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# Success and Failure Factors for KM: The Utilization of Knowledge in the Swedish Armed Forces

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**Abstract:** Developing successful knowledge management (KM) processes is extremely difficult. In general, a large number of all KM projects end unsuccessfully. The aim of this paper is to summarize and study the attempts to take advantage of Lessons Learned in the Swedish Armed Forces (SwAF), focusing on international missions. Relevant reports, articles and literature have been studied. With the purpose of understanding the reasons for failure and the failure factors in SwAF's attempts at KM, Chua and Lam's model for unsuccessful KM implementation has been applied to four cases from the organization. The results show that SwAF are aware of the importance of knowledge and have attempted to implement KM on several occasions. In most cases, however, the KM projects do not achieve widespread use and eventually end unsuccessfully. Furthermore, many of the KM tools that have been developed are no longer in use. The Swedish Explosive Ordnance Disposal and Demining Centre (SWEDEC) and the Swedish Air Force are notable exceptions.

**Keywords:** knowledge management, lessons learned, evaluation of knowledge management
**Categories:** H.3.3, H.4.3, H.5.3, J.7

## 1 Introduction

Developing successful knowledge management (KM) processes is a difficult task. According to Lucier, up to 84 percent of all KM programs generally fail [Lucier 2003]. Although there has been extensive research in the KM field, it is still complex and difficult for practitioners to implement KM in organizations. Today, the cost of KM project cancellations is considerable and represents missed capacity through the loss of a large number of Lessons Learned.

In this contribution the case of the Swedish Armed Forces (SwAF) is analysed. During the last decade this organisation has tried several ways, on multiple occasions, to implement KM in different parts of the organization. The majority of attempts unfortunately ended unsuccessfully, with the Swedish Explosive Ordnance Disposal and Demining Centre (SWEDEC) and the Swedish Air Force as exceptions. Although the problem of failing KM projects is well known in SwAF, we have only found one study [Lindgren 1998] and no official reports about the reasons for the repeated mistakes. This work focuses on Lessons Learned from international missions and how this knowledge is managed in the organization. We have used Chua and Lam's model [Chua & Lam 2005] for unsuccessful KM implementation to identify the KM failure factors in four cases. Some of the failure factors we will present in this paper were noted in a report ten years ago [Lindgren, Almén, Rindstål 1998]. Our goal was

to understand why SwAF has ended up with the same dilemma over and over again. This work was done as part of a SwAF internal project which was managed by the author of this contribution. Input was also given by PhD students involved in the project.

## 2 Background

### 2.1 Need for Rapid and Iterative Change

The general security policy situation, today's threats and the way wars are being waged have changed significantly over the last twenty years [Berggren 2007]. The SwAF undergoes a rapid change and the necessity for KM in general and the utilization of Lessons Learned is required. New threats demand rapid and iterative needs for Lessons to achieve Lessons Learned.

Industrial war has become "war amongst the people" [Smith 2007, page 267]. This can be recognized in several characteristic ways. The fight on the battlefield has moved in amongst the civilian people and two-state conflicts have changed to become a timeless battle between non-state parties. Other significant characteristics are, the western world fighting to preserve the force rather than risking it, but still with weapons from the industrial war just used in new ways [Smith 2007]. Earlier, the main responsibilities for the SwAF were customary combat protection of the Swedish borders and being ready to counter an armed attack, as during the cold war. The SwAF are today developing a mission based force, able to deal with a spectrum of peacekeeping operations on the international stage as well as national civil and military tasks. This rapid change demands a new professional and efficient way to cope with Lessons and make certain they are utilized.

Sweden has participated in international Peace Support Operations beneath the United Nations flag for more than fifty years. Approximately 100, 000 Swedish men and women have served in the Swedish International Force (SwIF) in 120 missions in 60 countries throughout the years. Today, Swedish International Forces consist of about 1,000 men and women that are engaged in a number of missions in different parts of the world [Sjöstrand 2006].

Innumerable Lessons have been generated from individuals and groups in various missions in different countries, during this time. We believe that those experiences would naturally be a huge advantage for SwAF, and should therefore been consequently and carefully considered. This is unfortunately not the case today. A number of attempts have been carried out but remarkably none has reached a level efficient enough. The aim of this paper is to recapitulate and compile the recent years' attempt to collect, analyze and categorize experiences from the SwIF; as well as the efforts to develop technical support for the above mentioned purposes.

### 2.2 Learning From and Making Use of Experiences

Identified from the literature there are some factors that help to make KM initiatives successful. In the following such are introduced, starting out with Waltz [2003]. He observed that KM requires coordination between *people, processes* and *technology*. Through collaborative learning and problem solving, culture and organizational

structures are expected to enable and inspire the growth of knowledge. The organizational environment must provide acceptance of and the opportunity for exchange, use and reuse of knowledge [Waltz 2003].

Argyris [1965] emphasized action in the learning process. Learning occurs every time a mistake is observed and corrected, and the mistake is defined as an occasion with conflicts between consequences and intention. He also emphasized the difference between *experience* and *learning from experience*. There is no guarantee that an individual learns something simply through a unique experience [Argyris 1965]. A study made by Löfstedt and Rode [2007] showed that several independent sources verified that it is not permitted to discuss mistakes in the SwAF. There is a pronounced fear/anxiety that such discussions would damage an individual's career. *"Knowledge is not just about success stories. If you can encourage employees to record their mistakes with no fears of further action, you will be able to build a truly useful knowledge repository. With it your organization will be less likely to repeat previous mistakes and able to make decisions quicker"* [Lucier 2003, page 3].

In general there can be an unwillingness to admit mistakes and blunders for fear of punishment and exposing one's educational level. Knowledge is also a platform for an individual's career and position in an organization [Ölçer 2007]. This situation often prevents knowledge flow and keeps knowledge isolated among one or a few individuals. However, there are notable exceptions in parts of the SwAF organization. SWEDEC and the Swedish Air Force have traditionally invited dialogue about experiences to increase safety within units. These exceptions may be because individuals in these units truly understand that the Lessons Learned effort can save lives - their own and their colleagues. The Swedish Air Force even accepts anonymous reports [Löfstedt, Rode 2007]. Developments in techniques and aircraft are other reasons why the Swedish Air Force has managed to lower the frequency of accidents.

Before Lessons are transformed into Lessons Learned and can be considered as reliable knowledge, they must be handled systematically. There should be discussion and critical consideration about which Lessons highlight requirements for improvement, and there must be a working system for documentation of this process. In this paper, some cases will show that Lessons managed to reach and be filed in the KM systems, but got no further. The SwAF tend to miss the utilization part in the KM process.

Another way to deal with Lessons Learned is through lectures, particularly during military training. Lectures give an opportunity to share Lessons from international missions with the audience. However, such work is not carried out systematically, or in a scientific way today. Lecturing of Lessons Learned should be a matter for discussion, selection and critical consideration, and should naturally be documented in an organized way.

As early as 1984, Brigadier General Wass de Czege, founding director of the School of Advanced Military Studies US Army wrote, that the work to achieve changes in the army must be done in a more disciplined way. There is need for real science, to systematize knowledge and for teaching it in a systematic way. Further on, he emphasizes the importance of commitments of time and engagement, both from the best minds operating at the school and from the young officers to fulfil their education in a long term perspective. He points out an urgent need for a well-

organized way of systemizing, developing, refining and distributing the growing body of knowledge ("information explosion phenomena") [Wass de Czege 1997].

### 2.3 Reasons for KM Failures

According to Chua and Lam's model of unsuccessful KM implementation [Chua, Lam 2005], there are four distinct categories of failure factors: technology, culture, content and project management.

The first and most pronounced factor is blind faith in technical solutions such as the KM infrastructure, technology and tools within the KM implementation group. Failures in this category can occur when those KM tools developed have poor usability and users find the tools complicated to use. Connectivity problems arise when the technical infrastructure has limitations, such as insufficient bandwidth or problems with network connectivity. Over-reliance on KM tools can contribute to human issues and tacit knowledge being ignored.

The second category is culture, including human and organizational behaviour. The failure factors in this category include for example politics, when KM is used to gain control and authority within the organization. Lack of management commitment and withdrawal of commitments during the KM process are other examples of failure factors. Perceived image refers to accessing others' knowledge, which is perceived as a sign of inadequacy or insufficiency, by the users.

The content category includes characteristics of the knowledge itself. Failure factors can be lack of knowledge structure, which makes the content meaningless and difficult to understand for the users. Relevance and currency, the content does not meet the user's needs. Difficulties in distilling valuable knowledge from organizational processes are addressed as knowledge distillation.

The fourth and last category, project management, includes the following failure factors: Lack of user involvement in the KM project can result in a misunderstanding of the user's actual knowledge requirements. During KM implementation, individuals may move in the organization, relocate, or resign. Reorganizations can result in a shortage of technical and business expertise for the maintenance and use of KM tools. There is no ready-made plan for project evaluation, to track and measure achievement in the project.

Chua and Lam's model divides each case into a three-step cycle: initiation, implementation and integration [Chua, Lam 2005]. This has not been done in our study due to previously insufficient documentation of each case.

## 3 Method

This descriptive literature study builds on four cases from the SwAF. Three cases were found in the Swedish Defence Research Agency's (FOI) database, as a result of a search for documented reports on projects, focusing on experiences and Lessons Learned during international missions. One case was found through talking to staff of the Information Section for The Swedish Armed Forces Network and Telecommunications Unit (FMTM). In addition, relevant KM-reports and articles found in the databases of Emerald and IEEE Xplore have been read. A search in Jane's Defence Magazines Library, however, gave nothing applicable. To identify the

KM failure factors we found and decided to use, Chua and Lam's [2005] model for unsuccessful KM implementation, published in the Journal of Management Vol 9 No 3 2005.

## 4 Result - Technical Solutions for Lessons Learned

During the last decade there have been several attempts, in some divisions of the SwAF, to collect, analyse and categorize experiences, followed by development of technical support systems. In this section, we summarize these attempts and their outcome. Note that this summary only covers KM efforts by the SwAF.

### 4.1 Heimdall

Until 2000, the Swedish Armed Forces International Centre (SWEDINT) and the Joint Forces Command (OPIL), now Operational HQ (OPE), used a database named Heimdall. This database was designed to contain a significant number of lessons from completed international missions. The main purpose was to keep one centralized database that allowed personnel throughout SwAF to access it. The database was developed using Microsoft Access, which - unfortunately - later turned out to be software not approved for use within the SwAF [Löfstedt, Rode 2007].

Regrettably, personnel in ongoing missions could not access Heimdall because of security restrictions. One major dilemma in the project was the lack of acceptance for the entering of data into the database, as a natural sub-task for users. Users did indeed enter data, although with great resistance and only in exceptional cases [Löfstedt, Rode 2007]. Users were able to enter data into the database, but they did not experience any connection between the data-entering process and the benefit of the system to their daily work. This situation was the primary reason for Heimdall eventually being closed down. Furthermore, there were obvious problems with the user interface and the general usability of the system. Different aspects of the data entered into Heimdall were categorized to make it easier to search for relevant information. Supplementary data could be added voluntarily under sub-headings [Lindgren, Almén, Rindstål 1998].

### 4.2 HTML Help Workshop

In 1999, the Swedish Navy started to distribute the LLDB99 database. It was primarily a collection of experiences written down from military exercises carried out in 1996/1997. A few years later, it was expanded to include lesson-learned reports from additional exercises and was renamed LLDB 2000 version 1.0 [Ranhagen 2001]. The software was already in use by some units in NATO and the US Navy and, furthermore, it was free to download.

This case indicates that there were significant problems of motivating the users to deliver reports, enter data and search for data in the database [Löfstedt et al. 2007]. They could not perceive the connection between input (data entry) and output (searches). This was the main reason why the system was finally closed down. In addition, an extensive reorganization, which resulted in the loss of a lot of knowledge and technical know-how about HTML Help Workshop, contributed to the

decommissioning of the system. OPIL also used an earlier variant of HTML Help Workshop named Win HLP; this was closed down for the same reasons.

### 4.3 Lessons Learned Information Management System

SWEDEC is a centre of excellence in the field of ordnance disposal and mine clearing, which cooperates with the Swedish Police, the Swedish International Development Cooperation Agency, and international organizations such as the International Test and Evaluation Program and the Geneva International Centre for Humanitarian Demining. FOI has developed the Lessons Learned Information Management System (LLIMS) for managing codified knowledge, ordered by SWEDEC. The lessons-learned process and the analysis function are high priority activities at SWEDEC. The aim of the lessons-learned process is to disseminate new knowledge to the organisation. This can be achieved through transformation of observations made by individuals or groups, into reports in the system [Samuelsson 2006].

The system is also used by the Maritime Warfare Centre (SSS) in an attempt to develop a common experience database within SwAF [Löfstedt, Rode 2007]. After completed missions the Lessons are analysed and entered into the LLIMS system, where they are accessible to, for example, future mission planners. LLIMS is searchable in several dimensions such as mission, unit identity, report authors, creation date, and document identity [Samuelsson 2006].

To acquire knowledge proactively, SWEDEC arranges seminars that focus on mission experiences, and also participates in seminars at the Swedish Rescue Services Agency (SRSA) and other organizations in the field of ordnance disposal and mine clearing. Furthermore, SWEDEC supports a NATO program (National Armament Directors Programme of Work – Defence against Terrorism Explosive) by supporting Slovakia in its efforts to build up an Explosive Ordnance Disposal (EOD) centre.

### 4.4 Technical System Support

FMTM is a joint unit located in several places in Sweden. The unit is responsible for SwAF stationary Command, Control and Communications (C3) systems, which are supervised from the C3 Operations Centre. Operational readiness tasks are given by the Joint Forces Command in the SwAF alert order, where the actual operational readiness levels are settled in different areas, such as different networks, radios, sensors and SATCOM. Some units in FMTM have extensive service-desk activity and maintain large systems for the logging of not only incidents but also solutions. Unfortunately, there are no overarching directives for what sort of system the divisions should procure and maintain. Therefore, there is no general overview or coordination of the systems and it is difficult to exchange information. There is also lack of acceptance among some users, to enter and search for data in the database.

These databases are mostly designed for technical incidents, but they have the capacity to store different kinds of incidents and solutions such as administration and management concerns. Unluckily, they are not used for a KM purpose and Lessons are never actually developed into Lessons Learned. Within these systems SwAF's security classifications cause limitations for users [Staff of Information FMTM 2006].

### 4.5 Overview – failure factors

Failure factors from our four cases have been applied into Chua and Lam's model for unsuccessful KM implementation [Table 1]. Two of the cases which we studied had failure factors in all four categories. One case had failure factors in three categories, and the last one of our cases, we could only match into one category.

| | Heimdall | HTML H.W. | LLIMS | Technical S.S. |
|---|---|---|---|---|
| **(T1) Connectivity** | | | | |
| **(T2) Usability** | | | | |
| **(T3) Over-reliance** | | | | |
| **(T4) Maintenance cost** | | | | |
| **(Cu1) Politics** | | | | |
| **(Cu2) Knowledge sharing** | | | | |
| **(Cu3) Perceived image** | | | | |
| **(Cu4) Management support** | | | | |
| **(Co1) Coverage** | | | | |
| **(Co2) Structure** | | | | |
| **(Co3) Relevance & currency** | | | | |
| **(Co4) Knowledge distillation** | | | | |
| **(PM1) User involvement** | | | | |
| **(PM2) Tech/business Expertise** | | | | |
| **(PM3) Conflict management** | | | | |
| **(PM4) Roll-out strategy** | | | | |
| **(PM5) Project cost** | | | | |
| **(PM6) Project evaluation** | | | | |
| **(PM7) External consultants** | | | | |

*Table 1: Overview of SwAFs project in, Model for Unsuccessful KM Implementation (T)=Technical, (Cu)=Culture, (Co)=Content and (PM)=Project Management*

## 5 Discussion

To avoid over-reliance on technical tools, the technology itself must be separated from the problem that it is supposed to address. The Swedish Air Force managed to deal with many aspects of Lessons Learned, even before the first KM concepts with technical solutions were implemented in the organization. Technology should be considered as human artefacts that support the function/task to be achieved [Brehmer 2007]. The Swedish Air Force undertakes high-risk tasks that tend to highlight the need for forthrightness. Imminent danger and the threat of injuries and fatalities seem to bring out an open culture, where individuals can share experiences seriously and

meaningfully, without fear of the consequences. It seems that the Swedish Air Force management was the first in SwAF to understand and encourage this culture.

The security classification schemes in SwAF limit both access to data for users and transmission of data between different systems. This relates directly to the availability factor, which gives rise to accessibility dilemmas at the time of request. If KM tools have poor usability, in terms of time and place, users tend to lose interest and motivation. We believe that the key to reducing these recurring problems is a systematic implementation of KM. SwAF must utilize past experiences and ensure that Lessons actually result in Lessons Learned, with the aim of reducing friction in the organization. This can be achieved by a genuine effort to create and maintain a culture of openness and honesty. Management must take full responsibility for the implementation of a KM process, which focuses on the users and their needs. In addition, all attempts should be carefully documented.

## 6 Conclusions

In three of our four cases KM implementation ended unsuccessfully; SWEDEC turned out to be an exception. It appears that the same mistakes were made repeatedly, and in the first three cases, we found a few common weaknesses: a multitude of actors, weak central management, insufficient KM tools, and no account taken of user needs [Lindgren, Almén, Rindstål 1998, Löfstedt, Rode, 2007, Ranhagen 2001].

The first and most important failure factor is that information does not meet user needs. Secondly, culture prevents individuals from admitting mistakes and blunders for fear of the consequences. Thirdly, there are difficulties to progress from the Lessons and thus actually obtain Lessons Learned, with the aim of reducing friction in the organization. Fourthly, the attempts at KM are not systematized or well documented. Fifthly and finally, central management does not take full responsibility for the processes.

The key to avoiding repetition of the same mistakes is to systematize and document KM attempts accurately. KM processes must also be implemented with a holistic view that includes individuals and their needs, from the outset. Another challenge is to create and maintain a learning and knowledge-oriented environment, in a culture that encourages openness and honesty. SWEDEC has been successful in that matter, and we consider that it is possible to do so even in other units.

If there is an obvious risk for injuries, users seems to be more motivated to enter and search for data in the KM system. Despite the risks, we believe that this indicates that it is possible to educate and work with human aspects in a more extensive way than it is done today. It is important that the user obtains insight, understanding and knowledge of their importance in the KM system. Rewards for active efforts in KM works and acceptance of anonymous reports among users can be a start [Guptara 1999]. Future KM projects should analyse and learn from the culture in SWEDEC and the Swedish Air Force. Central management needs to take full responsibility for the whole KM processes.

Wherever future missions may be and whatever tasks may be undertaken, we are certain that some experiences from the past can be utilized; Lessons can be

transformed into Lessons Learned and lead to improvements in future SwAF missions.

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