

# CHALMERS



## Success factors for development of a management system for a global corporation

- from a learning perspective

*Master of Science Thesis*

JESSICA OLINSSON

Department of Technology Management and Economics  
*Division of Quality Sciences*  
CHALMERS UNIVERSITY OF TECHNOLOGY  
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JESSICA OLINSSON

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Department of Technology Management and Economics

Chalmers University of Technology

SE-412 96 Göteborg

Sweden

Telephone + 46 (0)31-772 1000

Chalmers Reproservice

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## **Abstract**

In an ever changing world the ability to learn, developing new ways of thinking and behavioural changes, is a valuable asset. Senge (1995) describes it as “companies that learn to seize peoples’ engagement and ability to learn, on all levels, will have advantages over competitors, advantages that also easily can be defended”. Garvin (2000) argues that especially managers and executives do not only need to value learning but also act in line with the actions they propose.

In this study the case company is a global corporation who is currently in the middle of a transformation process in which they are developing one common management system with one common documented part for the entire organization. The aim is to facilitate commonality amongst the entities within the case company and to reach a higher process orientation. This originates from that all the entities within the case company were previously independent corporations with their own local management systems. The focus of the study will therefore be on how to succeed with the development and harmonization of one common management system within the case company, from an organizational learning perspective. The theory used in this master thesis is built on organizational learning and a framework used for analysing management systems by Marmgren, Clancy and Alänge (2013).

To do this investigation, the research approach has been an explorative case study where semi-structured interviews have been conducted with 16 internal employees that either works with or in relation to the management system, or are considered end-users of the system. Additional information regarding management systems was also collected from 4 other companies to develop a balanced view of management systems and supply the case company with external knowledge.

The findings show that there are several factors influencing the effectiveness of a management system and the usefulness of the documented part of a management system. The implication of the result is that the company has to work on several fronts to make the transformation successful.

**Keywords:** Management system, documented management system, corporate management system, global manufacturing company, employees, learning organization, organizational learning, vehicle industry

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Sincerely,

Jessica Olinsson

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## Clarification

Management system: *“The organization/operations viewed as a system of interacting elements”* It consists of the four elements Spoken, Documented, Tacit guidance and Behaviour (see chapter 2, section 2.1.3).

DMS: Documented part of the Management System that is accessible through a digital tool, commonly some form of database or similar it-system. It commonly consist of different types of written procedures, instructions, policies, directives, process maps, organizational charts, role descriptions etc..



# **1 Introduction**

*The following chapter begins with describing some background of the research field and the problem at the case company. Thereafter, the chapter will present the purpose and objective of this thesis, followed by what research question the thesis are going to answer and the delimitations made. Finally, the last paragraph will shortly describe the disposition of the report.*

---

## **1.1 Background**

Organizational learning is for many companies something very desirable but something they in practice many times find difficult to master (Garvin, 2000). So in order to help the organizations to learn the field of organizational learning has described characteristics and aspects that are needed to become a learning organization.

To learn and adapt new behaviour can be seen as a change in organizational knowledge and it can be perceived as captured when it has been integrated into routines (Schultz, 2001). Within companies routines are commonly documented and gathered in a “DMS” which is the documented part of the management system. In this way you could say that a management system, in one way, is the learning system of the company.

In general it can be seen as organizational learning is about creating an understanding for how learning activities influence the outcome within an organization, and a management system is the system of interacting elements that contribute to create the outcome. However since individuals continuously learn the management system can be seen as part of a continuous learning process.

## **1.2 Problem Formulation**

Since the different entities within the case company used to be independent corporations with their own local management system, several local management systems has been developed over time, each having a related “DMS” to facilitate the documented part of their management systems. Now the case company has decided that one common management system with one common “DMS” will be developed for the entire company with the aim of developing commonality among the entities of the company and reach a higher process orientation. As a part of the transformation, this thesis has been conducted to locate different influential factors that need to be taken into consideration for creating a successful transformation.

## **1.3 The case company**

The study has been conducted at a global manufacturing company, active within the vehicle industry and will be referred to as “case company” in this study. As previously mentioned the case company is currently undergoing a major reorganization, which has also lead to a review of their management systems, and an initiation of creating a new “DMS” for the entire organization.

## **1.4 Purpose**

The purpose of the thesis is to gain understanding of the development of a management system from an organizational learning perspective.

## 1.5 Objective

The objective is to provide a list of factors that influence the usefulness of a management system within the company.

## 1.6 Research Question

In order to fulfil the purpose and objective of the thesis, the following research question is aimed to be answered:

*How can the management system and the related "DMS" be developed to stimulate and support learning within the organization?*

## 1.7 Delimitation

There are many parts to a management system but this study will mainly focus on the documented part of the management system and especially the employee's perception and relation to the "DMS". The focus will be kept on a system level, focusing more on the structure and framework for the "DMS" and related work tasks, than the detailed content of documents like policies and procedures.

The aim has been to interview employees that either works with, or in relation to, the management system or are considered end-users of the system. This has been done since those were assumed to have the highest exposure to what is said regarding the management system and thereby be able to provide the richest information.

The theory will focus on organizational learning and activities that are important to create a learning organization.

To gain a nuanced view and provide the organization with external knowledge about management systems interviews at four other companies was also conducted.

## 1.8 Report Disposition

The thesis is divided into five chapters and the content in each chapter is shortly presented below:

**Introduction** – presents the background and the scope of the study

**Theoretical Framework** – presents different authors view on management systems and organizational learning to create a base for the research.

**Research Approach** – describes how the thesis has been conducted and how the data was gathered.

**Empirical Findings** – presenting the result from the interviews conducted at the case company and at the other external companies.

**Analysis and Discussion** – where the empirical findings are compared with the literature

**Conclusion** – presents a summary of the report and suggestions for further studies

**Recommendations** – presents the recommendations applicable for the case company

## **2 Theoretical Framework**

*This chapter contains necessary literature and theory to create a foundation for the study. The chapter has been divided into two major areas. The first area presents theory on management systems which is followed by the second area presenting organizational learning theory.*

---

### **2.1 Management Systems**

The following section describes different authors view of management systems as well as present an analytical framework that will later be used for analysis of the company.

#### **2.1.1 Standards and models**

Within the field of quality there are many different structures (ISO requirements, business excellence models, six sigma etc.) that can be used as a base or framework for a management system. However, Bergman and Klefsjö (2010, p502) state that “standards can never create business success or business excellence” and argue instead for, that it is how the standards are applied in the daily work and the long-term strategic decisions that decide the success. A similar view does also Söderström (2010, p133) present when he describe that, “in practice are humans always a part of the system” and therefore is it important to care for the interaction between human and technological systems.

#### **2.1.2 Process orientation**

Process orientation is a mind-set not just documented processes (Bergman and Klefsjö, 2010). However documenting the process can be beneficial to better understand processes interrelations and it can also help to structure the company’s daily operations so that no essential activities are forgotten (Piper and Carty, 2004). The challenge with process orientation is to create good communication between the different processes, in order to get the different sub-processes to cooperate (Carty and Piper, 2004). Carty and Piper (2004 p27) describe it as “in the dialog lays possibly the biggest challenge for an organization to obtain successful operations and good performance”. Carty and Piper also argue that a more systematic ways of working also create a larger awareness for how the activities are performed and the possibility to continuously improve. Bergman and Klefsjö (2010, p.456) describe processes orientation as “in reality, processes are largely a matter of co-ordination between people...it involves teamwork rather than assembly lines”.

According to Bergman and Klefsjö companies’ “DMS” are commonly visually described as a structure of flowcharts and are commonly called process maps. The different operational processes are then commonly categorized into three categories, management processes, main processes and support-processes. The purpose with the management processes is to set strategic direction and improve other processes, through auditing, strategic planning etc., and it usually has internal customers. The main processes are the processes that direct or indirect creates income for the organization. The main processes usually have external customers and the task is to gather customer needs, create products that will satisfy the needs and then later will be sold to external customers. Support processes are the processes that provide resources for the main processes and have mainly internal customers, for example recruitment, maintenance and information processes (Bergman and Klefsjö, 2010).

Carty and Piper (2004, p26) describe that “the organizations essential processes have to manage an organizations entire lifecycle...the processes have to be designed in such a way that they are sufficiently comprehensive and dynamic so that they can sustain changes” that

occurs in their competitive environment. Bergman and Klefsjö (2010) also argue for that there is no need to describe all the sub-processes to a very detailed level because about 80% of the value for a company is created by 20% of the processes. Another common mistake that organizations do according to Bergman and Klefsjö(2010) is that they don't formally define responsibility, they let it be in the background as unwritten rules, and if they do it, they then usually defines it to a functional job description instead of a certain role. This create problems when the responsibility and none defined roles is interoperated differently by different people.

Carty and Piper (2004, p27) argue that there is a limitation in how much an organization can control their employees and that detailed control should not be exercised for a longer period of time, because then there is a risk of suppressing the innovativeness within the organization. According to Carty and Piper (2004, p27) "the organization must give space for every individual to develop their own way to solve their tasks and not be too controlling" this is "because it is not possible to coordinate or control humans to such high degree". Carty and Piper (2004, p26) also argues that "the creativity within an individual shall be given space within the organization and is not necessary hindered by increase in scheme". Another author who agrees that the creativity in the individual shall be given space to develop is Peter Senge. During a stage performance he expressed "businesses always try to recruit highly talented people, great! Very important! But we miss the question, do we create an environment where those people will continuously grow and develop, once we have them?" (youtube, 2014). Senge continues in his book, the fifth discipline by expressing "it is no longer enough that only one or a few employees get educated, it is neither enough that only someone at the top make decisions that should be followed by everyone (Senge, 1995, p18).

### **2.1.3 A management system framework**

In the article "understanding management systems: a test of a conceptual framework" by Marmgren, Alänge and Book (2012) the ambiguity regarding management systems is highlighted and they provide a framework for management systems built on organizational theory combined with learning and change theory. They also provide the following definition about what a management system is, which will be used in this study as the definition of a management system:

*"The organization/operations viewed as a system of interacting elements"*

What they mean with this is that a management system not only constituted by what is documented but also about what is said, what is acted out and what mental/cognitive picture people have in their mind about how things should be performed. To illustrate their view of a management system and how the different elements influence each other they have created and tested a framework. In this study the graphical representation used of the framework comes from the Marmgren, Alänge and Clancy (2013) article. It is used because it is a refinement of the previously presented framework in the Marmgren, Alänge and Book (2012) article. However the earlier article will mainly be referred to for the description of the framework because the meaning and reasoning regarding the framework is more thoroughly described in the earlier article, and is still valid according to the authors. The following figure shows the framework, with the elements and the relation between the elements, where dashed lines indicate weaker couplings.

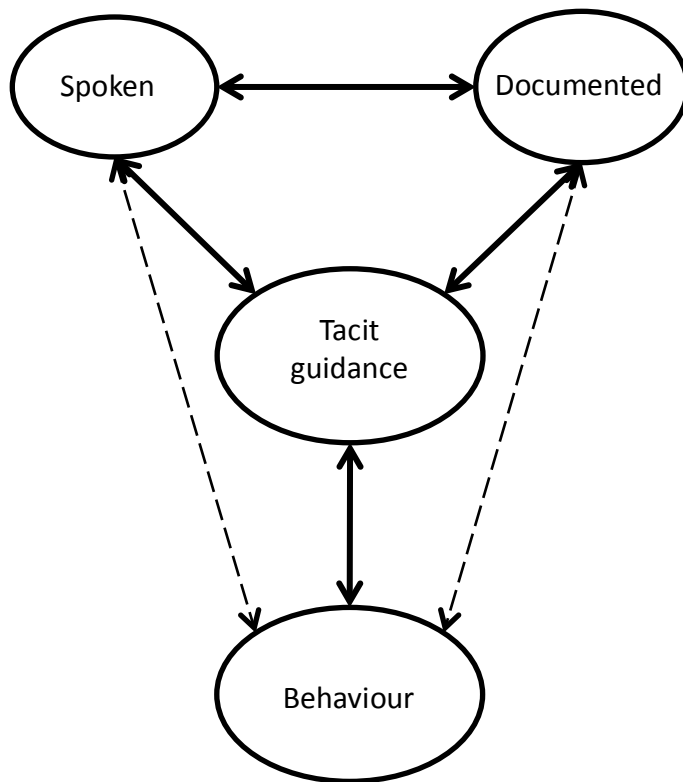


Figure 1: Framework over a management system (Marmgren, Alänge and Clancy 2013)

According to Marmgren, Alänge and Book (2012) harmonization between the different elements of the framework will create a more effective management system. With other words, when someone wants to change behaviour through what is expressed verbally or through written documentation it is commonly hard because they have a weaker influence on behaviour. So to create a sustainable change in behaviour there has to be strong coherence between documented and spoken to effect the tacit guiding, which commonly has the strongest influence on people's behaviour. As Marmgren, Clancy and Alänge (2013) express it: "sustained behavioural change normally depends on a change in the subconscious tacit competence", and with tacit competence they mean the tacit guidance.

The documented part is about how things are written down or graphically represented. It is usually consisting of different types of written procedures, instructions, policies, directives, process maps, organizational charts, role descriptions etc..

Spoken is about everything that is said. Usually it is unwritten instructions or rules that are verbally transferred between people.

Tacit guidance is the unconscious mental concepts that individuals have about how tasks should be performed. It can either be possessed by only one person or by a small group with very close collaboration. Marmgren, Alänge and Book (2012) argue that the tacit guiding structure is the part that impact people's behaviour strongest and if it is not understood then the desired effect of changes might not occur. Marmgren, Alänge and Book also describe that parts like tacit guidance/the way of thinking can only change indirectly but that there are some parts of the management system that are possible to affect and change more directly, for example documentation, incentive systems, resources etc..

When a procedure or routine has become a subconscious act that doesn't demand cognitive effort to remember, then the person has undergone a "naturalization" process and new behavioural patterns have been created. During the naturalization process a person will alter between the old and the new way of working until the new behaviours has been accepted and practiced so many times that it has reached a subconscious state (Book, 2006). This is in line with what Garvin (2000, p27) argues as well when he states that "habits and routines are difficult to dislodge. To overcome inertia, managers must first send clear signals but, even more important, must offer opportunities to practice new behaviours".

## **2.2 Organizational Learning**

Within the theoretical field organizational learning there exist two main branches. One of the branches has chosen to call their research Learning Organizations to distinguish itself from the other. According to Argyris (1999), learning organization is more practically oriented and is mainly developed by consultants and practitioners, while organizational learning is more academically oriented. Argyris (1999) describes that the Learning Organization branch describes characteristics or aspect of a learning organization instead of questioning what an organization is and if there is more or less valuable learning. The other branch takes a more sceptical stand and does not really take a stand for or against if learning is good or bad or if it helps to produce desirable performance or not. According to Argyris (1999) organizational learning is a competence that organizations should develop in order to easier detect and correct mismatches between intended outcome and the real outcome. It can be summarized as organizational learning researchers are focusing on what type of learning that is important.

### **2.2.1 Double and single loop learning**

Argyris and Schön (1996) have been investigating peoples conscious and unconscious reasoning process to see what influences interaction between people. Argyris and Schön argues that there is a difference between what people describe that they will do in a certain situation, when they are consciously asked, and what they would actually do if they end up in the same situation. According to Argyris and Schön they then might act in a different way, unconsciously or consciously. This gap between what is said and what is acted out is what Argyris and Schön are studying. The description of the behaviour/action a person will present when he or she is consciously asked is what they call espoused theory and the actions they show when put in the situation is called theories-in-use, and to reach effectiveness the espoused theory and theory-in-use need to congruence/harmonize. To make a parallel to the previously presented framework of management system, the espoused theory can be seen as the documented and spoken part of the framework and the theory-in-use can be seen as the tacit guidance and behaviour.

To study the espoused theory and theory-in-use Argyris and Schön study three parts, governing variables, action strategies and consequences. Governing variables are variables that are perceived important by the person and which the person will try to keep a certain relation to. Action strategy is what plans and moves the person do to keep the governing variables within a certain span. The consequences are the intended or unintended results that appear from the governing variables and action strategy.

When there is a detected mismatch between the outcome and the intention and there is a response to it, then learning occurs according to Argyris and Schön. The response can either be of a single-loop learning character or double-loop learning. What differentiates the two responses is that during double-loop learning there is a reflection upon what could have caused the mismatch, potentially challenging the correctness of the governing variables, while during single-loop learning the person is only looking for an alternative action strategy and is not really reflecting on what is the underlying reason for why the mismatch occurred.

Argyris is doing research on how companies can achieve more double-loop learning and stresses that the path of reasoning during reflections is the hindering process many times for companies to achieve double-loop learning and well informed decisions, which are needed in a rapidly transforming environment.

Model I and Model II are two groups or categories that describe features of a theory-in-use that are either enabling or hindering double-loop learning. Model I compose features of theory-in-use behaviour that are hindering double-loop learning and thereby only result in single-loop learning (inhibits double-loop learning) and Model II is the category for theories-in-use that enhance double-loop learning.

Model I exists when people are making judgments upon someone else's behaviour before investigating whether the judgments are valid or not, and without presenting the path of reasoning behind it. This results in a defensive stand and expressing actions, thoughts and feelings, can put people in vulnerable and exposed situations.

Model II exists when the governing values associated with theories-in-use enhance double-loop learning. With other words, when evaluation of one's own behaviour is welcome and the ability to include other persons viewpoints and experiences. Typical Model II activities are dialogues with shared leadership or mutual influence and assumptions and beliefs that are explored and tested. Individuals that behave according to model I create organizational O-I learning systems while if people behave according to Model II theories organizational (O-II) learning systems. According to Argyris and Schön is (O-II) learning systems more desirable.

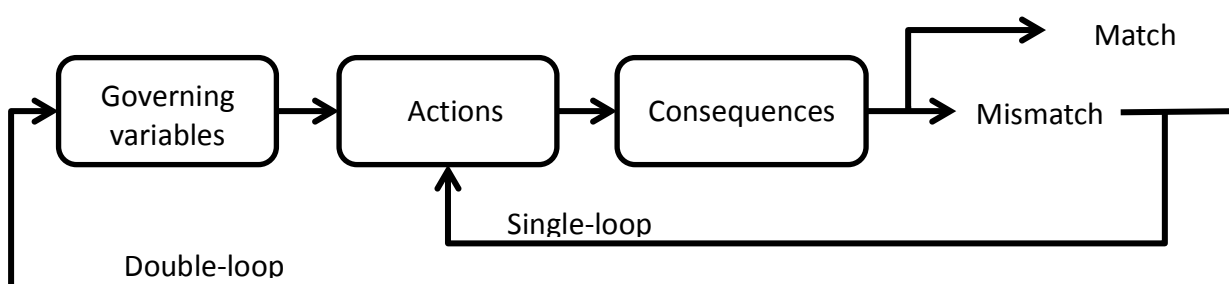


Figure 2: Single and double-loop learning (Argyris, 1999)

## 2.3 Learning Organization

Two important authors within Learning Organizations are Peter Senge with the five disciplines and David Garvin with his five learning activities.

### 2.3.1 Senge's five disciplines

According to Senge (1995, p17) a learning organization are:

" 'learning organizations' are those 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."

For an organization to develop and become a learning organization, Senge (1995) argues that it is depending on five important areas within which human behaviour can be innovated, so called *the five disciplines*, and those five disciplines are:

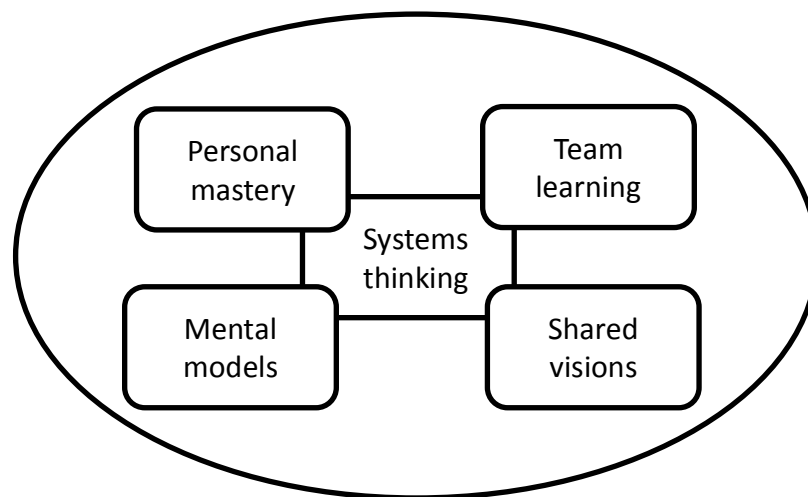


Figure 3: Senge's five disciplines for Learning Organizations (Bergman and Klefsjö, 2010)

#### System thinking

System thinking is the understanding of the relation between different events that occur at different points in time and space. The connections are naturally invisible and only understandable if you know the relation between the different parts. It is about reaching a level of understanding that the interrelation between the parts is predictable. Senge (1995) provides an analogy with the weather. He describes the signs that follows each other and indicates that it is going to rain. That it starts with clouds thickens, then the sky darkens and the wind starts blowing etc. (Senge, 1995).

#### Personal mastery

Personal mastery is the ability to broaden your personal view/perspective on things, gather energy, develop patience and look at the surrounding objectively. It is about a persons will and ability to take in new knowledge and learn from it. The area of study is how the relation is between the individual persons interest to learn in relation to the organizations interest for learning (Senge, 1995).



## **Mental models**

Mental models are people's simplified versions of reality that impacts their ability to understand their environment and their knowledge about what is viewed as appropriate behaviour in a context. When the mental models are frequently applied they can become subconscious facts that direct people's behaviour and therefore are most people not aware of their mental models. This can be troublesome because the mental models can therefore impact people's ability to view things objectively, for example to see new technology merging. Of importance is therefore that people get to work with their mental models, review and challenge their own values and what they defend, to become aware of how they impact their behaviour (Senge, 1995).

## **Shared vision**

Shared vision is about how to transform individual ideas to a common vision for the entire company. To make this happen people need to create a visual picture of the future that is shared by, and appealing to, the majority of the people within the company. "Goals that are dictated by top management is not stimulating productivity" according to Senge (1995).

## **Team learning**

Team learning is about how people, with open minds, work together to collectively share insight, and through dialog learn together. Senge (1995) distinguishes dialog from discussion. He sees discussion as something during which opinions are thrown back and forth in a competition to win or lose, while the dialogue is more used for enlighten every one of the different possibilities. In team learning it is also important to detect patterns of defensive reactions that undermine cooperation and steers the group's behaviour. If the patterns are not detected the communication will deteriorate and finally the cooperation will die out. If the defensive patterns are detected and brought forward it can be very useful learning for the group. Most organizations are organized to learn in groups and if the groups are hindered to learn by defensive mechanisms then the organization will not learn either.

Additionally, the five disciplines affect each other in different ways. For example, without system thinking the powerful source for the vision, the conviction that the vision will be realized, will be lost (Senge,1995).

Senge (1995) views the five disciplines as vital building blocks that all need to be present at the same time for the Learning Organization to exist; it is not enough with just a few. In his book *the fifth discipline* he makes an analogy with an airplane, that there are some basic components that needs to co-exist to make it possible for an airplane to fly, and he claims that it is the same with learning organizations.

### **2.3.2 Garvin's five learning activities**

Garvin is another author within the branch learning organizations and he defines learning organizations as (1993,p11):

"A learning organization is an organization skilled at creating, acquiring, interoperating, transferring and retaining knowledge, and at purposefully modifying its behaviour to reflect new knowledge and insight."

According to Garvin (2000) the learning process consist of three parts, acquiring, interpret and applying information. During acquiring, information is gathered and new ideas created.

During interpreting the gathered information is sorted, filtered and classified and a gathered picture and meaning of the collected data is crystalized from the individual information. Then finally, the interpreted information is transformed into action and new behaviours are adopted.

Garvin (2000) describe that a lot of what has been written about organizational learning has mostly been on a high level and not practical enough for managers to be able to apply it in their organizations. Therefore Garvin has focused more on finding and describing practical activities that organizations can adapt and apply in their quest to develop their company into a learning organization. The five activities Garvin suggests are the following:

### **Systematic problem solving**

Systematic problem solving is about if the organization have a systematic way of diagnosing problems and not just use their gut feeling when making decisions. With other words, to base information used during decision-making on systematically gathered data and statistical analysis instead of just assumptions. Different analytical tools that can be used for this purpose are for example PDCA, Bono's six thinking hats or other management tools that are used to pool information. Systematic problem solving is also about identifying and surfacing underlying assumptions and be open to and include different viewpoints on the problem.

### **Experimentation**

Experimentation is a well-organized activity that involves systematic searching and testing of new knowledge and new ways of working to achieve incremental gains in knowledge. It is often an activity to test something that has the possibility, or aim, to be spread company wide. It is often sprung from an induced opportunity to expand the company's knowledge base or capability. According to Garvin(1993) there are two types of experimentation, it is either a part of an on-going program or an one-of-a-kind demonstrational project.

On-going experimental programs have the aim to continuously create a flow of new improvement ideas, which sometimes come from outside the organization. They usually also have a separate incentive system to favour risk-taking, because the benefits for taking risks need to be higher than the cost (Garvin, 2000). If using a separate incentive system, management need to receive training in how to evaluate experimental projects. Ideally the training is focused on a small set of techniques that are relevant to the employee's needs.

The demonstrational projects do usually consist of cross-functional teams that report directly to senior management. They are usually larger and more complex and they often have a more holistic perspective. Their aim is commonly to test something in a small scale, before introducing it companywide. Garvin expresses it like "They implicitly establish policy guidelines and decision rules for later projects. Managers must therefore be sensitive to the precedents they are setting and must send strong signals if they expect to establish new norms." (Garvin, 1993, p.6). Garvin (1993, p.6) also states that such projects "tend to have only limited impact on the organization if they are not accompanied by explicit strategies for transferring learning".

### **Learning from past experience**

To learn from past experiences is about how the organization works with reviewing previous success and failures in an objective and systematic way to identify important information

and distil it to lessons learned and record them in a suitable way. Originally said by IBM's legendary founder, Thomas Watson, and cited in Garvin (1993, p8) "A productive failure is one that leads to insight, understanding, and thus an addition to the commonly held wisdom of the organization. An unproductive success occurs when something goes well, but nobody knows how or why".

### **Learning from others**

Learning from others is about how the organization works with gathering knowledge and information from other external companies and other parts of the own organization, than just the closest environment, for example external companies from other industries, site visits, interviews etc. to generate ideas for improving the company's own practices. Another source is to observe how customers interact with the products to identify problems and generate new ideas. Garvin (1993) argues that it is important that all levels within the organization get to do this, from executives to shop floor employees. It is important because some needs can't be expressed by the customers explicitly and therefore needs to be observed. Garvin (1993, p9) describes it as "Learning organizations cultivate the art of open, attentive listening." and that "learning will only occur in a receptive environment" With this he means that criticism must be accepted and managers must listen to the uncomfortable truth of criticism.

### **Transferring knowledge**

Transferring knowledge is about how companies work with sharing/spreading knowledge to other parts of the organization fast and efficiently. It can be done in many different ways and through different mediums, written, orally, visual reports, site visits/tours rotation programs, training programs, and standardization programs, video clips etc.. Another way to do it is also by continuously mixing people with different skills and knowledge when composing teams for different assignments. What Garvin (2000) have found as a good practice, and is common for large multidivisional companies with many sites, is to have site tours to transfer knowledge. For the tours to be effective they should be adopted to the attendees/participants.

Also the incentive system needs to be adopted to ease knowledge sharing. Resources and time needs to be set aside to create a precondition where it is possible for people to do the work task correctly. For example when people are educated in certain thing they also need to get the opportunity to practice or apply it to work related activities in conjunction with the education taking place. Or another example is that time, for example meeting time, will be set aside when given a new or changed work task. To communicate what the new work task is good for is also of vital importance to create incentive for doing something, because if people see that what they do makes a difference it feeds their interest to participate. One example is to reward or acknowledge not only the best performing person or team but also those that have done most to improve their scores, because rewarding those that does most to improve will reward the willingness to change, and such effort will also contribute to spread knowledge and best practice throughout the company (Garvin, 2000). In many companies both learning and experience curves are used today to show performance but Garvin(1993) consider these to be incomplete and misleading because they use very limited performance measures, instead he suggest to use "half-life" curves because they can give any output measures.

According to Garvin (2000) integration of the five activities into the organizations daily operations, processes and systems will make them manage learning more effectively. However, to become a real Learning Organization it is also vital that a supportive learning environment exist. A supportive learning environment provides people with an atmosphere of psychological safety (Garvin, 2000).

### 3 Methodology

*The following chapter will describe the research approach used within this thesis. First it will present the overall process of the thesis. Secondly it will present the design and how the data was collected and analysed. Finally, the quality of the research is discussed in terms of trustworthiness.*

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#### 3.1 Research process

The study can be divided into three steps, preparation, empirical study and analysis. During the preparation the scope of the research was established along with the invitation to the interviewees and the interview questions. Also some literature related to management systems and organizational learning was researched to prepare for the empirical study.

Notable is also that the preoperational, empirical and partly the analysis of the study were conducted in collaboration with another university student, David Brevik from the Royal Institute of Technology in Stockholm, which to some degree have led to the report been influenced by each other's thoughts, even if the reports were written individually.

To grasp a better understanding for management systems the researcher attended a two-day workshop, as an observer. During the workshop different local management systems and DMS:s were presented and input to the new common management system was being collected. The workshop contained participants representing different entities and during the breaks the researcher had the possibility to speak to the participants and ask for contacts to potential employees suitable to interview for the study.

During the empirical step the internal and external interviews were held and afterwards transcribed. During the analysis phase the empirical data was analysed with help of the theoretical frameworks presented in chapter 2 and the important factors were synthesized through use of grounded theory.

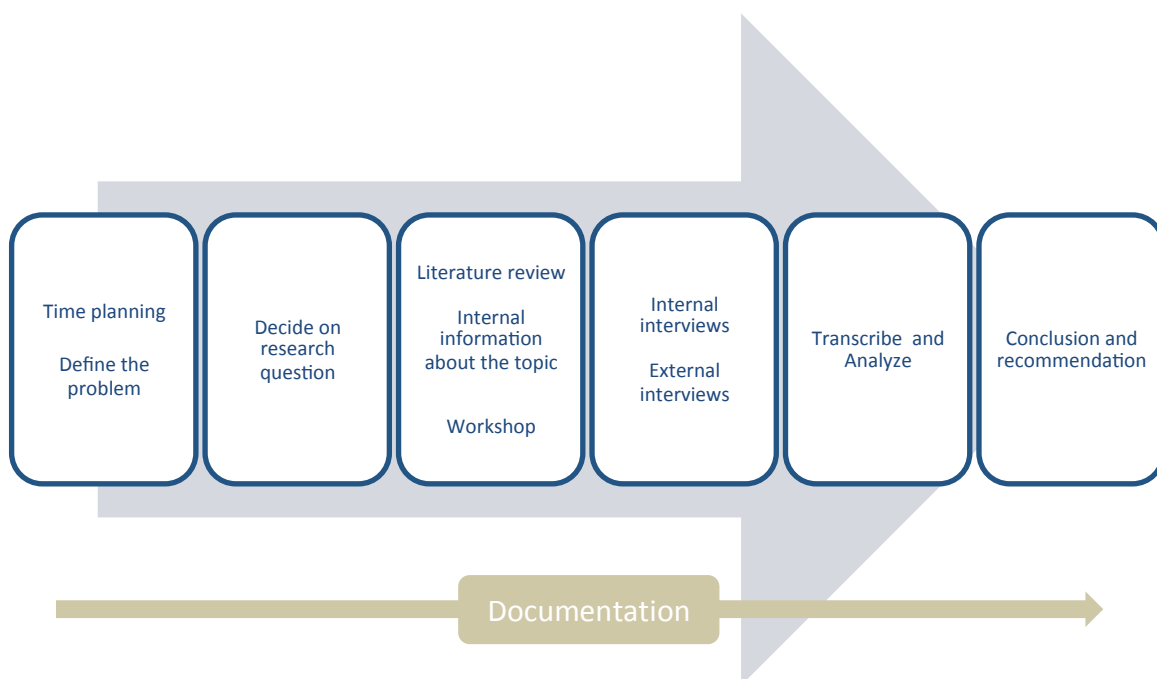


Figure 4: Illustration of this thesis research process

Figure 4 Illustration of this thesis research process

### 3.2 Research approach

The research approach used to conduct this study has been a qualitative explorative case study. It has been chosen to be qualitative because the goal is to get rich information over employees' relation and perception of a management system. That it is a case study is because the view of management systems is quite ambiguous and the management system is currently under development. This is in line with what Yin (2003) argues that case studies are a suitable approach when the phenomenon of interest is socially complex. However, the case study approach has been criticized by different researcher for the lack of systematic handling of collected data (Yin, 2003). To avoid none systematic handling of the data the information within the interview that belonged to the same subject area was pooled together to facilitate the possibility to compare the answer from different interviewees. When the pooling of the information was conducted also several iterations between the empirical data and the data presented in the report was done to ensure that the original data collected was mirrored correctly.

### 3.3 Data collection

The method used for data collection has been semi-structured interviews with 16 representatives from the case company and 4 persons from external companies. The sample of participants for the internal interviews consisted of a mix of people from different entities as well as hierarchical levels to get as representable sample of the case company as possible. Geographical spread of the participants were also kept in order to provide as accurate information as possible for a global management system. It was also decided to interview people who either are working with or in relation to the management system since those was assumed to have the highest exposure to what is said regarding the management system and thereby be able to provide the richest information. The length of the interviews was limited to 1,5h to not be too lengthy. The interviews were also kept confidential to ensure that the interviewee felt secure enough to share information unhindered. Additionally, to make the interview as comfortable as possible the interviewee were allowed to answer the questions in the language they preferred; Swedish or English. The interviewee's respective title is presented in the table 2 below.

Table 1 Overview of the internal interviews

Nr	Title	Interview Type
1	Director Operational Management System	Online
2	Business Process Developer	Face-to-Face
3	Process Developer	Online
4	Project Manager	Online
5	Management Systems & Corporate Security	Online
6	Process Developer	Online
7	Environmental Manager	Online
8	Director, Field Service Support	Online
9	Manager, Health Safety & Environment	Online
10	Director, Health, Safety & Environment	Online
11	Materials Controller	Online

12	Industrial Project Leader	Online
13	Environmental Manager	Online
14	Manager Business Control, Finance & Mark	Online
15	Customer Engineering Group Manager	Online
16	Management System Developer	Online

To gain a nuanced view on management systems and supply the case company with external knowledge also 4 external companies were interviewed. The external interviews were mainly focused on the company's management system and were conducted face-to-face and in Swedish. Company 1 was chosen upon recommendation by a consultant, specializing in management systems, who considered the company to have a good management system. Company 2 was chosen because it is a large company with global operations. Company 3 and 4 were chosen upon recommendation by an employee at Bureau Veritas, which is a globally leading company in testing, inspection and certification. Below in table 3 are the titles of the person interviewed at the different companies presented.

**Table 2 Overview of the titles of the external interviews**

Company	Participants Title
Company 1	Operational manager
Company 2	Senior Expert Assessment & Compliance
Company 3	Environmental Manager
Company 4	Quality & Environmental Manager

### 3.4 Data analysis

The data has been analysed with help of Garvin's five learning activities and the analytical framework for management systems presented in chapter 2. To use Garvin's five learning activities was decided because the company asked for practically oriented guidance. The analytical framework used was chosen because it was explicitly built on organizational theory combined with learning and change theory and it was pointed out by knowledgeable people within the field as a good framework to use. Since the framework for management systems are closely related with Senge's five disciplines it was seen sufficient to only use the management system framework as analytical tool.

### 3.5 Trustworthiness

In qualitative research studies the term trustworthiness can be used to describe validity and reliability (Lincoln and Guba, 1985). The concept of trustworthiness consists of four criteria, credibility, transferability, dependability and confirmability (Lincoln and Guba, 1985). To ensure high credibility the interviews were recorded and transcribed to ensure that vital pieces of information were not missed and it provided the possibility to return to the original data. The interviews were then coded on an A4 to make it possible to get an overview of the data and start the synthesis and later the analysis of the data. The transcribed interview was then also sent back to the interviewee to get verification that the interview had been

transcribed correctly. The findings can be seen as transferable to large multinational companies that are trying to move from having several locally developed management systems and DMS:s to develop one global. To ensure high confirmability the researcher repeatedly returned to the original data, audio recordings and transcripts, to ensure that the correct meaning has been captured.



## 4 Empirical Findings

*This chapter presents the empirical findings collected during the interviews. It begins with presenting the findings from the internal interviews at the case company followed by a summary of the external companies. The chapter ends with a summarizing table over factors that have been emphasized by the interviewees.*

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### 4.1 Internal interviews

The empirical findings from the internal interviews are presented in the tables below. The data has been kept as close to the original data as possible but is to some degree coded and compressed to be able to fit it into the table. The data presented is organized in relation to what the interviewees answered regarding the different subject areas. In appendix I a version of example questions that were asked can be found.

#### 4.1.1 Reflection

The following table will present what the internal interviewees responded when they were asked about if it is common to reflect over working procedures and how it is done.

**Table 3: Presents the interviewees comments regarding the subject area reflection**

Interview #	Answer
1,2,3	The question were not within the interview
4	No formal process for reflections that is regularly repeated. Solving problems are valued and not reflections. All our departments are working with continuous improvements, PDCA board in all departments. Reflections from the "white book" are made in order to provide better guidance for the next project.
5	It is part of our jobs to reflect and evaluate different actions.
6	No formal process but reflection is a natural part of our culture.
7	Not systematically. Reflections are made when something doesn't work as it should or when changes occur
8	No specific activities but when we speak about our processes and our way of working so are we trying to continuously questioning our way of working in order to improve.
9	No formal process. It is hard to find time for doing things, it is not prioritized to sit back and reflect. At other groups they might but I don't know if they have any process for it.
10	Reflection over procedures is done at least annually and whenever it is needed in-between.
11	Is working on creating a formal process. Reflection is usually done after certain tasks, for example audits.
12	No formal process. Mostly it is done when external and internal audits are scheduled
13	No formal process. Reviewing procedures is a part of ISO requirements so it happens throughout the year. Sometimes employees come up with ideas to improvement by reflecting over their way of working.
14	Initiated top-down and is a continuous focus within the organization. Reflections are done in group with 3-5 persons focusing on improvements of working methods and processes
15	No formal processes. We only follow our daily processes
16	Have structured processes with formal follow up procedures

By looking at the empirical data presented in the table above it can be noticed that reflection over the way of working varies between the persons being interviewed. The majority express that there is no formal process for reflection included in the way they work but that it sometimes occurs anyway, either because of an unexpected result or as tradition after audits or during improvement/Organizational development work. Some sees reflective activities as a natural part of their daily work while others express that it is not valued. A few have some form of structured processes for reflective work.

### 4.1.2 New ways of working

In the table below the answers describe how often the interviewees experiment with new ways of working and if there is a formal process for experimentation.

**Table 4: Presents the interviewees comments regarding the subject area new ways of working**

Interview #	Answer
1	No formal process. Mentions several company specific improvement philosophies/methods but no specific single formal one
2	No formal process
3	Is usually created through workshops and requirement analysis and open dialogs
4	No formal process but strategic objectives have stimulated new projects that influences the way of working. All departments are working with continuous improvements.
5	Is developed in a structured way through a program and is part of the management system
6	No formal process is specified. But new ways of working is usually created through workshops and brainstorming sessions within the small working groups.
7	No direct process exists for this. Forums for evaluate important environmental aspects
8	No specific process on a high/overall level. When something doesn't work as it should, the process starts to find a new way of working
9	Is working on a local level with company specific improvement philosophies/methods but does not have a specific single formal one
10	Once a year objectives are discussed which may include new ways of working
11	Is working on a local level with introducing a formal process for creating new ways of working which is a combination of two of the specific improvement philosophies/methods for the company. Issues and suggestions brought forward during group meetings are posted on a board, if it considered important to take action.
12	No formal process. It might occur new ways of working in connection to audits
13	No formal process. Every now and then new ways of working are tested and mostly it is because a change has to be made
14	No formal process. In good times, every now and then, new ways of working is tested
15	Not done very often, have some company specific improvement philosophies/methods that is used, but they are mostly used only for improving existing processes.
16	It occurs but is not something that is common in relation to management systems, it is more common within production. Operational Development (OD) is also a part of the document developing process. Every 14:th day is employees within production participating in OD activities.

The majority of the interviewees can't mention a specific formal process for creating new ways of working, however several of them mentions different organizational specific improvement philosophies/methods. There are two methods that seem very common and reoccurring, while another were very locally established and were not really mentioned in any other interview. During one interview also a combined version of the two company specific philosophies or methods were used. New ways of working also seem to be connected to occurrence of audits. The creation of new ways of working seems also to be done in different ways, through workshops, brainstorming sessions, open dialogs and meeting forums for example.

### 4.1.3 Learning from past experience

The following table presents how the interviewees group or unit work with lessons from past experiments.

**Table 5: Presents the interviewees comments regarding the subject area learning from past experience**

Interview #	Answer
1	Is relying on collective memory through combining key persons with diverse backgrounds into different teams
2	No comment.
3	We have a dedicated hour every second week during which we try to exchange experiences within our working group, to try to develop best practices
4	Reading “white book” from past projects when starting a new. Mixing people in project teams
5	Is relying on collective memory through composing cross functional teams
6	Don’t have much at the moment but are working on establishing a separate database for it
7	No formal process
8	No formal process. People know how things work and how it has worked in the past. However, the process documentation is not as structured as for the technical side
9	Is relying on collective memory through composing cross functional teams
10	When something happens, the good and bad about it is discussed but it is not gathered in some way
11	Is relying on collective memory through mixing persons with different skills and knowledge
12	Verbal discussion about what have worked and not worked previously
13	No formal process. It is all in the memory of the people
14	No formal process. But one learn by others experiences when working together
15	Through collective memory
16	Through either knowing what project there were and go and search in an “white book” or asking others through their personal network

To learn from past experiences most of the interviewees express that it is done through mixing people with different background and knowledge to gain diversity within the group. This strategy means that a lot of the knowledge is stored tacit. Some groups and entities also document lessons they learn in a written way and gather it after each project, though the storage of the documentation is not really coordinated or structured in a uniform way which makes it hard to back track at a later occasion. Only some parts of the organization gather learnings in a structured way, for example in a “white book”, though it is a bit unclear how much of the documented information within the “white books” that are reused for future guidance. Only one interviewee explicitly described that they go and look in the “white book” before a new project is started.

#### 4.1.4 External information gathering

The table below shows how information is gathered from outside the company and if there is a formal process for doing it.

**Table 6: Presents the interviewees comments regarding if and how information is gathered from outside the company**

Interview #	Answer
1	Work with external consultants sometimes
2	Doesn't look outside the company. Trying to organize in-house first
3	Performs benchmarking with other companies and have a formal process of global forums, but it is usually only on a high level
4	No formal process. By self-interest, employees can be in different forums outside the company and from those forums, gather and bring back external learnings if needed
5	Through benchmarking and participation in external forums
6	No formal process but do searches on internet to gather preoperational information
7	No formal process. By self-interest, employees can be in different forums outside the company and from those forums, gather and bring back external learnings if needed
8	No formal process. Customers do sometimes mention how other companies do certain things in a certain way to the company. Also sometimes benchmarks are conducted
9	Do benchmarking with other companies
10	Benchmarking both competitors and non-competitors on best practices through forums that meets up and discuss different topics
11	No formal process, express a lack of external connection
12	No comments
13	Via networks, contacts, and technical consultants gathering how other companies are working with different things
14	External gathered information is shared to the department internally
15	Some engineers might be active on a personal level with external association
16	Have just developed formal procedures for benchmarking with other companies

There seems to be very little formality when information is gathered from the external environment, only two interviewees mention that they have a formal process for it. When information is gathered it is often done through benchmarking. Other ways information and inspiration is gathered are through consultants, searches on the internet and through personal engagement in related associations outside work. One person also strongly wishes to have more interaction and dialogue with people that have similar position, to have a dialogue about how they organize different tasks, to exchange knowledge and best practices. Interestingly, customers were only mentioned by one of the interviewees as a source of external information.

### 4.1.5 Knowledge sharing

The two following tables contain empirical data that show how knowledge is shared within the organization. The first table presents how knowledge is shared within different entities and the second one describe how information is shared between different entities.

Within the organization

**Table 7: Presents the interviewees comments regarding how knowledge is shared within their entity**

Interview #	Answer
1	Forums, where persons with similar positions and are locally responsible at different sites can communicate with each other
2	No comment
3	Through different meetings
4	By "pulse meetings" which is an interaction between the projects and the production line and also through department and project meetings. Documentation is also gathered in the company specific share point solution, however it is done in a none structured way which makes documents hard to find.
5	Mainly done through discussion during council meetings
6	Shared during group meetings
7	By forums that meets quarterly. It contains department manager within the site
8	Discussions and no documentation.
9	They try to gather information at one spot but it is disconnected form the management system
10	Using company specific share point solution
11	They find this an issue but are composing teams of individuals with mixed skills and knowledge to manage it
12	Via e-mail, business magazines, and once a week company news are sent via e-mail
13	Referring to different databases and systems. Additionally via e-mail
14	Educational weeks in autumn and spring that is 1-2 weeks at each event for the whole entity
15	Knowledge is shared verbally from person to person but also through a local database and through "orientation" of new employees
16	Through regular meetings while discussing the "result plans" and through operation development organization but when it comes to management systems then it is the issuer's responsibility to spread it.

The findings show that knowledge and information can be shared in many different ways. The most common way to share knowledge within the entity seems to be through discussions during different meetings. Another common way is through e-mails. Other ways mentioned, only by a few, are the intranet and e-learning.

## Throughout the organization

**Table 8: Presents the interviewees comments regarding how knowledge is shared throughout the organization**

Interview #	Answer
1	Forums on different levels and with varying intensity
2	Starting to further develop a database for sharing where the organization can see “best practices” and apply it
3	There are several channels to share information, e-learning, meetings, intranet, and council meetings. There is also specific information letters regarding the management system.
4	The method A3 is used when different concepts needs a fast evaluation. The content on the A3 is a description of the problem, what alternatives and solutions exists. Further on, the A3 are stored, but it’s unclear if anyone ever looks at it in the future. Employees can also attend different fairs, and afterwards are reports created, including relevant information. The reports are then sent by e-mail throughout the organization. Some part of the information that affects different parts of the case company, it could also be published on the company’s intranet
5	through writing a book and demonstrational speeches.
6	Through different group meetings
7	Local systems, resulting in that knowledge are not shared to other sites. All sites and also departments operates as its own company. Knowledge is shared through different forums treating different issues, e.g. environmental committee with regular meetings
8	No comments
9	Through regional networks
10	Via different forums depending on field with representatives from all business units and areas within the organization, best practices from different sites is shared. Also some information and knowledge are shared via e-mail in form of a newspaper once a month. It exists for example safety alert, which is a form that has to be filled in via the company specific share point solution when an accident occurs. It contains e.g. root cause, and this safety alert are discussed in forums to share the learning
11	Does not exist, sometimes they get some information through management but it is rare. Describes it as something that is lacking and would like to have more exchange, especially about ISO
12	Via company news once a week. By department meetings and plant meetings
13	Via e-mail, meetings, and small training sessions. Energy people from different sites meets annually and share best practices
14	Via company’s intranet and through different networks
15	Information is shared with other sites in the same region and it is perceived very useful. Would also be interested if there were a possibility to share practices globally.
16	Through the intranet and through networks between production sites

To share knowledge throughout the company several interviewees express that it is done through regional- or national-wide forums/networks with participants representing different sites or regions where “best practices” are discussed. Some of the forums also have annual gatherings, which sometimes also are in person. Other have a more formal and documented way to gather knowledge and “best practices” that also sometimes is stored in a certain spot or database. The intranet is also sometimes used for knowledge sharing. At the same time there are also a few interviewees that either describes that they experience a lack in knowledge sharing or a wish that there would be a more global sharing of experiences.

### 4.1.6 Audits

In the table below data is presented about if and how information from internal and external audits is shared within the entity.

**Table 9: Presents the interviewees comments regarding if and how information regarding audits is shared**

Interview #	Answer
1,2,3	The question were not within the interview
4	No comment (miscommunication)
5	Yes, there is a structured process for audit handling and reporting
6	Receives very sparsely information through e-mails
7	No sharing between departments(sales, manufacturing, product development etc.). Silo thinking
8	Audits are always shared and discussed within management meetings on how it will affect the department since those persons are process owners and also during department meetings
9	Yes, results are shared with effected departments and “action plan” is created
10	Yes, it is commonly shared with help of emails to the persons having the corresponding position at other sites that are responsible for the area that are affected.
11	Yes, but the results are only shared in the management level
12	Yes it is shared
13	Yes it is shared to persons who can solve the occurred problems from the audits
14	Yes it is shared to employees that are affected by the audit. For example employees who are responsible or works within the affected process
15	Yes, audits are shared through e-mails from a higher manager
16	Yes it is within the same plant but sparsely shared to other sites

By looking at the table it can be seen that the result from the audits are usually shared in some way. The tendency is though that the results seem to be managed on the higher management level and that the result is then only directed directly to the affected departments. The audit process is also described as more formal. The result from different reviews or audits usually results in “action plans” which are later follow-up by management.

### 4.1.7 Training

In the table below training and educational activities that are offered within the different entities are presented.

**Table 10: Presents the interviewees comments regarding training and educational activities**

Interview #	Answer
1,2,3	The question were not within the interview
4	Twice a year, the HR function sets up educational weeks containing both internal as well as external lecturer. This is open for the whole organization to participate
5	Through their IT-tool and through common lectures for all employees
6	There exist both internal and external training
7	When new laws occurs. For new employees about the MS. Environmental issues in general and current and how the organization works with it.
8	The department together agrees on what it has to have training on depending on needs. The training session is a half-day per month
9	Training for new once is given "on the job"
10	When new laws occur and when gaps are identified at sites. In addition, once a year 2 topics on environmental and two topics of safety are addressed
11	Training in audit-report writing is done externally, the rest is done in-house
12	Yes, when changes are made, employees needs training
13	A 'knowledge matrix'. Regulatory-driven trainings
14	Educational weeks twice a year for the whole company
15	All the training is based on the current need and there is some specific for new employees
16	Training within several different areas exist

Training is commonly given to employees either at reoccurring dedicated training events that are pre-decided to occur about twice a year, or when a change in regulation or working procedures is introduced. Other times when training occurs is when new employees are introduced to the company. Some training that are made for developing specific knowledge and skills might be done externally.



### 4.1.8 Attitude towards failures and risk-taking

In the two following tables the attitude towards and view on risk-taking, failures and dissenting opinions are presented.

#### Risk-taking and failures

**Table 11: Presents the interviewees comments regarding the view on failures and risk-taking**

Interview #	Answer
1,2,3	The question were not within the interview
4	There does not exist any explicit incentive for risk-taking but some high- risk projects have been done under disguise. Many of them have delivered successful products and those who worked with them have gotten rewarded.  Regarding failures, the attitude is good. Doing a failure, one's will not lead to punishment. If a projects has for example failed by late delivering or too much cost, an evaluation will be made in order to see why things went wrong and how it could be prevented to happen again. This according to the interviewee, encourage employees to bring up problems of a project at "pulse meetings" to gain help
5	Failures are viewed as a natural part of changes and have to be accepted. They also have a bonus system as an incentive for bringing forward new ideas and stimulating new way of working.
6	No explicit incentives for risk-taking , perhaps a pat on the shoulder if you have done something extraordinary. There is no standardized way for handling failures but we have a very prestigeless culture and try to support each other, but it differs depending on where you are in the company.
7	Great attitude towards failures. Trying to make the best of the mistake in order to prevent it of happening again. Regarding failure; depending on what function you belong to risk taking is okay. It is okay taking risk in product development but not within environmental. No explicit incentives for risk taking
8	"Learning by doing mistakes". The attitude towards making mistakes is good. But if the consequence expected is costly then people have to take even more considerations and ask for help if needed. Employees should not feel that taking risk is a bad thing and individuals are not themselves responsible for the risk
9	Views risk-taking as a part of making changes
10	It is great and encourage thinking outside the box but there are not any explicit incentives for risk-taking and risks that might have a huge negatively impact on the business is not taken. One will not get punished when doing a failure
11	To take risks is considered part of the management job but individual decision-making is sometimes seen as a bit scary
12	No comments on risk taking. No one like failures
13	It is encouraged to take risk, however it has to be the best for the company. Many good things that have been done is by taking risks. Making mistakes is okay. Just try to solve it as much as possible and make the best out of it
14	There is open dialogues on what risks that are taken. Some risks do also need to be approved by different forums. There is no explicit incentives for risk-taking
15	Not afraid to take risks but emphasize that it has to be done with caution
16	Personally views failures as something that is not personally likable but something you can learn from.

The attitude regarding risk-taking and failures is very harmonized. More or less all respondents describe that carefully considered risk-taking is accepted and that if there is a failure they try to understand what went wrong from it. Some interviewees also say that there are no explicit incentives for risk-taking but one of the interviewees describe that projects that might have taken some risks can get rewarded afterwards if it was a successful result from taken the risk.

## Dissenting opinion

**Table 12: Presents the interviewees comments regarding how dissenting opinions are handled**

Interview #	Answer
1,2,3	The question were not within the interview
4	"High ceiling" and the people is encouraged to have dissenting opinions
5	It is open with presenting ones opinions and the opinions are discussed and compromised to come to a consensus
6	Everyone is allowed to share their opinion and even minorities can affect a decision
7	Dissenting opinions are presented and discussed in order to find pros and cons
8	Open atmosphere but sometimes people don't want to listen on the critique or feedback that was given back for the opinion
9	Dissenting opinions are presented and also minority's viewpoints are considered and can affect the final decision. Dissenting opinions can sometimes be raised to a higher managerial level for reaching decisions.
10	It is open with presenting ones opinions and the opinions are discussed and compromised to come to a consensus
11	Dissenting opinions are presented and also minority's viewpoints are considered and can affect the final decision. Sometimes some argumentation and pervasion is needed from the person with a dissenting opinion
12	Employees have the opportunity to speak up once a week at the department meeting and the people feel comfortable presenting their opinions
13	Dissenting opinions are not always presented even if people possess it
14	It is open with dissenting opinion within working group meetings, and not within the more formal meetings. All opinions are documented and a solution is based on pros and cons
15	Dissenting opinions are always going to exist and most of the time it is due to a misunderstanding which can be sorted out through co-workers help them to understand.
16	The question were not within the interview

Almost every one of the persons interviewed describe that people are free to express their opinion and in most cases people's opinions are considered even if they have a dissenting opinion. In some cases the person with a dissenting opinion has to present argumentation for his or her viewpoint. One person also describes that most dissenting opinions is due to a misunderstanding and that it is usually resolved through tentative listening and dialogue.

### 4.1.9 Creation of documents

The data presented in the table below describe how new documentation like policies and procedures are created within their unit.

**Table 13: Presents the interviewees comments regarding how new steering documents are created**

Interview #	Answer
1,2,3,4,5,6,7,8,9	The question were not within the interview
10	Discussion at quarterly safety meetings and further to HR Country Committee for decision. Everyone follows the procedures and documents
11	The directives usually come from upper management but the new process is developed by local teams. If it is introduction of new tools then it is important to get the local buy-in and make sure we understand the usefulness of the tool.
12	No comment
13	Many documents are created and changed due to regulations. People are following policies and procedures; however there are people sometimes that try to avoid the changes therefore it is very important to gain buy-in from the employees.
14	There is a policy, FPP (Finance, policies and procedures) that is used when new policies or procedures are created
15	New policies and procedures usually come from the top and are adapted on a local level. How well it is received depends a lot on how it is delivered and presented. It is important to get everyone's buy-in.
16	Policies are created globally and are then broken down to a local level but they can also be created on a local level and then anchored upwards in the chain of command.

Policies are commonly created on a global level and then reformulated or adopted on a local level to suit the operations. A few interviewees also stress that buy-in for a new policy or tool is very important. To get people to implement a new tool it is especially important to create an understanding for the usefulness of the tool and the possibility to impact the content of the policy or the design of the tool.

#### 4.1.10 Reach decision

The table below show how decisions are reached within the organization.

**Table 14: Presents the interviewees comments regarding how decisions are reached**

Interview #	Answer
1	Fact oriented decision-making, it is built on both numeric and verbal data
2,3	The question were not within the interview
4	Always trying to invite different people so that different views are brought forward and different solutions or opinions are quantified. The final decision is then made by the steering group.
5	Got a regular meeting structure. A lot of the decisions are made within the different councils where a sponsor from a higher level decision making team is present.
6	Have a collective decision-making during which they try to include everyone's opinion
7	Trying to gather different perspectives and opinions by different forums. But no systematic way for it. Final decisions are made in different forums depending on subject; investment board, product board, after sales, etc. with participants from the management
8	"High ceiling" where everyone participates in discussions within department meetings and weekly meetings. However, sometimes decisions are made fast since some problems need a fast solution and therefore there is no time for discussions. Decisions are also logged within team place
9	Fact oriented decision-making
10	Decisions are made within forums depending on subject. There are policies on what forum take what decision. Meetings are documented, through meeting maps, which covers the topics discussed and the reasoning behind the discussions.
11	They are trying to implement a simple template for structuring the decision-making process
12	Having general meetings and trying to find consensus
13	Dialogue and discussions with affected employees to decide what approach is the best suited
14	Open dialogue discussing pros and cons with all employees that are affected in order to reach a consensus
15	Is usually done through discussion to find common ground
16	Different opinions are captured and discussed diplomatically

Decisions are to a large degree taken collectively and are commonly consensus decisions. The most common way to reach a decision is through discussions. Some also describe that they try to keep the decision-making process as fact based as possible.

#### 4.1.11 Cultural differences

Other things that have only been spoken of by a few interviewees and indicate things that can possibly influence the ability for organizational learning are cultural differences. One employee describes that the knowledge sharing is sometimes limited or restricted depending on your position, because the hierarchy and power is valued and preserved by some and having information is seen as synonymous with power and authority which makes some people be reluctant to share information and knowledge with others, especially with people with a lower position/title.

Another interviewee also expresses that in some areas prestige can be in the way for organizational learning because failures and problems are sometimes depressed instead of brought forward.

#### 4.1.12 Description of a Management System

During the interview employees were asked about how they view a management system and in the table below their answers are presented.

**Table 15: Presents the interviewees comments regarding how the interviewees describe a management system**

Interview #	Answer
1	A management system is what keeps the company together so it can continuously produce products, it also creates stability within the company
2	"A powerful tool if it's used in a right way."
3	Where you find mandatory descriptions on how to work
4	"A system where you can create, maintain, and find different steering documents for its organization."
5	It is a framework for the organization to fulfil all tasks and objectives
6	It is something that is seen as mandatory, it describes how you should work and how things are interconnected
7	"A way of steering the organization by a set of identified working areas. It is a way of working and not the document itself"
8	"A management system should secure that one have steering and one way of working"
9	"It is a formal outline or structure over how things should be accomplished and continuously improved to make progress"
10	"A management system is important and gives a company control and governance of its organization"
11	A management system is a dynamic system that is always changing and developing and it should be incorporated into the company's daily business. It is about how you work with your customer, how you create an outcome and how you work as a team, it includes the whole system.
12	"It connect all the dots and helps the process to work in the system"
13	"It is like PDCA. You plan everything that should belong to the MS. Do, you document everything you do and then always checks everything you have done so that you are consistent with the procedures or work instruction. If you notice that this one does not match the work instruction or procedures, then you do the action so it will be the same"
14	"I see it as a quality system and it describes the organizational structure of the company, the decision-making structure and the process maps"
15	It is a library of procedures over the way of working. It is searchable if you need to find information. For us it contains our flowcharts and our way of working are there.
16	Everything that is done and needed to steer the company and its operations

The majority of the interviewees seem to have similar interpretation of what a management system is; descriptions and instructions over how a company operates. Some of the interviewees also see the management system as something that steers the organization while others sees it more as just something describing the agreed way of working. In addition, one person pointed out that the system has a dynamic characteristic, meaning that the content of the system changes and that the changes need to be incorporated into the daily business. Another person explicitly describes that a management system is more than just the documented part; it is a way of working. In general it seems as there are many different descriptions of what a management system is and the purpose with it.

### 4.1.13 Comments regarding the “DMS” from the interviewees

In the table below comments are presented regarding what the DMS is used for, if they find their DMS useful and helpful and what comments they hear from employees regarding the DMS.

**Table 16: Presents the interviewees comments regarding their DMS**

Interview #	
1	It is hard to find relevant information for a person that is related to a specific task or function/department.
2	It is difficult to find what you are looking for since there it exist several different DMS
3	Used as an encyclopaedias over how to work and how things are related within the company but it is hard to find relevant check-lists and templates.
4	The IT-tool works slow, has an unattractive interface, and badly updated information results in no one utilizes it
5	They find their IT-tool very helpful and useful. The site have a simple operational IT-tool for managing documents(process maps are also seen as documents), for example do they have flags, tick-mark symbols and coloured text sections to help with the navigation and to guide a person's attention to new information within a document. They also have the possibility to create personal shortcuts to different documents on their personalized front page of their operational IT-tool.
6	Depending on what you use it for, but today it is not updated enough
7	For me the DMS is useful but I don't believe that most of the people out in the line organization would not agree with me.
8	Employees perceive it as complicated and hard to find information that one needs within the “DMS”. Also badly updated information
9	Brings structure and formality for management
10	Complicated and difficult to find information that one needs within the IT-tool. Use a database/DMS with documents and work instructions, procedures, objectives, KPIs, policies, everything. It is mainly used by the sites employees. Every site has its own management system and certification.  Employees comments regarding the DMS is that it is difficult to find information that one needs within the IT-tool
11	Fragmented, not gathered in one place
12	Too look up process related documentation, descriptions over the way of working.  It is perceived useful by the interviewee but it is unclear if the line organization have the same opinion
13	We use the DMS/database with procedures, not the manual.  We have also had compliance manuals and they are handy for e.g. another person, to see how the compliance is and the requirements for the plants.
14	Since I have been at the same entity for a long time I don't look at it very often, but I know the DMS well. It is used to show how we work and the ambition is to help new employees to see their role in the system.
15	The DMS is a tool for the new employees to find our procedures, basically our way of working described in a process map. It is used for many different purposes, one example is training
16	By people who are seldom in contact with the IT-tool perceives it as complicated to use and that it is hard to navigate to relevant information.

Many of the interviewees mention that for employees it is hard to find relevant information that is needed in their daily work, mainly due to complexity in navigation. Moreover, once the information is found within the “DMS”, the information tends to be obsolete and hence the effectiveness of the “DMS” is low. In addition, one person also thinks that the “DMS” had a bad effectiveness due to unattractive interface. Furthermore, it is only one interview that stressed that the “DMS” is very helpful and useful in the daily operation.

#### 4.1.14 Benefits with a Management System or "DMS"

In the table below data over if the interviewees see any incentives or benefits with a management system or by using the DMS.

**Table 17: Presents the interviewees comments regarding incentives or benefits with a management system or the DMS**

Interview #	
1	Helps prioritize and allocate resources
3,16	The question were not within the interview
2,9	No comment
4,7,8,12	During discussions on how work should be done, one can pinpoint on the process maps to show how the work should be done
4,7,14	Good for new employees to learn about the organization.
5	That it contain most of the information needed for employees to do their job
6	Can reduce the amount of discussion about divergent views on how to work (for example during meetings) and creates a clarity regarding definitions
7,8,13	Useful at internal and external audits
7	If one is not sure what is included within ones role, it can be found in the "DMS"
10	A management system gives the way on how to conduct business, or it provides a framework for doing that
11	It create agreements between different stakeholders
14	Makes the company work much more equally and great to see ones different interfaces
15	Ensures that no important steps will be missed. It is used for many different purposes, one example is training

There is some diversity regarding the benefits with a management system. Some of the more common benefits are to minimize divergent views about how work activities should be conducted and be able to show how work has to be done with the help of process maps. A couple of the interviewees also think that management systems are beneficial when performing external and internal audits as well as facilitating an understanding for new employees about how the business operates. Moreover, it is also mentioned by one person that having a management system secures that no steps of importance will be missed. Another interviewee also mentioned that the benefit with having a management system results in that the company works much more equally.

### 4.1.15 How Employees can leave Feedback about the Management System

During the interview employees were asked about what employees can do if they have any opinions and input regarding the management system and their answers are presented in the table below.

**Table 18: Presents the interviewees comments regarding how employees can leave feedback about the Management system**

Interview #	
1	Have local contact persons that are administrative responsible for the management system
2	Contact the process manager
3,5	There are clear channels to do it both human and technical
4	There are nearly 100 persons that have access to change the documents within the digital tool. Employees having some consideration on or about the management system can contact those persons. However, these persons in average only change something once a year.
5	There are clear channels to do it both human and technical
6	There are clear channels to do it for some parts but not for all
7	Contacting the responsible but not so many comes with input
8,10,12	No comment
9	There is no formal way to give feedback directly on the management system but there are other ways to leave feedback on parts of the management system, for example by approaching a manager/supervisor, speak during meetings and by filling out a form available on boards at the plant
11	They can approach a manager or fill out a form
13	There is check sheets for managers to check environmental stuff monthly. It is gone through at meetings and also available on boards at the plant in order for employees to come up with improvements for the management system
14	Contact process owner and discuss the potential change
15	They can either bring it to their manager, supervisor or the one responsible for the management system
16	There are several ways to go, it can be done through speaking to local contact persons, managers, people within the department or e-mailing

Most of the interviewees describe that feedback on or about the management system, can be done by contacting their manager or supervisor, and in some cases also by contacting local persons responsible for the management system/"DMS". In two places there also exists a form available on boards, within the manufacturing plants, where improvement suggestions could be filled out. The forms are then later collected by persons responsible for the management system.

### 4.1.16 Important Factors and recommendations for a Management System

In the table below are the recommendations and what the interviewees have expressed as important factors are presented.



**Table 19: Presents the interviewees comments regarding what is important to consider when developing a new Management System and BMS**

Interview #	
1	Develop the system for the end-users and not the top management, to integrate all the demands/requirements and make it visual and gathered in one spot for the individual (educational/skill requirements ...). To clearly define roles and to have decentralized responsibility is very important, it has to be part of the daily operation it should not be some side business; that the "DMS" is regularly referred to for information about how to do things. It has to be easy to understand/navigate in (not only navigate through help of process maps). I think simplicity is one of the keys. To close old "DMS" are very important to not be able to go back to old habits. Want a global view, entity view, site view, functional view and personal view. Don't hide options behind rarely used buttons. Decide how simply documents should be created, update and taken away to not get inflation in controlling documentation. Find a way to mechanically/automatically capture and order/define metadata to display relevant information.
2	Make the MS for employees not for managers. Make transparency in the system so it shows every employees contribution to the overall strategy of the company. Have local and global setup. Involve employees. User friendly and simple design, Pictures. Colours. Buttons. Relevant information that creates value for employees. Updated information. Connect documents to processes. Have information in one place.
3	Information on the relevant level for an individual, the information is up-to date (because outdated information makes it unreliable), people need to see the usefulness with the system. Personal view (some work in several processes during a day). Break it down to instruction level. Clear responsibility. Make the system understandable (many systems are too complex and not built on real needs)
4	Updated information. The information in the system is badly updated and having irrelevant documents make the employees to choose another way of obtaining correct information, for example by asking its superior. When a document connected/appearing in several processes is changed, the effect of the change is not seen throughout the whole process. Not too many process levels (avoid complicated processes structures). Having less process levels makes it easier to maintain the system. Further on the system needs to work faster and have a more attractive interface. The initiative for a new MS has to be driven Top-down, there is no drive for doing it at the bottom. A DMS should contain things having a longer lifecycle than a project
5	To have a supporting IT-tool with dependencies between people and documents and decentralized responsibility for the "DMS", document controller in each area. Build/base the management system on an excellence model.
6	To have a more personalized view, include "usability people"= people who work with making systems user-friendly, practical and clear information. Good search possibilities with high accuracy/relevance in the "hits"
7	Information that need to be used, such as templates. The structure is important in order to get an overview and facilitate the search and navigation to relevant information. Updated documents. Don't make the "DMS" complex, have an adapted level of detail and the design needs to be simple and logic, not too cluttered. Make it easy to update documents
8	Need to make sure everybody know why a management system is in place and the usefulness with it. Simplicity. Also important to have updated documents.
9	To see the effect from changes reflected in the whole system. Make it possible to include several ISO standards so it creates synergies between them (environmental, quality, health and safety, energy...)
10	Simplify it as much as possible. Make it adapted to where it is going to be applied. Make it available for everyone, not just having it electronically
11	To integrate it into the everyday business. Involving employees to get understanding and buy-in for the system. Make it possible to swap information between sites
12	Management needs to understand it. Need to focus the management system to the end-users in order for those people to find necessary information that creates value. Quick links to things/documents you use. Change name from management system to something that does not sound as it is something just for management, for example managing for quality. One should not only find how to do things, but also be easy to find what you can't do.
13	Everyone needs to understand how they are getting value from the management system. Involve local key people in/during the development process and decision-making process. Make the new system compatible with all different ISO requirements. Make it adjustable to differences in national regulatory requirement. Would like links to the latest information, latest development reviews, emergency response plan
14	Need to make everyone understand the purpose with a management system. Simplicity and user friendly; easy and fast to find information that help ones daily work. Visualize ones position in the work flow on the process map and what other processes are interlinked with that process. Make the system more interactive in the daily work. Involve end-users and people with operational knowledge, otherwise it will just be a "desktop product"
15	It needs to be easy and fast to change/modify documents. Accessibility to working procedures with applicable level of detail on the description about how to do stuff.
16	Sharp search engine, user friendly layout and clever organization for documents that stretches over several processes

What is considered important when developing a new management system vary to some degree between the interviewees. Factors regarding the interface and functionality of the “DMS” as well as on organizational aspects in relation to the “DMS” can be seen as reoccurring. Two of the more frequently reoccurring organizational aspects, in relation to the “DMS”, are that the purpose with the “DMS” need to be understood throughout the organization and that everyone know how the “DMS” will add value to the company and be useful for employees. To get buy-in and to get people to feel affiliation to the system it is suggested by interviewees that the management system is developed with end-users in focus and not just the top management. That information in the “DMS” is sometimes obsolete and contains “broken links” are mentioned by several of the interviewees as a big problem. In order to overcome this obstacle, it was suggested that the update and creation of new documents has to be easy and that information only should and could be found as one version, and preferably in the “DMS”. Also decentralized responsibility has been highlighted as important to be able to handle all the documentation and keep it up-to-date.

In addition, it was found that to get more people to interact with the “DMS” it has to be developed with simplicity as the foundation. Consistency in the structure and graphical representation of the information contained in the “DMS” has repeatedly been pinpointed as important by the interviewees. Also it should not be too many process levels in order to easily get an overview and navigate to relevant information as well as easier keeping the information up-to-date. Additionally the user-friendliness of the system and its interface, in terms of colours, design and layout of pictures/symbols, and placement of buttons/icons is considered as important to get employees to interact more with the “DMS” and find it easier to navigate in.

What also is considered important is that the “DMS” is able to show different “views” of the information. According to the interviewees they would like to have a global view, where information is the same for the company all around the world. There should also exist a possibility to have a local/site specific view in order to cover e.g. regional or local requirements from different stakeholders and national regulation. In some cases also a “personal view” is desirable because some people tend to work in many different processes during a day and therefore want to be able to modify the view in the “DMS” to show all the different process. Others express that they want all documents or requirements that influence a certain activity or position to be connected to that certain activity or position, for example in a process map.

#### **4.1.17 Centrality of the management systems**

Another finding is that one of the interviewees describes a situation where management systems are considered a side business and not as something related to the organizations daily operations. Another interviewee also describe that the work with management systems are easily low prioritized.

## **4.2 External interviews**

The external interviews were conducted face-to-face. The interviewees were encouraged to speak openly about their management system and additional questions were sometimes asked to clarify or expand the description.

### **4.2.1 Company background**

The external companies consisted of three smaller ones, company 1, 3 and 4, and one larger global company, company 2. All the companies are profit driven part from company 1, which worked in the public sector. The participant's title can be seen in table 3, in chapter 3.

### **4.2.2 Structure and Content of a Management System**

All the companies had supporting "DMS" where they keep documentation of their management system. They all had a high level process map with management processes at the top, main processes in the middle and then support-processes at the bottom. At the smaller companies it was found that they usually have very few levels of process maps, only about 2-4 levels between first page and routine or instruction. At the large company they also had both a local and a global view of their "DMS" and it was integrated into the intranet. Company 1 and 2 also had tree-diagrams over their organization integrated in their "DMS".

### **4.2.3 Digital tool**

Orientation/navigation done at the smaller companies was commonly done through clicking on parts of process maps, while at the large company navigation in the "DMS" was done through clicking on different business areas and/or functions.

### **4.2.4 Updating document**

For updating documents the companies commonly had assigned owners for the documents. Some also had another person as a verifier or approver of the same document before it was released to ensure the correctness of what was written.

### **4.2.5 Employees interaction with the "DMS"**

All the companies describe that they have provided the possibility to access the "DMS", or a printed version of it, for all employees. Even if accessibility is provided one interviewee describes that some people might not go and look in the "DMS" for information because some people don't have an interest or drive to search in the "DMS" or it is hard to find relevant information or takes a lot of time to navigate. At the large company they describe that instead of trying to get people to interact with the "DMS" they have integrated the requirements of the management system into the way of working and tools already used. This is also the case at company 1, who continuously work with adding on and adjusting their "DMS", templates and handbooks to suit the operation/organization.

### **4.2.6 Important factors of a Management System**

Many of the external interviewees also express that the functionality and the graphical representation of the system, the interface, have a certain impact of the perception and utilization of the "DMS". Simplicity in the graphical layout was expressed as an important factor and that the outline of the instructions/routines has consistently the same headings could be observed in several of the companies. Several interviewees also speak about the ability to quickly find relevant information when searching in the "DMS" as important.

Additionally, to minimize and ease the maintenance of the system was also expressed as something to consider as an important factor to keep the system up-to-date.

Another thing, which was mentioned by several of the interviewees, was the importance of inclusion of employees during the development process of the "DMS", especially during the part of the process when agreements over the way of working are set. They considered it important to make employees feel affiliation to the system after the development finished. They expressed that participation during the development later increased the likelihood that employees will work according to what has been documented also after implementation of a "DMS".

#### **4.2.7 Additional findings**

At the large company they have a specific principle when new requirements are added, which is expressed, "reuse what can be reused". By utilizing the principle they distinguish the unique features of the new requirements and thereby minimize duplicate work in the system.

Something experienced by company 1 and that might be of interest to consider when developing a management system is that bottle-necks might occur between processes instead of functions, with a process oriented management system. Another thing, mentioned by company 4, is to weigh how much value different documenting activities bring to the company in relation to the time and effort it takes to accomplish, to decide how much is adequate.

The reason for having or originally developing the management system was formulated a bit differently for the different external companies. Some developed a management system to create a common way of working and not loose knowledge when a large amount of the employees retired, while the purpose for the larger company was to drive corporate culture and to ensure the company is managed, others created it more because of external demands.

At company 1 a very good practice of a bottom-up "strategy development process" was also found as an integrated part of their management system. It starts with that the company acquires information from the employees through an "idea-list" consisting of improvement suggestions related to different processes; that existed in their "DMS". Then once a year they gather all employees to interpret, evaluate and filter down the suggestions to only a handful that later were considered to be included in the annual operation plan. By doing this Company 1 pools the interests from all employees and creates a wide range of ideas. It also exposes the leaders within the organization to unfiltered data and it creates a shared vision about what the majority of the employees want to do. The ideas that were included in the annual plan ensured that the management had to act on it and it was a way for employees to influence the strategic direction of the company.

### 4.3 Aggregation of important factors

Looking at what factors and recommendations the internal and external interviews provided the following categorization and summarized tables have been aggregated. The aggregated factors have been divided into the two categories soft and hard factors. Where the soft factors presents the overall conceptual factors (Table 20) and is then followed by the hard factors presenting the design and technical factors more directly related to the “DMS” (Tabel 21).

**Table 20: Success factor regarding the concept of a management system**

<b>Soft Factors</b>
Organization need to communicate how a DMS is useful
Employee involvement
Develop the system for end-users and not just top management
Decentralized responsibility/ownership
Clearly define roles
Available for everyone and not just electronically
Has to be part of the daily operation and not a side business
Include relevant information that creates value for the employees

**Table 21: Success factors regarding the “DMS” of a management system**

<b>Hard factors</b>	
<b>Design</b>	<b>Technical functions</b>
User friendly – simple interface and easy to navigate	Easy to maintain - create, update and discard information/documents
Understandable –logic structure/deposition of the information in the “DMS”	Automated alerts – broken links, not updated documents, broken process connections etc.
Easy navigation & Overview – Few/adapted number of process levels	Accurate search engine & fast system
Attractive interface – colours, pictures/symbols, icons/buttons	When a document or process input/output is changed it has to automatically change everywhere it occurs
	Connect documents to process activities
	Different “views” (global, local (site), and personal view)

## 5 Analysis and Discussion

*This chapter presents the analysis and discussion of the empirical findings in relation to the theoretical framework. The chapter is divided into two parts. It begins with an analysis of the empirical data in relation to Garvin's five learning activities which is then followed by an analysis of the empirical data in relation to the management system framework presented in chapter 2.*

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### 5.1 Analysis of "DMS" using Garvin's five learning activities

The result regarding organizational learning shows that there is not very much structured/systematic work within this area at the case company, which Garvin (1993) emphasize as important. The exception is the described work with "white books", however only one person described that they actually used it for reflective work.

Generally within the case company there is an overall drive within the case company to improve, and a will to do better. A few "good practices" on a local level also stands out but they are mainly occurring due to individuals drive to improve the operational situation. However, this is not enough for a Learning Organization according to Garvin (2000). Garvin emphasizes that it is important that local knowledge is also collectively shared. Antonsson *et al.* (2007) also state that to create a "living" management system the company should connect the evaluating part of a management system to the improvement work within the organization. Applied to the case company this would for example mean that the audit work should be connected to the company specific development work, which seems to work separate today.

#### 5.1.1 Supportive learning environment

The most positive result derived from the empirical data is that the climate for learning seems to be generally good. People are free to express their thought and opinions and no one of the interviewees expressed that there are negative consequences if they do. However, the person presenting a different viewpoint will possibly need to present supporting information for the dissenting viewpoint to make his or her voice heard.

The empirical findings also show a consistency when it comes to the view on failures, mainly that failure happens and there is always something that can be learned from them. This is considered to be very good approach according to Garvin (2000), because it contributes to create a supportive learning environment. However exactly how the learning from a failure is collected and past on has not been captured within this study.

Furthermore the majority of the interviewees describe that they do not have a formal process for reflection, some state that it is a natural part of how they work, while other state that it is not highly valued. That there is some variation within the empirical data indicates that people within the company might view reflecting differently. Some might see reflective work similar to planning and while others might see it more as philosophical day dreaming. However, that reflective work is sometimes given low priority limits the ability to learn and improve the organization because it makes people rarely question the underlying assumptions to why practices and procedures are the way they are, which is something important to do according to Garvin (2000). To reflect on what governing variables there is to a certain consequence is also emphasized as important by Argyris and Schön(1996). That reflective activities are held after an action has been undertaken and the result has turned out to be dissatisfying is better than nothing but even better would be to also have reflective

activities before risky activities are held, to avoid dissatisfying results. Because according to Garvin (2000), actions without prior reflection makes people not do informed actions. Carty and Piper (2004) also describe that when tasks that demand high concentration is not done, it can be an indicator that the pace within the organization might be very high. If the pace is high and the work environment is filled with interrupting activities then it results in less time spent on planning, development and problem solving, which can be devastating for the company in the long run.

### **5.1.2 Systematic problem solving**

Systematic problem solving was pinpointed by Garvin (1993) as one of the important activities companies need to master to become a Learning Organization. At the case company meetings are a commonly reoccurring activity during which problem and different opinions are shared and discussed. When asked if there is a systematic way to bring divergent views or different opinions together during the meetings, so were the common answer that they usually discuss the subject until there is a collective agreement or elevates it to a higher management level if consensus can't be reached. Occasionally a visual tool might be used to display information but it is more if someone really wants to stress his or her opinion. Only two cases within the empirical data describe a model or practice they use to pool data for reaching a decision. Another interviewee described it as analytical tools are not commonly used during the meetings but are used individually. This indicates that analytical tools are used within the company but there is no analytical tool used to bring forward and converging divergent views during meetings. It indicates that systematically gathering, filtering and categorizing data might instead be done individually. According to Senge (1995) it is important that analytical work is done together in the team to achieve team learning and not just individual learning.

The facilitation of meetings and human interaction has a large impact on the learning environment according to Garvin (2000) and should be carefully managed. How meetings are held, discussion is directed, and what tools are used is important to create a constructive discussion and decision-making (Garvin, 2000). According to Garvin (2000) leading a constructive discussion requires a lot of leadership skill. One way the "DMS" could be helpful with increasing the systematic problem solving is by containing/providing different problem solving tools that can create structure during the meetings. One tool that was observed being used in the case company was Bono's six thinking hats. One of the interviewees also presented a systematic problem-solving tool that was under implementation at one of the local sites, consisting of a stage gate model and a few simple questions.

### **5.1.3 Experimentation**

The empirical data showed that there is no formal structure for creating new ways of working but that there exist company specific methods, tools and philosophies for incremental improvement work. From the empirical data can the implication therefore be drawn that people don't see the company specific improvement work as experimentation. If the company improvement work really is experimental work or not is therefore unclear but to have structured procedures for experimenting with new ways of working is beneficial to gain a deeper understanding for what factors really influence a result according to Garvin (2000).

The purpose with management system work, especially the work related to the DMS, is in general to get everyone to work equally and the purpose with experimentation is to do

something differently, which means that they are in contradiction to each other. So when developing a “DMS” it should be important to carefully consider what really needs to be equal and mandatory for everyone and what activities or processes that can be viewed more as guidelines and accepted to experiment with. In the literature the suggestion has been to keep the process map on a high level, so that people have local autonomy over how to do tasks and are not micromanaged (Carty and Piper, 2004) (Bergman and Klefsjö, 2010).

#### **5.1.4 Learning from past experience**

To learn from past experiences by reviewing previous success and failures has been emphasized by Garvin (1993) as one of the important things to do, and is something that the case company is actively working with to improve. Currently the company is relying a lot on employee’s collective memory and willingness to share knowledge and past experiences. To mitigate this some parts of the organization have adopted a very structured way to do this, through work with “white books”. But, when the documented material is commonly not gathered in one place and not always searchable makes it hard to backtrack. That information about result of previous projects does not exist in one place and have the same structure can be seen as limiting the learning from past experiences and knowledge sharing. Previous studies by Chen and Ghaedian (2012, p. 38) also shows that the work with “white books” does not always achieve their desired purpose “Project knowledge is encapsulated in white books and stays there” so consideration for how documented information should come to use, who it might benefit, is important to think of. A “DMS” could be of help here to create a single spot from where white books can be accessed.

How failures are reviewed is also very important for creating learning. Garvin (2000) emphasize that the aim of the review of failures are not allowed to be a “witch hunt” where there is a search for a “scapegoat”, the participants have to feel psychological safety otherwise they will not participate. Garvin (2000) also describe that by comparing extraordinary good projects with average projects can be a good source of learning. Therefore it could be of interest to include information or links from extraordinary good projects in the “DMS”, as a source of learning for other sites. In that way can a “DMS” be to a great help to learn from past experiences and to share lessons learned.

To create a “living” DMS is about continuously documenting learning and experience, from one selves or others, and then spread it to others. To connect for example audits reviews with the improvement process have been suggested by Antonsson *et al.* (2007) to be a good practice when trying to make a “DMS” more of a “living” system.

#### **5.1.5 Learning from others**

According to the empirical data the interviewees’ interaction with the case company’s external environment is relatively limited. But some benchmarking activities and participation in external forums or associations is performed within the company, and in some regions they occasionally have larger internal gatherings with site visits. Garvin (2000) views gathering information from outside the company as something important for an organizations success. However, a lot of the external interaction and site gatherings have been shown to be driven by engaged individuals. When activities are depending upon a few individuals engagement to occur they run the risk of ceasing to occur if people get another assignment and are moved. If the devoted individuals effort to sustain the interactions is not acknowledged and supported within the organization it runs the risk of ceasing to occur and learning opportunities are thereby lost (Allen, 1977).



To have certain learning activities formally described in the “DMS” can give permission to do a certain activity, for example benchmarking procedures, and at the same spot also have link to already conducted benchmarking reports can give inspiration and guidance on how to do it correctly. One interviewee describe that they have just included such an activity into their “DMS”.

### **5.1.6 Transferring knowledge**

To transfer knowledge the case company systematically use cross functional grouping, which is in line with Garvin’s (1993) view on how to share knowledge. Garvin also mentions several other ways knowledge can be shared (see chapter 2) but only a few of them were mentioned as used in the empirical data. That the company only exercises a few of the activities mentioned by Garvin (1993) makes the knowledge sharing a bit limited.

Transferring knowledge is mainly done through meetings and different forum activities. The majority of the information shared is done in smaller working groups. Some of these groups have sharing best practices as a bullet point on their agenda to ensure it not being missed.

In the empirical findings it was also found that some wish to have more contact with people from other regions or sites, which are working with similar things, to learn about best practices from each other. To share information collectively is one of the activities described by Garvin (2000) as important for a learning organization. One way to transfer knowledge and make the work around “DMS” more active is suggested by Nakajima (1988). The suggestion is that there is a standardized procedure over how the information should be spread when a group at a site has developed a new way of working. According to Nakajima (1988) the procedure is that when a new routine is developed it is documented in a report that is then summited to a national award process that evaluates the developed procedure and comes with improvement suggestions. If the group or site wins the price people from other sites and companies are then sponsored to come and visit the site. At the site they then get to see the procedure in practice as well as being presented to be able to have a dialogue regarding the procedure and thereby continuously develop the procedure by giving feedback. Through the visit they can pick up the parts of the procedure that they find suitable for their own operations and thereby is a more equal way of working spread. It is also a suggestion that combines several of Garvin’s learning activities, learning from past experiences, experimenting, knowledge sharing, learn from others etc.. Nakajima describes the procedure on a national level but it can be done on a corporate or departmental level as well. What contributes to make this learning activity effective is because it is standardized and that the documentation procedure is in the middle of the process (compared to “white books” that are done in the end) it also has a clear handover to people that might benefit from the knowledge gained. Additionally it also have a built in incentive system since a good routine attracts attention and gets rewarded and acknowledged.

## **5.2 Analysis of the “DMS” according to the management framework**

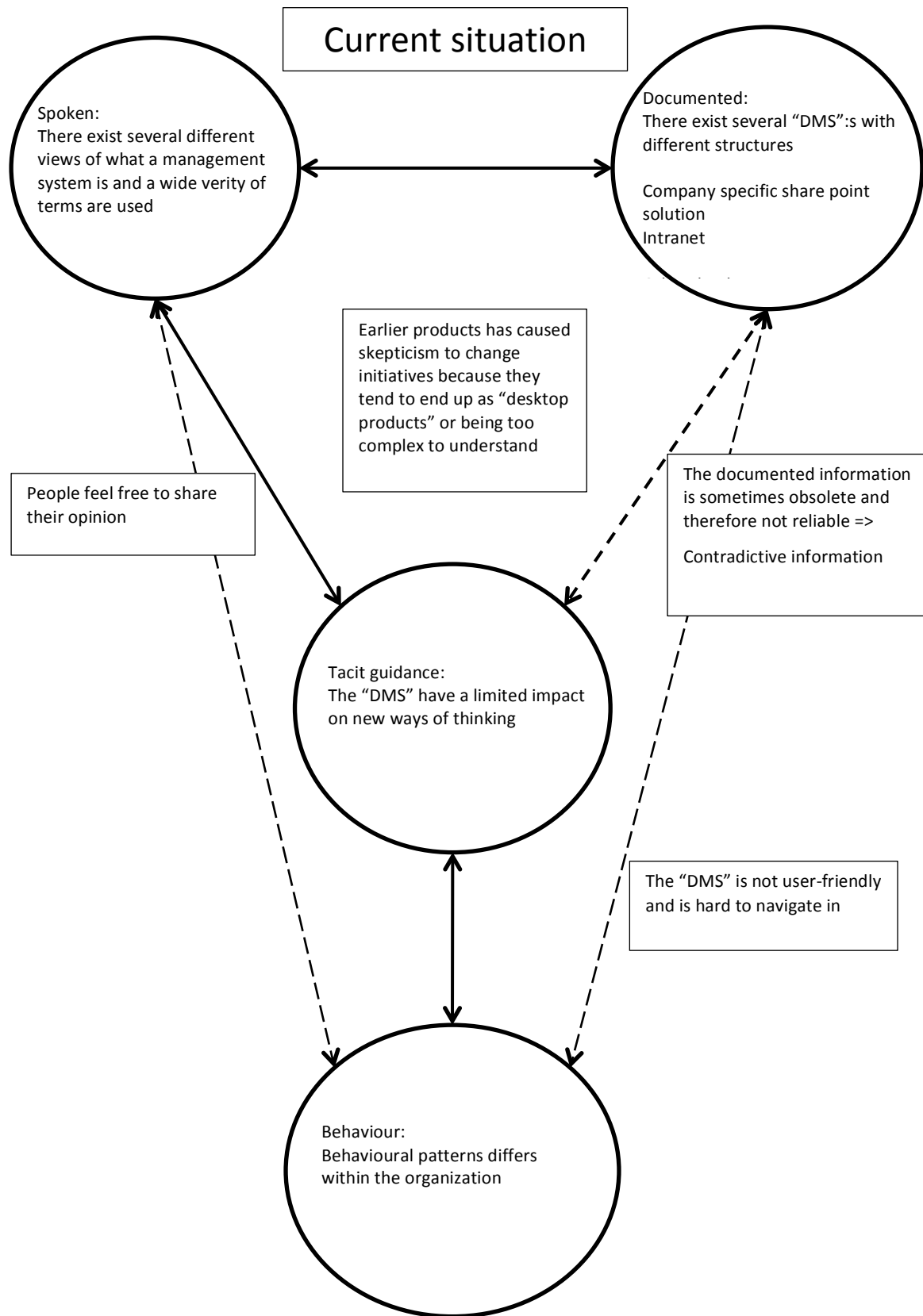
What can be analysed from the empirical findings is that the interface and functionality of the “DMS” is very important for the interviewees. This might not be too surprising since the documented part is the tangible part that is easy to observe and is partly the responsibility for many of the interviewees. Since many of the interviewees describe that employees see the “DMS” as the management system and as a library of procedures, it will be hard for employees to provide factors that are not related to the documented part of the system.

By looking at the empirical findings with help of the theoretical framework then the “DMS” is just seen as a small part of the whole management system. This is supported by some of the interviewees as well since they mention that how the new management system will be presented to them and how much involvement and possibility to impact the development of the “DMS” they will have is considered to have a large influence on the future interaction and utilization of the “DMS”. Something the following quotes indicate:

“I have experienced too many initiatives that has turned out as ‘desktop products’ [...] You have to include people who know the operations; otherwise it will just turn out as ‘desktop products’ “

“if they just dump a tool on us without getting our buy-in it will not work because we won’t understand it and try to avoid implementing it right away”

In the following section will the case company’s management system be analysed with help of the analytical framework presented in the earlier theoretical chapter (see figure 4).



Figur 5: The case company's management system analysed with help of the analytical framework presented in chapter 2

### 5.2.1 Spoken

According to the empirical findings the primary source of information sharing within the company is done verbally, through different kind of formal and informal meetings. That there is an acceptance for divergent views to be aired during the meetings strengthens the coupling between spoken and the tacit guidance according to the framework. With other words, there is a mutual exchange of learning between spoken and tacit guidance. However, the terminology used regarding management systems is not coherent within the company. This is not a surprise since the terminology has slowly developed locally but it easily creates confusion regarding the meaning of different terms and sends conflicting signals within the organization. To decrease the confusion for employees and to create a sustaining impact on the tacit guiding structure the terminology used verbally has to harmonize with the documented structure and the tacit guidance (Marmgren, Alänge, Book, 2012).

### 5.2.2 Documented

As described by Marmgren, Alänge and Book (2012) the documented structure is only one of the elements of a management system and subsequently the “DMS” is just one part of the documented element. In the case company also several other documentation tools/databases have been found competing with the “DMS” for attention and functionality. That there is several tools/databases also increase the risk for occurrence of conflicting information.

As the framework indicates so is the coupling between what is documented and behaviour commonly weak and at the case company it is even weaker as the following quote stress:

*“It is not very many who use the “DMS”[...] it is the persons that up-dates it and the person that are responsible who uses it, and those persons are commonly known among the employees, so the employees turn to those when they are wondering over something”*

To strengthen the coupling between documented and behaviour can be done in many ways and several good suggestions have been presented in the empirical data. One way to make the “DMS” be perceived as more useful is to make the “DMS” more user-friendly and easy to maintain. Another way to strengthen the coupling, and has been presented as important in the empirical data, is how the case company will choose to structure/disposition the information within the “DMS”. One presented reason for this is because it will possible have a large impact on how easy it will be to navigate within and get an overview of the “DMS” and is therefore very important to consider also from a learning perspective. According to the management system framework a “DMS” that is easy to use will also have a positive impact on the coupling between documented and behaviour.

The empirical data also shows that the content in the “DMS” is quite coherent between the different entities within the company; however the way the information is structured and graphically presented is widely varying. That the way the information is graphically presented differs between entities makes it hard to interpret and thereby demands a lot of effort to develop an understanding for. That it takes effort to develop an understanding weakens the coupling between documented and tacit guidance and thereby is the amount of learning occurring between the two elements lowered.

Another coupling that is indicated as quite weak within the case company is the coupling between documented and tacit guidance, as the following quote indicates:

*"We have not had directives previously, everything has just been guidelines [...] and if a decision is reached that you don't like you do as you want anyway"*

A quote from another interviewee reproducing a similar statement of how employees reasons regarding the "DMS" is:

*"well it might not be right what is written in there but it does not affect me"*

Since there is an indication that the coupling between documented and tacit guidance is weak it will be hard to influence the way people think through the "DMS" and to get people to influence the "DMS" back. Therefore it should be of great importance to strengthen the coupling between documented and tacit guidance. This should be done because from a learning perspective it is important that information within the "DMS" easily can be adjusted to accurately mirror reality. Otherwise the "DMS" will rapidly become obsolete and it will reinforce the current negative view of "DMS". One way to strengthen the coupling suggested in the empirical data is by having local representatives. One interviewee expressed the benefit with a local representative as:

*"in the local departments where they have a person with responsibility and authority to change the information within the "DMS" so is the information kept more up-to-date"*

To have a designated local person and decentralized responsibility can also be seen at some of the other entities and external companies where problem with keeping the information up-to-date is not considered to be a large problem. So to have closeness to someone responsible for the management system and whom employees feel comfortable to contact seems to help maintenance of the system. However, to have local responsibility and autonomy for everything could be questionable because the amount of content within the management system will be so large it can make it hard to navigate in and get an overview and understanding for the "DMS". Therefore will it be important to evaluate how the information in the system should be structured and what pieces whom should be responsible for to facilitate the balance between enough detailed and relevant information for individuals and at the same time easy navigation within the information. Because some describe that they wish for more detailed information while others think it is too detailed, which is something one of the interviewees expressed as:

*"It's getting too deep and detailed now, compared to before, and it is dangerous because it will be too detailed and complicated"*

The empirical data also highlight the maintenance of documents as something that needs to be well thought through. To create, modify and discard documents needs to be smooth and easy because otherwise they risk not being managed in the "DMS" and the consequence will be that the information will fast become obsolete. One suggestion presented in the empirical data concerning decentralized responsibility was:

*"One must carefully decide who will maintain the system. If it is imposed on a person in quality, it will lead to the system being seen as something only for the quality department. Instead, the responsibility should be delegated to the highest level in each group which should have ownership of the part that they contribute with to the manual."*

To have a decentralized responsibility for the "DMS" is also in line with Marmgren, Alänge and Book's (2012) framework since a decentralized responsibility will possibly support a faster and easier incorporation of information into the "DMS", which will strengthen the coupling to tacit guidance. For example if someone find a new improved way of working it is

important that the finding gets easily incorporated into the “DMS” because otherwise does the coupling between tacit guidance and the documented element risk being weakened due to incoherency.

### 5.2.3 Tacit guidance

A finding from the empirical study is that different interviewees present different perceptions of what a management system is. According to Senge (1995) it can be seen as they have different mental models that tacitly guide them. The majority however views a management system as the gathered documentation over how to work within the case company. Such a view is not in line with Marmgren, Alänge and Book's (2012) view of a management system, who views the management system as a system of interacting elements, where the documented just is one part. This is troublesome according to Marmgren, Alänge and Book (2012) because they see the tacit guidance as the part of the framework with the strongest influence on people's behaviour and is important to consider if a sustainable change is to be achieved.

Found in the empirical data is a tendency that the general employees don't feel affiliation to the “DMS” or part of the management system. As one interviewee describe the view of “DMS” encountered among employees within the company: *“employees see it as a silly documentation that needs to exist to make management satisfied, but no one cares about it”*. Another interviewee express employees view as *“it does not affect me”*. Why this perception exists is unclear but two other interviewees describe that it has to do with how the concept of management systems was first introduced into the company. One interviewee explains it as *“when it was introduced, one group had to manage it, and since it was the ISO standard for quality it automatically became a part of the quality group”* so it was seen as the quality department's responsibility. Another person describes that the view of management systems being a side business also has to do with the title *“the title management system makes everyone automatically say that it is for managers, they don't understand that it is our business [...] my managers looked at me very strangely when I told them how I see management systems, because they think it is something hanging up here and not part of the business”*. As the quotes indicate the view on management systems are that it is not something that is part of the daily operations.

In summary by looking at the case company through the lens of the management system framework it indicates that there are several weak couplings between the elements of the management system and that the company needs to work on several fronts to harmonize the different elements within the framework.

### 5.2.4 Training

To organize the training around normal activities that people do when they commonly interact with the “DMS”, is suggested by Söderström (2010) to be a good way to organize training for new it-systems. Also describing the idea behind the structure of the “DMS” and how it is intended to be used in an “example video” might be beneficial to increase the understanding for the usefulness of a management system.

## 6 Conclusion

*In this concluding chapter a summary of the study will be presented. It begins with providing an answer to the research question and is then followed by the studies academic contribution. It then ends with suggestions for further study.*

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Organizational learning activities within the company is relatively rare. The company mainly rely on mixing people with different skills and knowledge to create learning opportunities.

### **How can a management system and its related IT-tool be developed to stimulate and support learning within the organization?**

The “DMS” can be improved by providing tools for different learning activities, for example problem-solving tools during decision-making processes. It can also be improved by making learning activities explicitly described in the “DMS” instead of just spoken of. By explicitly describing learning activities it can also help to legitimate spending time on specific activities that are important for organizational learning but not really valued within the company, for example reflective activities.

Concluded from the study is also that there are several components that needs to co-exist for a management system to be perceived as useful. Two categories of influential factors were revealed during the study, hard and soft. The soft relating to the concept of a management system and the hard are factors related to the “DMS”. However for a change initiative to succeed it is also important that it corresponds with the logic of the existing management system to be successful.

The thesis contributes academically by providing two categories of factors that are important to take into consideration while developing a management system and have potential to impact on employees’ view of the management system and interaction with the “DMS”. The thesis also contributes by highlighting some of the obstacles that can exist in a large multinational organization when they move from having several local management systems to one global.

This study recommends that further study could be done about how to combine the centralized wish for overview and control over the companies organization/operations with local responsibility/ownership, that at the same time stimulates and support a spread of learning both bottom-up and throughout the company.

A second suggestion for further study is how the quality assurance of documents can be done easy, smoothly and fast to ensure that the information is kept up-to-date at the same time as the reliability of the content is secured.

A third suggestion could be on how or if it is possible to incorporate detailed documentation/descriptions in the “DMS” and at the same time making it easy to navigate and find relevant information and not get overwhelmed by irrelevant information.

A forth suggestion could be to closer investigating the two building blocks, “supportive learning environment” and “leadership” to see if they are supporting or hindering development within the organization towards becoming a learning organization.

## 7 Recommendation

*This chapter presents the recommendations for the case company based on the empirical data and literature findings.*

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When trying to create a very simple and user-friendly IT-system, for example like a “DMS”, the recommendation by Söderström (2010) is to involve an interaction designer and/or “usability” person, a person with knowledge about how to collect end-user needs on the system and can represent the end-users during the development of the interface and functionality of the “DMS”.

- Involve an interaction designer/“usability” person

In order to have a larger influence on the tacit guidance it is important to consider developing a coherent terminology and perception regarding management systems, which is harmonized with the documented part and is a close reflection of reality.

- Create coherency and harmonization

Another recommendation is to additionally also work extensively on sharing example of how documentation within a “DMS” can be of use. For example it can be useful as learning material during education/orientation as continuity for persons in new positions or as a base during discussions of improvements with other parts of the organization.

- Communicate and show the usefulness with a “DMS”

To achieve a higher degree of organizational learning a recommendation is to consider creating the possibility, for people at different sites, to easily see who has the corresponding role and working tasks at other sites or who to do handovers to, to easier get in contact and exchange experiences.

- Consider creating the possibility to see who got corresponding role and working task at another site or who to do handovers to

Cautiously consider how the information within the management system should be structured/organized and to what level of detail it should be because to easily get an overview of and navigation in the “DMS” at the same time as it is perceived as user-friendly and include relevant information for employees.

- Cautiously consider how the information within the “DMS” should be structured

Also carefully consider how the maintenance of the “DMS” should be organized to easily keep the information up-to-date at the same time as there is some type of quality control and structure of the information.

- Carefully consider the maintenance of the system



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## **Appendix I- Interview questions**

The interview questions were refined between the interviews but some representative questions are presented below.

### **Organizational learning**

1. Is it common to reflect on working procedures within your group? /Do you have activities for reflection and evaluation of different actions?
2. How often do you experiment with new ways of working?
3. How does your group work with lessons from past experiences?
4. Do you experience that information is gathered from outside the company?/How is information from sources outside the company collected and what is it used for?
5. How is knowledge shared within your unit/entity?
6. How is knowledge shared with other parts of the organization?
7. Is result from internal and external audits shared and reused within the entity?
8. Do you have education/training activities at your entity?
9. How would you describe the attitude towards risk taking is within your group?
10. How does your unit bring different opinions together to reach a decision?
11. How are new policies, procedures and norms created within your unit?
12. Please describe a situation when you presented a dissenting opinion?

### **Management systems**

1. How would you describe a management system?/ What is a MS according to you?
2. What do you use the MS(manual) for?/Do you see any incentives to use the management system manual?
3. If employees have any type of input on/about the MS, what can they do to make their voice heard and how is it done?
4. What do you think is important to make the MS (manual) be perceived as useful?
5. If you get the chance to redesign the MS, what would you change?
6. What recommendations would you like to give to the people developing the new MS?
7. Do you feel there is something more you would like to add to this interview?