Integrated Management Systems

- An Analysis of Best Practice in Danish Companies

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Jacob M. Rasmussen

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Environmental Management, Aalborg University

Aalborg University

The Faculty of Engineering, Science and Medicine

Department of Development and Planning

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Author:

Jacob M. Rasmussen

Supervisor:

Tine Herreborg Jørgensen

Examiner:

Kim Christiansen

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Synopsis:

This Master Thesis is an analysis of Best Practice in Danish companies in relation to integrated management systems.

Integrated management systems in this regard particularly refer to the integration of quality, environment and OH&S management systems.

Existing theories and integration models are analyzed and an analytical framework is developed that is used to establish the extent to which Danish companies integrate their different management systems.

Existing experiences in relation to IMS, both in a Danish and international context, are also analyzed.

IMS theories and models and existing experiences are used to guide a qualitative survey and quantitative case study conducted among Danish companies.

It is found that Danish companies to a large extent integrated their quality, environment and OH&S management systems, and that there are a number of benefits associated herewith.

Preface

This report is prepared during the 10th semester of the study program Environmental Management, in the Department of Development and Planning at Aalborg University, in the spring of 2007.

In this report the literature sources are prepared in accordance to the 15th edition of the Chicago manual of style. Conveniently provided are appendices A, B, C, D, E and F. Suitably, they are referred to in the text as supporting mechanisms.

I would like to say thanks to Uffe Pilgaard, Christopher Balle, Poul Dalsgaard and Kirsten Burfelt for providence of well informed interviews. Also, I would like to thank Tine Herregaard Jørgensen for her well intended opinion and comments throughout the making of this report.

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Jacob M. Rasmussen

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Introduction 1

This thesis seeks to analyze the concept of Integrated Management System (IMS) and analyze the use of IMS in particularly Danish companies. IMS is a relevant topic because it is a relatively new concept and the literature regarding IMS is very scarce, particularly in relation to a Danish context.

The concept of IMS entails the integration of different management systems which are implemented by organisations. As more and more management systems has emerged is has become increasingly relevant to discuss how these different management systems can be integrated.

This introduction will describe the background that has lead to the emergence of the concept of IMS. This introduction will consequently address the concept of management systems, outline the history of management systems in general, describe some of the most relevant and important management systems and describe the reasons why companies implement these different management systems. Finally, the importance of the concept IMS will be elaborated. This introduction will lead to a number of research questions that will be answered through the rest of the report.

1.1 Management Systems Standards

Management system standards are used in organisations to manage different aspects of organisations activities and services. There are many definitions of a management standard.

According the BSI (British Standardization Institute) a standard is '*An agreed way of doing something* (BSI 2005).

According to ISO (The International Organisation of Standadisation) a *'Management system standards provide the organization with a model to follow in setting up and operating the management system. This model incorporates the features on which experts in the field have reached a consensus as representing the international state of the art. A management system which follows the model - or "conforms to the standard" - is built on a firm foundation of state-of-the-art practices´* (ISO 2007c).

Also, according to DS (Dansk Standard) a standard is '*document for mutual and repeated use that provide rules, guidelines or distinctive features in relation to activities or the results of these activities. The document is established through consensus and approved by a recognized body. The intention of the document is to obtain order in a given context'.* [1] (Dansk Standard 2001).

BSI gives a very straightforward and concise definition of a standard that is well in line with the definitions given by respectively ISO and DS. A management system standard provides a systematic approach to manage organisations activities. ISO emphasises that a management system standard is built around *state-of-the-art practices,* and both ISO and DS emphasises that a standard is established through consensus. It is, furthermore, important to note that organisations implement management system standards on a voluntary basis.

It must be mentioned that there are many different kinds of standards and many different standardisation bodies. It will be too comprehensive to give a detailed account of the entire field. This can be found in Marshall (2006). In this context it is sufficient to state that this thesis address management system standard as apposed to product standards. As indicated by the names management system standards are standards for management systems, whereas product standards are standards for products.

1.2 The Evolution of Management System Standards

This section will outline the evolution of management system standards as well as describe the most important management systems standards.

[1] Translated from Danish.

1.2.1 Quality Management System Standards

The evolution of management standards began with quality management standards. The standards was developed because of organisations need to control the quality of their products as well as their need to establish systematic procedures to ensure quality in organisations different activities. The most used and best known management system standard today is the quality management standard ISO 9001. However, the first quality management standard was, according to most quality practitioners, the BS 5750 that was first published in 1979 (BSI 2004).

In 1987 ISO published the first edition of their quality management system standards; the ISO 9000:1987 series, which was based on the BS 5750. The second edition was the ISO 9000:1994 series that contained revisions that particularly should make the standard more users friendly in relation to service industries (BSI 2004).

The most current edition is the ISO 9000:2000 series. The ISO 9000:2000 series was a result of a major revision. The previous standards were criticized for being to bureaucratic and requiring to much documentation. The ISO 9000:2000 sought to address this criticism, and also emphasised the need to focus on customer requirements and continues improvements (BSI 2004). It must be noted that the ISO 9000:2000 series as well as the other editions of the standard contains a number of different standards that include guidelines and definitions etc. However, the important standard is the ISO 9001 which contains the requirements according to which organisations are certified. The core requirements include setting objectives and targets, performing measurements and corrective and preventive actions, controlling documents, reviewing the system etc. (ISO 2000).

The ISO 9001 have been hugely successful in terms of the number certificates issued. As of December 2005 777.608 certificates was issued in 161 different countries. The number of certificates issued in 2001 was 44.388 (ISO 2005). The number issued certificates have therefore increased by more than 1700% in 5 years. In Denmark 1219 certificates have been issued as of December 2005 (ISO 2005).

1.2.2 Environmental Management System Standards

Environmental management system standards have arisen due to increased environmental legislation, increased interest among stakeholders in relation to environmental issues, as well as organisations interest in achieving cost-reduction by reducing water and energy use etc. (Wilkinson and Dale 2002). The intention behind environmental management system standards is thus to provide organisations with a systematic method for managing activities, services and product development which have an environmental impact.

BSI was again the first standardisation body to publish an environmental management system standard; the BS 7750 which was published in 1992. However, the most used and best known environmental management system standard is also an ISO standard. The first environmental management system standard, the ISO 14000:1996 series was published in 1996, and the second edition was published in 2004. ISO 14001 is in many ways similar to ISO 9001 as the standards share many of the same requirements. This will be further addressed in chapter three. The changes from the first to the second editions of the ISO 14001 are small and have mostly to do with wording and not actual requirements. There have, for example, been established an improved coherence with ISO 9001:2000 (Jørgensen, Mellado and Remmen 2006). This will also be further addressed in chapter three.

The European Commission has also developed an environmental management system standard; The Eco-Management and Audit Scheme (EMAS). EMAS has also been published in two editions; an EMAS I and an EMAS II. The first edition was published in 1993 and the second in 2001. EMAS and ISO 14001 are similar but EMAS are more comprehensive compared to ISO 14001. EMAS, for example require an initial environmental review as well as public environmental statement (Jørgensen and Remmen 2005).

111.162 ISO 14001 certificates have been issued in 107 different countries, and 837 of these have been issued in Denmark (ISO 2005). The total number of ISO 14001 certificates are hence significantly lower than the number of ISO 9001 certificates. However, the number of ISO 9001 and ISO 14001 certificates in Denmark are similar. EMAS is developed by the European Commission and EMAS registered organisations are thus only found

within Europe. 5435 sites are EMAS registered overall and 261 are registered in Denmark (EMAS 2007).

1.2.3 OH&S Management System Standards

BSI was also the first to publish an occupational health and safety management system standard with the purpose of assisting organizations in addressing occupational health and safety risks. The British standard is called BS 8800 and was published in 1996. In 1999 the first edition of OHSAS 18001 was published. The OHSAS 18001 is based on the BS 8800, as well as other standards, and is formulated by international certifying bodies as well as national standard organisations. OHSAS 18001:1999 was followed by OHSAS 18001:2004 (Marshall 2006). It is relevant to note that the OHSAS 18001 have been developed to be compatible with ISO 9001 and ISO 14001 (Jørgensen, Mellado and Remmen 2006). More than 200 Danish companies are certified according to the OHSAS 18001 (Jørgensen 2006a).

ISO have not issued a standard on occupational health and safety. It has been officially discussed at two occasions but it has so far been rejected, and currently ISO have no plans in relation to developing an occupational health and safety standard (Jørgensen, Mellado and Remmen 2006).

1.2.4 Corporate Social Responsibility Standards

The ISO 9001, ISO 14001 and OHSAS 18001 are the predominant standards used in organisations today. Another increasingly relevant standard is the SA 8000 which is a corporate social responsibility standard. The SA 8000 was first published in 1997 and was developed by an organisation called Social Accountability International (SAI), which include labour unions, human rights organisations, academia, manufactures, certification firms etc. The standard is based on a number of ILO conventions, addressing issues such as child labour, discrimination, working hours, as well as international human rights standards including the United Nations Universal Declaration of Human Rights and the UN Convention on the Rights of the Child (SAI 2001). 1200 companies in 59 countries are certified according to SA 8000:2001, but only one Danish company is certified (SAI 2007).
It is worth mentioned that also ISO has decided to develop a corporate social responsibility standard, called ISO 26000, which is to be published in 2008. The standard, however, will

not contain requirements, and will organisations can therefore not be certified according to the standard. The standard will only serve as a guide (ISO 2006).

1.2.4 Other Management System Standards

There are many different standards that could be mentioned in this section. It will, however be too comprehensive to account for all and only few are relevant. Relevant standards, however, include the ISO 22000 on food safety management, the Danish standard, DS 2403 on Energy management, as well as the EFQM Excellence Model that address Total Quality Management. These standards will be further addressed in chapter three and five.

1.3 Integrated Management Systems

The previous section outlined the evolution of management system standards that began with quality management and now include a wide range of management aspects. Marshall (2006) states that a management system standards exists for virtually every aspects of management, and Karapetrovic (2003) writes about a '*world of mushrooming management system standards, where for each stakeholder there is at least one management system standard'*.

The increasing number of management system standards have brought forward the concept of integrated management systems that entails the integration of several individual management systems. The idea behind the concept of IMS is that an organisation, to the extent possible, can manage its operations through one integrated management systems instead of several individual management systems. The concept of IMS became relevant with the publication and adoption of ISO 14000, but has become increasingly relevant with the introduction of additional standards.

Several authors have advocated for integrating management systems including Karaerovic (2003) Wilkinson and Dale (2002), Hines (2002) Alexandrou (2005) Mackau (2003), Ahsen and Funck (2001) and Labodava (2004). However, the topic is still to a wide extent unexplored.

1.4 Research questions

This thesis will seek to contribute to the knowledge regarding IMS and a research question has thus been formulated. The research question is:

- *To what extent have Danish companies integrated their management systems and which benefits and barriers have they experienced?*

It is important to emphasis that this thesis seeks to analyze best practice regarding IMS in Danish companies and the benefits that can be achieved in this regard. IMS is a relatively new topic in companies and few studies have been made. An analysis of best practice can therefore be an indication of the future potential of IMS.

A number of associated research questions have been formulated to guide this thesis and. The associated research questions are:

- *What are integrated management systems?*
- *Which theories and models exists in relation to integrated management systems?*
- *What are the existing international experiences in relation to IMS?*
- *What are the existing Danish experiences in relation to IMS?*

Research Design 2

This chapter will provide a chapter by chapter overview and describe the data collection and research strategies used in this thesis. Also the meta-theoretical framework, upon which the report is based, will be briefly outlined.

2.1 Report structure

The structure of the report is shown in figure 2.1

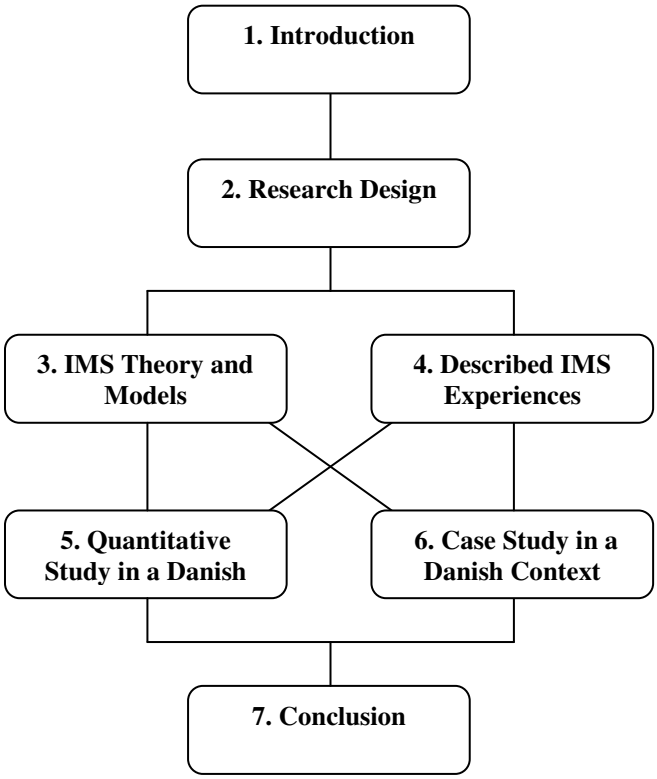


Figure 2.1 The report structur

The first two chapters in this report are, as shown in figure 2.1, the introduction and this description of the research design. Chapter 3 is an analysis of exiting IMS theory and IMS Models. The IMS models are theoretical descriptions of how organisations can integrate their management systems. An analytical framework, which is used to determine the extent to which organisations have integrated their management systems, is subsequently devel-

oped based on the IMS theory and IMS models. The analytical framework consists of a description of three different levels of integration and is used throughout the rest of the report.

In this respect it is necessary to clarify the concept of integration. When organisations implement a management system the organisations must integrate the system in the organisations activities. An environmental management system can, for example, be integrated in production, purchasing, product development, supplier assessments, communication etc. However, this from of integration will not be addressed in this report. This report focuses on how management systems standards are integrated and particularly how organisations integrate their different management systems. It must also be mentioned that Chapter 3 mainly address the integration of ISO 9001, ISO 14001 and OHSAS 18001 as these are the predominant standards described in the literature on IMS theory and IMS models.

Chapter 4 analyzes organisations experiences with IMS based on existing literature. The analytical framework developed in Chapter 3 is used to analyze both qualitative and quantitative studies that are conducted within both an international and Danish context.

The findings in Chapter 3 and Chapter 4 guide the quantitative study and the case study described in respectively Chapter 5 and Chapter 6. Chapter 5 analyzes experiences from Danish companies regarding IMS through a web-questionnaire, and Chapter 6 analyzes experiences regarding IMS from two Danish companies. Finally the conclusion is found in Chapter 7.

2.2 Data Collection

The data used in this report is collected through respectively literature studies, interviews and a web-questionnaire. This section will discuss the data collection methods used.

2.2.1 Literature

Chapter 3 and Chapter 4 are based on literature studies. Chapter 3 is based on literature regarding IMS theory and IMS models, and Chapter 4 is based on quantitative and qualitative studies regarding IMS conducted in both and international and a Danish context. IMS is a relative new scientific topic and the exiting literature is therefore limited. It has there-

fore been include almost all existing literature regarding IMS in the analysis. Thus, it can be argued that Chapter 3 and Chapter 4 to a wide extent reflect all existing knowledge regarding respectively IMS theory and models and IMS in organisations.

2.2.2 Interviews

A number of interviews have been conducted in relation to this thesis. See table 2.1

Interviewee	Possition
Christopher Balle	Division Manager at Dansk Standard
Uffe Pilgaard	Lead auditor at Det Norske Veritas
Poul Dalsgaard	VM-KL Manager at Hillerød Teknik Enterprise
Kirsten Burfelt	Quality manager at Sapa Profiles A/S

Table 2.1 People interviewed

Christopher Balle is a division manager at Dansk Standard and has been responsible for the development of the standard DS 8001:2005 which is an IMS guide. Uffe Pilgaard is Lead Auditor at Det Norske Veritas. Both Christopher Balle and Uffe Pilgaard have experiences within the field of IMS and are therefore relevant interviewees. The interviews are used throughout the report when relevant, to support or provide a perspective on the findings in the different chapters.

Poul Dalsgaard is the VM-KL Manager at Hillerød Teknik Enterprise and is thereby the manager of Hillerød Teknik Enterprises integrated management system. Kirsten Burfelt is the quality manager at Sapa Profiles A/S with overall responsibility for quality as well as environment and OH&S. The interviews are conducted as part of case studies of respectively Hillerød Teknik Enterprise and Sapa Profiles. Hillerød Teknik Enterprise is chosen as a case because they are, most likely, the only Danish company with a certified integrated management system. Sapa Profiles A/S is chosen as a case because this company is characterised as a company with a highly integrated management system by Uffe Pilgaard from Det Norske Veritas. The interviews are found in Appendix A,B,C and D respectively.

Interview Technique

The interviews were all semi-structured interviews. An interview guide was carefully prepared before the interview and this interview guide was generally adhered to. However,

when relevant additional questions were added in the course of the interview and irrelevant questions was subtracted. All interviews were, furthermore, recorded and subsequently transcribed.

Face to face interviews are generally preferable and three of the interviews were also conducted face to face. However, the interview with Christopher Balle was conducted by telephone because of the inconvenience of a face to face interview.

2.2.3 Web-questionnaire

The data used in Chapter 5 is collected through a web-questionnaire. See Appendix E. A web-questionnaire is chosen because it is easy to send a web-questionnaire, and it is easy to reply to a web-questionnaire compared to a traditional questionnaire.

The web-questionnaire is sent to 53 companies whereas 34 companies (64%) have completed the questionnaire. A response rate of 64% can be considered good for this type of survey. However, it must be noted that the survey is not comprehensive enough to serve as an authoritative, statistically significant study.

Identification of Companies

The companies included in the web-questionnaire survey has at least three certified management systems among the management systems listed below:

- ISO 9001 (Quality)
- ISO 14001 / EMAS (Environment)
- OHSAS 18001 / Bek. nr. 87 af 31/01/2005 (Occupational Health and Safety)
- ISO 22000 / DS 3027 (Food safety)
- DS 2403 (Energy)

Most of the companies in the survey are certified according to quality, environment and OH&S. The Bek. nr. 87 af 31/01/2005 is a Danish statutory order regarding OH&S which Danish companies can be certified according to. The Bek. nr. 87 af 31/01/2005 and OHSAS 18001 have the same status. The ISO 22000 is the replacement of DS 3027 which is

the Danish standard on food safety. Finally the DS 2403 is the Danish standard for energy management. ISO 22000, DS 3027 and DS 2403 are only implemented to a limited extend in Danish companies. However, they are implemented by a few companies and relevant to include in an IMS. Other standards could also have been included but only the above mentioned have practical significance.

The companies have been identified through certifying bodies. The tree main certifying bodies operating in Denmark are Det Norske Veritas (DNV), Dansk Standard (DS) and Bureau Veritas. DNV and DS have databases, available through the internet, where it is possible to get a list of all companies certified by the respective certifying body. It is also possible to extract information regarding which certificates the different companies have. The companies certified by Bureau Veritas have not been included in the study as their database of certified companies is not publicly available on the internet. See Appendix F for a list companies included in the study.

After the companies were identified each company were contacted by telephone to ensure that the web-questionnaire was sent to the employee responsible for the companies management systems, as well as to achieve a higher response rate. If an email survey is sent to the general company email address there is a potential risk that the email will not be forwarded, and there is also a risk that the email will be forwarded to the wrong employee. Also, it is likely that actually speaking to the employee that is supposed to complete the questionnaire will improve the response rate, because the employee likely will pay more attention to the questionnaire.

Best Practice

In the introduction it was made clear that this thesis is a study of best practice in relation to IMS. The study of best practice has some methodological implications in relation to the web-questionnaire.

To reflect best practice only companies which are certified according to three management systems or more are included in the study. It is assumed that best practice regarding IMS is found in companies that are certified according to three or more management systems. The

logic behind this assumption is that companies with three or more certified management system is assumed to have higher awareness regarding IMS, as well as stronger incentives to integrate their management systems than companies that are certified according to two or only one management system, or those not certified to any management systems at all.

However, in this regard it is important to note that a company can be certified according to two, one or zero management system and still have an IMS that includes quality management (QM), environmental management (EM), and occupational health and safety management (OH&SM) etc. The company can simply have chosen not to be certified according to the different management systems. However, following the logic presented in the above, it is fairly safe to assume that companies that are certified according to two, one or zero management system in general do not have a more developed IMS than companies which are certified according to three or more management systems. This means that the intention of the study - to study best practice - is achieved even though IMS is implemented in companies which are certified according to a fewer number of management systems or no management systems at all.

It is important to note that the study of best practice, on the other hand means, that this study does not reflect the implementation of IMS in Danish companies in general. It is also possible that there is a bias in the survey in relation to the type of companies included in the survey. In a survey it is generally preferable to obtain a representative sample. In a survey involving companies it is therefore preferable that the companies represent different types of businesses as this will provide for a more general conclusion. However, the companies in this survey have not been chosen to represent different businesses. Certain types of businesses are therefore potentially overrepresented in this study, the conclusion made on basis of the study potentially reflect this overrepresentation. However, as this is a study of best practice an overrepresentation of a certain business type will not be a significant problem. The interpretation of the survey results will determine if a bias is present.

2.3 Research Strategy

When conducting a study one can make an experiment, survey, case study, ethnographic study etc. The different kind of studies can be called research strategies (Marshall 2007).

This thesis is based on two research strategies, respectively survey and case study. The methodology of the research strategies applied will be discussed in the following.

2.3.1 The Qualitative survey

The web-questionnaire presented in the above can be characterised as a survey. Fink (1995) defines a survey as *'a system for collecting information to describe, compare or explain knowledge, attitudes and behaviour'*. The web-questionnaire in this report can be described in this manner. A survey is useful when the aim is to determine the characteristics of a large population (Marshall).

Many books have been written about surveys and how to conduct surveys. See for example Fink (1995). Most agree that the most important aspect of a survey is the questions asked. It is essential that a great deal of consideration go into the questionnaire design. The questions must be ideally be short, simple, clear, without difficult words etc. and the questionnaire itself must be logical in its design. The web-questionnaire in this report has been designed with the above in mind.

2.3.2 The Case study

The definition of a case-study is according to Yin (2003) *'A case study is an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident´.*

In relation to the case-study conducted as part of this thesis IMS can be viewed as the contemporary phenomenon while the company is its real-life context. It can also be argued that the boundaries between IMS and the company are not clearly evident.

The purpose of the case study is to achieve an indebt understanding of a particular issue. Case studies is advantageous when answering questions in relation to how and why, where surveys are advantageous when answering questions in relation to who, what, where and how many. However, case studies do not provide the same unambiguous results as surveys. Furthermore, compared to surveys, case studies do not provide the same opportunities to draw generalized conclusions (Yin 2003).

Yin (2003) distinguishes between three types of cases; the critical case, the extreme or unique case and the revealing case. Critical cases are advantageous when the purpose is to test established theories based on the logic 'if the theory holds for this case, it holds for all'. The extreme or unique case is advantageous when the purpose is to document a rare phenomenon, while the revealing case is advantageous when the purpose is achieve insight in previously unknown situations (Yin 2003).

Yin (2003) furthermore distinguishes between single and multiple case study. Yin (2003) argues that the more complex a subject is the more cases should be included in the study. Multiple cases will provide a more comprehensive understanding of an issue and will lead to a more general conclusion (Yin 2003).

A multiple case study is conducted in this report as two cases are analyzed. Furthermore, the case studies in this report can be considered to be extreme or unique as the purpose of this thesis is to analyze best practise in relation to IMS, and the cases are chosen in this context.

2.3.3 Data Triangulation

In relation to the research strategies it is found important to add a few comments in relation to data triangulation. Data triangulation refers to the use of different data collection methods within one study to ensure the validity of the data (Marshall 2007).

This study includes a survey and a case study, as well as interviews with a lead auditor and a division manager at Dansk Standard. This can be argued to be data triangulation as data is collected in different ways.

However, this report can also be criticised in relation to data triangulation as data triangulation is not present within the survey and case study itself. In the case study data is collected only through interviews, and only one person from each company is interviewed. Data triangulation involves that data is collected from several sources including additional interviews, observation etc. Also, data triangulation is not present in the survey as no alter-

native data collection method is used to achieve information in relation to the 34 companies that participated in the survey.

2.4 Meta-theoretical framework

It is found relevant to briefly discus the meta-theoretical framework upon which this thesis is based. Several philosophical positions exit within science. This thesis can be argued to be based on two different philosophical positions, namely positivism and phenomenology. The two positions are summarized in figure 2.2.

	Positivism	Phenomenology
Basic belief	The world is external and objective	The world is social constructed and subjective
	Observer is independent	Observer is part of what is observed
	Science is value-free	Science is driven by human interest
Researcher should	Focus on facts	Focus on meaning
	Look for causality and fundamental laws	Try to understand what is happening
	Reduce phenomena to simple elements	Look at the totality of each situation
	Formulate hypothesis and test them	Develop ideas through induction from data
Preferred method include	Operationalising concepts so that they can be measured	Using multiple methods to establish different views of phenomena
	Taking large samples	Small samples investigated in debt or over time

Table 2.2 Positivism and Phenomenology (Easterby-Smith, Thrope and Lowe 1996).

The survey, which is conducted through a web-questionnaire, can generally be related to positivism. The methodology of the web-questionnaire is generally in accordance with the characterisation of positivism which is shown in figure 2.2. The web-questionnaire focuses on facts, operationalize concepts so that they can be measured and include a large sample etc. The case study, on the other hand, can generally be related to phenomenology as the case study analyzes a small sample, focuses on meaning and understanding, as well as seek to analyze the totality of a situation.

The research question in this rapport is consequently answered by combining the positivistic and phenomenological approach. It is believed that a combined approach is advantageous in relation to generating generalizable conclusions.

Integrated Management System Models 3

This chapter presents an analysis of different theories and models in relation to the integration of specifically QMS, EMS and OHSMS. The analysis will be based on a model that describes the evolution of management systems. This chapter will consequently address the IMS Matrix model, the integration models based on respectively ISO 9001 and ISO 14001, the system approach, the total quality management approach and the single management standard. Finally, the chapter will develop an analytical framework that can be used in the subsequent chapters.

3.1 Integrating QMS, EMS and OHSMS

The term integrated management systems can cover a vide range of different management systems. However, the most common combination of systems in an IMS, found in the literature, are QMS, EMS and OHSMS. Therefore, as the above heading also suggests, this chapter will mainly focus on QMS, EMS and OHSMS. An IMS must not necessarily cover all three function-specific systems. One organisation can choose to integrate all three systems. One company can choose to focus on QMS and EMS, while another can choose to focus on QMS and OHSMS. An organisations IMS is determined by the type of organisations and its preferences. An IMS can also over issues like CSR, risk, and financial management. This is, however, rarely seen and is therefore not specifically addressed in this chapter.

3.1.1 The Management System Evolution Model

The literature presents different models on which to base the integration of management systems. The different integration models can be categorised according to Renfrew and Muir's (1998) management system evolution model which presents their view of the evolution of integrated management systems. By categorising the different integration models based on Renfrew and Muir's model the different models can be positioned in relation to each other and in relation to the general evolution in management systems (Wilkinson and

Dale, 1999). The model simplifies the actual evolution of management systems. In reality is the evolution of management systems more complicated and obscure. However the model is useful in order to create an overview of the different integration models. Renfrew and Muir's management system evolution model is summarized in figure 3.1

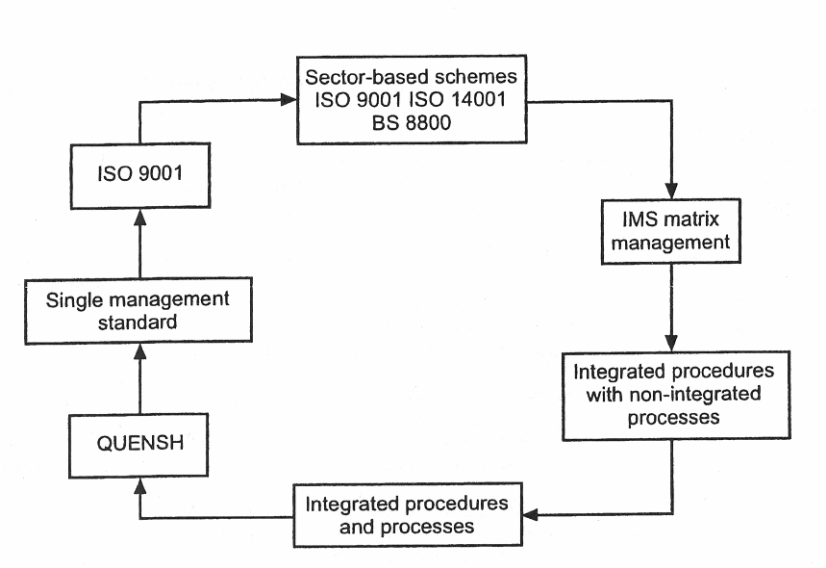


Figure 3.1. Renfrew and Muir's management system evolution model (Renfrew and Muir 1998).

As already described in the introduction the evolution of management systems begins with the introduction a quality management standard. Renfrew and Muir (1998) see ISO 9001, which was introduced in 1987 as the starting point for the evolution of IMS. Later other standard are introduced. These are sector based standard addressing different elements of an organisations activity. The standards are sector-based because the address a specific sector as quality or environment. To address the environmental performance of an organisation ISO 14001 was introduced in 1996, and to address the working environment of an organisation OHSAS 18001 was introduced in 1999. This is illustrated by the second box in figure 3.1

The first step in the evolution of integrated management systems are the introduction of the IMS matrix, which is illustrated by the third box in figure 3.1. The IMS Matrix establishes in which clauses of the different management systems similarities can be found.

The next two steps in the evolution of management systems are integration of procedures and processes respectively. It is important do distinguish between procedures and proc-

esses. Procedures are the documented guides to handle different activities in an organisation. The processes on the other hand are the actual activities taking place in an organisation. Integrating the procedures of different management systems is therefore a documentation issue, whereas integrating the different processes as a process issue. It is straightforward to integrate the documentation, but it is often less straightforward to integrate the processes. This is because that an organisations documented procedures not necessarily reflect the actual processes taking place in the organisations. This will be further elaborated when the different models are addressed

The next step is the introduction of what Renfrew and Muir call QUENSH (Quality Environment, Safety Health). QUENSH is seen as a single management system based on ISO 9001 as indicated by the arrow. Renfrew and Muir only provide little detail regarding QUENSH. It is, however, intended to promote strategic management of key business risks and can be based on business excellence models. The above was a short introduction to the management system evolution model. The following will be more specific analysis of the different theories and models that exist in relation to IMS.

3.2 IMS Matrix

The IMS Matrix is a table that shows which clauses of the different management systems correspond. Correspond in this case mean that the clauses in different management systems are largely congruent in requirements (Wilkinson and Dale, 1999). Different scholars have somewhat different views on which clauses in the different management systems that are largely congruent in requirements. These differences will, however, not be further addressed here. For and overview see Wilkinson and Dale (1999). For the purpose of this report it is sufficient to address congruent requirements as seen by ISO.

The IMS Matrixes can be found as appendixes to the actual standards. See Dansk standard (2000), Dansk Standard (2004) and BSI (1999). Table 3.1 is an extract of an IMS Matrix.

ISO 9001:2000		ISO 14001:2004	
Quality management system (title only)	4	4.	Environmental management system requirements
General requirements	4.1	4.1	General requirements
Documentation requirements (title only)	4.2		
General	4.2.1	4.4.4	Documentation
Quality manual	4.2.2		
Control of documents	4.2.3	4.4.5	Control of documents
Control of records	4.2.4	4.5.4	
Management responsibility (title only)	5		Control of records
Management commitment	5.1	4.2 4.1.1	Environmental policy Resources, roles, responsibility and authority

Table 3.1 Example of an IMS Matrix (Dansk Standard 2004).

In the IMS matrixes above it can for example be seen that there is a similarity between clause 4.2.3 in ISO 14001:2004 and clause 5.4.3 in ISO 9001:2000 as both address control of documents. The main purpose of the IMS matrix is to illustrate the different management system standards combinability (Dansk Standard 2004). The common elements of the standards, and thereby the illustration of their combinability, can be derived form the IMS Matrix.

3.2.1 The ISO Guide 72

The common elements between the standards can also be identified through ISO Guide 72. The intention behind the ISO Guide 72 is to set a framework for the development, reviewing and revising of management system standards to ensure compatibility and enhance alignment (ISO 2001). The ISO Guide 72 identifies a number of common elements that exists in management system standards, and recommends that these elements are included, and that the identified common structure is followed, when developing, reviewing and revising management system standards. Table 3.2 shows the common elements as identified in the ISO Guide 72.

Main subjects that are common to all MMSs	Common elements
Policy	Policy and principles
Planning	Identification of needs, requirements and analysis of critical issue Selection of significant issues to be addressed Setting of objectives and targets Identification of resources Identification of organizational structure, roles, responsibilities and authorities Planning of operational processes Contingency preparedness for foreseeable events
Implementation and operation	Operational control Management of human resources Management of other resources Documentation and its control Communication Relationship with suppliers and contractors
Performance assessments	Monitoring and measurements Analysis and handling of nonconformities System audits
Improvements	Corrective and preventive action Continual improvements
Management review	Management review

Table 3.2 Common management system standard elements as identified in the ISO Guide 72 (ISO 2001).

It is clear that the different ISO management systems have many common elements and a similar structure. It is important to realise that even though the elements are similar they are not identical. The management system standards do, for example, all contain an element of monitoring and measurements, but monitoring and measurement are different in ISO 9001, ISO 14001 and OHSAS 18001 respectively. In ISO 9001 monitoring and measurements could typically address tolerances in manufacturing. The monitoring and measurements in ISO 14001 could typically address resource consumption, whereas monitoring and measurements in OHSAS 18001 could address accidents or job satisfaction. According to ISO compatibility means that:

'the common elements can be implemented…without unnecessary duplication or the imposition of confliction requirement…it does not mean that the common elements of the standard need to be identical…' (ISO/TAG 12 1998).

The point here is that the different management system standards seem to be very similar when observing the IMS Matrixes and table 3.2. However, the common elements of the standards do cover very different activities in organisations, and the integration of management systems is not an easy task.

It must be mentioned that the newest edition of the ISO 9001, the ISO 9001:2000 was published before the ISO guide 72, and the ISO 9001:2000 is not entirely in accordance with table 3.1. See Dansk Standard (2000). Even though the OHSAS 18001 is not an ISO standard it is developed in accordance with the above table, as the OHSAS 18001 is based on the same structure and elements the ISO standards (Matias and Coelho 2002). In this respect it is important to note that there within ISO has been a continuous process to enhance the compatibility between the standards. Revisions and new additions of the different management standards have led to an increasing number of similarities between the standards. The ISO 9001:2000 have, for example, increased focus on continuous improvements, which is a fundamental element in ISO 14001. Likewise the new version of ISO 14001, the ISO 14001:2004, have been developed to improve coherence with ISO 9001:2000. (Jørgensen, Mellado and Remmen 2006).

3.2.2 The Practical Applications of the IMS Matrix

The practical application of the IMS Matrix in organisations is debated in academic circles. One view is that the links between the different standards are strong, and that the IMS matrix can be used to merge the different management systems (Beechner and Koch 1997, Puri 1996, Ahsen and Funck 2001). A different view is that fundamental differences between the standards exist and integration based the IMS Matrix is problematic. Hoyle (1996), Byrnes (1996), Shillito (1995) and Jarvis (1997) argue that cultural differences, business strategies and organisational change, must be taken into account when integrating management system standards. This will be further explored later in this chapter.

In this respect it is interesting that MacGregor Associates (2001) have shown that it is possible to distinguish between the concepts of integration and alignment:

- Alignment is seen as '*parallel management system standards specific to an individual discipline, but with a high degree of commonality of structure and content'*

- Integration is seen as *'a single top level management 'core' standard with optional modular supporting standards covering specific requirements'*.

When addressing the issue of the IMS Matrix it is important to distinguish between integration or alignment of management system standards, and integration or alignment of management systems. It is evident that the more elements the management system standards have in common, the easier it is for organisations to align the different management systems. This is because the common elements allow organisation to use common procedures the different standards. For example do both ISO 9001, ISO 14001 and OHSAS 18001 require a document control system. Few organisations would establish different document control systems to handle the documentation of the different management systems. Most organisations will only establish one document control system to handle all documentation in the entire organisation. The standards also require that procedures are established to handle corrective and preventive action. This requirement often results in comprehensive electronic corrective and preventive action systems. Again most organisations will not establish different systems because of different management systems; they will only establish one system. The common elements between the management system standards and the IMS Matrix will therefore enable alignment, but not necessarily integration.

It can therefore be argued that the main benefit of the IMS matrix is to illustrate the large potential for integrating the common elements between the different management systems. They are also relevant in relation to create further compatibility among the different standards.

3.3 Integrated Procedures

Integrated procedures are the second step in Renfrew and Muir's model. It is important to notice that this step only covers the integration of procedures and not the integration of the actual processes. This means that this step primarily addresses the documentation of the

system. When implementing a management system an organisation must document procedures as required by the respective standards. This documentation often exists in the form of management system handbooks, such as a quality handbook, an environmental management handbook or an occupational health and safety handbook. These handbooks can either be in electronic or physical form. Most often the documentation is in electronic. Integrating procedures consequently means merging three sets of documentation into only one set of documentation.

Integration of documentation is the next step after integration of common elements. The integration of documentation can also be based on the IMS Matrix, and thereby the IMS Matrix has another role in relation to implementing an IMS. The motive for integrating the procedures of the different management system is to reduce audit and administration cost (Wilkinson and Dale, 1999).

3.4 Integrated Procedures and Integrated Processes

The third step in Renfrew and Muir's model is integrated procedures and integrated processes, on contrary to only integrated procedures. In relation to MacGregor Associates concept of integration and alignment it is possible to argue that the previous have addressed the alignment concept, whereas the following will address the integration concept. The following consequently describe '*a single top level management 'core' standard with optional modular supporting standards covering specific requirements'*. MacGregor Associates (2001).

The literature describes three main approaches to integration of both procedures and processes:

- First approach is integration based on ISO 9001; see for example Beckmerhagen et al (2003), Karapetrovic & Wilborn (1998), Scipioni, Arena, Villa and Saccarola (2001), Ahsen and Funck (2001).

- Second approach is integration based on ISO 14001; see for example Beckmerhagen et al (2003), Karapetrovic & Wilborn (1998), Ahsen and Funck (2001).

- Third approach is Karapetrovic and Willborns system approach.

It must be mentioned that the three models can be integrated in two different ways. There is the 'step by step' integration and the 'greenfield' integration (Labodova 2004). The 'step by step' integration entails that an organisation already has implemented one management system and subsequently implement another management system. The second (and third) management system is thereby integrated into the already implemented management system based on one of the frameworks described below. The 'greenfield' integration entail that an organisation do not have any implemented management system. The management systems can thereby be integrated form the beginning. The 'step by step' and 'greenfield' approach applies not only to the three models described below; it applies to all integration models.

The following section will only provide an overview of the different integration models. For a more detailed presentation of the terms and processes mentioned please refer to the ISO 9001 and ISO 14001 standards.

3.4.1 Integration based on ISO 14001

ISO 14001 can form the basis of an IMS. This entails that the requirements in ISO 9001 and OHSAS 18001 are merged with the requirements in ISO 14001 based on the underlying model of ISO 14001.. A conceptual model based on the underlying model of ISO 14001 is presented in figure 3.2

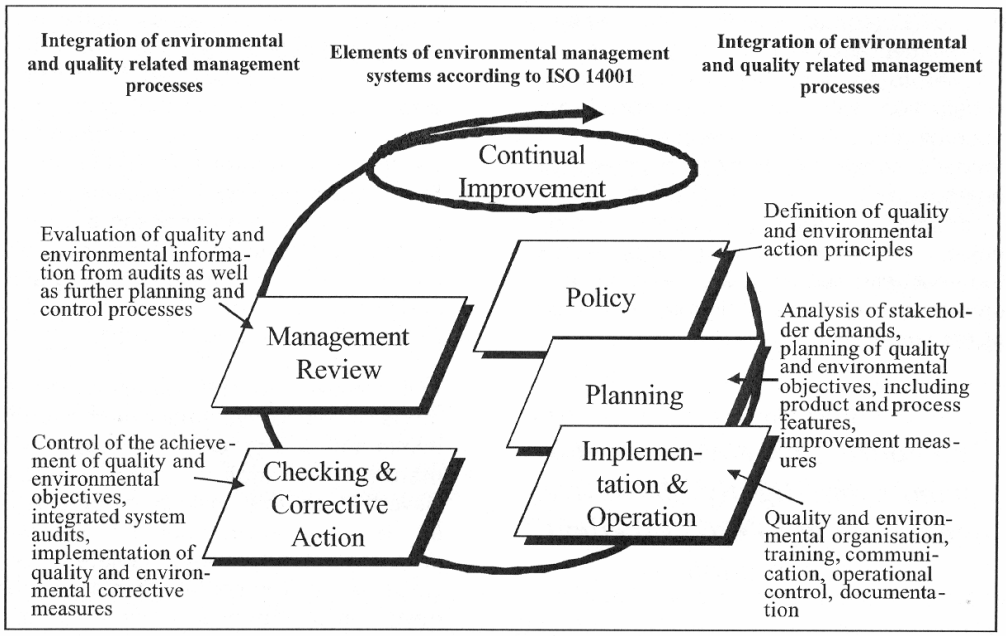


Figure 3.2 An integration model based on the underlying model of ISO 14001 (Integration of ISO 9001 and ISO 14001) (Ahsen and Funck 2001).

Environmental management as well as OH&SM is based on Demming's (1982) PDCA cycle. The PDCA cycle contains four steps, respectively Plan, Do, Check, Act. In the management standard this PDCA approach has resulted in five steps, respectively policy, planning, implementation and operation, corrective action and management review, which corresponds to the four stops in the PDCA cycle (Dansk Standard 2004). the PDCA cycle main advantage is that it keeps focus on continuous improvements.

3.4.2 Integration based on ISO 9001

Usually the different management systems are integrated using the 9001 requirements/model as organisations usually implement QMS before EMS or OHSMS (Mohd et al. 2005). This entails that the requirements of ISO 14001 and OHSAS 18001 is merged with the requirements in ISO 9001 based on the underlying model of ISO 9001. A conceptual model based on the underlying model of ISO 14001 is presented in figure 3.3.

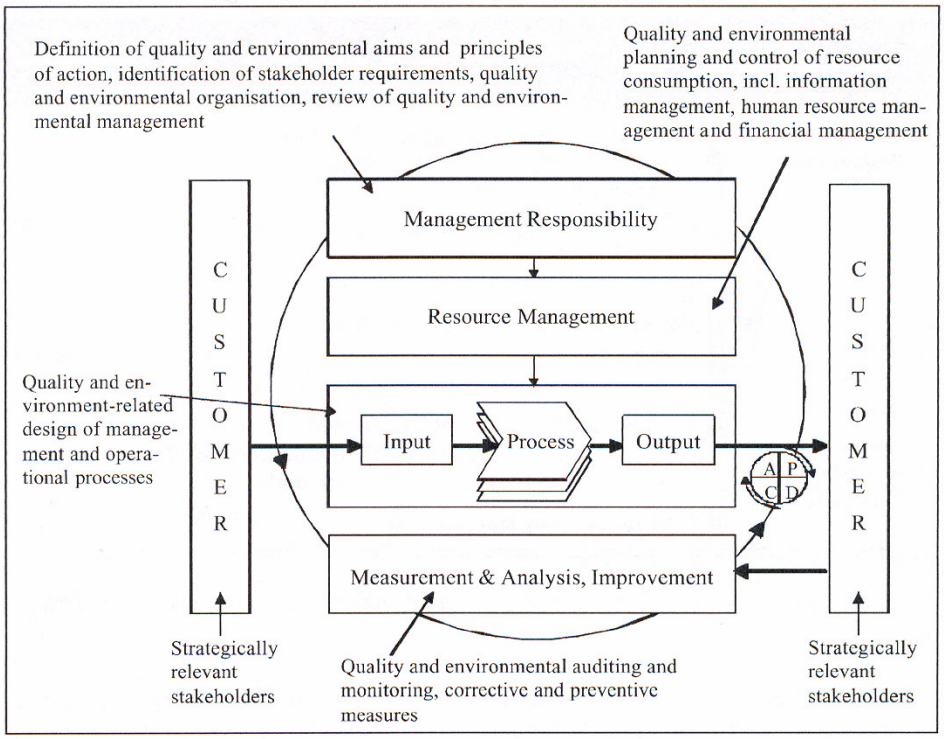


Figure 3.3 An integration model based on the underlying model of ISO 9001 (Integration of ISO 9001 and ISO 14001) (Ahsen and Funck 2001).

As shown in figure 3.3 quality management is based on the process approach. The process approach view an organisation as a number of processes which are designed to provide services, or produce products that satisfy customer needs. The ISO 9001 therefore has a product realisation element which contains requirements directed towards the different processes in an organisation that relates directly to product realisation. The product realisation process is based on customer requirements in both the input and output stage. There are furthermore requirements directed towards activities supporting product realisation; respectively management responsibility, resource management and measurement, analysis & improvement. (Dansk Standard 2000). The main advantage in the process approach is the clarity achieved through the systematic description of all departments, processes and their interrelation in the organisation (Alexandrou 2005).

Christopher Balle from Dansk Standard also talks about processes in relation to IMS implementation. An organisation must not be viewed as separate departments. An organisation must by viewed as a number of processes. When implementing and IMS an organisation must identify stakeholder requirements. The organisations core processes must then be

identified and the stakeholders requirements must be addressed in the core processes. It is then of no relevance whether the requirements have do to with quality, environment or OH&S (Balle 2007).

3.4.3 The System Approach

The system approach to integrated management systems is developed by Karapetrovic and Willborn (Karapetrovic and Willborn 1998; and Karapetrovic 2003). A less quoted, but similar approach to IMS has also been developed by Hortensius et al (n.d.). The intention behind the system approach is to overcome two differences among the standards; the differences between the standards underlying models, and the differences between the standards general elements and standard-specific requirements.

As described in the previous environmental management, as well as OH&SM, is based on PDCA cycle, where quality management is based on the process approach. Even though the different standards have increasingly been aligned, there is still a difference in the underlying models. Simply put, one can say that the process approach applies to many processes in an organisation, whereas the PDCA approach applies to one process which are continuously improved. Karapetrovic (2003) argue that it is problematic to use the process approach and the PDCA cycle individually because of the divergent objectives, and suggest that the two different approaches are combined. This combined approach is called the system approach. This approach is conceptualised in figure 3.5

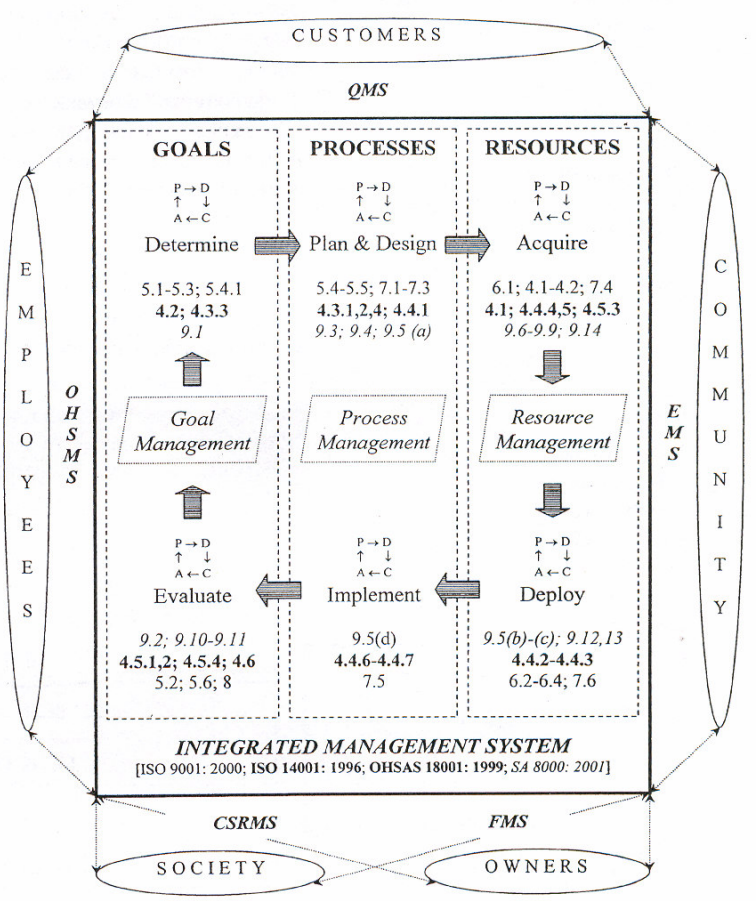


Figure 3.4 An integration model based on the system approach (Karapetrovic 2003).

Figure 3.4 shows the model for an IMS that are based on the two different underlying models. The outline of the figure shows the scope of the IMS which is customers, community, owners, society, and employees. The scope corresponds to the management system included, which are QMS, EMS, FMS, CSRMS and OHSMS. Karapetrovic (2003) has thereby chosen to include a CSR management system as well as a financial management system (FMS). However, where a CSRMS is included in the form of SA 8000, no management system standard seem to address the FMS. The included management system standards are shown in the bottom of the figure. It must be mentioned that an organisation should include the management systems it find relevant, not necessarily all the management systems.

The interior of the figure shows six major processes which are related to three types of management. That is *Determine* and *Evaluate* that relate to *Goal Management*. *Plan* and *Design* as well as *Implement* that relates to *Process Management*. *Acquire* and *Deploy* that

relates to *Resource Management*. Each of these six processes is then indented to be continuously improved based on the PDCA cycle.

The numbers in the figure represents the clauses in the different management system standards, and the different clauses are placed in one of the six mayor processes. According to Karapetrovic (2003) the goal management process *Determine*, corresponds to the clauses regarding *Policy*, *Objectives* and *Targets* in the different management standards. *Policy* is addressed in clause 5.3, 4.2, 4.2, and 9.1 of ISO 9001, ISO 14001, OHSAS 18001 and SA 8000 respectively. Objectives are addressed in clause 5.4.1, 4.3.3 and 4.3.3 in ISO 9001, ISO 14001, OHSAS 18001 respectively. There is no clause regarding objectives in SA 8000. Also, only ISO 14001 address targets. Karapetrovic (2003) argue that requirements that are common to all standards should be integrated first. Then, the broader requirements specific to only one or more standards should be integrated. This means that, because the environmental management standard requires targets, the IMS should contain targets also for quality and OH&S, even though is not a requirement in the respective standards. Finally, the standard-specific requirements could be included as separate modules, or integrated in one of the six major elements in the IMS.

3.5 The Total Quality Management Approach

According to model of management evolution by Renfrew and Muir this subsection should have been called QUENSH which stand for Quality, Environment, Safety and Health. Only little detail is provides regarding QUENSH, but Renfrew and Muir see the QUENSH management system as a single system, intended to promote strategic management of key business risks and based on ISO 9001. The literature does not specifically refer to a QUENSH management system. It can be argued, however, that an IMS based on Total Quality Management (TQM) can be seen as a QUENSH management system as TQM focuses on strategic management.

The concept of TQM originated in the 1980's and many companies have experimented with the management ideas found in TQM. Some of the key elements which constitute the concept of current TQM are found in figure 3.5.

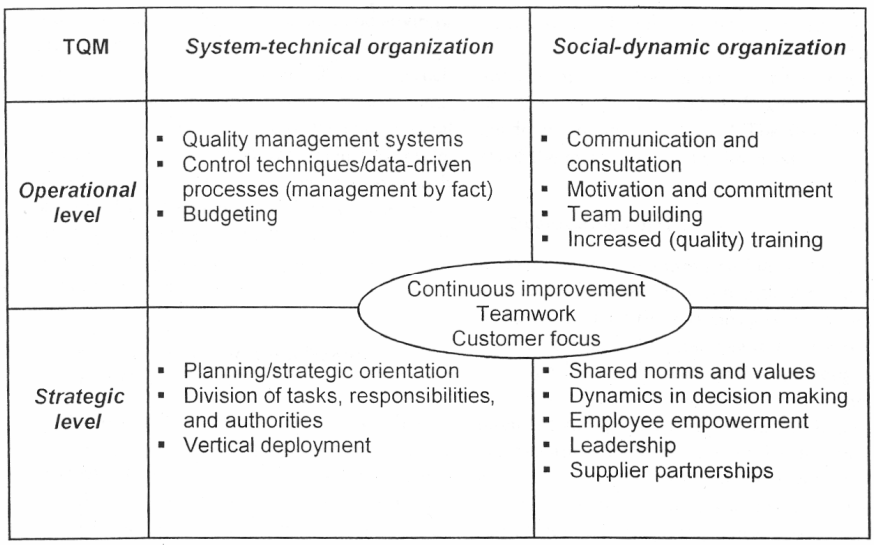


Figure 3.5 The key elements which constitute the concept of TQM (De Bakker 2002).

TQM has a broad scope compared to traditional quality management based on ISO 9001. ISO 9001 mainly address technical issues at the operational organisational level. Figure 3.5 shows that TQM addresses the operational level as well as a strategic level, and is based in, what is called, the system-technical organisation as well as the social-dynamic organization (De Bakker 2002). This means that TQM does not only address operational management, but also strategic management and, what one could call, culture management. Culture management is seen as an organisations active focus on communication and consultation, motivation and commitment, team building, shared norms and values etc. Figure 3.5 furthermore shows that TQM emphasises three core principles; respectively continuous improvements, teamwork and customer focus (De Bakker 2002).

It is important to note that according to Garvare (2001) customer focus is developing into a stakeholder focus, so customers now include human stakeholders, environmental stakeholders and other interested parties in societal sustainability. TQM is evolving along with changes in business environment, and the business environment has now increased focus on environmental and sustainability issues (Vanagas and Zirgutiene 2005).

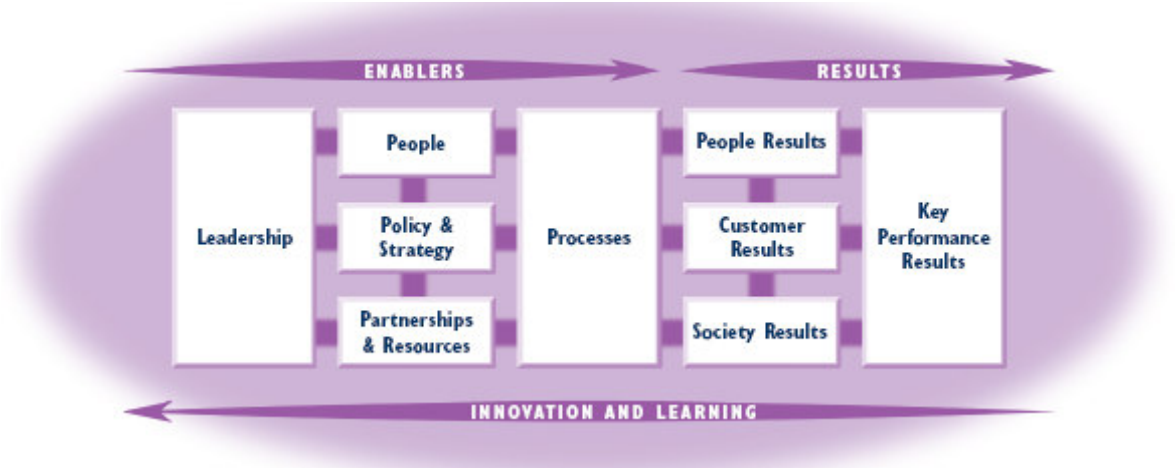
TQM should consequently include environmental, occupational health & safety and CSR issues. Furthermore, according to Wilkinson and Dale (1999) none of the previous mentioned models, which are based on the ISO standards, include culture and the effects of

culture. This is important as for example Hoyle (1996), Byrnes (1996), Shillito (1995) and Jarvis (1997) argue that an IMS must address issues such as cultural differences, business strategies and organisational change. The TQM approach addresses these issues and thereby seems to be a possibility as the underlying model for an IMS.

There are several business models based on the TQM approach. This report will only discuss one of these. The most described model in the IMS literature is the EFQM model for Business Excellence.

3.5.1 The EFQM Model

The EFQM model for Business Excellence is shown in figure 3.6.



Figur 3.6. The EFQM model for Business Excellence (EFQM 2003).

The EFQM model for Business Excellence is not intended as a model for integrating QMS, EMS and OHSMS. However, several scholars have seen this as a possibility. See for example Ahsen and Funck (2001) and Mackau (2003). The model is based on nine criteria which can be used to measure an organisations progress on its way to excellence. Five criteria are enablers; respectively leadership, people, policy & strategy, partnership & resources and processes. Four criteria are result criteria; respectively people results, customer results, society results and key performance results. According to EFQM *'Excellent results with respect to Performance, Customers, People and Society are achieved through Leadership driving Policy and Strategy, that is delivered through People, Partnerships and Resources and Processes'* (EFQM 2003).

The EFQM excellence model addresses all relevant stakeholder and thereby also OH&S and EM. Eight of out of nine criteria do, for example, include environmental management in some form. Regarding the enablers it is emphasised that the L*eadership* criteria should support activities to improve environmental protection. In the *Policy & Strategy* criteria it is emphasised that environmental affairs should be understood. The *People* criteria should include encouragement of employees' environmental awareness. *Partnership & Resources* require the organisation to reduce waste and consumption of resources. Finally, the process criteria points out that it can be beneficial to implement ISO 14001. Regarding the results, it is stated, in relation to the *Customer Results* criteria, that an organisations environmental profile, as seen by customers, must be quantified. This is also the case in relation to the employee's satisfaction with the environmental policy in relation to the *People Results* criteria. Finally, the Society Results criteria require measures to reduce noise, odours and pollution as well as ensure a sustainable use of resources (Ahsen and Funck 2001).

3.6 The Single management standard

The final step in Renfrew and Muirs evolution model is the single management standard. The idea behind the single management standard is to merge ISO 9001, ISO 14001, OHSAS 18001 and other relevant standards into one single standard. Thereby organisations only need to implement one management standard instead of three or more. No such single management standard exists today and it is unlikely that there ever will be one (Karapetrovic and Jonker 2003, Ballen 2007). ISO have also stated that they do not plan to merge the ISO 9001 and ISO 14001 standards. ISO have, however developed an integrated audit standard; the ISO 19011:2002 (ISO 2002). A single management standard is unlikely because it lacks flexibility. Different companies require certification according to different management systems and the single management standard will not be able to accommodate this requirement. Furthermore, new management standards are developed on a continuous basis and a single management standard will need to be regularly updated to include the new management standards. A single management standard thereby seems to be very impractical (Karapetrovic and Jonker 2003).

3.6.1 The PAS 99: 2006

However, the British standard organisation (BSI) has developed the first integrated management system standard according to which companies can be certified. The standard is called PAS 99:2006 and is based on the common requirements of the ISO Guide 72. The standard is intended for companies with more than one management system that seek to implement a single holistic management system. The standard is built around the six common management system requirements (BSI 2006):

- Policy.
- Planning.
- Implementation and operation.
- Performance assessment.
- Improvement.
- Management review.

It is important to note that companies can not solely be certified according to PAS 99. The standard is intended as the framework in which as organisations management system is integrated (BSI 2006). PAS stands for Publicly Available Specification. A Publicly Available Specification is not a full standard. It is a step in the process of standardisation (BSI 2007).

ISO have not yet developed an integrated management standard, but it is under preparation. The standard will however differ from the PAS 99:2006 as companies can not be certified according to the standard. Its purpose is to serve as a guideline for companies that seek to integrate their management systems.

3.6.2 The DS 8005:2005

Several national standard organisations are also addressing the issue of an integrated management standard. DS has developed a guide to assist organisations in developing an IMS called DS 8001:2005 (Dansk Standard 2005). The standard describes the characteristics of good management, the common elements in an integrated management system and the individual elements that can be part of an IMS (Dansk Standard 2005).

In the first part, regarding good management, the standard actually refers to the EFQM model for Business Excellence. It is, however, not elaborated in the standard. The standard does, however, stress the importance of a management system that takes its point of departure in the organisations business strategy. An organisation must develop a mission, vision and strategy and create corresponding politics and goals. It is furthermore important that the management system is directed towards demands from stakeholders (Dansk Standard 2005).

In the second part, which addresses the common elements in an IMS, the standard describes the same common elements which were listed in table Table 3.2 which stem from the ISO Guide 72 mentioned earlier. Besides describing the most important aspect of the common elements the standard also provides tools to address these. In the third part the standard lists definitions for the terms used in the relevant standards, show correlations between the different standards and describes the different systems and tools that can be part of and IMS (Dansk Standard 2005).

If the DS 8001:2005 is to be compared to the models addressed previous it can be argued that the standard contains elements from several models. The standard refers to the EFQM model which can be related to TQM. The standard also focuses on correlations between standards. Finally, Christopher Balle stated that the standard is based both in the process model of ISO 9001 and the PDCA model of ISO 14001 as the PDCA cycle is implemented in each important process in an organisation. Balle, furthermore, states that the standard has sold about 270 copies (Balle 2007).

The ISO 9004:2008

Finally, it is worth mentioning the ISO 9001:2008 and ISO 9004:2008 that will be published next. Drafts of both standards have been published for review and comments and the drafts suggest that the ISO 9001:2008 will be updated, but not changed significantly. However, the 9004:2008 will be very different from the ISO 9004:2000. The 9004:2008 is called Managing for sustainability – a Quality Management Approach. This in interesting in relation to integrated management systems because the concept of sustainability for the

first time is used in relation to quality management, at least in an ISO standard. It is thereby the first attempt to integrate quality, environment and social issues in an ISO standard. (ISO 2007a, ISO 2007b).

The ISO 9004:2008 focuses, as the DS 8001:2005, more on strategy and the coherence between vision, mission strategy and politics and goals than seen in the earlier standards. The 9004:2008 also focuses on the expectations and needs of stakeholders and emphasis the importance of the PDCA - cycle. Furthermore, the standard is not only an attempt to integrate quality and environment. The standards describe general business management and include quality, environment, occupational health and safety, information and financial resources in one general system. Finally, the standard focuses on organisations ability to learn and adapt to a changing business environment (ISO 2007b).

3.7 Comparison of the different models

The previous has been a presentation of different models on which an organisation can base an IMS. Renfrew and Muir's management system evolution model have been used as a framework for categorising the different models. It is important to note that a high level of integration is not a goal in itself. The integration of management systems must be based on the characteristics of the organisations wanting to establish an IMS, as well as the organisations reasons for implementing an IMS. Also, there is not a 'best model' on which organisations can base their IMS. The model is also depended on the characteristics of the organisation.

The findings from the previous has been summarised in table 3.3. where the different models are characterised based on their scope, model characteristics, purpose and limitations.

Model	Scope	Model characteristics	Purpose	Limitations
IMS Matrix	The standards themselves.	Harmonisation of the elements in the standards.	Show combinability.	Aligned not integrated.
Integration of common elements	The common elements.	The integration of common elements.	Avoid duplication.	Aligned not integrated.
Integrated Documentation	The documentation.	One management handbook for all systems.	Simplify and reduce documentation.	Aligned not integrated.
ISO 14001 based IMS	The requirements in the standards.	An IMS based on the PDCA circle.	An IMS based on the PDCA circle.	Ignores culture.
ISO 9001 Based IMS	The requirements in the standards.	An IMS based on the process approach.	An IMS based on the process approach.	Ignores culture.
The System Approach	The requirements in the standards.	An IMS based on both the PDCA circle and the process approach.	To avoid the problems regarding to different underlying models.	Ignores culture.
EFQM model	Total Quality Management.	Includes strategic and 'cultural' management.	Business Excellence.	Do not address the ISO certification requirements.
The single Management standard	The standards themselves.	Based on only one common standard.	'One company, one system'.	ISO not exists, potentially inflexible, must be regularly updated.

Table 3.3 Characterisation of different IMS models regarding scope, model characteristics, purpose and limitations (Inspired by Wilkinson and Dale 1999).

It is debated in the literature to what extent the IMS - Matrix, and thereby the common elements in the different standards, can form the basis of an IMS. The IMS matrix can form the basis of the integration of the elements that are common in the different management systems. The main purpose of integrating the common elements is to avoid duplication. The IMS Matrix can also form the basis of integrated documentation to simplify and reduce documentation. The debate in the literature is whether or not the IMS Matrix can form the basis of an actual integrated system, because the difference in the scope and underlying models, and because cultural issues are not addressed. The IMS based on respectively the process approach of ISO 9001 and the PDCA circle of 14001 is, however, attempts to establish an actual integrated system based on the IMS Matrix. The system ap-

proach on the other hand seeks to overcome the difference in the underlying models by integrating these. However, none of the models mentioned so far address cultural issues. The Total Quality Approach, in this case represented by the EFQM model for Business Excellence, is a model that includes cultural issues. It has been argued that an IMS can be based on the EFQM model. The problem is that this model does not address the requirements in the ISO 9001, the ISO 14001 or the OHSAS 18001. Finally there is the single management standard. Such a standard do not exists and it is doubtful if it ever will because of its inflexibility. There are, however, integrated management standards which assists organisations in integrating their different management systems.

3.7.1 Three levels of integration

It will potentially be difficult to use the models described as an analytical framework for the following chapters because the models are very specific. However, the main purpose of this thesis is not to determine which models are used when organisations integrate their different management systems. The main purpose is to determine to what extent organisations integrate their management systems. The models described can be divided into three different levels of integration which can be used as an analytical framework to establish to what extent organisations integrate their management systems.

The IMS Matrix, the integration of common elements and the integration of documentation can all be characterised as alignment according the definition of MacGregor Associates (2001). See section 3.2.2. Likewise an ISO 14001 based IMS, an ISO 9001 based IMS and an IMS based on the system approach can be characterised as integration. Finally, there is the IMS based on a TQM approach. An IMS based on TQM, in this case illustrated by the 'EFQM Model', cannot be characterised as alignment or integration as the integration goes beyond the integration in the other models. The EFQM Model addresses an organisations values, strategy, communication etc., and thereby intends to integrate quality, environment OH&S etc. into an organisations overall management framework. An IMS based on the EFQM Model can therefore be characterised as holistic integration. The term holistic integration is, for example, also used in the PAS 99:2006 standard. The following levels of integration are thus identified based on the models described:

- Alignment
- Integration
- Holistic integration

Jørgensen, Remmen, Mellado (2006) have identified similar levels of integration in relation to IMS. The levels of integration described by Jørgensen, Remmen, Mellado (2006) corresponds to the integration levels described in the above. However, Jørgensen, Remmen, Mellado (2006) have used different terms for the different levels of integration, respectively:

- Correspondence
- generic
- Integration

Jørgensen, Remmen, Mellado (2006) characterises the correspondence level as addressing mainly internal efficiency, and the purposes of implementing an IMS on the correspondence level are mainly to achieve:

- Minimisation of documentation and records.
- Less bureaucracy and reduction of paperwork.
- Cost savings by optimisation of time and resources assigned to the system.
- Simplification of internal and external audits.

According to Jørgensen, Remmen, Mellado (2006) the generic integration level is characterised by:

- More focus on interrelations - synergies as well as trade-offs – between quality, environment, occupational health and safety, etc.
- Objectives and targets are set up, coordinated and balanced.
- Organisation and responsibilities are defined in one place.

Finally, Jørgensen, Remmen, Mellado (2006) mention the following preconditions for an IMS at the integration level:

- A shared understanding of internal and external challenges;
- A learning organisation and a culture of responsibility;
- Interactions with stakeholders

Jørgensen, Remmen, Mellado (2006) characterisation of the different integration levels can be used as an analytical framework, because the characterisation can be used to identity the integrations level in the organisations and potentially also the underlying integration models.

This is the case because the IMS Matrix, the integration of common elements and the integration of documentation address internal efficiency which include minimisation of documentation and records, cost savings etc. Similar an ISO 14001 based IMS, an ISO 9001 based IMS and an IMS based on the system approach will likely lead to more focus on interrelations, synergies etc. Finally integration based on TQM involves organisation leaning, stakeholder participation etc.

A single management standard does not exists, but the standards PAS 99:2006, DS 8001:2005 and ISO 9004:2008 address the integration issue. The PAS 99:2006 is based on the PDCA-cycle and the DS 8001:2005 and ISO 9004:2008 contain elements from all the models described in the previous. They focus on the common elements between the different standards, they emphasis the importance the PDCA-cycle, they are based on the process approach and they focus on business strategy and stakeholder expectations. It can, thus, be argued that the standards focus on all three levels of integration.

Chapter 4 will focus on the practical use of IMS in companies, and the different IMS models and the three levels of integration will be discussed in a practical context.

Experiences with IMS 4

This chapter will analyze companies' experiences with IMS. First quantitative studies regarding IMS will be analyzed. The main focus of this analysis will be the extent to which IMS is used in companies. Second the potentials and barriers for integrating management systems will be analyzed based on qualitative studies, and finally examples will be given on practical use of IMS.

4.1 Quantitative Studies regarding IMS

The literature regarding the extent to which IMS is used in companies is very limited. Only one reference has been found in relation to this topic in a Danish context, and only few have been found in an international context. The literature, furthermore, tends to be before the year 2000.

4.1.1 IMS in a Danish context

The one reference regarding the use of IMS in a Danish context was found in Jørgensen (2001). According to Jørgensen (2001) 50 per cent of the companies which are certified according to ISO 14001/EMAS also have a certified quality management system, and most of these companies have an integrated system. It is, furthermore, estimated that 50% of the companies which are certified according to OHSAS 18001, as well as either ISO 14001/EMAS and/or ISO 9001, have an integrated system. Furthermore, according to Jørgensen (2001) the majority of the integrated management systems in Denmark are based on the alignment level of integration. It is important to note that these numbers are not based on quantitative study, but on the assessment of three lead auditors from respectively Det Norske Veritas, Dansk Standard and Bureau Veritas (Jørgensen 2001).

4.1.2 IMS in an International Context

Few quantitative studies have been made regarding the use of IMS in an international context. This author has been able to find one Spanish study, three English studies and four German studies. A study has also been found that analyzes the implementation of IMS in Chinese construction firms (Zeng et al. 2005). This thesis, however, focuses on production companies and that particularly study will therefore not be analyzed.

The Spanish Study

The Spanish study by Del Brio et al. (2001) analyzes companies' view on the advisability in combining quality management systems and/or occupational risk prevention practices with environmental management. The study was conducted among Spanish industrial companies with more that 50 workers and the sample was 373 companies. The main finding of the study is that 90,5% of the companies believe that it is advisable to combine the different management systems (Del Brio et al. 2001). The problem with this survey is that not all of the companies do actually have an IMS they only intent to implement an IMS.

Del Brio et al. (2001) also analyzed the reasons why the companies found it advantageous to combine the different management systems. The companies had to rate the significance of a number of reasons on a scale from 'not at all' to 'very'. The results are shown in table 4.1.

Reason	Not at all	little	More of less	Quite	Very
Combine documentation	0%	2,67%	7,49%	40,64%	49,2%
Combine objectives	1,07%	4,28%	17,97%	43,85%	35,83%
Save time	2,7%	9,73%	21,62%	33,51%	32,43%
Consistency	0%	1,63%	20,1%	46,7%	31,5%
Save costs	3,26%	11,41%	26,09%	33,15%	26,09%
Combine process control	0,05%	3,8%	26,5%	46,5%	22,7%

Table 4.1 Reasons for combining QMS, EMS and OH&SM (Brio et al. 2001).

Table 4.1 shows that most of the companies participating in the study see the combination of documentation, the combination of objectives, time and cost savings, increased consistency and the combination of process control as reasons for implementing an IMS. The far majority of the companies rated the reasons as belonging in the 'Quite' or 'Very' category.

The reasons for integrating QMS, EMS and OH&SM presented in table 4.1 suggests that the companies have implemented an IMS, or intend to implement an IMS, on the alignment level of integration. This is the case because the reasons presented are a result of integrating common elements between the standards. However, the combination of objectives is more likely to occur when the IMS is based on the integration level. This does not mean, however, that it can be concluded that some of the companies have implemented an IMS on the integration level. The study by Del Brio et al. (2001) did not include any questions regarding organisational learning, a common culture etc. that would indicate whether or not the companies indented to integrate their management systems at the holistic integration level.

The English Studies

Three quantitative studies have been found which were conducted in an English context. Sunderland (1997) found that 64% of the companies with quality, environment, and safety management intended to integrate their systems. Hillary (1997) made a study with 17 SMEs in different area of business. 10 of the 17 companies (or 59%) intended to integrate their EMS with their QMS, OH&SMS or both. It is important to note that the companies in the respective studies intend to implement an integrated system; they do not actually have and integrated system. Furthermore, both studies are part of larger studies regarding environmental management, and very only limited information is given regarding the premises of the studies.

The third study was conducted by Douglas and Glen (2000). This study focused solely on IMS. A study was carried out in SMEs that had achieved ISO 9001 and ISO 14001 certification. A questionnaire was sent to 50 companies of which 28 responded. 20 companies (or 71%) stated that they had integrated some elements of their management systems (Douglas and Glen 2000). Table 4.2 shows the elements integrated by the companies.

Areas where integration has occurred	Respondents	Percent
Auditing	17	85%
Training	12	60%
Management review	13	65%
Purchasing	14	70%
Supplier assessment	14	70%
Corrective/Preventive action	14	70%
Document control	18	90%
Other	3	15%

Table 4.2 Integrated QMS and EMS elements (Douglas and Glen 2000).

Douglas and Glen (2000) states that the integration of QMS and EMS in the companies is based on combining similar elements in the ISO 9001 and the ISO 14001 standard. The IMS in the companies are therefore likely based on the alignment level of integration.

Table 4.3 shows the companies' perceived benefits achieved by integrating quality management and environmental management.

Benefits achieved	Respondents	Percent
Multi-functional audits	25	89%
Less paperwork	24	86%
Less procedures	23	82%
Easier to manage systems	23	82%
More effectiveness – internally & externally	23	82%
Reduced costs	20	71%
Improved image with customers	14	50%
Better communication between staff	17	61%

Table 4.3 Benefits achieved by integration QMS and EMS (Douglas and Glen 2000).

As seen from table 4.3 the main benefits achieved by the companies is the use of multi-functional audits, a reduction of paperwork and number of procedures, an easier manageable and more effective system as well as reduced costs. These benefits achieved also suggest that the implementation of the IMS falls within the alignment level of integration. The one exception is the 'improved image with customers' benefit. It can be argued that an improved image with customers cannot be achieved as a result of aligned systems. The companies must therefore have achieved a higher level of integration. However, there is

only this one exception, and only 50% of the respondents see improved image with customers as a benefit. It is therefore reasonable to suggest that the implementation of IMS in the companies is based on the alignment level. How different areas of integration and achieved benefits can be translated into category of integration will be further discussed in Chapter 5.

The German Studies

The most comprehensive quantitative studies regarding integration of management systems, found by this author, are four German studies. An overview of the studies is presented in table 4.4.

Author	Time of the study	Scope	Return quota	Business Sector of the Interviewed Companies
Kroppmann/Schreiber (1996)	1996	2853	412 (14,4%)	Mainly industrial companies in Germany
KPMG (1998)	1997	3863	485 (12,5%)	Mainly industrial companies in Germany
Enzler (2000)	1998	500	257 (51,4%)	Mainly industrial companies in Germany
Funck et al. (2001)	2000	3273	600 (18,3%)	Service and retail companies, consultants, certifying agencies and research organisations in Germany, Britain and Sweden

Table. 4.4 Overview of four quantitative German studies regarding IMS (Ahsen & Funck 2001)

The studies shown in table 4.4 were carried out in the period from 1996 to 2000 in mostly Germen industrial companies. All companies participating in the studies were certified according to at least one management system. The studies focused mainly on the integration of QMS and EMS (Ahsen & Funck 2001). The extent to which the German companies integrate QMS and EMS is shown in figure 4.1.

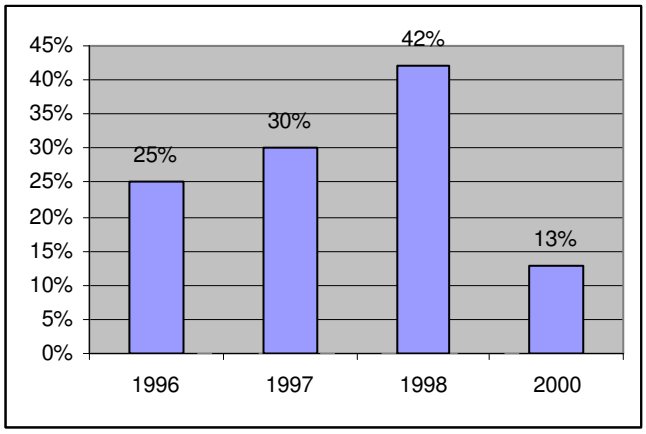


Figure 4.1 The use of IMS in German industrial companies (QM – inforcenter 2007)

It is clear that the number of German industrial companies which integrate QMS and EMS has increased in the period from 1996, where 25% of the companies had an IMS, to 1998 where 42% of the companies had an IMS. The study from the year 2000 cannot be compared to the other studies, as the organisations participating were service and retail companies, consultants, certifying agencies and research organisations. These types of organisations clearly use IMS to a limited extent compared to industrial companies.

The studies show that the main areas of integration are documentation, policies, objectives and audits. Less common was integration of planning and control instruments (Ahsen & Funck 2001).

Table 4.5 shows the companies' reasons for integrating quality management and environmental management. The reasons are shown for each study and ranked from 1 to 4.

Rank Study	Rank 1	Rank 2	Rank 3	Rank 4
Kroppmann/Schreiber (1996)	Integrated procedure guidelines	Integrated operation guidelines	Cost reduction	Time advantages
KPMG (1998)	Simpler dokumentation	Cost reduction	Better feasibility	Integrated organisation
Enzler (2000)	Higher transparency	Better structured processes	Higher acceptance	Cost reduction
Funck et al. (2001)	Simpler dokumentation	Clear responsibility	Reduction of co-ordinated problems	Higher transparency

Table 4.5 Reasons for integrating QMS and EMS (Ahsen & Funck 2001).

The four different studies show similar reasons why companies chose to implement an integrated system. According to Kroppmann & Schreiber (1996) companies implement an integrated system to integrate documented procedures and operation guidelines and thereby achieve cost reductions and time savings. Procedure guidelines and operation guidelines are two kinds of documentation and the study by KPMG (1998) therefore shows very similar reasons as the study by Kroppmann & Schreiber (1996). According to KPMG (1998) companies implement an integrated system to simplify documentation, achieve cost reductions, better feasibility and a more integrated organisation. Enzler (2000) emphasises transparency, better structured processes and a higher acceptance of the system. Funck et al. (2001) furthermore mention a clearer responsibility and reduction of coordinated problems. Other reasons mentioned in the different studies, which are outside the top rated, are enhanced corporate identity, better innovation, better resolution of conflicts and increased ability to change (Ahsen & Funck 2001).

The studies also found some barriers in relation to the implementation of IMS. Complexity as well as resource consumption was seen as strong barriers. A lack of implementation tools were also seen as a barrier and finally differing demands from stakeholders was seen as a barrier (Ahsen & Funck 2001).

In relation to the different levels of integration, described in Chapter 3, the main type of integration seams to be ‘alignment’ which is similar to other studies described. This is the case because the main reasons for integration are to achieve simpler documentation, cost and time reductions and better transparency. Also, the main areas of integration in the companies are documentation, policies, objectives and audits, and integrating documentation and audits can also be considered alignment. However, integrating policies and objectives can be considered actual integration. Thus, it is possible that some of the companies in this survey have implemented an IMS based on actual integration. This again means that the companies have based their IMS on a generic management structure based on the process model, the PDCA-cycle or the system approach.

Ahsen & Funck (2001) also show that enhanced corporate identity, better innovation, and ability to change are reasons for integrating an IMS. These three reasons are linked to integration at the holistic integration level as well as TQM. However, based on the limited information in this survey, it is not possible to conclude that the companies have implemented an IMS based on the holistic integration level.

It is not possible to make certain conclusion regarding the implementation of IMS today based on the quantitative studies analyzed in the previous. Only a limited number of studies have been found and they all date before 2001. It is even difficult to make any conclusions regarding the implementation of IMS before 2001. The different studies have very different results as the integration of QMS and EMS in companies ranges from 25% to 71%. The studies suggests that the areas of integration mainly is based on the common elements in the standards which suggests that the integration in generally can be seen as alignment. It must be mentioned that some of the quantitative studies do not address actual integration or systems, but intended integration of systems. This obviously means that the results of the studies are even more uncertain.

4.2 Qualitative Studies regarding IMS

This section will focus on the qualitative studies that have been conducted regarding implantation of IMS. The literature on qualitative studies regarding IMS is also very limited. One Danish study and a few international studies have been found by this author.

4.2.1 IMS at the Danfoss Group

The one qualitative study regarding IMS in a Danish context has been conducted by Jørgensen (2006b), and the Company Danfoss A/S was the studied object. Danfoss is a large Danish company with production facilities in 21 countries and the company produces components for refrigeration and A/C, heating controls, water and wastewater systems etc. The company is certified according to ISO 9001, ISO 14001 and OHSAS 18001.

Danfoss has an integrated system that for a large part is managed at the corporate level instead of at the individual sites. Specific elements are managed at the specific sites, but the following common elements between the standards are managed at the corporate level (Jørgensen 2006b):

- Management responsibility
- Resources and infrastructure
- Aim, control and measurement
- Employees, development and education
- Communication
- Document control and registration
- Continuous improvements and corrective actions
- Process control, maintenance and calibration

Danfoss has mainly chosen to integrate their systems to meet customer expectations, simplify the systems, avoid conflicts between systems and improve awareness among employees. Jørgensen (2006b) have identified a number of barriers experienced by Danfoss in relation to implementing and integrated systems. The barriers include lack of knowledge, resistance towards change from employees and a resistance from certifying bodies in relation to joint audits of all systems (Jørgensen 2006b).

The IMS at Danfoss is according to Jørgensen (2006b) based on the alignment and integration level, but Danfoss do plan to integrate their IMS with other management tools such as Lean business, Six Sigma, TQM and Business excellence. This will result in an IMS at the holistic integration level.

4.2.2 IMS in Welch Companies

Hines (2002) has made a study among 12 SMEs located in south Wales, UK. Most of the SMEs were certified according the ISO 9001 and all were under pressure from customers to implement environmental and OH&S management systems. The company managers where not, actually, interesting in implementing additional management systems had it not been for the customer requirements. Under these circumstances the implantation of an IMS was viewed as being the easiest and most cost-effective solution compared to implementing individual systems. The SMEs where interested in implementing an integrated system to save costs, time and resources, and to achieve the certification as easy as possible to able to comply with customer demands (Hines 2002). The companies' focus being resource

reduction suggests that the companies were focused on implementing their IMS on the alignment level of integration and not the integration or holistic integration level.

Hines (2002) has also made a study among a 7 larger companies located in south Wales in UK. The majority of the larger companies had ISO 9001, many had ISO 14001 and a few were certified according to OHSAS 18001. Senior managers in the larger companies had a positive attitude towards IMS, and their reasons for considering integrating their systems was not only related to internal efficiency in the organisation as was the case with the SMEs, The senior managers also has strategic reasons, such as the companies ability to react to a changing business environment (Hines 2002).

Hines (2002) found some barriers in relation to the implementation of IMS in large companies. Section or department managers could be resistant to implementation of an IMS because they saw an IMS as a risk towards their position in the organisation. Some department managers also felt threatened by the fact that their areas of expertise would be integrated with other areas which in their view were less important (Hines 2002).

4.2.3 IMS in English Companies

Wilkinson and Dale (1999) have made a study on 5 manufacturing companies located in the North West of England. The companies had between 100 and 870 employees and were all certified according ISO 9001. One company were certified according to ISO 14001. Wilkinson and Dale (1999) also found the main reasons for implementing an IMS to be cost-reductions and being ably to satisfy customer requirements. Generally the companies did not have an IMS that was based on an integration level higher than alignment, but one company intended to use the EFQM model for business excellence as a framework for integration (Wilkinson and Dale 1999). The use of the EFQM model for business excellence would likely result in an IMS on the holistic integration level.
Limited resources were the main barrier found in this study.

4.2.3 IMS in Australian Companies

Zutshi and Sohal (2005) have made a case study of three Australian-based organisations in relation to the integration of QMS, EMS and OH&SMS. One company is a large pharmaceutical company, one is a large manufacture of furniture and the third is a large manufac-

ture of radio and telecommunication components. The three companies are all certified according the QM, EM and OH&SM and all began integration of their systems in the late 1990s (Zutshi and Sohal 2005).

The furniture manufacture have integrated a number of common elements in the management systems including management review, audits, corrective and preventive action document control, work instructions, responsibility statements, process controls and training systems. The radio and telecommunication manufacture implemented QMS before EMS and OH&SMS and the company have used the existing QMS as the IMS framework. The different elements of the systems have therefore not been changed. The environment and OH&S elements have been added to the existing system. All three companies integrated their management system to achieve better resource utilisation and cost-savings (Zutshi and Sohal 2005).

All companies achieved a better resource utilisation because of a reduction in the duplication of processes and procedures which lead to more effective and efficient operational processes and procedures which again lead to cost-savings. The companies, however, have achieved a number of other benefits from their IMS besides better resource utilisation and cost savings. The pharmaceutical company have experienced an improved decision-making process as the IMS provides up-to-date information from a single source as well as facilitates a holistic view instead of a narrow functional approach. All companies emphasised that the employees have a better understanding and acceptance of one integrated system, especially in relation to the links between quality, environment and OH&S. All companies also emphasised that communication is more effective with and integrated system, because employees use the same language across different functions. This also leads to exchange of ideas and expertise across different departments (Zutshi and Sohal 2005).

Again it is difficult to conclude anything certain regarding the level of integration that exists at these three Australian companies. However, it is possible to find elements that support at least the first two levels of integration. The furniture company have integrated common elements between the standards which suggest an alignment approach. The radio and telecommunication manufacture have used their existing QMS as the IMS framework.

This suggests an integration approach because the system is based on a common generic framework - in this case the process approach from ISO 9001. Finally, the benefits achieved, such as a holistic view, better understanding and acceptance of the system and more effective information, suggest that the IMS is based on integration or maybe even holistic integration.

4.3 Practical Implementation of IMS

The previous has focused on the management system elements organisations integrate when implementing an IMS. However, no examples are given of how organisations integrate different management system elements in practise. In order to have an understanding of IMS it is not sufficient to know that organisations, for example, integrate documentation and objectives, it is necessary to know how the documentation and objectives are integrated. This section will give practical examples of how companies use IMS. However, the literature describing the practical use of IMS is very limited and it has only been possible to find two examples.

4.3.1 Integrated Risk Assessment

Labodova (2003) describes an integrated approach to risk assessment in a Czech company. The company produces heat for central heating. The Czech company uses risk assessments to develop objectives and targets in their IMS where the risk assessment is based on financial terms. Company risks are thus converted into a monetary unit, through considerations of damage reparation, cost of investment etc., and risks that relates to different areas such as quality, environment, OH&S etc are thereby comparable. This means that the setting of objectives and targets in this company is not depended of whether the risks are quality related of safety related etc, the setting of objectives and targets are based on the cost of the associated risks (Labodova 2003).

It is not difficult to find potential problems with this form of risk assessment if it is used rigorously. The risk assessment procedure seems to be complicated and could require considerable resources. There is also a risk that one area, for example, quality is emphasised in the IMS because the most ‘expensive’ risks can be associated to this area. However, the risk assessment based financial terms is an example of a fully integrated method for setting objectives and targets.

4.3.2 Integrated Documentation

Hughes et al. (2002) describe the advantages of applying web-based technology when implementing an IMS. Hughes et al. (2002) have performed a case study of Central Highlands Water (CHW) which is located in Victoria, Australia. CHW operates ten wastewater treatment facilities and thirteen water treatment facilities and has a quality, environment and OH&S management system. CHW has implemented an IMS where all documentation is available through a single interface and the system includes photos, plans and drawings when relevant. The front interface screen consists of a map showing the different sites of the company, which allows users to easily locate the relevant site. A drawing illustrates the processes at each site, and by clicking on the processes all relevant information is accessible, including quality, environment and OH&S information such as material data sheets (MSDS), standard operating procedures (SOPs) and emergency control procedures. The documentation in the IMS can also be assessed in the form of a more traditional management handbook which often is relevant for the people in charge of maintaining and developing the system.

All management system requires documentation. The documentation must be as informative, as simple and as easy available as possible. It is especially important the information needed in the operational level fulfil the mentioned requirements, otherwise there is a risk that the it will not be used as intended. Easy available, informative and simple documentation as well as information is important when an organisation has one management system, but it is even more important when an organisation have several management systems because there is more documentation. An IMS will often lead to a simpler and better documentation, and a web-based documentation system with easy available information that can be used by all employees is preferable over the traditional management handbook

4.4 Summery

The analysis of the use of IMS in companies has been based on limited number of studies and the conclusions made are correspondingly weak. However, in the studies reviewed between 25% and 71% of companies had implemented an IMS or intended to implement an IMS. The analysis, furthermore, showed that companies integrate a number of common

elements and have achieved a number of benefits. The integrated elements and achieved benefits are summarised in table 4.6.

Integrated elements	Benefits
Audits	Reduced costs
Training	Reduced time consumption
Purchasing	Simpler documentation
Supplier assessment	Less procedures and less paperwork
Corrective action	Multi-functional audits
Preventive action	Improved decision making process
Document control	Higher transparency
Procedures	Clearer responsibility
Work instructions	Better structured processes
Process control	Enhanced effectiveness
Organisation	Higher awareness and acceptance
Responsibility statements	Improved communication
Management review	Reduction of coordinated problems
Communication	Improved image with customers
Goals	Enhanced corporate identity
Targets	Better innovation
	Ability to change
	Holistic view

Table 4.6 Integrated elements and achieved benefits in companies with in IMS (Del Brio et al. 2001, Douglas and Glen 2000, Kroppmann/Schreiber 1996, KPMG 1998, Enzler 2000, Funck et al. 2001, Jørgensen 2006b, Hines 2002, Wilkinson and Dale 1999, Zutshi and Sohal 2005).

A number of barriers regarding IMS implementation were also identified in the literature. These include lack of knowledge, resources and implementation tools. A resistance towards change from employees was also found. Especially, section or department managers was found to be resistant to implementation of IMS because they saw it as a risk towards their position in the organisation, and they felt threatened by the fact that their areas of expertise would be integrated with other areas.

In relation to the level of integration it was generally found that the companies integrate their management systems at the alignment level. This means that the companies focus on integrating common elements in the standards. There was also found evidence that some companies integrate their management systems at the integration level, which entail that the companies base their IMS on a generic common framework. The benefits achieved by some of the companies could, furthermore, indicate that some of the companies have integrated their IMS on the holistic integration level, which means that quality, environment etc. are integrated into the overall management framework through, for example, the

EFQM model for business excellence. However, it is not possible to make any certain conclusions in this regard based on these studies.

Chapter 5 will analyze the results from a qualitative survey conducted by this author. The survey involves Danish companies, and it will hopefully contribute to the now limited knowledge that exists regarding the use of IMS in companies.

Study of IMS in Danish Companies 5

This chapter will present the results of a quantitative study in Danish. The quantitative study is a contribution to the limited scientific knowledge regarding the extent to which companies implement integrated management systems and the benefits and the barriers experiences by the companies in this regard. The first part of the chapter will briefly describe the questionnaire. The second part of the chapter will present and discuss the results, also in relation to the models presented in Chapter 3.

5.1 Questionnaire Design

The questionnaire can be found in appendix E. The questionnaire consist of 16 questions and one open field in the end where there is opportunity to give general comments.

The very first question asks the respondents to specify his/hers position in the company, which is interesting general knowledge, and furthermore can give an indication of whether or not it is the right employee that fills out the questionnaire. The second question asks the respondent to specify the number of employees in the company. This is relevant because it is interesting to analyze if there is a difference in the use of IMS in relation to the number of employees.

The companies must in the third question state which kind on certifications they have obtained, and in the fourth they must state whether or not they have implemented an IMS. If a company does not have an integrated management system the questionnaire ends. This study focuses on the use of IMS and companies without IMS are consequently not interesting in this context.

The fifth question is similar to the third question because it asks the companies to state which management systems that are part of their IMS. The intention behind these almost identical questions is to be able to identify if companies have a certified management sys-

tem that is not part of their IMS. It is possible that a company have an IMS which consists of EM and OH&SM, and at the same time have separate QMS.

The sixth question asks the companies to state the year in which they started implementing their IMS, and the seventh question asks the companies to specify which tools they used to assist the implementation, that is for example guidelines, consultants etc. This question also leaves room for additional comments regarding the tools used to assists the companies in implementing and IMS. The questions in general leave room for additional comments when relevant.

The eight and ninth question concerns the implementation strategy and the model on which the IMS is based. The implementation strategy refers to the manner in which the management system was implemented in the companies. The management systems can be implemented one at a time or they can be implemented all at once. The models on which the IMS can be based is derived from the models analyzed in Chapter 3.

The tenth question ask the companies to specify which parts of their different management systems they have integrated, and the 11th question ask the companies to state whether or not their management systems if fully integrated.

The 12th question refers to the benefits achieved by implementing an integrated management system. The companies had to consider a number of benefits that that was listed in the survey. The benefits are derived form the quantitative and qualitative studies in Chapter 4. The 13th question refers to disadvantages experienced by companies implementing an IMS, and finally the 14th question refers to the barriers experienced by companies implementing an IMS.

The 14th question asks the companies to state their knowledge about and use of the DS 8001:2005. This is found relevant because it is the only Danish IMS guide. The very last questions ask the companies if they would like to be certified according to an integrated management standard.

5.2 Survey Results

This section will present and interpret the data gathered in the survey. The questionnaire is sent to 53 companies whereas 34 companies (64%) have completed the questionnaire.

The survey shows that 31 companies (91%) have an IMS. 91% is a high percentage compared to the studies analyzed in Chapter 4 where 25% to 71% of the companies had an implemented IMS. The results of the survey correspond with Balle (2007) and Pilgaard (2007) that states that all companies today have implemented an IMS. Balle mentions, however, that not all small companies have implemented an IMS.

As this survey address the companies with an implemented IMS the following will consequently mainly address the 91% of the companies that have stated that they have an IMS.

5.2.1 The Companies in the Survey

The companies participating in the survey are mostly production companies within different types of businesses. There is for example a furniture production company, a packaging company, a company which produces aluminium profiles, a company that produces valves etc. There is also a company that processes food, a chemical company and publicly owned waste handling company etc. It can consequently be argued that the companies in the survey are a representative sample of Danish companies. In this respect it is worth mentioning that Balle (2007) and Pilgaard (2007) both agree that IMS is not predominant within certain types of businesses.

Table 5.1 shows the distribution of small, medium sized and large companies. The table shows that there are 8 companies in the survey with less than 100 employees. 17 companies have between 100 and 500 employees and 6 companies have between 500 and 2500 employees.

Small companies (<100 employees)	Medium sized companies (<500 employees)	Large companies (<2500 employees)
8	17	6

Table 5.1 Number of small, medium and large sized companies in the survey.

There is an inaccuracy in these numbers as the survey failed to specify how the number of employees should be calculated. This means that some companies have specified the number of employees at a specific production site whereas other companies have specified the number of employees for the entire enterprise. However, generally the numbers are specified for production facility.

5.2.2 Management System Combinations

Table 5.2 shows the distribution of the different combinations of management systems found in the companies which have implemented an IMS.

Management systems	Respondents	Percent
Quality, Environment, OH&S	22	71%
Quality, Environment, Energy	5	16%
Quality, Environment, Food safety	2	6%
Environment, OH&S, Energy	1	3%
Quality, Environment, OH&S, Energy	1	3%

Table 5.2 Distribution of different combinations of management systems in the companies.

It comes as no surprise that the majority of the companies (71%) have an IMS which is comprised of quality, environment, and OH&S management as these are the most common used management systems. 16% of the companies have an IMS which is comprised of quality, environment, and energy management. 6% of the companies are certified according to food safety additional to quality and environment, and one company is certified according to four different management systems. The survey, furthermore, reveals that the companies have implemented their IMS in such a way that all management systems which they are certified according to are included. This means, for example, that none of the companies have a separate quality management system and an integrated system comprised of environment and OH&S management.

5.5.3 Year of IMS Implementation

Table 5.3 shows the year the different companies began implementing their IMS. The table shows a fairly even distribution, but more companies began implementing their IMS in the 2000s compared to the 1990s. This reflects that standards have become increasingly popular in the resent years. Table 5.3, furthermore, shows that a number of companies, for some reason chose to skip this question as only 24 answers were received.

Year	1991	1993	1994	1996	1997	1998	1999
Number of companies	1	1	2	2	1	1	1
Year	2000	2001	2002	2004	2005	2006	2007
Number of companies	2	2	2	4	3	1	1

Table 5.3 The year of IMS implementation in the companies

According to Pilgaard (2007) IMS was introduced in the mid 1990s when companies began implementing evironmental management. DNV conducted their first simultaneous certification of quality, environment and OH&S in 1997. This corresponds with the information in table. 5.3.

5.2.4 Implantation Assistance

Figure 5.1 shows the different kind of assistance used by the companies in relation to the integration of their different management systems. Consultants and certification bodies are used to a large extent as more than 50% of the companies have received assistance from these. Guidelines and experiences from other companies are also widely used.

Uffe Pilgaard also states that Det Norske Veritas encourage organisations to integrate their management systems when they are conducting audits and they prefer making a simultaneous audit of all systems instead of separate audits of individual systems (Pilgaard 2007).

Pilgaard mentions as an example a company that was certified according to quality in 1993 and quickly afterwards were certified according to environment. The company wanted to integrate the two systems, but they decided to keep the systems separate in implementation stage and integrate the systems later. However, the company did not manage to integrate the systems and in year 2000 Det Norske Veritas encouraged the company to integrate the

systems. DNV could see that there was no overlap in relation to the persons managing quality and the employees managing environment. The relations between quality and environment were therefore not being addressed, and this led to suboptimization, as the environmental initiatives taken by the company was in contrast to the company' quality goals (Pilgaard 2007).

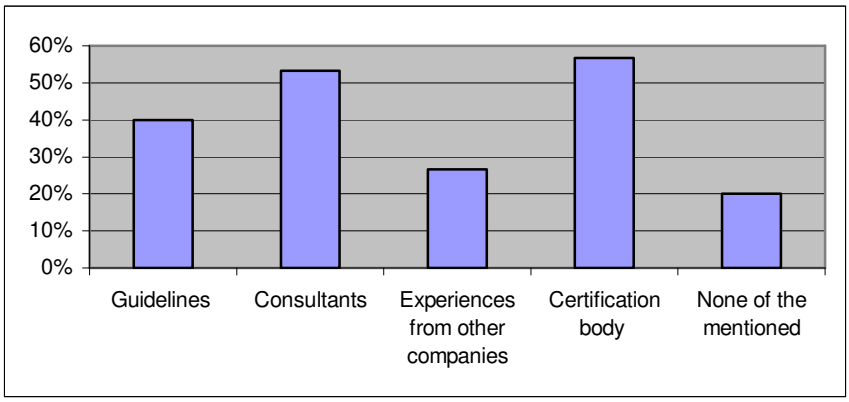


Figure 5.1 Use of assistance when integrating management systems.

Figure 5.1 also shows that a large number of the companies use more than one kind of assistance when integrating their management systems because the percentages added together exceeds 100%. One company, furthermore, states that students have assisted their company in developing an IMS, and one company states that their mother company was of assistance.

In relation to the use of guidelines it is interesting to investigate if the standard DS 8001:2005 from Dansk Standard was used by the companies. The survey shows that 50% of the companies are aware of its existence but none of the companies have used it to guide their IMS implementation. It is also Pilgaards experience that DS 8001:2005 is not used by the companies Pilgaard (2007). This standard is of course recently published, and table 5.2 also shows that the majority of the companies began working with IMS before the standard was published.

5.2.5 Implantation Strategy and Model

When a company is implementing an IMS it can either implement an integrated system from the beginning which include the different management systems, or it can implement

the management systems separately and subsequently integrate the different systems. In relation to implementation strategy this survey shows that:

- 34% of the companies implemented all their management systems at once.
- 64% of the companies implemented their management systems separately.

The number of companies which have chosen to implement all management systems is surprisingly high considering that all companies participating in this survey are certified according to at least three standards.

Chapter 3 analyzed a number of different models on which companies can base their IMS. Table 5.4 shows the results of this survey in relation to the distribution of different model used.

Model	Respondents	Percent
The PDCA-Model from ISO 14001	0	0%
The Process Model from ISO 9001	7	24%
PDCA and Process Model	4	13%
Total Quality Management Model	1	3%
The IMS is not based on a specific model	18	60%

Table 5.4 The companies' choice of model when implementing their IMS.

The results of the survey clearly show that the majority of the companies (60%) have not based their IMS on a specific model. 24% have based their IMS on the Process Model, 13% have based their IMS on both the Process Model and the PDCA Model. No company have used the PDCA Model and only one company have used a Total Quality Management approach.

The companies which have not based their IMS on a specific model have likely based it on several of the models in table 5.4. One company actually states that: *'Our system is inspired by several of the models mentioned, but we cannot say that we have based our system on a specific model'*. This suggests that the companies have a practical approach to integrating their different management systems. The companies do not take point of depar-

ture in one theoretical model when implementing an IMS; they take point of departure in the organisation and use elements from different models which fit the organisation.

Pilgaard support this assumption by stating that *'The companies have a pragmatic approach to integrating their management systems and seek to establish an effective management structure based on their specific needs and organisation. The companies do not use a specific model, but all the different models contain some basic elements and these elements are also present in the companies' management systems* (Pilgaard 2007).

However, seven companies stated that their IMS is based on the Process Model. The explanation is most likely that these companies have implemented ISO 9001 first. When they subsequently implemented additional management systems they used the ISO 9001 framework. This assumption is also supported by comments from companies. One company states for example: '*We got certified according to ISO 9001 in 1994, and this system was in 2004 further develop to include environment and OH&S management'.*

5.2.6 Integrated Elements

Table 5.5 shows the elements which the companies have integrated as well as the number of companies which have integrated the elements. The common elements in table 5.5 correspond roughly to the common elements identified in Chapter 4.

Common elements	Respondents	Percent
Document control	30	100,0%
Internal audits	30	100,0%
Management review	29	96,7%
Procedures	29	96,7%
Corrective and preventive actions	28	93,3%
Management handbook	28	93,3%
Policies	28	93,3%
Goals and targets	27	90,0%
Training	24	80,0%
Organisation	24	80,0%
Internal communication	23	76,7%
External audits	22	73,3%
External communication	19	63,3%
Decision making process	17	56,7%
Prioritising of resources	12	40,0%

Table 5.5 Integrated elements in the companies with an IMS

A very high percentage of the companies have integrated the different elements. Document control, internal audits, management review, procedures, corrective/preventive action, the management handbook, policies as well as goals and targets have been integrated by more than 90% of the companies. Training, the organisation, communication and external audits have been integrated by more than 60% of the companies. Only the decision-making process and prioritising of resources have been integrated by less than 60%. When comparing the results of this survey with the results of Douglas and Glen (2000), see table 4.2 in Chapter 4, it is evident that the number of companies which have integrated the different elements are higher in this survey. A likely explanation is that this survey is an analysis of best-practice. The survey by Douglas and Glen (2000) was also carried out seven years ago, where the use of IMS, most likely, was less prevalent.

5.2.7 Benefits achieved

Table 5.6 shows the benefits the companies have achieved as a result of IMS integration.

Benefits	Respondents	Percent
The documentation is simpler	25	83,3%
There is a better coordination between quality, environment and OH&S	23	76,7%
The time consumption for administration of the systems is reduced	20	66,7%
The documentation is less comprehensive	20	66,7%
The costs for administration of the systems are reduced	17	56,7%
The time consumption for internal audits are reduced	17	56,7%
There is less conflicts between quality, environment and OH&S	17	56,7%
The time consumption for external audits are reduced	13	43,3%
There is more focus on environment	12	40,0%
There is more focus on OH&S	11	36,7%
There is more focus on quality	9	30,0%
There is increased innovation	9	30,0%
None of the above	1	3,3%

Table 5.6 Benefits achieved as a result of IMS implementation.

Simpler documentation is experienced by the highest number of companies, namely 83,3%. In addition 66,7% of the companies find the documentation less compressive when having and IMS. 56,7% have experienced reduced costs and respectively 66,7%, 56,7% and 43,3% have experienced reduced time consumption in relation to respectively, administration of the system, internal audits and external audits. 76,7% have experienced a better coordination between quality, environment and OH&S and 56,7% have experienced fewer conflicts between quality, environment and OH&S.

When asked about benefits regarding IMS Pilgaard emphasis three things. Pilgaard stats that an integrated system creates a more natural relationship between different systems, and this is important because most decisions affect more than one system. This is in line with the survey results shown in figure 5.6 where 76,6 percent of the companies have achieved a better coordination between quality, environment and OH&S. An integrated system also creates a more embedded system in the organisation. Finally, an integrated system improves the employees' ability to generate suggestions to new ways on doing things. This last benefit can be characterised as innovation. Table 5.6 shows that only 30% of the companies in the survey consider increased innovation as an benefit achieved as a result of IMS implementation. A contradiction therefore exists between Pilgaards experiences and the survey results.

Respectively 40%, 36,7% and 30% of the companies also states that an IMS increases the companies' focus on respectively environment, OH&S and quality. The benefits regarding more focus on environment, OH&S and quality is also included to establish whether or not an integrated system alters the companies' focus on respectively quality, environment and OH&S. It is safe to assume that many companies focus more on quality than environment and OH&S. If many companies state that the focus on environment and OH&S has increased and few companies state that the focus on quality had increased, it would indicate the IMS have changed the focus in the companies so that higher emphasis is placed on environment and OH&S. In this survey respectively 40% and 36,7% of the companies state that the focus on environment and OH&S has increased, and only 30% of the companies state that the focus on quality has increased. However, the difference is too small to make any conclusions regarding an altered focus in the companies, especially since the majority of the companies have not experienced an increased focus on quality, environment and OH&S.

One company gave an additional comment which brought to light a benefit that is not mentioned in table 5.5. The company stated: '*an integrated management systems creates better understanding, a better overview and a better use of the quality, environmental and occupational health and safety management system for the everyday users of the system'*.

Another company gave the additional comment that they had no documentation for benefits achieved by integrating their IMS, but they had integrated the system to achieve the benefits mentioned. This is likely true for more than one company. Documenting the benefits achieved from implementing an IMS will require a lot of resources, and it is unlikely that any of the companies have documented the benefits. This means that the numbers in table 5.5 must be considered as estimates and not as exact facts.

The survey conducted by Douglas and Glen (2000) also asked the companies to indicate which benefits they had achieved by implementing an IMS, and Ahsen & Funck (2001) presented the top four reasons from four different German surveys (see table 4.2 and 4.5 in Chapter 4). It is difficult to compare the benefits directly. Douglas and Glen (2000) have, for example, found that respectively 82% and 89% of the companies in their survey find less procedures and multi-functional audits benefits. However, in the survey, conducted as part of this thesis, less procedures and multi-functional audits are not included in the lists of benefits. They are included in the list of integrated elements (see table 5.4), where respectively 100% and 96,7% of the companies indicate that they integrate procedures and audits. This means that these companies most likely also have experienced the benefit of less procedures and multi-functional audits. Douglas and Glen (2000) have also found that 82% of the companies have experienced more effectiveness. Again, more effectiveness is not included in this survey, but more effectiveness can be compared to reduced time consumption which 66,7% of the companies have experienced. Finally, it is worth mentioning that two of the four German studies rated simpler documentation highest. Simpler documentation was also rated highest in this survey as 83,3% of the companies achieved this benefit.

5.2.8 Level of integration

Chapter 3 divided the integration of management systems into three levels which was named alignment, integration and holistic integration. It is difficult to determine exactly which level of integration the companies in this survey have based their IMS on. This subsection will, however, discuss the level in integration in the participating companies based on the available information.

The companies, in the survey, were not asked to state their level of integration in relation to their IMS. This is the case because it is difficult to operate with complex concepts in a questionnaire. Furthermore, the concept of 'levels of integration' in relation to IMS is very likely unknown to the companies, and there was consequently no point in including it in the questionnaire. It would have been possible to explain the concept in the questionnaire, but it was estimated that the concept was to complex to do so.

The companies were, on the other hand, asked to state whether or not their different management systems is fully integrated in their overall management systems, and 90% of the companies stated that this is the case. However, this also presents a problem because, as discussed in section 5.1.3, there is not a widely used common definition on IMS. This means that it is difficult to interpret the answers to this question. It is clear that 90% of the companies state that they have a fully integrated system, but it is unclear who the companies interpret a fully integrated system.

The Alignment Level

The integrated elements show that practically all companies (<90%) have integrated document control, internal audits, management review, procedures, corrective and preventive actions and their management handbook. This indicates that all companies have in integrated systems which are based on the alignment level. The purpose of an integrated system on the alignment level is primarily to address internal efficiency, and the benefits achieved by the companies also show that the majority of the companies have achieved time and cost reductions as a result of a more effective system. It is thus fairly safe to conclude that the companies have aligned their management systems and the result has been a more effective system.

The Integration Level

The elements integrated also suggest that a majority of the companies have integrated their systems at the integration level. An IMS based on the integration level entail a common generic framework based on the process model from ISO 9001, the PDCA-model from ISO 14001 or both, and the purpose is to achieve interrelations, synergies and trade-offs between quality, environment, occupational health and safety, etc in addition to achieving a more effective system.

90% of the companies have integrated goals and targets, 80% have integrated the organisation as well as training, 76,7% have integrated internal communication and 56,7% have integrated the decision making process. These are common elements that will likely lead to interrelations, synergies and trade-offs between quality, environment, occupational health and safety, etc. Respectively 76,7% and 56,7% of the companies also state that they experience better coordination as well as less conflicts between quality, environment and OH&S (76,7%). These are likely benefits achieved as a result of interrelations, synergies and trade-offs between the systems. It is thus possible to suggest that the majority of the companies have implemented their IMS on the integration level as well as the alignment level.

The Holistic Integration Level

Holistic integration entails that quality, environment, OH&S, etc. are integrated into an overall management framework which is based on a learning organisation, stakeholder participation and continuous improvements etc. It also entails that quality, environment, OH&S etc are integrated with other management tools such as Lean, Six sigma, TPM[2] and TQM. The purpose of the holistic integration is, as with the alignment approach, to achieve better internal efficiency. The purpose is also, as with the integration approach, to achieve interrelations, synergies and trade-offs between the systems. Finally, the approach is to achieve external benefits such as an improved ability to change and an improved image with costumers etc.

It is difficult to establish whether or not any of the companies have integrated their management systems based on holistic integration through a quantitative survey as the holistic integration level entails somewhat abstract concepts that are difficult to include in a quantitative survey. The identification of IMS integrated at the holistic integration level is best achieved through a case study. The subject will therefore be addressed in Chapter 6 where a case study is conducted.

[2] Total Production Management

However, the question regarding the implementation model used asked the companies to state if their management system is based on a Total Quality Management Model, and only one company stated that their systems is based on this kind of model. This could suggest that the companies management system is not integrated at the holistic integration level. However, 60% of the companies stated that their management system is based on different models and it is possible that these companies make use of a TQM model. Hence, it is not possible to make any conclusions regarding the companies' use of holistic integration based on this survey.

The studies in Chapter 4 suggest that the majority of the companies, participating in the studies, had only integrated their different management systems at the alignment level. There is also evidence that suggested that some of the companies had integrated their management systems at the integration as well as holistic integration level, but it is difficult to make conclusions regarding the extent of the use of the different levels of integration. This again means that it is difficult to compare the studies in Chapter 4 with this study with regard to the integration level. However, the results of this study suggests that the companies in this survey to a larger extent have integrated their management systems at the integration level compared to the companies addressed in Chapter 4.

5.2.9 Barriers and disadvantages

Table 5.7 shows the disadvantages experienced by the companies participation in the survey.

Disadvantage	Respondents	Percent
There is less focus on quality	2	6,7%
There is less focus on environment	1	3,3%
There is less focus on OH&S	0	0,0%
The documentation is more complex	3	10,0%
The administration is more complex	4	13,3%
None of the above	23	76,7

Table 5.7 Disadvantages in relation to IMS.

It is evident that most of the companies experience no disadvantages in relation to the integration of their management systems, most of the companies experiences only benefits. Two companies state that the focus on quality has decreased on account of the imple-

mented IMS, and one company state that the focus on environment has decreased. Furthermore, respectively three and four companies state that the documentation and administration of the system have been more complex. One company, additionally, states that there can be potential conflicts between quality, environment and OH&S. The following example is given:

'…If a smaller environmental accident occurs the company must, according to the quality management, protect the company' image to stakeholders, but according to the environmental and OH&S management the company must be open and also register the accident. This can be a tricky balancing act in relation the board of trustees when you are responsible for the integrated system.'

Table 5.8 shows the barriers experienced by the companies in relation to IMS implementation.

Barriers	Respondents	Percent
Lack of resources	9	30,0%
Lack of knowledge	6	20,0%
Lack of motivation	10	33,3%
The IMS represents different focus areas	6	20,0%
In IMS requires changes in the organisation	3	10,0%
None of the above	10	33,3%

Table 5.8 Barriers in relation to IMS implementation.

10 companies or 33% percent have not experienced any barriers in relation to implementing an IMS, at least none of the barriers which were listed in the questionnaire. Respectively 30%, 20% and 33% of the companies have experienced respectively a lack of resources, a lack of knowledge and a lack of motivation. 20% stated that it is a barrier to combine systems which have a different focus area, and 10% stated that it is a barrier that the IMS requires unpopular changes in the organisation. Balle also states that employees which represent different focus areas often have difficulties communicating with each other. This is difficult to avoid and it is therefore important that companies have an overall coordination of quality, environment, OH&S etc. (Balle 2007)

The literature on IMS does only to a very limited extent address disadvantages in relation to IMS. This survey shows that one explanation is that companies only to a very limited extent experiences disadvantages. Some barriers have been identified in the literature, and these include limited resources, limited knowledge and a resistance towards change. The companies in this survey have experienced similar barriers, and have in addition experienced a lack of motivation among the employees and management.

A cross reference analysis has been conducted in relation the number of employees in the companies and their integrated elements as well as perceived benefits. A Cross reference analysis has also been conducted in relation to the year of IMS implementation in the companies and their integrated elements as well as perceived benefits. However, the analysis did not change the results presented in the above in any ways, and the documentation for the different analysis are thus not included in the chapter. The cross reference analysis also leads to uncertain results because of the small sample size in this survey.

The following chapter will be an analysis of two case companies to further contribute to the now limited knowledge that exists regarding the use of IMS in companies.

Case Study 6

This chapter will further explore the use of IMS through case studies in two Danish companies. The chapter will particularly address how the companies have integrated their different management systems and what benefits they have achieved. These case studies will together with the quantitative study in Chapter 5 contribute to the limited knowledge that exists regarding the practical use of IMS in companies. The companies which are studied are Hillerød Teknik Enterprise and Sapa Profiler A/S.

6.1 Hillerød Teknik Enterprise

Hillerød teknik Enterprise (HTE) is owned by Hillerød municipality. The main business areas for HTE are (Hillerød 2007a):

- Garbage collection.
- Snow clearing and salt application.
- The running of Hillerød municipality' waste recycling station.
- The running the Hillerød municipality' three cemeteries.
- The running of Hillerød municipality' waste water treatment plant.
- Maintenance of Hillerød municipality' green areas.
- Maintenance of Hillerød municipality' roads and paths.

HTE has about 120 employees which are divided into 6 sections and 15 self-governing teams. The employees have very different backgrounds as well as education levels, and their job functions ranges from engineers at the wastewater treatment plant to truck drivers responsible for salt application. HTE are financed through taxes, the citizens in Hillerød municipality and contracts. (Hillerød 2007a).

6.1.1 The VM-KL programme

HTE has a unique management system. HTE are certified according to ISO 9001, ISO 14001 and OHSAS 18001, but HTE is also certified according to value-based management and they have a certified integrated management system which HTE call the VM-KL programme. HTE began developing their VM-KL programme in the beginning of 2000 and began using it in 2004. This programme was called version 1.0 and was based on instructions and corrective action reports. The purpose of version 1.0 was to establish a foundation for further development of the systems as well as certification (Hillerød 2007a).

The initial reason for developing the system was to be in a more favourable position when making a bid for certain task or project where points were given for having a quality and environmental management system. Points in this case means that when an organisation is making a bid for a task where there has been an invitation for the submission of bids, the organisations are not only evaluated based on price they are also evaluated on they quality and environmental performance. HTE also saw an advantage in having an OH&S management system because then they would not have to be screened by the OH&S authorities (Madsen 2007). However, HTE did not achieve any certifications before the development of version 2.0 of the programme.

VM-KL 2.0

In 2006 it was decided to develop a version 2.0 of the VM-KL programme which was based on the experiences from version 1.0 (Hillerød 2007a). The three main reasons for implementing the second version of the VM-KL programme were: (Dalsgaard 2007):

- To support the vision, politics and strategy of Hillerød municipality.
- To create a platform for the future where it is necessary to focus on the organisations competitiveness, efficiency, quality and ability to change etc.
- To create the best workplace in Denmark.

Vision 2.0 meant the following changes (Hillerød 2007a):

- Further development and integration of the system structure.

- Restructuring and development of a complete handbook
- Development of support organisation.
- Development of three and one year targets for the entire organisation.
- Development of goals, targets and action plans for the four key areas: Values, quality, environment and OHAS.
- Development of new relevant procedures and instructions.
- Revision of existing procedures and instructions.
- Implementation of a communication program.
- Development of knowledge sharing and education programme.
- Involvement of management.
- Development of the system identity.

The development of vision 2.0 began in the summer of 2006 and the system was initiated November 1st 2006 and certified November 15th 2006. HTE achieved simulations certifications according to ISO 9001, 14001, OHSAS 18001, value based management and the integrated VM-KL system. The certification was carried out by DNV (Dalsgaard 2007).

The version 2.0 of the programme was mainly developed by Poul Dalsgaad through a period of three month. Poul Dalsgaard has extensive experiences as a consultant in relation to quality, environmental and OH&S management and was consequently able to develop the programme very quickly.

The version 2.0 of the VM-KL programme is based on (Hillerød 2007a):

- Vision, mission, goals and targets.
- Politics and legislation.
- Rules, procedures and instructions.
- Actions plans.
- Values.
- Quality control.
- Continuous improvements.
- Employee participation.

HTE have, furthermore, defined a number of requirements. The VM-KL programme must be (Hillerød 2007a):

- As simple and user-friendly as possible.
- Communicated to all employees in an everyday language.
- Used by all employees.
- Continuously improved.
- Developed through communication with stakeholders
- Result orientated on all levels
- Certified where possible.

The different elements in the above-mentioned bullet lists can be found in many management systems – at least when the intention of the management system is described. However, the characteristic of management systems is not found in its description, but in its practical use. The following will be an analysis of some of the special features of the management system that sets the VM-KL programme apart from other management systems.

Value-based management

One of the elements that separate the VM-KL programme from other management systems is the fact that it is based on defined values, and the fact that HTE has a certified value based management system.

According to Dalsgaard (2007) '*HTEs values are the foundation for the management, operation and further development in HTE, and the VM-KL programme is about establishing a corporate culture and management style that is based on rules, procedures and values that are continuously certified, quality-assured and improved'*.

HTE have defined four values which are respectively trust, interest, time, and care. The values are -for example operationalized through defined requirements to managers. These requirements involve that managers must act according to the defined values, that managers are trustworthy and honest and that managers work towards securing development and commitment among all employees etc. (HTE, 2007). The managers must perform a self-

evaluation every month there their commitment to the values are one of the aspects that are addressed. These self-evaluations are then discussed at the management meetings (Dalsgaard 2007). The values are also seeked implemented among all employees. HTE have, for example, developed a communication workshop which all employees are participating in. One of these workshops resulted in a number of golden rules regarding communication that was formulated in co-operation between the management and employees. These golden rules include respect, tolerance, a positive attitude and the freedom to speak ones mind when communicating. These golden rules are also discussed at the monthly meeting among the employees and actions are taken if the rules are not followed (Dalsgaard 2007).

Employee participation an important part of the VM-KL programme and the above example shows that employee participation is taken seriously by the HTE management. DNV also had positive comments in relation to employee participation in the VM-KL programme as the after the audit stated that '*we have experienced an extraordinary commitment and understanding of the VM-KL programme and the defined values among all employees as well as the management´.*

Visualisation of the VM-KL programme

Employee involvement and acceptance are very important when implementing a management system. HTE have developed different initiatives in order to visualise the VM-KL system and gain the acceptance of the employees. According to Dalsgaard (2007) almost all employees use the programme, which consists of a handbook and a number of appendixes. The handbook is available in a physical form, and it is available in a web based document system. The intention is that the documentation with time will be completely web based.

HTE have also published five small pamphlets that have been distributed to all employees. The content of the pamphlets are respectively (Hillerød 2007b):

- The content of value-based management.
- The content of the VM-KL programme and the reasons for implementing it.

- The benefits for the employees.
- The organisation behind the VM.KL programme.
- The VM-KL programme and the five certifications.

Posters have been made that show the responsibilities of the management in relation to the value-based management, and HTE has also developed a logo that symbolises the programme. Finally HTE has implemented a system where all employees can get a red, yellow green smiley based on the conduct in relation to the programme. HTE is also about to introduce a 'good story of the month' in relation to the programme. If an employee have done something special in relation to the VM-KL programme it will be mentioned the monthly newsletter. This could be a quality, environmental or OH&S improvement, or an excellent conduct in relation the organisational values (Dalsgaard 2007).

Standardization

The value based management system is not based on a recognized standard as ISO 9001 or 14001 etc. The certification serves as evidence that HTE manage their operations according to their defined values. The certification is conducted by DNV, which afterwards has developed general requirements, based on HTEs value-based management, which other organisations can be certified according to (Dalsgaard 2007). This requirements includes (DNV 2007):

- Vision, mission and values as well as goals and action plans.
- Innovation and creativity in the organisation.
- Accept and understanding of the values among employees.
- Management commitment to the values.
- Continuous monitoring and improvements.
- Stakeholder analysis.
- Value based audits.

HTE also have a certified integrated system, which again is not based on a recognized standard. HTE is certified according to VM-KL management where the VM-KL pro-

gramme also is developed by HTE themselves. According to Dalsgaard (2007) DNV has also developed an integrated certification based on HTEs VM-KL programme.

HTE feels so strongly about their VM-KL programme that they sell the programme to other organisations, both private companies and municipal organisations like themselves. HTE has at the moment contact to three organisations that are interested in implementing the programme. When an organisation buy the programme an analysis must be made of the organisation to determine which elements of the VM-KL that are relevant for that particular organisation. Subsequently a project plan and a budget are made in collaboration between HTE and the organisation, and the organisation will then buy the VM-KL programme as well as consultant assistance.

According the Dalsgaard (2007) HTE sell their programme to other organisations for three reasons. The first reason is that knowledge sharing can be established among HTE and other organisations. If other organisations implement the programme they will also be able to simplify and improve it, which can benefit HTE through knowledge sharing. Also, if other similar organisations implement the programme it can constitute a basis for co- operation on large tasks. HTE could, for example, make a bid for a large task together with a similar organisation. Finally the VL-KL system is also a business opportunity for HTE.

The integrated system

This section will analyze HTEs VM-KL programme based on the level of integration described in Chapter 3. It can be suggested that the VM-KL programme is based on the alignment, the integration as well as the holistic integration level.

In relation to the alignment level HTE have integrated common elements in the different management systems including documentation, audits, corrective and preventive action, communication, procedures and instructions etc.

The interview with Poul Dalsgaard also suggests that HTE have based their VM-KL programme on a common generic framework. There is, for example, focus on continues improvements within quality, environment, OH&S as well as the value based management. The goals that are defined for the different areas are also coordinated in the management

group. Finally, the organisation behind the VM-KL programme also suggests that it is based on a common generic framework.

The VM-KL organisation consists of the overall manager, the VM-KL project manager, section managers, a support group, VM-KL group coordinators and finally the system responsible. The VM-KL project manager is Poul Dalsgaard who has been responsible for developing the system. The section managers are the managers for each section in HTE. That is for example the section for the waste water treatment plant and the section for garbage collection. The support group consists of a number of employee representatives, and the VM-KL group coordinators are representatives for the self-governing teams. Finally, the system responsible are responsible for respectively the quality, environmental and OH&S management.

There is no distinction between quality, environment and OH&S in HTE. There is for example not an environmental or quality department, or an environmental or quality manager/coordinator in the different sections and self-governing groups. The managers/coordinators are responsible for the integrated system. This suggests that the organisation is based on an integrated generic system. However, the systems responsible are still responsible for the separate systems.

The interview with Poul Dalsgaard also suggests that the VM-KL programme is integrated at the holistic integration level as the VM-KL programme is based on the companies overall management framework which is based on a set of defined values. The programme has also been implemented for strategic reasons which include knowledge sharing and cooperations with other similar organisations. It is worth mentioning that Poul Dalsgaard does not see the VM-KL programme as being based on TQM. According to Dalsgaard TQM can be viewed as a mix of lean, quality management, and value based management where the VM-KL programme is an integrated system based on values.

This analysis of the VM-KL programme also suggests that the VM-KL programme is integrated at a higher level than the management systems which are studied in the IMS literature and which were analyzed in Chapter 4.

6.2 Sapa profiler A/S

Sapa Profiler A/S is located in Grenå and develops, produces, processes and makes different kind of surface treatment to aluminium profiles. The aluminium profiles are for example used in the building, electronic, transport and decorating sector. Sapa Profiler A/S has about 120 employees and is part of the Sapa Group which has 9.000 employees and production facilities in several European countries as well as China and the United States. The Sapa group is owed by the Orkla Group which is one of the largest corporations in Norway. The Orkla Group operates within several business areas that range from food products to metals manufacturing (Sapa 2007, Orkla 2007).

Sapa Profiler A/S is certified according to ISO 9001, ISO 14001 and OHSAS 18001. An interview was conducted with Kirsten Burfelt who is the quality manager at Sapa Profiler A/S. Kirsten Burfelt is also responsible for environmental management, and is she is the overall manager for OH&S.

6.2.1 Integrated elements

Sapa was certified according to ISO 9001 in 1993, ISO 14001 in 1997 and OHSAS 18001 recently. quality, environment, and OH&S have always been managed in the same department in the company, but Sapa had initially separate documentation for the different systems. The documentation has now been integrated in a web-based document system. Sapa has also integrated internal and external audits management review and external communication (Burfelt 2007).

Sapa, however, has not integrated corrective actions because these are very different in relation to respectively quality, environment and OH&S. Corrective actions in relation to quality most often refers to notifications of lack of conformity from customers, and corrective action in relation to OH&S refers to accidents or almost accidents (Burfelt 2007).

Regarding benefits in relation to an integrated system Kirsten Burfelt emphasis that the system is easier to manage, there are fewer procedures and the resources required to manage the system is reduced. These benefits correspond to the benefits experienced by the companies participating in the qualitative survey described in Chapter 5.

Kirsten Burfelt, furthermore, stated that the employees in the production still perceives quality, environment and OH&S as separate issues because Sapa has certain safety rules, quality requirements etc. It is the managers that perceive the quality, environment and OH&S as part of one management system (Burfelt 2007).

Pilgaard is of the a similar understanding when he states that *'companies might have separates systems at the operational level, but in relation to planning, control and allocation of resources the companies must have an integrated system in order prioritize correctly* (Pilgaard 2007).

Kirsten Burfelt was also asked if Sapa had used DS 8001:2005 or another guide in relation to IMS implementation. Kirsten Burfelt stated that she did not believe in using guides as I basis for implementing an IMS because a companies management systems must be based practical experiences (Burfelt 2007). Pilgard (2007) have expressed similar opinion.

It is evident that Sapa has integrated their systems at the alignment level as they have integrated documentation, audits, communication etc. It is difficult to state whether or not Sapas management system is integrated at the integration and the holistic integration level, because of a lack of information. However, Kirsten Burfelt gave the impression that Sapas management system is not integrated at the integration and the holistic integration level.

6.2.2. Automatic integration

However, the most important lesson learnt from the integrated system at Sapa Profiler A/S is that Kirsten Burfelt feels that the integration of the different systems to a wide extent occurs automatically. Sapa has a Lean Manufacturing System which is called Genesis, and is in the process of implementing 5S[3]. In this regard Kirsten Burfelt, for example, states that *´Genisis and 5S both contain quality environmental, and OH&S elements – The different elements are thus automatically integrated and its is difficult to separate them'* (Burfelt 2007). Kirsten Burfelt, furthermore, states that the integration of the systems happens automatically because the individual systems are similar.

[3] 5S is a Lean Manufacturing tool which purpose is to secure a safe, clean and orderly workplace. The 5S is originally from Japan, and the 5S denotes five Japanese words that can be translated to Sort, Straighten, Sweep, Standardise, and Sustain (The Manufacturing institute 2007).

Kirsten Burfelt is the overall responsible for quality, environment as well as OH&S in Sapa Profiler A/S. It can be suggested that an organisation where one person is responsible for several management systems is likely to automatically integrate its management systems, whereas an organisation where different people are responsible for the different management systems is less likely to automatically integrate its systems.

HTE and Sapa are examples of two different companies in relation to IMS. Sapa has an IMS where the integration has occurred more or less automatically. HTE has an IMS where the integration has been intentionally implemented. The interview with Kirsten Burfelt suggests that Sapas management system is integrated at the alignment level, whereas HTEs management system is implemented at the holistic integration level.

It can be suggested that integration at the alignment level to some extent occurs automatically, especially when one department manage all the different systems, and that integration at the integration and holistic integration level only occurs if the organisation intentionally implement an integrated system. There is, however, nothing in the existing literature that supports this hypothesis, and the above case studies is insufficient in order to make any certain conclusions.

Conclusion 7

The history of management system standards began with the introduction of a quality management standard in the late 1970s. Since then numerous other standards have been developed within various different areas including environment, OH&S, energy, CSR, food safety etc. The large number of management system standards have since the mid 1990s made it interesting for companies to integrate their different management systems.

The most popular standards have now been published in several editions and have thereby gone through a development process. Through this development process the standards have continuous been aligned and their compatibility have been increased. ISO did also in 2001 develop a guide, the ISO Guide 72, which established a common framework for the development, reviewing

The new editions of the different standards also include an IMS Matrix as an appendix. The IMS Matrix is a table that shows which clauses in the different management systems that correspond. The purpose of the IMS Matrix is to illustrate the different management system standards combinability.

7.1 IMS Theory and Models

It is evident that the different management systems standards have been increasingly aligned and their compatibility have increased. It is therefore obvious that organisations have begun integrating their management systems. There are a number of different models on which organisations can base the integration. and revising of management system standards.

- An organisation can integrate their different management systems based on the common elements between the different standards which are described in the ISO guide 72 and the IMS Matrixes. This includes document control, corrective/preventive actions, management review, operational controls, audits etc. The purpose is mainly to eliminate or reduce duplication and thereby increase effectiveness. An IMS based on common elements between standards can be characterised as a system based on alignment.

- An organisation can also choose to integrate their systems based on a generic common framework. The generic common framework can be the PDCA-cycle of ISO 14001, the process approach of ISO 9001 of a combined PDCA and process framework, which is denoted as the system approach by Karapetrovic and Willborn (1998) The purpose of integrating systems based on a generic common framework is to establish '*a single top level management 'core' standard with optional modular supporting standards covering specific requirements'* (MacGregor Associates 2001). This should especially result in synergies as well as trade-offs between systems. An IMS based generic common framework can be characterised as a system based on integration.

- Finally, organisations can choose to base their integration on Total Quality Management. TQM does not only address operational management, but also strategic management an organisations culture, the learning organisation, communication and consultation, motivation and commitment, team building, shared norms and values etc. One TQM model is the EFQM model for Business Excellence. The purpose of a TQM based IMS is to establish a learning organisation and a culture of responsibility based on stakeholder involvement and thereby achieve strategic advantages. An IMS based a TQM model can be characterised as a system based on holistic integration.

Integrated standards have also been developed, for example the British PAS 99:2006 and the Danish DS 8001:2005. Organisations can be certified according to the PAS 99:2006,

but they can not solely be certified according to PAS 99. The organisations must also be certified according to ISO 9001, ISO 14001 etc. The DS 8001:2005 serves as a guide to IMS. These standards reflect the evolution of integrated management systems and contain elements from all the evolution steps described in the above.

Organisations must base their IMS on their specific organization as well as on their specific needs. It is therefore not possible to say that organisations should use a specific model when implementing an IMS.

7.2 Existing Experiences in Relation to IMS

Few quantitative and qualitative studies are made in relation to IMS, especially in a Danish context. The studies are furthermore of a varying quality. Some of the studies analyze companies with an intention of implementing an IMS. Other studies analyze IMS as part of studies regarding environmental management.

However, in the studies analyzed between 25% and 71% of companies have implemented an IMS or intent to implement an IMS. The studies, furthermore, show that companies integrate a number of common elements and have achieved a number of benefits. The integrated elements and achieved benefits are summarised in table 7.1.

Integrated elements	Benefits
Audits	Reduced costs
Training	Reduced time consumption
Purchasing	Simpler documentation
Supplier assessment	Less procedures and less paperwork
Corrective action	Multi-functional audits
Preventive action	Improved decision making process
Document control	Higher transparency
Procedures	Clearer responsibility
Work instructions	Better structured processes
Process control	Enhanced effectiveness
Organisation	Higher awareness and acceptance
Responsibility statements	Improved communication
Management review	Reduction of coordinated problems
Communication	Improved image with customers
Goals	Enhanced corporate identity
Targets	Better innovation
	Ability to change
	Holistic view

Table 7.1 Integrated elements and achieved benefits in companies with in IMS (Del Brio et al. 2001, Douglas and Glen 2000, Kroppmann/Schreiber 1996, KPMG 1998, Enzler 2000, Funck et al. 2001, Jørgensen 2006b, Hines 2002, Wilkinson and Dale 1999, Zutshi and Sohal 2005).

A number of barriers regarding IMS implementation are also identified in the literature. These include lack of knowledge, resources and implementation tools. A resistance towards change from employees is also found.

In relation to the level of integration it is generally found that the companies integrate their management systems at the alignment level. There is also evidence that some companies integrate their management systems at the integration level and holistic integration level. However, it is not possible to make any certain conclusions in relation to the integration level and holistic integration level based on these studies.

7.3 The Results of the Web-questionnaire and the Case Study

The study of IMS experiences in Danish companies found that 91% of the companies with more than three certified management systems have implemented an IMS. This corresponds with Balle (2007) and Pilgaard (2007) that states that all companies today have implemented an IMS.

The majority of the companies (71%) have an IMS which is comprised of quality, environment, and OH&S management. It is interesting that most of the companies have not based their IMS on a specific model but on a combination of different models. This suggests that the companies have a practical approach to integrating their different management systems. This is also supported by Pilgaard and Burfelt that both state that a company must base their management system on the specific organizations and not on a theoretical model.

When integrating their management systems the companies have to a wide extent received assistance from consultants and certification bodies as 50% of the companies have received assistance from these. Guidelines and experiences from other companies are also widely used.

Figure 7.2, furthermore, shows that Danish companies to a large extent have integrated their management systems and have achieved a number of benefits.

Integrated elements	Percent	Benefits	Percent
Document control	100,0%	Simpler documentation	83,3%
Internal audits	100,0%	Better coordination between systems	76,7%
Management review	96,7%	Reduced time consumption	66,7%
Procedures	96,7%	Less documentation	66,7%
Corrective and preventive actions	93,3%	Reduced costs	56,7%
Management handbook	93,3%	Reduced time consumption for internal audits	56,7%
Policies	93,3%	Less conflicts between systems	56,7%
Goals and targets	90,0%	Reduced time consumption for external audits	43,3%
Training	80,0%	More focus on environment	40,0%
Organisation	80,0%	More focus on OH&S	36,7%
Internal communication	76,7%	More focus on quality	30,0%
External audits	73,3%	Increased innovation	30,0%
External communication	63,3%	None of the above	3,3%
Decision making process	56,7%		
Prioritising of resources	40,0%		

Table 7.2 Integrated elements and achieved benefits in the Danish companies with in IMS.

Few companies have experiences any disadvantages in relation to their IMS and only a small number of companies have experienced barriers in relation to IMS implementation. Respectively three and four companies state that the documentation and administration of

the system have been more complex, and 30%, 20% and 33% of the companies have experienced respectively a lack of resources, a lack of knowledge and a lack of motivation when implementing IMS.

The survey shows that more than 90% of the companies have an IMS which is integrated at the alignment level. The survey also suggests that a majority of the companies have integrated their systems at the integration level. However, it can not be established if the companies have integrated their systems at the holistic integration level based on this survey.

However, the case study suggests that Hillerød Teknik Enterprise have integrated their IMS at the holistic integration level. HTEs management system is based on the companies overall management framework which is based on a set of defined value. It is clear that the system has been implemented for strategic reasons which include knowledge sharing and co-operations with other similar organisations.

This is an analysis of best - practice and it is therefore not possible to say how many Danish companies that have not implemented an IMS. However, it is evident that there is a great potential in IMS. Companies can achieve many benefits by integrating their different systems and there are almost no disadvantages.

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Appendix A

Udskrift af interview med Christopher Balle 27 marts 2007.

Hvor I består dit arbejde hos Dansk Standard?

Jeg er chef for en afdeling som arbejder med miljø, energi og ledelse. Der er 8 medarbejdere plus mig. Vi har standardiserings og rådgivningsopgaver.

Hvornår begyndte DS at interessere sig for integrerede ledelsessystemer?

Det begyndte allerede i 90'erne. Kvalitetsledelse kom i 1994 ved ISO 9000. ISO 14001 kom i 1996 og i 1999 kom OHSAS 18001. I 2001 kom energiledelse på banen. Der begyndte man for alvor hos Dansk Standard at interessere sig for integrerede systemer. Miljøstyrelsen kom også på banen da de gerne ville integrere miljø og energiledelse. Miljøstyrelsen kontaktede DS og Jeg og en af mine kollegaer lavede en integreret standard, ikke bare for miljø og energi, men en general integreret standard som miljøstyrelsen finansierede.

Hvornår begyndte virksomhederne at interessere sig for integrerede ledelsessystemer?

Virksomhederne begyndte at arbejde med integrerede systemer da blev certificeret efter flere systemer. Der var dog mange virksomheder som ikke formåede at lave et integreret system, og i 90'erne var der mange der stadig arbejdede efter adskilte systemer. Også da arbejdsmiljø og energiledelse kom frem arbejdede de med systemerne adskilt da det var forskellige afdelinger som arbejdede med de forskellige områder.

Jeg kan sige at i dag arbejder de større virksomheder med integrerede systemer. De mindre virksomheder har sværere ved det.

Er det virksomheder inden for bestemte brancher der specielt arbejder med integreret ledelse?

Nej, det er ikke branche bestemt. Jeg har rådgivet Novo Nordisk. Jeg har også arbejdet sammen med en stor jysk virksomhed hvor vi har lavet et helt integreret ledelsessystem. Virksomheden er certificeret efter kvalitet, miljø, arbejdsmiljø og energi og hele systemet er på 12 sider.

Der har endnu ikke været fokus på de små virksomheder, og de har som regel ikke kapaciteten til at lave et integreret ledelsessystem. De har heller ikke lavede systemer som kan certificeres med mindre det er et krav fra kunder.

Man begynder nu at få mere fokus på de mindre virksomheder. Der kommer inden for et par måneder en håndbog omkring integreret ledelse i små virksomheder. Det er en ISO guide med udgangspunkt i et bageri.

Jeg vil gerne besøge en virksomhed som er langt i forhold til integreret ledelse. Kan du pege på nogle virksomheder?

Jeg vil sige Danfoss. Novozymes er også et bud. (Dan Lynge)

Hvordan der du udviklingen inden for integrerede ledelsessystemer? – er det på vej fremad?

Absolut. Jeg skrev engang en artikel som hed én virksomhed ét system. Det er den tankegang som vinder indpas i flere og flere virksomheder. Det er dog de færreste virksomheder som ved hvordan det skal gribes an. Det er i den situation jeg kommer ind som rådgiver. Jeg kan mærke på virksomhederne at de gerne vil have ét system og ikke flere forskellige systemer.

Hvad bliver integreret?

Kvalitet, miljø og arbejdsmiljø. CSR vinder større og større indpas.

Bliver dokumentationen af systemerne integreret, er det audits der bliver integreret etc.?

Det er proces orienteret. Problemet er at mange kigger på deres virksomhed afdelingsvis, og det er en fejl. Det første man skal gøre når man lavet et integreret ledelsessystem der er i virkeligheden at kigge på virksomhedens stakeholdere. Det er vigtigt at identificere virksomhedens interesanter. Derefter er det vigtigt at finde ud af hvilken information der er vigtigt for stakeholderne. Derefter skal virksomheden kigge på deres processer. I stedet for at kigge på afdelinger skal virksomheden kigge på hvad der kommer ud af virksomheden. Virksomheden skal identificere de vigtigste ting der kommer ud af virksomheden. Virksomhederne skal derefter identificere kerneprocesser, og de involverede medarbejdere. Virksomheden skal derefter beskrive processen og lave etablere relevante målinger. Der er så ligegyldigt om det drejer sig om kvalitet, miljø eller arbejdsmiljø. Det drejer sig om processen.

Betyder det også at det er de samme personer i virksomhederne som arbejder med kvalitet, miljø eller arbejdsmiljø?

Det betyder at virksomhederne tænker på en anden måde. Før havde virksomhederne en afdelingsleder som sad med en række forskellige ting. Der var også en kvalitetschef og andre funktioner. Det har virksomhederne så vidt stadigvæk, men kun i en personalemæssig sammenhæng. Når du kigger på virksomhedens processer er der proces ejere. Der er dermed nogle folk der beskriver processen og har styr på denne. De har ikke nødvendigvis et personalemæssigt ansvar for de medarbejdere som er med i processen, med de har ansvar for at processen kører. Det er på denne måde at flere og flere virksomheder arbejder. Det arbejdes på tværs af organisationen. Medarbejderne arbejderne i virksomheden arbejder med det de altid har arbejdet med.

Er der elementer der er særligt vanskelige at integrere.

Ja, arbejdsmiljø er svære at integrer da det har noget med mennesker at gøre. Det andet har noget med varerne at gøre. Men når virksomhederne først kommer i gang er det ikke det store problem.

Når man læser litteraturen bliver der beskrevet forskellige modeller. Nogle siger at det er bedst at benytte PDCA andre henviser til proces modellen og andre igen henviser til T M – Kan disse modeller genfindes i virksomhederne?

I DS 8001 blander vi proces tankegangen med PDCA. Værd proces for sin egen PDCA. Der findes 250.000 bøger omkring ledelse, og de siger alle noget forskelligt. Der har været ca. 50 virksomheder med i arbejdet omkring at lave IMS vejledningen. Vi har skrevet vejledningen udfra hvad vi ved teoretisk, men også i forhold til virksomhedernes praktiske erfaringer. Det er blevet kp. 1-4 i vejledningen.
Kvalitetsledelse har oftest har højst prioritet i virksomhederne – hvordan er det i forhold til et integreret system – jeg tænker på forholdet mellem kvalitet, miljø og arbejdsmiljø?

Virksomhederne tænker ikke kvalitet, miljø og arbejdsmiljø adskilt – virksomhederne tænker ledelse og hvilke informationer der er vigtige for virksomheden. Virksomheder arbejder f.eks. med arbejdsmiljø fordi der er en stakeholder som kræver det, og miljø fordi der også her er en stakeholder som kræver det. Virksomhederne bliver så certificeret hvis der er krav om det – ellers er der jo ikke noget grund til det. Jeg kan ikke sige hvad der er vigtigst – for sådan tænker virksomhederne ikke.

Ledelsessystemet er altså stakeholder baseret?

Nemlig – Kunder, kunder og kunder.

Hvordan identificerer virksomhederne stakeholdere og deres krav?

Virksomhederne prøver at finde ud af hvem der har en interesse i virksomheden. Det gør virksomhederne selv. For at finde ud af hvilken information stakeholderne efterspørger, kan virksomhederne lave en stakeholder dialog eller sende spørgeskemaer ud etc. Generelt set laver virksomhederne en stakeholder dialog.

Gælder det også for mindre virksomheder?

Nej, mindre virksomheder er som regel underleverandører til større virksomheder. Generelt er det de store virksomheder som efterspøger information hos deres underleverandører. Underleverandørerne tager så udgangspunkt i den information.

Kan der være en barriere ved integreringen af ledelsessystemer ide at forskellige faggrupper taler hvert deres sprog?

Ja det er et problem og det vil det altid være. Det kan ikke være anderledes. Det er også derfor at der overordnet skal være nogen som samler trådene. Ofte snakker kvalitetsfolkene

forbi miljøfolkene og miljøfolkene snakker forbi arbejdsmiljøfolkene. Det kan ikke udgås, og det er det som kan kaldes en kulturforskel.

Ja, men hvordan er systemet så integreret når kvalitets, miljø og arbejdsmiljøfolkene stadig har adskilte funktioner?

Du skal kigge på processerne i virksomheden. En virksomhed producerer en vare. Der er en proces som begynder med at virksomheden for nogle råvarer. Disse råvarer forarbejdes og i sidste ene kommer der et færdigt produkt ud af det. Denne proces skal virksomheden beskrive. Der skal afgives information strategiske steder i processen, fordi der er stakeholdere, som er interesseret i denne information. Virksomheden skal herefter finde ud af hvor og hvad der skal måles. Det er således kvalitetsfolk der tager sig af kvalitetsspørgsmål og miljøfolk der tager sig af miljøspørgsmål osv. Medarbejderne som arbejder i produktionen er jo ligeglade om en bestemt procedurer handler om miljø, kvalitet eller arbejdsmiljø. Medarbejdere differentierer ikke mellem miljø, kvalitet eller arbejdsmiljø. Det handler om processen og informationen.

Betyder det at det integrerede system primært eksisterer på et strategisk niveau og ikke så meget på det operationelle niveau?

Det eksisterer på det strategiske og det operationelle niveau. Det afhænger af hvad men snakker om. Et ledelsessystem er altid bygget op omkring hvad jeg kalder det røde tråd. Øverst har du virksomhedens mission som handler om hvorfor virksomheden eksistere, og nederst er det instruktioner. Indimellem er der virksomhedens vision og strategi. Visionen beskriver hvor virksomheden ser sig selv om nogle år. Strategien fortæller hvordan virksomheden opnår sin vision. Ud fra strategien udarbejder virksomheden politiker, som udmønter sig i målsætninger, som udmøntes i konkrete målbare mål, og som igen udmøntes i handlingsplaner. som udmøntes i procedurer, som ender i instruktioner.

Det er den røde tråd. Hvis dette er gjort rigtigt i virksomheden ved den enkelte medarbejder præcis hvorfor han måler på en bestemt kvalitets parameter ved en bestemt maskine – nemlig for at virksomheden kan opnå sin vision.

Er der elementer virksomhederne skal være særligt opmærksomme på når de integrere deres system?

Det afhænger af virksomheden.

Hvad er de primære fordele ved et integreret system?

En virksomhed et system. Det er fordelen. Virksomheden har kun et system at vedligeholde og ikke fire. Medarbejderne bliver også mindre frustrerede fordi de kan koncentrere sig om produktionen og ikke om systemerne.

I har lige udgivet DS 8001:2006 som er en vejledning – er der en standard på vej?

DS 8001:2006 kaldes også en standard, men det er en standard som man ikke kan certificeres efter, og det kommer der heller ikke.

Heller ikke fra ISO?

Nej det kan ikke lade sig gøre og er heller ikke interessant at virksomhederne har et integreret system. Det interessante er at virksomheder certificerer deres miljøforhold, kvalitetsforhold etc. Der er ingen der har interesse i at have kun en certificering på et integreret system. Den vil desuden heller ikke blive billigere fordi der skal stadig være det certificeringsteam der ved noget om både kvalitet, miljø etc.

Hvad med udviklingen i standarder?

Der vil altid være en udvikling og virksomhedernes enkelte elementer i deres ledelsessystem vil ændre sig i forhold til udviklingen.

Bruges DS 8001 af virksomhederne?

Jeg kan kun sige at det er solgt i ca. 270 eksemplarer, og det er et pænt tal.
Udbyder DS kurser inden for IMS og er de benyttet?

Vi udbyder kurser, men jeg ved ikke hvor benyttet de er.

Appendix B

Udskrift af interview med Lead Auditor Uffe Pilgaard fredag d. 23 marts 2007

Kommer du fra Aalborg Universitet?

Ja, jeg blev færdig i 1987 og studerede på det der hed virksomhedssystemer. Vi var nogle få stykker der arbejde med kvalitetsstyringssystemer i forskellige afskygninger. På årgangen over os var der 3-4 stykker og vi var 5-6 stykker.

Jeg kommer fra Environmental Management, så jeg har derfor primært beskæftiget mig med miljøledelse. Til at begynde med vil jeg gerne høre lidt om din baggrund i forhold til dit arbejde her hos DNV?

Jeg har arbejdet hos DNV siden 1992. Jeg startede med at arbejde med kvalitetsstyring på 5. semester på universitet. Jeg lavede afgangsprojekt om kvalitetsøkonomi. Mit første job var hos et rådgivende ingeniørfirma hvor jeg arbejdede med at implementerer kvalitetsstyring. Derefter arbejdede jeg et par år som konsulent. Jeg har siden arbejdet hos DNV – først med kvalitet, siden med miljø, energi og fødevarersikkerhed, og lidt med arbejdsmiljø. Det sidste nye er verifikation af CO2 kvoter som begyndte at falde på plads i 2005 hvor virksomhederne blev omfattet af de gældende regler. Ellers har jeg med DNVs egne interne systemer.

Hvornår begyndte danske virksomheder at interessere sig for IMS?

Det gjorde de midt i 1990'erne. Da miljøledelse begyndte at komme på banen begyndte virksomhederne også at se på hvordan kvalitet og miljø kunne håndteres i et system.

Det kom måske naturligt?

Ja, det kom naturligt. Allerede da de vi lavende de første miljøcertificeringer i 1995. Første gang vi lavede en triple certificering med både kvalitet, miljø og arbejdsmiljø var i 1997. Det var naturligt at lave en sammenhæng i beskrivelsen, men også i forhold til det rent praktiske, mellem de forskellige systemer.

Hvor mange af de virksomheder som har flere systemer har et integreret system?

Omkring 40% af de virksomheder vi har certificeret har flere certificeringer. Men flere virksomheder som kun er certificeret efter et system håndterer alligevel flere systemer – de er blot ikke certificeret.

Et integreret system kan ses som rygraden i ledelsesstrukturen. Vi etablerer en overordnet struktur hvorpå de forskellige ledelsessystemer baseres.

Alle virksomheder har et integreret system. Man ser stort set ikke virksomheder som har ét system til kun at håndtere kvalitet eller ét system til kun at håndtere miljø.

Af de virksomheder som har flere certificeringer hvor mange har 'officielt' integreret systemerne?

Det har de næste alle. Virksomhederne har i høj grad fokus på gennemskuelighed og enkelthed. Det opnår virksomhederne ikke hvis de forsøger at holde de forskellige systemer adskilte. Sammenhængende mellem systemerne er for komplicerede til at de kan holdes adskilte.

Jeg har et eksempel fra en virksomhed som blev certificeret på kvalitet i 1993. De blev hurtigt certificeret på miljø. De havde opbygget en meget kompliceret beskrivelse af deres kvalitetsstyringssystem. Da de begyndte at arbejde på at blive certificeret på miljø ville de gerne samle beskrivelserne. Men de startede med at holde systemerne adskilte for senere at integrere systemerne. Det var i slutningen af 1996. Virksomheden fik blot ikke samlet systemerne. I 2000 sagde vi til virksomheden at de måtte gøre noget fordi virksomheden havde, hvad man kunne kalde, én magtbase omkring kvalitet og én magtbase omkring miljø. Der var ingen overlap i forhold til de personer som styrede kvalitet og miljø. Det betød at relationerne mellem systemerne ikke blev varetaget og der opstod sub-optimering. Det tiltag der blev gjort i forhold til miljø stod i modsætning til de mål der var på kvalitetsområdet.

Rent ledelsesmæssigt har virksomhederne et stort behov for at samle systemerne. Det er dog muligt at virksomhederne i driftsniveauerne gerne i højere grad vil adskille systemerne for at skabe overblik. I planlægning, styring og allokering af ressourcer må virksomhederne have et integreret system for at kunne prioritere rigtigt.

Opfordrer i virksomhederne til at integrere deres systemer?

Ja, helt klart. Der er også et område vi fokusere på når vi laver audits i virksomhederne. Vi laver helst en audit af alle systemer på en gang. Fra DNV kommer vi et team som kan auditere alle systemer. Det er også vores indtryk at virksomhederne foretrækker dette.

Hvor mange virksomheder integrerer de forskellige kombinationer af ledelsessystemer?

Hvis jeg ser på de virksomheder som DNV her certificeret kan jeg sige at vi har udstedt ca. lige mange kvalitets og miljøcertifikater. Mht. arbejdsmiljø var der stor interesse i staten, men det sidste år har interessen være faldene. Jeg vil tro at antallet af arbejdsmiljøcertifikaterne, som DNV har udstedt, ligger på en niveau der svarer til ca. 1/3 – ¼ af antallet af kvalitets og miljøcertifikaterne. Der er dog et klart billede på hvilke systemer virksomhederne vælger at blive certificeret efter. Det er meget forskelligt. Nogle vælger også at blive certificeret efter flere systemer på en gang mens andre vælger at blive certificeret efter et system. Der er også en tendens til at når virksomhederne først er certificeret efter kvalitet og miljø vælger de ofte at blive certificeret efter flere systemer.

Hidtil har det vel været sådan at flest virksomheder blev certificeret på kvalitet, mens færre blev certificeret efter miljø. Har det ændret sig?

Ud fra DNVs tal er det sådan, at globalt er 80% af certifikaterne på kvalitet, men i Danmark, Finland, Sverige, Holland og andre lign. lande er fordelingen anderledes. Her er der flere der virksomheder der er certificeret i forhold til miljø og arbejdsmiljø. Miljø certificeringer begynder dog at blive mere populære også i andre lande. DNV er også til steder og her sker der også noget i forhold til miljø og arbejdsmiljø. Udviklingen vi har set i Danmark og andre lande i forhold til interessen for miljø og arbejdsmiljø er også på vej i Kina og andre lande.

Virksomhederne er typisk blevet certificeret efter kvalitet først og dette er der ikke ændret ved.

Afholder DNV kursus i IMS?

DNV har haft kurser i IMS, men vi har ikke gjort ret meget i den retning. Der er mange der holder den slags kurser, så der er ikke altid basis for det. Audit kurser fylder mest.

Der foregår måske mest ude på virksomhederne f.eks. i forbindelse med audits?

Ja, det er jo der er feedback.

Hvilke systemelementer integrerer virksomhederne når de arbejder med IMS?

Virksomhederne integrerer i høj grad beslutningsprocessen, målsætning og opfølgning på mål samt prioritering af resurser. Der er her det store sammenfald findes. Derudover er der også audits og andre elementer som er naturligt at integrerer

De bedste eksempler findes i proces og fødevarevirksomheder hvor man styrer kvalitet, miljø, arbejdsmiljø, og fødevaresikkerhed. Sammenhængene mellem systemerne er så komplicerede at det ikke styres fra forskellige forum. De kan ikke adskilles i beslutningsledet. Men virksomheden kan godt have en struktur i forhold til hvilken der er mellemlederniveau hvor de forskellige systemer er adskilt. De fleste virksomheder kan ikke komme udenom at der skal side nogle faggrupper som arbejder med hhv. kvalitet, miljø og arbejdsmiljø. I en driftsituation kan virksomhederne også godt arbejde med adskilte systemer. Som operatør i en virksomhed kan det være lige meget om en analyse eller procesovervågning mv. stammer fra kvalitets, miljø eller arbejdsmiljøstyring.

Et eksempel på ovenstående kan være et mejeri. Her kan mejeriet ikke lave f.eks. en miljørelateret ændring uden at overveje konsekvenser for f.eks. kvalitets og arbejdsmiljø. Hvis et mejeri gerne vil sparer energi ved at optimere tiden til en CIP-proces må mejeriet sikre at det ikke går ud over fødevaresikkerheden.

Hvad så i forhold til dokumentationen af systemerne? Du snakker om adskilte systemer på det operationelle niveau. Kan en virksomhed have adskilt dokumentation, men et integreret system?

Ja, dokumentationen findes jo på intranet. Dermed er strukturen i dokumentationen ikke synlig. Der er også virksomheder som ikke bruger et nummersystem. Dermed er der f.eks. ikke en procedure som hedder 4.9. og en instruktion som hedder 4.9.1.

Er der elementer i systemerne som er særligt vanskelige at integrere?

Nej, ikke specifikt. Det kan være problemer i forhold til arbejdsmiljø hvor der er en række lovkrav til sikkerhedsorganisationen som ligger denne i bestemte rammer. Dermed kan sikkerhedsorganisationen være svær at indpasse i ledelsesstrukturen. Jeg har dog ikke nogle dårlige eksempler jeg umiddelbart kan nævne. Generelt kan virksomhederne opbygge deres systemer som de vil, men det kan de ikke i forhold til sikkerhedsorganisationen.

I litteraturen er der beskrevet forskellige modeller som virksomhederne kan bruge når de integrerer deres system bl.a. proces modellen fra kvalitetsledelse, PDCA – modellen fra miljøledelse, TQM eller andre. Kan disse modeller findes i virksomhederne?

Nej. Man kan finde alle kombinationer. Alle virksomheder har en pragmatisk tilgang. Virksomhederne ser på hvordan de bedst skaber en effektiv struktur i forhold til netop deres organisation og arbejdsområde. De modeller du nævnte har ens kerner, og et integreret system vil også indeholde de samme elementer uanset hvilken opbygning virksomhederne vælger. Virksomhederne sigter på at opnå en så effektiv struktur som muligt.

Implementerer virksomhederne først ISO 9000 og bruger derefter strukturen fra ISO 9000 i et integreret system?

Nej. Da virksomhederne arbejdede efter ISO 9001:1994 havde de en struktur som lagde meget tæt op af standarden. Nu hvor virksomhederne arbejder efter ISO 9001:2000. er dette ikke længere tilfældet. Nu finder man alle mulige opbygninger. I opbygningen af systemerne ser virksomheden nu på deres organisation, deres produkt mv. Derefter ser de på hvad der står i standarden.

Det var også det som blev efterlyst i kritikken af den første standard.

Ja, det var det helt klart. Der er også det der afspejles i virksomhedernes intranet løsninger. Strukturen i disse kan være meget forskellige fra standarderne. Opbygningen af systemerne sker dermed heller ikke i forhold til enten en proces – model eller en PDCA – model. Alle modellerne indeholder nogle grundelementer, og det er disse som kan genfindes i virksomhedernes systemer.

Er der nogle virksomheder der implementerer flere ledelsessystemer på samme tid, eller implementere virksomhederne først kvalitetsledelse og dernæst miljøledelse etc.?

Der vil jeg sige både og. Vi har certificeret virksomheder efter kvalitet, miljø og arbejdsmiljø på en gang. Der er også mange der først bliver certificeret efter kvalitet først, men ikke nødvendigvis.

Er det en fordel at blive certificeret efter flere standarder på en gang?

Det afhænger af virksomheden. I dag ser vi enten at virksomhederne bliver certificeret efter alle tre standarder på en gang, eller at de starter med miljø/arbejdsmiljø eller kvalitet. Har virksomhederne opbygget en fornuftig struktur i deres ledelsessystem er det for mig at se ligegyldigt om virksomhederne vælger at blive certificeret efter ét eller tre systemer.

Hvordan påvirker et IMS de enkelte ledelsessystemer? Ofte er kvalitetsledelse højst prioriteret i virksomheder - medfører et IMS større fokus på miljøledelse og arbejdsmiljøledelse, eller medfører et IMS mindre fokus på miljøledelse og arbejdsmiljøledelse?

Et integreret system giver et mere naturlig sammenhæng mellem systemerne, da det bliver tydeliggjort at en beslutning af betydning for alle områder. De fleste beslutninger er betydning for mindst to områder. Når alle områder håndteres af et ledelsessystem giver det også en bedre forankring af systemet i virksomheden.

Tænker medarbejderen på gulvet systemerne adskilt eller integreret? De nævnte at det ikke har nogen betydning.

Det tror jeg heller ikke at det har. Medarbejderne på virksomhederne er interesseret i at gøre et godt stykke arbejder, de er interesseret i ikke at komme på skade og syge mv. For medarbejderne er det ikke afgørende om en procedurer mv. henhører under kvalitet, miljø eller arbejdsmiljø. Jeg tror at hvis man gør en dyd ud af at adskille systemerne bliver det kun mere forvirrende for medarbejderne.

Man kan sige at den integrerede ledelsesstruktur også udmønter sig i at systemerne bliver integreret ned gennem organisationen. Men man kan stadig finde elementer som kun berører kvalitet eller miljø.

Er det vigtigt at medarbejderne selv tænker systemerne sammen? F.eks. sådan at en medarbejder som kan se en løsning på en kvalitetsproblem også overvejer konsekvenserne for miljø og arbejdsmiljø?

Ja, der er det også mit indtryk at medarbejderne i virksomhederne med et integreret system bliver bedre til at generer forslag til hvordan tingene kan gøres anderledes. Når ledelsen viser at der tages hensyn til mange forhold bliver det en del af organisationen som også påvirker de enkelte medarbejdere. Der er også ofte at én forbedring på et område medfører forbedringer på andre områder.

Hvilke virksomheder er længst fremme i forhold til at integrere deres systemer?

Det er vanskeligt at svarer på da integrationen mest af alt afhænger af ledelsens indstilling til systemerne. Integrationen findes ikke i beskrivelsen. I teorien kan man godt have en virksomhed hvor beskrivelserne er adskilte, men hvor i praksis er tale om en integreret system.

Forandringer i organisationen betyder også meget i forhold til systemerne.

Kan forandringer i ledelsen have betydning for integrationen i systemerne?

Ja, det kan have stor betydning. Hvis en ny ledelse har en anden tilgang til systemerne i forhold til systemerne kan processerne i produktionen mv. hurtigt ændre sig.

Hvad er barriererne ved implementering af et IMS? Er der f.eks. kulturforskelle blandt medarbejderne som arbejder med de forskellige ledelsessystemer?

Nej, det er ikke et stort problem. Det handler igen om ledelsesstrukturen. Et integreret system ligger i ledelsesstrukturen, ikke nødvendigvis i en integrering af de enkelte faggrupper. Det er vigtigt at afvejningen mellem de forskellige målsætninger i de forskellige systemer sker på en synlig måde. Man kan sige at barrieren ved at have et integreret system er at få ledelsesstrukturen til at fungere.

Et integreret system handler altså om at få skabt den rigtige ledelsesstruktur?

Ja

Hvilke fordele mener du der er ved et integreret ledelsessystem? Udover reducerede omkostninger og tidsforbrug mv. som vi har været inde på?

Jeg vil jeg især pege på idé generering. Der er også det omkring færre procedurer mv. Det er også en fordel…måske. Et integreret system har ikke nødvendigvis færre procedurer, og der er heller ikke sikkert at færre procedurer leder til større overskuelighed. Når virksomhederne har intranetløsninger er antallet af procedurer mindre vigtigt. Det vigtigste er at medarbejderne kan finde de dokumenter som de har behov for og at der er en fælles forståelse omkring arbejdet i organisationen.

Hvad er de væsentligste forskelle og ligheder mellem de forskellige standarder?

Der er én væsentlig forskel mellem standarderne. ISO 14001, ISO 22000, og OHSAS 18001 har alle krav omkring kortlægning/analyse for at finde ud af hvad der er vigtigt og hvorfor. Dette er ikke et krav i ISO 9000. Ellers er standarderne ikke ens i struktur, men de indeholder alle de samme grundelementer.

Hvad med de nye udgaver der kommer nu?

Ja, standarderne bliver jo mere og mere ens i forhold til ledelsesstrukturen.

Dansk standard har udgivet en vejledning i at opbygge en integreret standard, og der findes også andre vejledninger. Bruger I disse vejledninger og bruger virksomhederne disse vejledninger?

Det vil jeg sige nej til. Jeg har kun set den på hylden i ganske få virksomheder og kun hos en brøkdel af de virksomheder som rent faktisk har et integreret ledelsessystem.

Vejledningerne kan være udmærket som en inspiration. Men virksomhederne kan ikke opbygge et system efter en skabelon. Der skal tages udgangspunkt i virksomhedernes behov og organisation.

Er der forskel på integration af systemer inden for brancher og størrelse af virksomheder?

Nej, det synes jeg ikke man kan sige. Det er ikke noget billede af hvilke virksomheder der bliver certificeret efter hvad. I dag bliver mange virksomheder også certificeret for deres egen skyld. De vil gerne have inspiration udefra. Det er ikke så mange virksomheder som bliver certificeret pga. kundekrav. Undtagelsen er fødevarerbranchen hvor der stadig er mange virksomheder som bliver certificeret pga. kundekrav.

Hvad synes du om en integreret standard som man kan certificeres efter?

Det har vi diskuteret for længe siden internt hos vores auditor korps. For mig at se er der ikke noget unaturligt i at lave en standard hvor man definerer en ledelsesstruktur. Man kunne så have en bilag med kravene til de forskellige systemer. Det vil være ganske fornuftigt.

Tror du det kommer?

Ja, det tror jeg. Det er dog vanskeligt at sige noget om tidshorisonten. Virksomhederne arbejder på denne måde i dag med et opbygge en ledelsesstruktur hvor de enkelte standarder kobles på.

Appendix C

Udskrift af interview med Poul Dalsgaard d. 24 april 2007

Chefen (Mads Madsen) for Hillerød Teknikentreprise fortæller kort om baggrunden for deres integrerede system de kalder VM-KL.

Ideen opstod for 8 år siden i Greve kommune hvor jeg var ansat. Vi kom i udbud med Park og Vej. Det var temmelig kompliceret da vi var en kommunal virksomhed uden forudsætninger for at kunne byde på opgaven. For at kunne byde på opgaven var der et behov for at arbejde med miljø og kvalitetssikring, der dog var på amatøragtig stade. Jeg kom så i år 2001 her til Hillerød Teknikentreprise hvor der var et miljøledelsesprogram, der var ved at blive implementeret. Man havde brugt en masse penge til konsulenter. Jeg kunne ikke forholde mig til miljøledelsessystemet på daværende tidspunkt. Det virkede som om at det ville være bedre først at få styr på andre ting. Miljøledelsessystemet blev derfor skottet. Jeg havde dog arbejdet omkring miljøledelsessystemet liggende i baghovedet. Medarbejderne havde været meget involveret så det var pinligt bare at droppe det helt. Vi bød senere på en opgave inden for affaldsområdet hvor man kunne få point inden for kvalitets og miljøområdet.

Hvad mener du med point?

Når man byder på en opgave for man point på en række parametre herunder kvalitet, miljø og arbejdsmiljø etc. Derfor opstod tanken omkring VM-KL programmet. Navnet står for Verdensmester i kommunal ledelse. I starten tænkte vi ikke på værdier som vi gør i dag. Værdier handlede for mig om økonomi. Virksomheden skulle bevise at den var en rentabel værdiskabende virksomhed. Senere har værdier fået en bredere betydning.

Giver værdiledelsen også point i forhold til udbud?

Ja, det vil jeg mene at den gør i mange udbud. Altså at man understøtter integration, og behandler medarbejder i forhold til en bestemt kultur etc. Ovenstående er idegrundlaget. Vi startede allerede med at arbejde med det for 5-6 år siden og langsomt begyndte vi at tænke på at blive certificeret efter kvalitet. Der var også så småt andre kommunale virksomheder som begyndte at blive certificeret. Miljøet kom også med efterfølgende og derfor tænkte vi at vi ville certificeres efter alt det man nu kunne. På det tidspunkt kom nemlig også reglerne omkring at offentlige virksomheder skulle screenes i forhold til arbejdsmiljø, og det kunne vi slippe for ved at blive certificeret efter OHSAS 18001. Nu er der så ikke flere ledelsessystemer vi kan blive certificeret efter, men skulle der dukke nogle op er vi parat til også at blive certificeret efter dem.

Nu er det vil også nemt for jer at indarbejde en ny certificering i jeres system, da i har fået opbygget en ledelsesstruktur?

Ja, det er meget nemt da systematikken er på plads. Det er dog vigtigt at huske at systemerne skal vedligeholdes. Der er en ting at have systemerne, noget andet er at vedligeholde dem – det er faktisk det sværeste, eller den største udfordring at genererer den nødvendige tid til at vedligeholde systemerne.

Poul Dalsgård snakker fra nu af udefra et slideshow omkring deres system:

Der er 120 ansatte i virksomheden med vidt forskellige funktioner. Vi er derudover en søsterorganisation som bliver lagt ind under denne virksomhed. De arbejder med energi og vand. Vi bliver en af de større virksomheder i Danmark af vores art. Vi er specielle i kommunal sammenhæng der vi har tre former for finansiering, nemlig ved at vi byder på opgaver, er skatte finansieret og bruger finansieret. Vi er opdelt i 6 sektioner og 15 selvstyrende grupper.

Vores hovedudfordring i 2006 og 2007 var kommunesammenlægningen og det at få etableret og igangsat VM-KL systemet. Vi har 7 fokusområder for de næste 2 år som er understøttet af VM-KL programmet. Der er f.eks. kommunikation, kompetenceopbygning hos medarbejderne og integration af vores søsterorganisation.

Vi har lavet VM-KL programmet fordi:

1) Vi har en kommune der har visioner, politikker og strategier omkring værdiledelse.
2) VM-KL systemet et platform for fremtiden hvor det er nødvendigt at fokusere på konkurrence evne, krav til effektivitet, krav til leverancer, evne til forandring mv.
3) Vi vil lave danmarks bedste arbejdsplads – I den forbindelse har vi sat os sammen med alle medarbejder og fundet udaf hvad vi mener med danmarks bedste arbejdsplads.

VM-KL systemet er grundlaget for al ledelse, drift og udvikling. Vi har stillet en række krav til systemet

- Det skal opfylde vores vision og mission.
- Det skal være platform
- Styrke konkurrenceevnen,
- Sikre bedre kvalitet
- Øge arbejdsglæden
- Øge effektiviteten

Et begreb jeg prøvet på at indføre er 'return of effort'. I stedet for 'return of investment' eller 'return of kapital' så begynde at arbejde med at vi har en given ressourcemængde og det drejer som om at optimere vores afkast i forhold til de givne ressourcer på ethvert område. Hvis vi kan skabe en rutine og kultur omkring dette er det et godt udgangspunkt for det videre arbejde.

VM-KL systemet handler om at opbygge en kultur og ledelses form der er baseret på regler og værdier som løbende bliver certificeret, kvalitetssikret og forbedret.

VM-KL systemet er baseret på det vi kalder version 1.0 der var baseret på instrukser og kort.

Vi har i den forbindelse lavet vores egen definition på værdibaseret ledelse fordi der ikke findes nogen der er anvendelig. Vi siger at værdibaseret ledelse er en synlig fælles kultur. Men synlig mener vi at den er taget i brug, er adopteret, forstået, accepteret og anvendt. Den er resultat af et certificeret VM-KL program.

Jeres certifikat på værdiledelse – hvad hedder det officielt?

DNV har lavet en certificeringsordning inspireret af vores VM-KL system, og det samme gælder i forhold til det overordnede system.
Værdiledelsescertificeringen er altså specifik i forhold til jeres system?

Ja, det er defineret i forhold hvad det er og hvordan man certificere det. Det har DNV så sent til ISO i Stockholm. Det samme gælder for det overordnede værdi, kvalitets, miljø og arbejdsmiljø baseret ledelsessystem. Her er der også lavet en række definitioner og krav.

Der findes altså ikke et værdi ledelsessystem?

Ikke i forholdt til ISO eller OHSAS, men det er ved at opstå, og derfor er ISO også begyndt at kigge på det, fordi det er naturligt. Ellers har de flere systemer som ikke kan sættes sammen. Det
kendetegner netop mange af certificeringerne, der betyder at man gør de samme ting for mange gange. Ved at koble systemerne sammen kan man undgå dette.

Jeg snakkede med Ballen fra Dansk standard som har været med til at lave DS 8001:2006 som er en vejledning i at integreret kvalitet, miljø, arbejdsmiljø mv. Han sagde at ISO ikke vil lave en integreret standard som virksomheder kan integreres efter fordi det ikke har noget formål

Det må stå for hans regning. Vi har i samarbejde med DNV lavet en standard. ISO er i øjeblikket ved at udarbejde en standard for bæredygtighed, og der er også tiltag i forhold til at lave en integreret standard.

Vi har en række målsætninger og delmålsætninger for alle systemerne, og der er kontant kvalitetssikring på alle niveauer. Lederne skal f.eks. en gang om måneden udfylde et selvevalueringsskema som jeg gennemgår, og som efterfølgende bliver diskuteret på ledermøderne.

Vi har krav til systemer, metodiker og projektmodeller og lavet en værktøjskasse til dette.

Vi har også lavet et logo der ligesom skal visualisere systemet. Vi kalder logoet for TITO – Tillid, Interesse, Tid og Omsorg.

Vi begyndte med at arbejde med dette i begyndelse af 2000 og har fra 2004 arbejdet med version 1.0 som bestod af instrukser og kort. Version 2.0 begyndte i sommeren 2006.

Hvor lang tid tog det?

Jeg brugte 1000 timer på 3 mdr. Men det er kun muligt fordi jeg har den baggrund jeg har og har arbejdet meget med de enkelte elementer. Andre personer i virksomheden brugte vel i alt 400-500 timer.

Vi lavede en holistisk arkitektur, en letopdaterbar og modulær håndbog. Vi lavede 3 og 1 års målsætninger for hele organisationen……etc. *(se slide 12)*

Udfordringer (Se slide 13)

Taler om kommunikation som grundlag for systemet – der bliver lavet målinger på kommunikation og alle medarbejder kommer på et 5 modulers workshop i kommunikation. Udvikler i samarbejde med medarbejderne nogle 'Golden rules'

Overholdelsen af disse 'Golden Rules' bliver diskuteret blandt medarbejderne på månedsmødet. Og der bliver reageret hvis de ikke overholdes.

Dette kommunikations program er udviklet er Hillerød Teknikenterprise.

I har altså en stor grad af medarbejderdeltagelse?

Det er en forudsætning for at det lykkes.

Hvad sker der fremover (slide 24)

Vi arbejder forsat med at udvikle procedurer og processer. Vi har sat en begrænsning i forhold til hvor mange procedurer der må indgå i systemet. Ellers bliver det for kompliceret når der fortsat kommer nye procedurer og processer. Når procedurer er indarbejdet i organisationen bliver de derfor slettet så der kan blive plads til nye.

Vi arbejder også med at en fælles brugerplatform, fordi vi håber at dette system også kan bruges af andre som et standard system.

For en sektionsleder har systemet betydet at forbedret omgangstone, forbedret kvalitet, det er blevet enklere etc.

Blev alle systemerne implementeret på en gang?

Ja, men det kan dog ikke anbefales.

Poul Dalsgaard viser mig det elektroniske system.

Næste 100% af medarbejderne bruger systemet

Systemet består af en håndbog og 6 bilagsmapper hhv. instruktionsmappe, instrukser vedr. rensningsanlægget, arbejdsmappe for hver gruppe, handlings og projektplaner for alle aktiviteter, temperaturmålinger og analyser, information og afvigelsesrapporter mv.

Hvordan har de enkelte medarbejdere oplevet ændringerne fra det gamle til det nye system?

Medarbejderne siger at kommunikationen mellem ledere og de selvstyrende grupper er blevet forbedret. Vidensdelingen er også forbedret.

Vi har lavet brochurer der beskriver for medarbejderne hvad VM-KL systemet er og hvad fordelene ved systemet er.

Vi har også lavet en støtteorganisation hvor der er en VM-KL koordinater i hver selvstyrende gruppe. Det har fungeret virkeligt godt.

Er der noget der har været specielt vanskeligt at integrerer?

Ja, det at få de fire systemer til at indgå i et fælles system.

Er medarbejderne med til at lave målsætninger?

De har haft mulighed for at kommentere på målsætninger, men næste år bliver medarbejderne i højere grad medtaget fordi der er systemet mere etableret.

Bliver målsætningerne for alle systemer fastsat på en gang?

Ja, det gjorde de i år. Næste år vil målsætningerne dog blive fastsat af de personer som er ansvarlige for hvert område og vil efterfølgende blive koordineret i ledergruppen..

Her taler jeg med den arbejdsmiljøansvarlige (Øystein Grandorf)

Hvordan er arbejdsmiljø integreret i forhold til kvalitet og miljø? Jeg er blevet fortalt at det kan være vanskeligt at integrere arbejdsmiljø fordi er der nogle lovgivningsmæssige krav.

Det var der ingen problemer I.

Hvad så i forhold til målsætningerne?

Ja, dem måtte vi tænke over – også i forhold til de målsætninger der ligger i kommunen.

Jeg tænker også på om der kan være modstridende målsætninger i de forskellige systemer?

Nej, det er ikke et problem vi oplever i praksis. Vi har dog oplevet et enkelt. Vi har overtaget amtets opgaver, heriblandt nedkæmpningen af Bjørneklo. Amtet er vant til at sprøjte Bjørnekloen, men vi er en sprøjtefri kommune. Vi har så søgt om lov til at sprøjte

af kommunen. Der er altid teoretiske modsætninger mellem effektivitet og det at have det godt og værne om miljøet.

Er måden i arbejder på anderledes nu med VM-KL systemet forskellige fra den måde i arbejde da i ikke havde dette system?

Ja, nu er arbejdet systematiseret, og vi kommer omkring det hele. Det er blevet nemmere.

Det som er specielt ved dette system er at det hele hænger sammen og der er en fælles bagvedliggende struktur.

Her kommer Poul Dalsgaard ind igen

Vi har også indført sådan nogle smilies i VM-KL systemet således at man får en grønt hvis man har gjort noget godt, en gul hvis man skal stramme sig lidt an og en rød hvis ikke overholder reglerne. I TITO nyt som er vores lille nyhedsbrev i forhold til VM-KL systemet er vi også med at indføre at månedens solståle som er en historie om noget der har været super godt eller en medarbejder som har gjort noget specielt. Det handler om at skabe ejerskab.

Han beskriver hvad en leder skal kunne i forhold til værdi ledelse – Se det udleverede papir.

Du nævnte at DNV vil arbejde med jeres VM-KL – system?

DNV har sendt tænkerne omkring det integrerede system in til ISO.

Bliver du involveret i det videre arbejde med VM-KL systemet i det regi?

Det ved jeg ikke.

Men har du lagt ideerne over til DNV?

Jeg har foreslået DNV at det er muligt at forsøge at videreudbrede systemet, og det er de også interesseret i.

Poul Dalsgaard viser mig hvad DNV har sagt omkring systemet

Når DNV er ude i kommuner henviser de til os.

Har du før arbejdet med at integrerede ledelsessystemer og hvordan var det konstrueret i forhold til VM-KL systemer.

Jeg har set kvalitet og miljø være integreret, men jeg har ikke set et system som er så integreret som dette hvor det overordnede ledelsessystem og værdiledelsen er integreret med det øvrige system. Det er der ingen som har gjort før.

Når man læser litteraturen omkring integrerede ledelsessystemer støder man ofte på begrebet TQM

Total Quality Management – ja, det er gammelt. Jeg har arbejdet med TQM for bl.a. Coca Cola.

Kan man sammenligne TQM med værdiledelse?

Nej TQM kan ses som blanding af lean, noget kvalitets ledelse og værdiledelse.

Det jeg har haft sværest ved i forhold til litteraturen i forhold til integreret ledelse er at der bliver opridset forskellige modeller så som PDCA modellen, proces modellen EFQM modellen. Men i forhold til praktisk implementering af IMS i virksomheder virker disse modeller ikke særligt anvendelige.

Det er klart fordi det er en akademisk model hvor der ikke laves en kobling til det praksis i de enkelte virksomheder – den kobling sker først ude i virkeligheden.

Det er vigtigt at integreringen af systemer tilpasses de enkelte virksomheder. Hvordan ser du det i forhold til at I gerne ser at jeres system udbredes til andre virksomheder?

Vi har bestræbt os på at lave et grundmodul som kan tilpasses andre virksomheder.

Før vi indgår i et samarbejde stiller vi nogle krav til den pågældende virksomhed. Derudover skal analyse virksomheden i forhold til VM-KL systemet og finde ud af hvad systemet skal bestå af. Vi laver sammen en projektplan og et budget og til sidst et beslutningsoplæg. Virksomheden køber så vores system samt konsulenthjælp til implementeringen. Det kræver dog at virksomheden allokere ressourcer og har nogle engagerende folk som kan gå ind i processen. Vi kan ikke gøre det for dem da vi ikke er en konsulent virksomhed. Vi har i øjeblikket 2-3 sådanne kontakter ude i øjeblikket, og det sjove var at det var en privat virksomhed som først viste sig interesseret.

Hvad er jeres bevæggrunde for at ville udbrede systemet?

Det er 3 ting. 1) hvis vi kan lave en fælles brugerplatform kan vi forbedre og forenkle systemet uden det nødvendigvis er os der skal lave det. 2) Hvis vi kan få andre virksomheder af samme type som os til at bruge systemer har vi et godt grundlag for at lave et samarbejde, f.eks. i forhold til at byde på opgaver. 3) vi kan tjene penge.

Hvad kræver det for en virksomhed at implementere et sådant system?

Det første er at der skal være en ledelse som vil det. Det andet er at der være helt klart hvad formålet er, og det tredje er at der skal være en rimelig kvalificeret ildsjæl internt i virksomheden.

Hvad så i forhold til ressourcer

Et traditionelt konsulent firma tager mellem 1 og 2 mio. for at implementere en certificering. Hvis et konsulent firma skulle implementere dette system vil det tage mellem

2-4 år og koste 8-10 mio. Hvis en virksomhed bruger vores strategi og sættet en intern person på kan de implementere det på 2 år og mellem 250.000 og 500.000 i eksterne omkostninger.

Appendix D

Udskrift af interview med Kirsten Burfeldt fra Sapa Profiles A/S tirsdag d. 25 maj 2007

Hvad er din stilling hos Sapa?

Jeg er kvalitetschef men jeg har også ansvar for miljø og arbejdsmiljø.

Hvornår blev i certificeret efter de forskellige systemer?

Jeg mener at kvalitetsledelse var i 1993 og miljøledelse var 1997. Arbejdsmiljø blev vi certificeret efter her for nyligt?

Har der været en proces i forhold til at integrere systemerne?

Det har hele tiden været en afdeling der har stået fra alle systemerne. I starten var systemerne beskrevet forskellige steder. Det er de ikke nu. Nu er systemerne kun beskrevet et sted. Men det er ikke helt lykkedes endnu at integrere systemerne fuldstændigt.

Kirsten Burfeldt viser mig deres model over virksomhedens processer hvor også kvalitet, miljø og arbejdsmiljø er beskrevet i et samlet system.

Arbejder i stadig med at integrere systemerne?

Ja det gør vi.

Har alle medarbejdere adgang til systemet?

Ja, men der er endnu ikke PC'er alle steder.

ISO 9001 er baseret på proces modellen mens ISO 14001 er baseret op PDCA. Er jeres system baseret på en af disse modeller eller evt. begge.

Vi forsøger at gøre det proces orienteret, men det er vanskeligt og det er vi ikke endnu, men miljø ledelsen er baseret på PDCA.

Jeg har her en liste over forskellige elementer som kan integreres – koordinerer i f.eks. kvalitet, miljø og arbejdsmiljømål?

Nej det er der ikke behov for, men kvaliteten er højst prioriteret. Vi skal jo opfylde kravene fra vores kunder.

Der kan være konflikter mellem målene. F.eks vil vi gerne spare noget energi hvilket vi kan gøre ved at sænke temperaturen i vores kar, men det vil have en negativ effekt på kvaliteten.

Tingene hænger dog ofte sammen således at man ved at forbedre miljøet også for en bedre kvalitet.

Foretages audits på kvalitets, miljø og arbejdsmiljø på en gang?

Vi har en ekstern auditor som foretager en samlet audit på kvalitet, miljø og arbejdsmiljø. Det sker en gang om året. Eksterne audits som foretages a DNV sker også samlet.

Vi har et Lean system som vi kalder Genesis. Det indeholder også kvalitets elementer. Vi er også ved at indfører det system som hedder 5S som både indeholder miljø og kvalitets og sikkerhedselementer elementer – på den måde hænger tingene sammen. Og det er svært at adskille elementerne.

Kvalitet, miljø og arbejdsmiljø bliver også fremlagt samlet på ledermøderne og på den måde bliver kvalitet, miljø og arbejdsmiljø også opfattet som et system.

Vi har også lige valgt at samle vores miljø og arbejdsmiljø redegørelse.

Men jeg må også sige at integreringen af kvalitet, miljø og arbejdsmiljø i høj grad sker automatisk fordi tingene naturligt hænger sammen.

Kvalitet er meget bestemt af kundekrav er det samme tilfældet med miljø og arbejdsmiljø?

Ja, kvalitet er bestemt af kunde krav, og vi fokusere derudover på at nedbringe antallet af reklamationer. Fores korrigerende handlinger i forhold til kvalitet er i høj grad baseret på de reklamationer vi modtager.

Det fungerer lidt på samme måde i forhold til arbejdsmiljø. Hvis f.eks. har en arbejdsulykke er stakeholderne arbejdstilsynet, forsikringsselskabet og vores koncern. Koncernen har den overordnende health and safety mål.

Har i et system i forhold til at arbejde med korrigerende handlinger?

Nej, der har vi flere måder at gøre tingene på, men vi forsøger stadig at arbejde ens med det.

Jeg vil gerne høre lidt om jeres samarbejde med DNV da de har certificeret jeres systemer. Har DNV haft en indflydelse i forhold til hvordan systemet er opbygget?

De er haft nogle input og forslag.

DS har lavet en standard som hedder DS 8001:2005 som er en vejledning i at opbygge et IMS. Er det en du kender og evt. har brugt? Og har i brugt andre vejledninger?

Nej, og jeg tror heller ikke på det. Det er skrevet mange bøger og vejledninger, men man skal arbejde med tingene i praksis. Det er svært at relatere vejledningerne til ens virkelighed.

Kan du sige noget om fordelene ved at have et integreret system?

Det er nemmere at gennemskue og der er færre procedurer.

Har det integrerede system nogen effekt i forhold til medarbejdes daglige arbejde?

Jeg tror ikke medarbejderne opfatter det som et system. Hvis du snakker med produktionsfolkene, så vil de opfatte de forskellige systemer som adskilte fordi reklamationer skal behandles på en måde, sikkerhedsregler vil de opfatte som et andet system etc. Det er i højere grad de ansvarlige der opfatter systemerne som sammenhængende .

Bliver lederne bedømt på arbejdsulykker og miljø?

Nej ikke direkte. Vi er ansvarlige for handlingsplaner etc.

Hvor mange medarbejdere har i?

Ca. 180

Vil i være interesseret i at blive certificeret efter en integreret standard.

Ja hvis det bliver nemmere.

Sker ledelsens gennemgang af systemerne samlet?

Ja, vi har dog ikke fået det gjort i år. Det skal gøres på næste ledelsesmøde.

Er der noget som er specielt vanskeligt at integrere?

Nej det synes jeg ikke.

I er en del af en større koncern.?

Ja vi er en dal af Ockla, og vi bliver snart en del af en endnu større koncern, nemlig Alkora. Miljø og specielt arbejdsmiljø bliver også styret på koncernniveau ved at vi bliver pålagt nogle mål. Der bliver også foretaget assessments på arbejdsmiljø hvor de kommer fra koncernen. Disse assessments sker i forhold til arbejdsmiljø og i forhold til vores Genesis system. Jeg tror også der kommer mere fokus på miljø fordi Alora har en anden til gang hertil.

Bruger i mindre tid og færre ressourcer på jeres system fordi det er integreret.

Ja, det tror jeg.

Det vigtigste i forhold til alle systemerne er at få folk med. Det nytter ikke noget at sige til medarbejderne at de skal gøre sådan og sådan - Det handler i høj grad om kommunikation.

Jeg har forstået på dig at integrationen sker mere eller mindre automatisk fordi de enkelte systemer ligner hinanden og fordi de overlapper hinanden.

Ja det synes jeg, specielt når det bliver styret fra en afdeling.

Appendix E

Stilling

_____

_____

Vi har følgende antal medarbejdere

_____

Vi er certificeret efter følgende ledelsesssytemer

(1) ❑ ISO 9001 (Kvalitet)
(2) ❑ ISO 14001 (Miljø)
(3) ❑ OHSAS 18001 / Bek. nr. 87 af 31/01/2005 (Arbejdsmiljø)
(4) ❑ ISO 22000 / DS 3027 (Fødevarersikkerhed)
(5) ❑ DS 2403 (Energiledelse)

Vi har et integreret ledelsessystem

(1) ❑ Ja
(2) ❑ Nej

I vores integrerede ledelsesssytem indgår følgende ledelsessystemer

(1) ❑ ISO 9001 (Kvalitet)
(2) ❑ ISO 14001 (Miljø)
(3) ❑ OHSAS 18001 / Bek. nr. 87 af 31/01/2005 (Arbejdsmiljø)
(4) ❑ ISO 22000 / DS 3027 (Fødevarersikkerhed)
(5) ❑ DS 2403 (Energiledelse)

Vi begyndte at arbejde med integrerede ledelsessystemer det følgende år

_____

Vi har benyttet os af følgende hjælpemidler ved integreringen af vores ledelsessystemer

	Vejledninger i at opbygge et integreret ledelsessystem	Konsulenter	Erfaringer fra andre virksomheder	Certificeringsorgan	Ingen af de nævnte
Angiv hjælpemidler	(1) ❑	(2) ❑	(3) ❑	(5) ❑	(4) ❑
Nævn gerne andre hjælpemidler	(1) ❑	(2) ❑	(3) ❑	(5) ❑	(4) ❑

Vi har benyttet os af følgende implementeringsstrategi

	Vi har implementeret ledelsessystemerne et efter et	Vi har implementeret alle ledelsessystemerne på en gang
Angiv implementeringsstrategi	(1) ❑	(2) ❑
Nævn gerne anden implementeringsstrategi	(1) ❑	(2) ❑

Vores integrerede ledelsessystem er baseret på følgende model

Angiv model

(1) ❑ Do-Plan-Check-Act modellen fra ISO 14001
(2) ❑ Proces modellen fra ISO 9001
(3) ❑ Do-Plan-Check-Act modellen og Proces modellen
(4) ❑ En Total Quality Management model
(5) ❑ Systemet er ikke baseret op een bestemt model

Nævn gerne andre modeller

(1) ❑ Do-Plan-Check-Act modellen fra ISO 14001
(2) ❑ Proces modellen fra ISO 9001
(3) ❑ Do-Plan-Check-Act modellen og Proces modellen
(4) ❑ En Total Quality Management model
(5) ❑ Systemet er ikke baseret op een bestemt model

Vi har integreret følgende dele af vores ledelsessystemer

Angiv dele

(1) ❑ Ledelseshåndbogen
(2) ❑ Politik
(3) ❑ Procedurer

(4) ❑ Målsætninger
(5) ❑ Prioritering af ressourcer
(16) ❑ Beslutningsproces
(6) ❑ Systemet til håndtering af korrigerende og forebyggende handlinger
(7) ❑ Undervisning og træning
(8) ❑ Interne audits
(9) ❑ Eksterne audits
(10) ❑ Dokumenthåndtering
(11) ❑ Intern kommunikation vedr. kvalitet, miljø og arbejdsmiljø etc.
(13) ❑ Ledelsens gennemgang af ledelsessystemerne
(12) ❑ Ekstern kommunikation vedr. kvalitet, miljø og arbejdsmiljø etc.
(14) ❑ Organisationen (arbejder miljømedarbejderne også med kvalitet og kvalitetsmedarbejderne også med mijø etc.)
(15) ❑ Ingen af de nævnte

Nævn gerne andre dele af jeres ledelsesssytem som er integreret

(1) ❑ Ledelseshåndbogen
(2) ❑ Politik
(3) ❑ Procedurer
(4) ❑ Målsætninger
(5) ❑ Prioritering af ressourcer
(16) ❑ Beslutningsproces
(6) ❑ Systemet til håndtering af korrigerende og forebyggende handlinger
(7) ❑ Undervisning og træning
(8) ❑ Interne audits
(9) ❑ Eksterne audits
(10) ❑ Dokumenthåndtering
(11) ❑ Intern kommunikation vedr. kvalitet, miljø og arbejdsmiljø etc.
(13) ❑ Ledelsens gennemgang af ledelsessystemerne
(12) ❑ Ekstern kommunikation vedr. kvalitet, miljø og arbejdsmiljø etc.
(14) ❑ Organisationen (arbejder miljømedarbejderne også med kvalitet og kvalitetsmedarbejderne også med mijø etc.)
(15) ❑ Ingen af de nævnte

Graden af integration

	Ja	Nej
De forskellige delelementer i vores ledelsessystem er fuldt integreret	(1) ❑	(2) ❑
kommenter gerne på graden af integration	(1) ❑	(2) ❑

Vi har opnået følgende fordele ved at have et integreret ledelsessystem i forhold til at have adskilte systemer

Angiv fordel

(1) ❑ Omkostningerne til administration af ledelsessystemerne er mindre
(2) ❑ Tidsforbruget til administration af ledelsessystemerne er mindre
(3) ❑ Tidsforbruget til interne audits er mindre
(4) ❑ Tidsforbruget til eksterne audits er mindre
(5) ❑ Dokumnetationen af ledelsessystemet er forenklet
(6) ❑ Omfanget er dokumentationen af ledelsessystemet er mindre
(7) ❑ Et integreret ledelsessystem skaber bedre koordinering mellem kvalitets-, miljø- og arbejdsmiljøledelse.
(8) ❑ Et integreret ledelsessystem giver færre konflikter mellem kvalitets-, miljø- og arbejdsmiljøledelse.
(9) ❑ Der er mere fokus på kvalitet i virksomheden
(10) ❑ Der er mere fokus på miljø i virksomheden
(11) ❑ Der er mere fokus på arbejdsmiljø i virksomheden
(12) ❑ Idé genereringen i virksomheden er bedre
(13) ❑ Ingen af de nævnte

Nævn gerne andre fordele

(1) ❑ Omkostningerne til administration af ledelsessystemerne er mindre
(2) ❑ Tidsforbruget til administration af ledelsessystemerne er mindre
(3) ❑ Tidsforbruget til interne audits er mindre
(4) ❑ Tidsforbruget til eksterne audits er mindre
(5) ❑ Dokumnetationen af ledelsessystemet er forenklet
(6) ❑ Omfanget er dokumentationen af ledelsessystemet er mindre
(7) ❑ Et integreret ledelsessystem skaber bedre koordinering

mellem kvalitets-, miljø- og arbejdsmiljøledelse.

(8) ❑ Et integreret ledelsessystem giver færre konflikter mellem kvalitets-, miljø- og arbejdsmiljøledelse.

(9) ❑ Der er mere fokus på kvalitet i virksomheden

(10) ❑ Der er mere fokus på miljø i virksomheden

(11) ❑ Der er mere fokus på arbejdsmiljø i virksomheden

(12) ❑ Idé genereringen i virksomheden er bedre

(13) ❑ Ingen af de nævnte

Vi har oplevet følgende ulemper ved et integreret ledelsessystem i forhold til adskilte systemer

Angiv udlempe

(1) ❑ Der er mindre fokus på kvalitet

(2) ❑ Der er mindre fokus på miljø

(3) ❑ Der er mindre fokus på arbejdsmiljø

(4) ❑ Dokumentationen af ledelsessystemet er mere kompliceret

(5) ❑ Administrationen af ledelsessystemet er mere kompliceret

(6) ❑ Ingen af de nævnte

Nævn gerne andre udlemper

(1) ❑ Der er mindre fokus på kvalitet

(2) ❑ Der er mindre fokus på miljø

(3) ❑ Der er mindre fokus på arbejdsmiljø

(4) ❑ Dokumentationen af ledelsessystemet er mere kompliceret

(5) ❑ Administrationen af ledelsessystemet er mere kompliceret

(6) ❑ Ingen af de nævnte

Vi har oplevet følgende barrierer ved implementeringen af det integrerede ledelsessystem

Angiv barrierer

(1) ❑ Manglende ressourcer

(2) ❑ Manglende viden

(6) ❑ Manglende motivation

(3) ❑ Det er vanskeligt at implementere et integreret system eftersom det repræsenterer forskellige fokusområder (kvalitet, miljø og arbejdsmiljø)

(4) ❑ Et integreret system kræver (upopulære) ændringer i

organisationen

(5) ❑ Ingen af de nævnte

Nævn gerne andre barrierer

(1) ❑ Manglende ressourcer
(2) ❑ Manglende viden
(6) ❑ Manglende motivation
(3) ❑ Det er vanskeligt at implementere et integreret system eftersom det repræsenterer forskellige fokusområder (kvalitet, miljø og arbejdsmiljø)
(4) ❑ Et integreret system kræver (upopulære) ændringer i organisationen
(5) ❑ Ingen af de nævnte

Vi har følgende synspunkter i forhold til Dansk Standards vejledning: DS 8001:2005 Ledelsessystemer – Vejledning i at opbygge et integreret ledelsessystem

(1) ❑ Vi har kendskab til denne vejledning fra Dansk Standard
(2) ❑ Vi har benyttet denne vejledning til etablering af vores integrerede ledelsessystem
(3) ❑ Ingen af de nævnte

Flere nationale certificeringsorganer har lavet en integreret standard som virksomheder kan certificeres efter

Ja	Nej	Ved ikke
(1) ❑	(2) ❑	(3) ❑

Hvis du har yderligere kommentarer til jeres brug af integrerede ledelsessystemer er du meget velkommen til at skrive dem her

_____

_____

Tak for din besvarelse!

Du afslutter spørgeskemaet ved at klikke på X nedenfor.

Appendix F

Firma	DNV	DS	ISO 9001	ISO 14001	OHSAS 18001	ISO 22000/DS 3027	DS 2403	Hjemmeside
ERGOTEAM	x		x	x	x			www.ergoteam.dk
SOLUM A/S	x		x	x	x			www.solum.dk
AVK INTERNATIONAL A/S	x		x	x	x			www.avk.dk
AVN HYDRAULIK A/S	x		x	x	x			www.avn.dk
BOESENS FABRIKKER APS	x		x	x	x			www.boesen.dk
BRØDRENE HARTMANN A/S			x	x	x		X	www.hartmann.dk
CARDO INDUSTRIAL DOOR PRODUCTION A/S	x		x	x	x			www.crewford.dk
COLAS DANMARK A/S (asfalddivisionen)	x		x	x	x			www.colas.dk
COLAS DANMARK A/S (asfalddivisionen)	x		x	x	x			www.colas.dk
DANISH YACHT A/S	x		x	x	x			www.danishyacht.com
DUBA-B8 A/S	x		x	x	x			www.duba.dk
I/S FÆLLES FORBRÆNDING	x		x	x	x			www.isff.dk
JKF INDUSTRI A/S	x		x	x	x			www.jkf.dk
KEMIRA MILJØ A/S	x		x	x	x			www.kemira-miljoe.dk
KNAUF DANOGIPS A/S	x		x	x	x			www.danogips.dk
KPTO A/S	x		x	x	x			www.kpto.dk
MEKOPRINT A/S	x		x	x	x			www.mekoprint.dk
MILJØTEAM A\S	x		x	x	x			www.miljoteam.dk
PHOENIX DESIGN AID A/S	x		x	x	x			www.phoenixdesignaid.dk
R98	x		x	x	x			www.r98.dk
RBM A/S	x		x	x	x			www.rabami.dk
SAPA PROFILER A/S	x		x	x	x			www.sapagroup.com
SCANPRINT A/S	x		x	x	x			www.scanprint.dk
SEMCO MARITIME A/S	x		x	x	x			www.maritime.semco.dk
SIKA DANMARK A/S	x		x	x	x			www.sika.dk
TEKNIK ENTREPRISE, HILLERØD KOMMUNE	x		x	x	x			www.hillerod.dk
VEST-WOOD DANMARK A/S	x		x	x	x			www.vest-wood.com
WÄRTSILÄ DANMARK A/S	x		x	x	x			www.wartsila.dk
DANISCO A/S	x		x	x		X		www.danisco.com
F. JUNCKERS INDUSTRIER A/S	x			x	x		X	www.junckers.dk
CHEMINOVA A/S	x			x	x		X	www.cheminova.dk
ÅRHUS KOMMUNALE VÆRKER –	X			x	x	X		www.aarhuskommune.dk
FF SKAGEN DENMARK	x		x	x			X	www.ff-of-denmark.com
JERNSTØBERIET DANIA A/S	x		x	x			X	www.dania-as.dk
KOPPERS DENMARK A/S	x		x	x			X	www.koppers.com
MAXIT A.S	x		x	x			X	www.maxit.dk
PORTLAND		x		x	X		X	www.portland.dk
ESBJERG THERMOPLAST DIVISION OF VITA POLYMERS DK A/S		x	x	x	X			www.thermoplast.dk
KONICA MINOLTA BUSINESS SOLUTIONS DANMARK A/S		x	x	x	X			www.konicaminolta.dk
ABENA PRODUKTION A/S		x	x	x	X			www.abena.dk
MUNCK ASFALT A/S		x	x	x	X			www.munck-asfalt.dk
METRO THERM A/S		x	x	x	x			www.metrotherm.dk
STAMPEN TRÆEMBALLAGE FABRIK A/S		x	x	x	x			www.stampen.dk
Nordisk Bog Center A/S		x	x	x	x			www.nordisk-bog-center.dk
Faxe Kalk A/S		X	x	x			X	www.faxekalk.dk
Dalum Papir		X	x	x			x	www.dalumpapir.dk
AarhusKarlshamn Denmark A/S		X	x	x			X	www.aak.com
Tican		X	x	x		x		www.tican.dk
Superfos Vipperød a/s		X	x	x		x		www.superfos.com
DANA FEED A/S		X	x	x		x		www.danafeed.dk
Fibertex A/S		X	x	x			x	www.fibertex.com
Kirudan A/S		x	x	x	x			www.kirudan.dk
GRUNDFOS A/S		x	x	x	x			www.grundfos.dk