributes of the AKM concept are described and assessed by carefully analyzing these gaps. Based on the findings, inductively (Shepherd & Sutcliffe, 2011) a concept of AKM is developed (i.e., re-conceptualized and extended) with various propositions based on the military environment.

In second phase, qualitative analysis techniques are employed in order to validate the concept of AKM.

The deductive examination processes used in this research provided the theory to comply with the cannons of science (Lincoln & Guba, 1985) as well as improving it by reiterating the AKM concept-based on the inputs and anomalies (Carlile & Christensen, 2004) identified.

The interview methods used for the qualitative analysis were focus groups (mini), outside expert review, a panel of experts, and personal interviews. Additional validation techniques (peer review and member check) were also used.

The foundation of the analysis was grounded through the combination of three different constructs:

- Agility was operationalized in the military context with a KM perspective.
- Military organizations in the COIN environment were visualized with a systemic approach.
- Knowledge and KM were revisited, with the effects of 'agility as a requirement' and 'military organization of COIN as a system'.

Results of the Analysis

The summary of the results of theory building process in this research is outlined in Exhibit 1, and explained afterward in detail.

Exhibit 1. Summary of the Results.

Scope	Analysis
Reconceptuali-zation of AKM	* Operational definition of 'agility' as an imperative. * Description of the COIN military as a system. * Extension of knowledge and knowledge flow.
Extension of AKM	* Operational definition of 'agility' as an imperative. * Description of the COIN military as a system. * Extension of knowledge and knowledge flow.
Extension of AKM to Military Applications	* Development of an AKM model and conceptualization. * Touching upon the attributes of AKM and the analysis of 'agility' as an attribute.

Agility as a Requirement and an Imperative

Although different disciplines and areas of interest perceive agility differently, agility is generally described, within a broader perspective, in terms of embracing and responding to change (Lee & Xia, 2010). Agility and adaptiveness coexist within the context of the complex and changing environment (Atkinson & Moffat, 2007). Alberts (2011) defines agility as a capability to cope with changes.

Agility is an essential quality parameter for organizations. Cummings (2009) finds KM critical to an enterprises' agility. However, agility is difficult to achieve in practice (Cockburn, 2001). The challenge is to turn this desired agility into actuality (Atkinson & Moffat, 2007).

At the beginning stage of research, agility is assumed to be an imperative. In this perspective, it is not just a conceptual term but rather a capability which enables an organization to both survive and provide competitiveness.

The definition of agility, which bridges relevance to the conceptual development of AKM for the purpose of this study, is operationalized as follows:

Agility is a capability that enables the organization to detect and embrace change and adapts itself faster than the rate of the change.

While delineating the underlying foundations of the understanding of agility, the means to reach or improve the agility can be identified with 'adaptation', 'organizational learning' and 'transformation' (includes innovation).

This research claims that, such extent of agility can be applied and achieved via effective use of KM with a timely manner. The term 'timely manner' actually points to AKM.

The important question about agility (as an imperative) is whether to try to control the change or to adapt to it. The tendency in military organizations is to

control anything that causes uncertainty. But, in reality, no organization, including the military, has the capability of controlling its environment. In light of new age challenges and the highly volatile environmental conditions, organizations should try to adapt to the change rather than desperately struggling to control it.

The Military as a System

The entities, sub-entities, interrelations/interactions, stakeholders, and especially dynamic (in a sense, chaotic) environment of the huge COIN system are analyzed based on the researcher's view (Iivari, et al., 1998) and colligation (Snyder, 1997) in addition to personal reviews (one-on-one) with a systemic approach.

Based on the findings of the analysis, the COIN military organization can be described as:

- An open system, because of its various interactions with different entities and stakeholders.
- A system of systems (SoS), because it embodies a large number of entities, which are also complex systems.
- A socio-technical system (STS), because of its combinative structure of consisting technical subsystems (including facilities, tools, equipment, and knowledge) and social subsystems (including human factors and the population).
- and, a Complex Adaptive System (CAS), because of the complexity of the COIN environment and military organization, as well as the need for adapting to the rapid changes in the environment.

Extension of Knowledge and Knowledge Flow

This research does not endeavor to redefine knowledge. It rather proposes to have an extension to the understanding of knowledge and flow of knowledge due to the unique aspects of the COIN military environment being studied.

First, the knowledge under study in this research is mainly perceived as 'organizational knowledge' as it was already denoted by some scholars (Alavi & Leidner, 2001; Alavi & Tiwana, 2002).

Second, following the majority of KM scholars, this research also prefers to denote knowledge as an 'asset' (Drucker,1993; Kharbanda & Pinto, 1996; Nonaka & Teece, 1998) or an 'intellectual asset' (Leibold, et al.,2005; Spender, 1996).

Third, this research is in favor of highlighting the importance of knowledge to initiate an action (Alavi & Leidner, 2001; Bose, 2004; Huber, 1991; Nonaka, 1994; Soliman & Youssef, 2003; Wainwright, 2001). This is described as 'actionable aspect of the 4

International Annual Conference of the American Society for Engineering Management knowledge' in this research. If knowledge cannot be transformed into meaningful actions for the organization, then it is actually useless or not efficient.

This research also complies with the largely accepted 'knowledge taxonomy' in the KM multidiscipline, namely 'tacit knowledge' and 'explicit knowledge' (Nonaka, 1991; Polanyi, 1966). Tacit knowledge represents internalized knowledge for which an individual may not be consciously aware. At the opposite end of the spectrum, explicit knowledge represents knowledge that the individual holds consciously in mental focus in a form that can easily be communicated to others (Alavi & Leidner, 2001).

Nevertheless, with the perspective of the complex nature of a military organization in a COIN environment, along with the challenges attached to the requirement of agility, 'taxonomy of knowledge' needs further extension. Hence, it is claimed to have two different aspects and are delineated as follows.

According to the 'organization oriented perspective', knowledge is categorized as:

1. Knowledge possessed (by the organization)
2. Knowledge need to have (for the organization)

Organizational knowledge can be defined as a function of 'knowledge possessed', 'knowledge need to have' and 'time'.

The comparison and acquisition process of knowledge is a constant endeavor over the 'time'. Knowledge designated as 'knowledge need to have' at time = t, can become 'knowledge possessed' at time = t+1. Or 'knowledge possessed' at time = t, can become 'knowledge need to have' at time = t+1, if the organization cannot sustain it. On the other hand, 'knowledge possessed' at time = t can become 'obsolete' or 'not really useful' for the organization at time = t+1 due to the changing nature of the environment. Ironically, with the very same reasoning, 'not really a useful knowledge' might become 'necessary knowledge' over time.

Moreover, the 'knowledge oriented perspective' embraces the taxonomy as the literature of KM dominantly proposed (Nonaka, 1991; Polanyi, 1966) with a slight modification as follows:

1. Individual Tacit Knowledge
2. Organizational Tacit Knowledge
3. Individual Explicit Knowledge
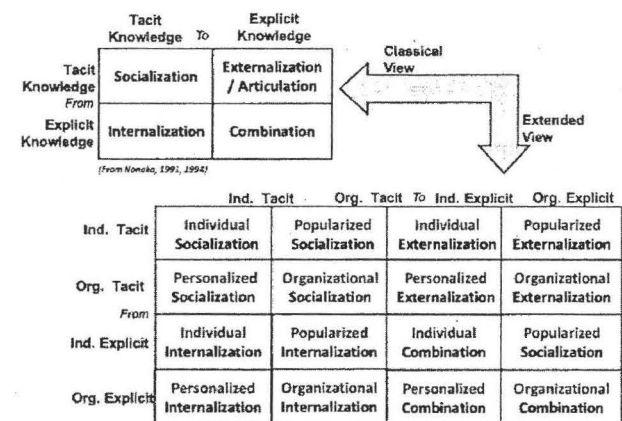4. Organizational Explicit Knowledge

According to his widely accepted model, Nonaka (1991, 1994) articulates four modes of knowledge flow. The most common definitions for those modes are 'socialization (from tacit to tacit)', 'externalization (from tacit to explicit), 'combination (from explicit to explicit)', and 'internalization (from explicit to tacit)'.

As a consequence of the previously claimed knowledge extensions, this research proposes an extension of knowledge flow as well.

With regard to the proposed flow of knowledge, the term 'individual' indicates a flow from an individual to another individual, where it is not exposed to the whole organization. The term 'organizational' indicates a flow from an organization to another (or itself), where the whole organization is exposed. The term 'personalized' indicates a flow from the organization to an individual. The term 'popularized' indicates a flow of knowledge from an individual to the whole organization, where the organization exploits the knowledge of an individual to the benefit of the whole organization.

Knowledge in the organization can then be described in four steps with different possibilities of 16 different flow of knowledge with respect to extended knowledge taxonomy (Exhibit 2).

Exhibit 2. Extension of Knowledge Flow.

	Ind. Tacit	Org. Tacit To Ind. Explicit		Org. Explicit
Ind. Tacit	Individual Socialization	Popularized Socialization	Individual Externalization	Popularized Externalization
Org. Tacit *From*	Personalized Socialization	Organizational Socialization	Personalized Externalization	Organizational Externalization
Ind. Explicit	Individual Internalization	Popularized Internalization	Individual Combination	Popularized Socialization
Org. Explicit	Personalized Internalization	Organizational Internalization	Personalized Combination	Organizational Combination

The ultimate point is to possess the knowledge as 'organizational tacit' where the whole organization embraces knowledge. In accordance with the proposed taxonomy, subsequent processes among them could occur as follows (Exhibit 3):

'0' Step: The organization might already have 'organizational tacit' knowledge, which is the desired level. But, in a constantly changing environment, the organization needs to continue to keep the knowledge updated (as the knowledge can easily become obsolete due to a high rate of change). As organizational tacit (due to circulation of the personnel in the organization or for some other reasons, the knowledge might easily lose its organizational tacit level and become individual tacit or even explicit which will require a re-acquisition process). That is why the organizational tacit knowledge needs to be 'sustained'. That is called '0' step.

'1' Step: The knowledge in the stage of 'organizational explicit' needs to be internalized via

'organizational internalization'; then the '0 Step' procedure is applied. This is called the '1' step.

'2' Step: Knowledge that is already externalized in the form of 'individual explicit' needs to be available for the whole organization via a 'popularized combination' then it will follow the '1' step procedure. This is called the '2' step.

'3' Step: Individual tacit knowledge first needs to be articulated and made available to others via 'individual externalization'. Then it can be organizationally scrutinized and made available to the whole organization via 'popularized externalization' with consolidation of more than one individual's explicit knowledge. Then it follows the pattern of the '2' step procedure. This is called the '3' step in this research.

This research posits the patterns above (and in Exhibit 3) to be an additional extension of the knowledge flow, along with the all possible patterns that knowledge can follow from one individual, entity, or organization to another.

Exhibit 3. Extension of Knowledge and Knowledge Flow with Patterns.
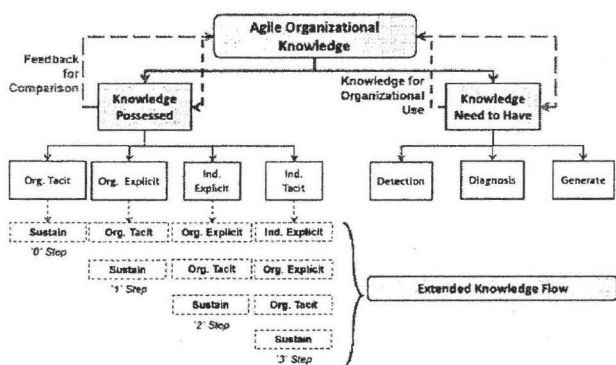

The Concept of AKM

Although there are a couple different steps described for the KM process in the literature, the most common one has four steps. Those are knowledge creation, knowledge storage/retrieval, knowledge transfer/share, and knowledge application (Alavi & Leidner, 2001; Argote, et al., 1990; Darr, et al., 1995; Freeze & Kulkarni, 2008; Grant, 1996; Gupta & Govindarajan, 2000; Nonaka, 1994; Nonaka & Konno, 1998; Pentland, 1995)

This research proposes an additional step for the KM process, in order to better comply with the agility requirement. This additional step is called 'adaptation' (Exhibit 4). Along with some extensive articulation of the other four steps, this additional step leads us to the new process of AKM.

While the inputs for this process could be any form of knowledge (knowledge, information, data or signal), the output of would be actionable knowledge.

Exhibit 4. Model of the AKM Process
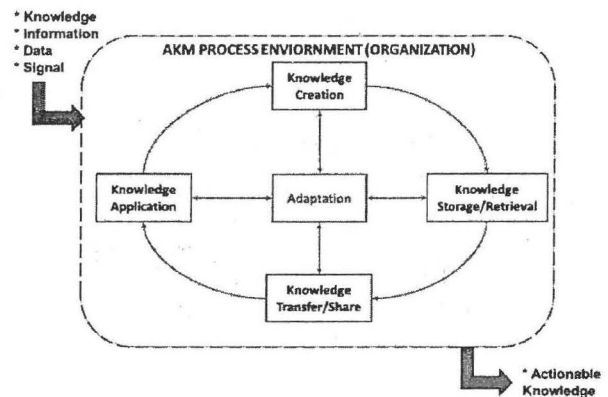
The details of five steps of AKM process are described in the following paragraphs.

## 1. Knowledge Creation/Acquisition (Exhibit 5)

The 'knowledge need to have' should detect the need for new knowledge. The source is the whole environment of the organization, which comprises the external and internal environments.

The theatre itself and the stakeholders, the friends (friendly forces, allies, etc.), the foe (the enemy), and the neutrals (especially in the current security environment, COIN theatre like Afghanistan, etc.), and in the theater itself are the sources of external environment. They could be the reasons or the indicators of the change or the origins of the knowledge. An organization needs to have the capability of detecting/sensing the change and then recognizing the requirement for knowledge creation.

On the other hand, the internal environment might also be exposed to change or different forms of knowledge (signal, data, information, knowledge) where the organization needs to have capability to detect/sense and start knowledge creation or an acquisition process. But, the internal environment might have another source that needs to be taken into account as well. This is the unused stored knowledge. There might be some occasions that some knowledge that has been used once and has not been needed since, or some knowledge that has not been used at all might become necessary for the benefit of the organization over time. In that case the 'unused stored knowledge' might initiate the process.

The inputs from both internal and external environment are the triggers and initiators for knowledge creation. The change triggers the 'knowledge creation' while different forms of knowledge initiate the knowledge creation (generation)/acquisition process.

Exhibit 5. Knowledge Creation/Acquisition Step.
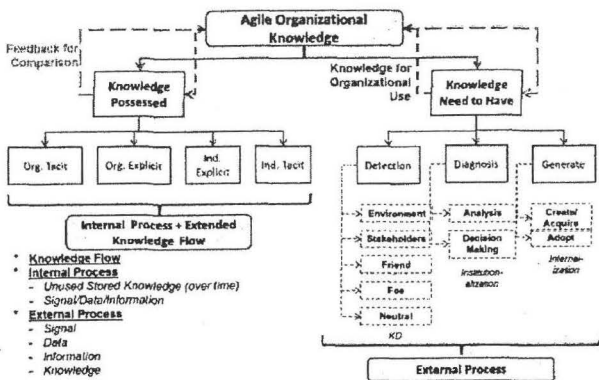
2. Knowledge Storage/Retrieval (Exhibit 6)

The importance of this process stems from the need of keeping the knowledge and to be able to use it when it is necessary. It is also closely related to risk management (RM) where Landaeta, et al. (2009) relate it to cope with the risk of losing knowledge. Introducing the phenomenon of change in the environment and the agility into the knowledge domain adds additional aspects to the RM and KM/AKM. There also happens to be the risks of having the knowledge 'obsolete' or 'valid but late'.

Storage of the knowledge and retrieval of the correct knowledge, at the right time for the right part of the organization is crucially important (Landaeta, et al., 2009; McKellar, 2007; Nonaka, 1994). It has two aspects. First, the organization needs to have high quality of storage abilities that the knowledge acquired by any means should not be lost or ignored. For that, the organization needs to allocate the proper amount of resources (time, money, and manpower). Second, the classification of the knowledge is also important, where the organization needs to decide about the category of the knowledge whether it is:

- Obsolete (not valid for any case) or,
- Useless for the organization (could be valid, but do not have value for the organization), or
- Valuable for the moment (not sure for its value in the future), or
- Not valuable for the moment but could be valuable in the future.

Such stratification allows the organization to decide which knowledge should be stored and which shou;d not be stored. This process is not only needed for the first time of storing, but also needed to be cycled every once in a while, since the changing nature of the environment and the organization requires updating the status of the stored knowledge.

The retrieval of the knowledge phase also has a very important role where the stored knowledge is needed to be ready for use when necessary. If the knowledge cannot be retrieved correctly and on time,

when necessary knowledge is needed then storage efforts and the expenses just become a waste of resources.

There is an additional aspect to the understanding of memory as well. No matter what tools are used to store knowledge, the storage process for the knowledge eventually refers to the memory of the organization. This is also called organizational memory (Stein & Zwass, 1995; Walsh & Ungson, 1991).

Organizational memory can be perceived as the combination of two distinct memories. These are denoted as 'virtual organizational memory' and 'physical organization memory' in this research.

Virtual organizational memory is not really a physical device. It is rather an abstract phenomenon that is built upon the cultural (Brown & Duguid, 1998; KPMG, 1998) and the traditional foundation of the organization. Naturally, it has a close relation with organizational tacit knowledge. But it is not limited to organizational tacit knowledge only. It could have different relations with the different types of the knowledge as depicted in Exhibit 6.

The organization also needs to have physical memory to store its explicit knowledge. This type of memory cannot store the tacit knowledge, since it is not tangible.

Exhibit 6. Knowledge Storage/Retrieval (Capture) Step.
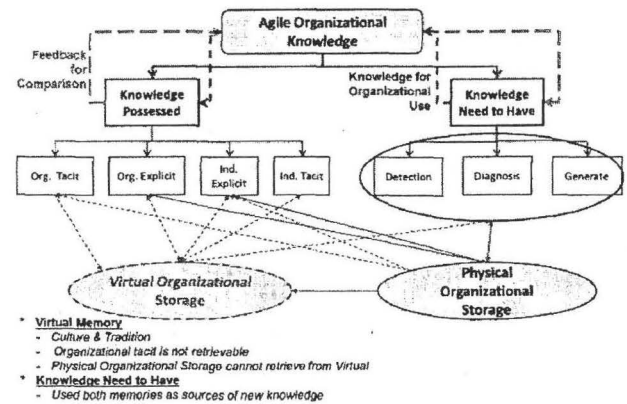
3. Knowledge Share/Transfer

This process needs available 'knowledge highways' as Despres and Chauvel (1999) asserted, in order to achieve the desired level of knowledge traffic in the organization as well as having good gateways for external knowledge transfer and sharing.

There are three generic types of articulation in this step:

1. Transfer/sharing of knowledge from/by a source (willingness of the source).

2. Transfer/sharing of the knowledge to/with the receiver (openness/willingness/awareness of the receiver).

3. Transfer/sharing needs access to the knowledge highways in the organization. Any limitations to the knowledge highways would naturally limit the knowledge sharing/transfer process.

Another aspect of knowledge sharing/transfer relates to technology, information technology and organizational innovation.

Military organizations allocate a great amount of their budget and resources for this step, which is also known as Command-Control, C4ISR capabilities and NEC (Network Enabling Capabilities).

The military, especially multinational military organizations such as the COIN-tasked military forces in NATO, experience a great deal of challenges. There will always be a debate regarding sharing the knowledge to the extent possible, or obeying strict security restrictions.

4. Knowledge Application (Exhibit 7)

In addition to the classical KM perspective of knowledge application in the literature, this step also connotes leveraging any form of the knowledge in or outside of the organization to an asset of the organization which intends to be agile. For that reason, the organization constantly questions the accuracy and punctuality of the knowledge in terms of creating/acquiring, storing/retrieving and sharing/transferring the knowledge.

Appropriate application of knowledge makes the knowledge a truly intellectual asset of the organization while responding to its agility requirements.

5. Adaptation (Exhibit 7)

In accordance with the extension of knowledge proposed in this research, knowledge has an actionable aspect. Specifically military organizations need to turn knowledge into action at a certain point, or it may not be useful. Pure knowledge, which does not lead to any action, can merely be an intellectual asset. But, that is not the primary goal of the AKM process, unless it will be used as actionable knowledge in the future. That is why the important aspect of the AKM is to transition the knowledge from the state of intellectual asset to the actionable knowledge. In reality there is no clear and distinctive line between each.

The question for an organization is: What is the end state? Is it to have knowledge or to use it? This research is clearly in favor of having knowledge to use as needed. This requires the actionable aspect of knowledge. The

key point is to use 'agile organizational knowledge' within the organization wherever and whenever it is needed.

Inspired from military documents, the end state of a military organization can be summarized as doing the right thing, at the right time, with the right power. Any mistake in any of those elements would prevent the organization from being agile as required.

Agility can be accomplished with 'adaptation', which comprises learning and transformation.

Rather than being different domains, learning and knowledge are interconnected and interrelated. Ideally, learning starts with knowledge and leverages this knowledge to new knowledge and/or to new entities.

On the other hand, transformation is also used for adaptation but through organizational change. If the organization does not have the structural fitness to cope with change, then learning efforts will become redundant. The organization needs to investigate the ways of structurally coping with change, and innovatively applying the solutions necessary.

Both integration and transformation should be constant endeavors of the organization at all times as long as change exists in the environment. Neither should be used interchangeably. They should be considered as two supporting aspects for adaptation, rather being approached as alternatives to each other.

Exhibit 7. Knowledge Application and Adaptation Steps.
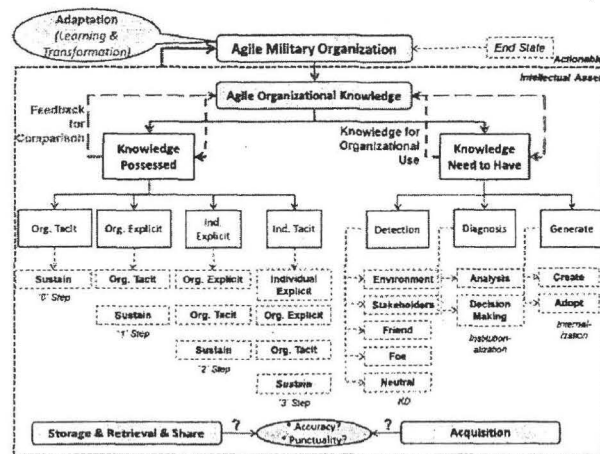
Agility as an Attribute

Agility is analyzed in two different aspects in this research. The imperative/requirement aspect, which identifies the needs for AKM, has already been discussed. The second is the attribute aspect, which is presumably one of the various attributes of the AKM process. It is analyzed with a special focus in this research. A summary of the results are as follows.

Referring to the basics of the operational definition in this research, relevant variables of agility

were denoted as time and the accuracy. 'Time' should be defined in terms of the rate of the change (mathematically this can be denoted as 'Δ State of Environment'). 'Accuracy' comprises recognizing the change correctly, then developing and applying correct knowledge, and finally adapting to the change.

Exhibit 8 depicts basic differences between KM and AKM in terms of agility with respect to the accuracy and time variables:

- Knowledge is provided on time, but it is not accurate: It is not acceptable for either.
- Knowledge is provided late, and it is not accurate: It is not acceptable for either.
- Knowledge is provided late, but it is accurate: It is partially acceptable for KM but not acceptable for AKM.
- Knowledge is provided on time, and it is accurate: It is acceptable for both KM and AKM.

Exhibit 8. Agility and Comparison of KM vs. AKM.
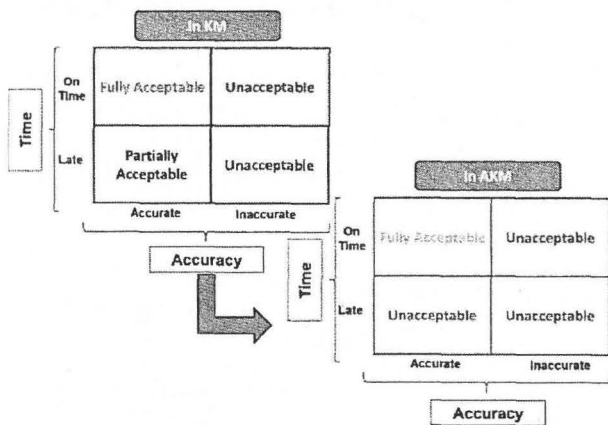
Proper application of AKM for an organization dwelling in the changing environment can be articulated in the following questions:

- How fast does the organization need the new knowledge?
- How fast can the organization provide it?
- How fast can the organization master its application?
- How fast can the organization adapt the new knowledge?

Conceptually, AKM operates to observe two phenomena over time:

- Observe the knowledge gap (ΔK): How big is the gap? What is the breadth and depth of this gap?
- Observe the change over time (ΔChange): How fast is it? What is the length (duration) of it? And what is the rate of the change? The

rate and length of the change can also be identified as the frequency (f) of the change as well.

The organization should constantly trace the knowledge gap. As shown in Exhibit 9, the knowledge gap (ΔK) is the difference between 'knowledge needed today (K1)' and 'knowledge needed yesterday (K0)'. But in a very short time, the new knowledge gap (ΔK) will be the difference between 'knowledge will be needed in the future (K2)' and 'knowledge needed today (K1)'. It is obvious that the organizations that have the capability of recognizing and then acquiring the knowledge of the future will be more competitive (superior).

The extent of the knowledge gap and subsequent actions are also important factors for the AKM Process. For that, the AKM process in the organization will:

- Recognize the change and knowledge gap thoroughly (the goal at this stage is to perform this recognition process fast enough and accurately).
- Fill the gap effectively and efficiently (the goal is to acquire the knowledge fast and accurately, then to fill the gap. Meanwhile the AKM process will also investigate the need of the knowledge and determine whether it already exists inside/outside the organization or not. If it exists then it will need to be transferred/acquired, if it does not it then needs to be created/generated).

Actually, the whole process is a race with time. The organization tries to manage this race over the timeline of change. Knowledge gap (ΔK) versus time difference (ΔT) is compared at all time.

As shown in Exhibit 9, AKM process compares:

- Speed of change over time (ΔI) with
- Speed of recognizing the change and knowledge gap (ΔII)
- Speed of filling the gap (ΔIII)
- Speed of adapting the new knowledge (ΔIV)

The goal is to have the total time of AKM process ($\Delta II + \Delta III + \Delta IV$) less than the speed of change (ΔI), in order to be rightly responsive to the change.

Exhibit 9. Agility and AKM.
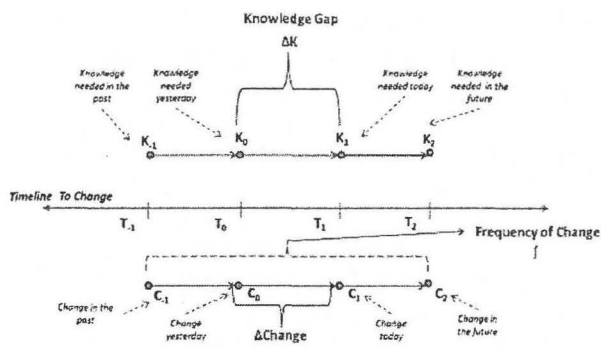
Conclusion

The most important conclusion of this research is that it provides a newly conceptualized AKM model. To best knowledge of the researcher, this study is the first theoretical and empirical work to articulate the AKM concept with extension of KM process in the literature, as well as applying it to the military.

The idea is to integrate the AKM model in the organization where it is supposed to play the amalgamation role in whole process of an organization.

For this research it is the 'agile military organization' which needs to:

- Do the right thing (whatever is needed)
- At the right time (not late/ not early)
- With the right scope (in terms of duration, terrain, stakeholders, boundaries etc...)
- With the right resources (cost effective, right unit, right weaponry, right amount of money), and
- With the right knowledge.

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