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The Emergence of the Sustainable Development Maturity Model

MSc Thesis

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Preface

Recently I visited a career event for environmental sciences in Utrecht. One of the speakers was Dr. Ir. Jan Rotmans, Professor in Sustainability Transitions at Drift, Erasmus University Rotterdam. He warned for the current economical crisis, which, according to him, would last until 2020, which would be according to him a positive thing. The current, financial, crisis would continue to be a energy and environmental crisis which will give opportunities for sustainability. Though the technological capabilities are according to Rotmans present, the lack of institutional organization is hindering a more successful implementation of Sustainable Development. New values and practices are needed for companies such as, networks, communities, facilitating, co-operations and decentralization. During this talk I realized that this research is part of this process in finding a better and more successful implementation of Sustainable Development: though this research will not find new technological solutions, it will give organizations guidance in finding and facilitating new options for a more sustainable company.

Industrial Ecology is a relatively new and interdisciplinary field of study. In this field of study scientists from different backgrounds cooperate in order to find solutions for environmental and social problems towards a more sustainable future, often from a company perspective (Allenby, 1999). Industrial Ecology is offered as a master's degree on TU Delft and Leiden University and will give the students a MSc degree in Industrial Ecology. This report is part of the thesis research of this master and will focus on the design and implementation of the *Sustainable Development Maturity Model* (SDMM).

In December 2010 I was for the first time approached to do this research. After several months of exploring the subject I finally started in June 2011 with making my preparation module. Together with my supervisors I unfortunately found out that doing such a project is not a easy job, next to the challenge of doing a scientific research and writing accordingly. In January 2012 I received a green light to start with the actual thesis. Thanks to the intensive work which has been put in the preparation module the rest of the thesis was well-prepared and a relatively straight forward process.

After a period of time of over 17 months I am proud to present my Master thesis in Industrial Ecology.

Acknowledgements

At the beginning of this report I would like to thank some people who were absolutely unmissable for the realization of this thesis.

First of all I would like to thank my first supervisor, Gijsbert Korevaar, for the guidance of my project. Especially the beginning of my project was quite chaotic. Thanks to his feedback and input I eventually was able to do this thesis. Secondly I would like to thank Jaco Quist for his input on especially the part on capabilities, but also on other aspects. I would like to thank Max Sonnen as initiator of this project and for helping me in the beginning of this project.

I would like to thank the people from the Multi-Scale Physics department of the TU Delft at the Leeghwaterstraat. Although they hardly could understand what I was actually doing, they did not care to make fun of my study. I had really nice times during coffee breaks and due to their sceptical opinion of sustainability they let me think about my own work.

Also thanks to all the Industrial Ecology students which I was honoured to work with and to do fun activities with. In special I would like to thanks Jan Bergen for giving feedback and input on my preparation module.

Last but not least I would like to thank my family and friends for giving me support in the last year. Without them I would not have been able to have the motivation and energy to finish this thesis!

Thijs Kamperman
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Executive Summary

Executive summary Over the last few years the general awareness concerning sustainability increased significantly. Also companies are making big efforts to make their processes and products more sustainable. One of the key concepts in this search to more sustainable processes is the concept of Sustainable Development which is often defined as development that *'meets the needs of the present without compromising the ability of future generations to meet their own needs'*. A concept within Sustainable Development which is often used is the *Triple Bottom Line*, which indicates the three pillars of sustainability: people, planet and profit.

Within companies Management Systems focussed on environmental or social aspects are used to manage sustainability topics. These Sustainability Frameworks are used to identify and manage topics related to the sustainable performance of companies. Three major concepts within the management of Sustainable Development are Corporate Social Responsibility, Environmental Management System and Environmental and Social Reporting. An overview of a large number of available sustainability frameworks, as well as their properties has been made. The following frameworks have been identified: *ABNT NBR 16001 , AA 1000, Responsible Competitiveness Index, SD 21000, AS 8003, Community Mark, CR Index, BS 8555, BS 8800, BS 8900, The Sigma Project, Albatros, QRES, Guide de la Performance Global, Bilan Societal, CSR toolkit for SME, CSR Europe-Alliances Guide, ValuesManagementSystem ^{ZFW}, Det Social Index, IMS, EMAS, Vastuun Askeleita, Forest Stewardship Council, Good Corporation, Global Reporting Initiative, Investors in People Standard, ISO 14001, ISO 26000, ECS2000, OHSAS 18001, Small Business Journey and Better Business Journey, Sistema de Gestión Ética Y Responsabilidad Social, SA 8000, SI 10000 and The Natural Step*

The Capability Maturity Model is a model which is used in a wide variety of industries to indicate the maturity of different capabilities for processes within an organization. Based on the outcomes of the model the organization can improve its processes to disciplined management processes. The main advantages of a Capability Maturity Model are increase of business success, increase of cost effectiveness, possibility to combine with other technologies such as ISO standards, used in wide-variety of industries, long life-span and a good reputation among government and research institutes.

Within this research the concept of the Capability Maturity Model has been combined with insights from the field of Sustainable Development in order to improve business performance in a sustainable manner, the Sustainable Development Maturity Model. The following components have been identified as essential for building a new Capability Maturity Model:

- A number of levels.
- General descriptor of each level.
- Generic description of the contents and characteristics of each capability level.
- A number of Key Performance Areas or dimensions.
- A number of topics and activities for each Key Performance Area
- A description of each activity as it might be executed or performed at each maturity level.

The structure of the Sustainable Development Maturity Model can be found in Figure 0.1. In this figure the six layers of the model have been given. The Key Process Areas are named Key Sustainability Areas within this research.

Six levels for the Sustainable Development Maturity Model have been defined based on existing definitions in other Capability Maturity Models and insights from the field of Sustainable Development. Level 0 indicates compliance to regulation and is a bottom-line requirement. For level 1 to level 5 generic definitions for the levels have been made containing contents and characteristics of the level as well as a generic descriptor for the levels. These descriptors are respectively: Initial, Initial Transformation, Light Sustainability, Sustainable Transformation and Reinforced Sustainability.

A scoring system has been developed to indicate the correlation between the different layers of the system. The score of the different topics can be filled in at layer 5. The lowest score of the topics results in the score for the activity. The average score for the activity result in the score for the Key Sustainability Areas, unless there is a score 0, then it will result in a score 0. The lowest score for the Key Sustainability Areas result in the score for the framework (or the condition). The sensitivity of the scoring, which means the influence of a certain score on the end-result, has been tested using several cases.

The information on the above mentioned frameworks have been expanded with information from its websites and quantitative information from websites as www.springerlink.com. From this list of frameworks three different frameworks have been selected for use in the Sustainable Development Maturity Model, one for every main category of conditions (Worker, Social and Environmental). By using knock-

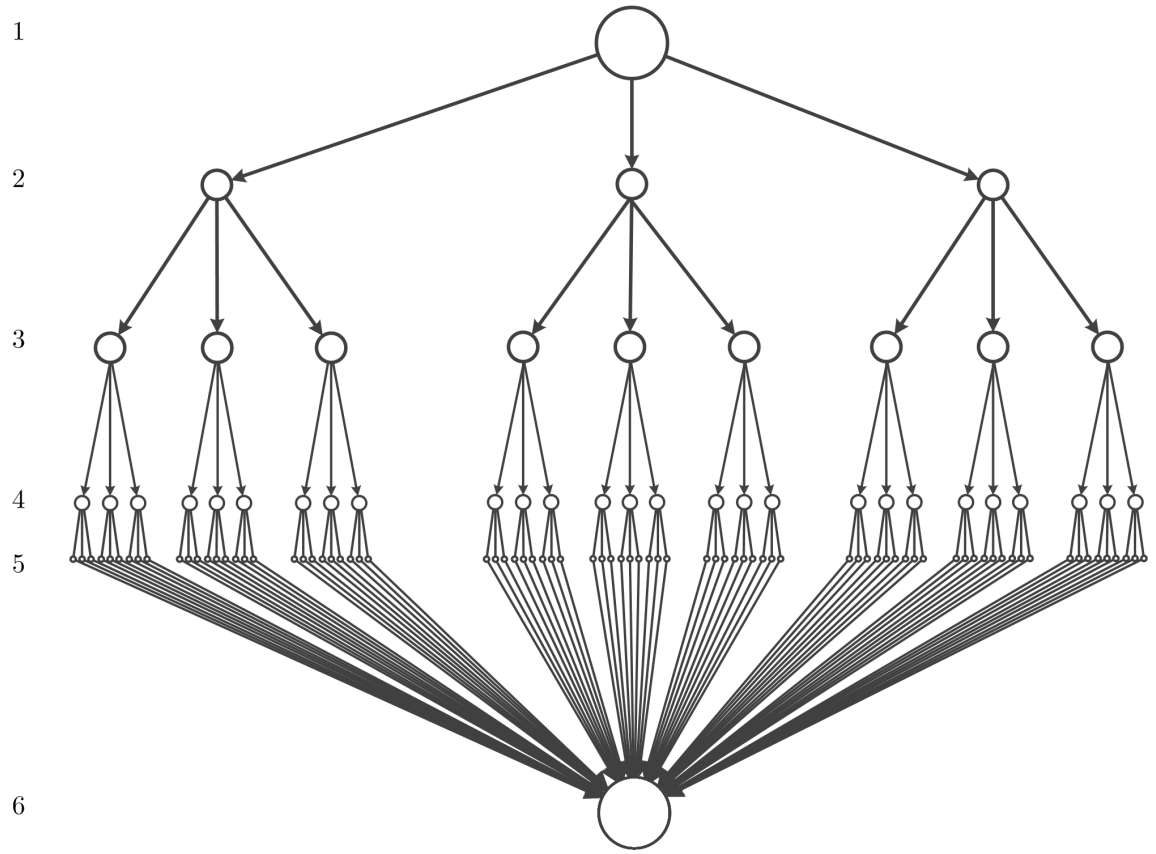

Figure 0.1: Overview of the SDMM with 1) SDMM, 2) Sustainability Framework, 3) Key Sustainability Activities, 4) Activities, 5) Topics and 6) Practices to improve organizational performance

out criteria the number of frameworks was reduced to 8 (ISO 14001, ISO 26000, EMAS, OHSAS 18001, SA8000, AA1000, the Natural Step and Global Reporting Initiative). By looking to the background of the frameworks as well as the popularity of the frameworks ISO 14001, ISO 26000 and SA8000 have been selected for the Sustainable Development Maturity Model for respectively Environmental Conditions, Social Conditions and Worker Conditions.

From the selected frameworks Key Sustainability Activities and Activities belonging have been identified. It appeared that a number of Key Sustainability Activities was overlapping and thus choice have been made to exclude certain aspects to prevent doubles. For all Activities definitions have been made as well as a descriptor for each Activity. For the Social Conditions also definitions have been made for the Topics as well as a descriptor for the Topics to show that it is possible to work on this level of detail within the Sustainable Development Maturity Model. The found Key Sustainability Areas and Activities have been validated using publications of several well-performing companies (by means of sustainable performance).

As soon as the maturity of an organization for different aspects has been determined the organization may decide to work on certain aspects. For this several practices in order to improve the maturity of the organization have been suggested. Within this research changes for three different fields of organizational improvement have been suggested: firstly an overview of aspects to improve the organizational performance of an organization, secondly the improvement of organizational processes, including a new organizational structure and thirdly by looking to the organizational learning processes. A reflection of how these practices can be used have been given as well as an overview of how aspects to improve the organizational performance can specifically be used to improve the performance of an activity or topic from one level to another.

Finally a concept version of the model has been made using Microsoft Excel showing that it is possible to build the model with previous steps. A reflection has been given on the use of the model and on the challenges and limitations as identified in the introduction of the thesis. A total overview of the model in one figure has been given showing the relation between the different steps (related to Figure 0.1).

This thesis ends with the conclusion that it is possible possible to combine insights from the field of the Capability Maturity Model with insights from the field of Sustainable Development. In further research the Sustainable Development Maturity Model should be further developed and it should be determined if the model has an added value for the sustainable management and performance of an organization.

CONTENTS

List of Figures

List of Tables

CHAPTER 1

Introduction

This report is part of the thesis research for MSc Industrial Ecology and will focus on the design and implementation of the *Sustainable Development Maturity Model* (SDMM). The SDMM is a model which will be able to determine the current maturity of a company or department regarding sustainability and which gives direction to improve this performance. This research is a first and explanatory research in which the possibilities of the SDMM will be discovered. In this research, the possibilities and contents as well as the implementation of the SDMM will be researched based on existing literature and knowledge.

In this first chapter the relevant background of the SDMM will be explored in terms of relevant aspects from the field of Sustainable Development (SD), Organizational Development (OD) and the Capability Maturity Model (CMM).

1.1 Sustainable Development

In 1987 the World Commission on Environment and Development, also known as the *Brundtlandt Commission* , published Our Common Future (Allenby, 1999). This report defines Sustainable Development (SD) as: *Development that meets the needs of the present without compromising the ability of future generations to meet their own needs*. According to Allenby (1999) this started the discussion on SD aiming to do actions beyond existing environmental regulations. SD is development based on social justness and reliability in the use of natural resources while maintaining economic growth (Seiffert and Loch, 2005). According to Seiffert and Loch the lack of agreement on a conceptual basis is a major obstacle to achieve SD. SD is the basis of this research in order to improve the companies' responsible behaviour.

1.1.1 Triple Bottom Line

The *Triple Bottom Line* (TBL) is a concept which indicates the three pillars of sustainability: People, Planet and Profit (Allenby, 1999). In order to achieve a sustainable future these three pillars should be kept in a balanced way (Seiffert and Loch, 2005). This means that the social justness and sustainability in the use of natural resources should be accounted for, while still realizing economic growth. The Triple Bottom line approach towards SD is widely accepted (Seiffert and Loch, 2005; Allenby, 1999; Herreborg and Jorgensen, 2008). However according to O'Dwyer and Owen (2005) sustainability for a company should cover more than only those three pillars. Vollenbroek (2002) reports that innovation of sustainable processes not only leads to economic strength but also a better quality of environmental and society. Seiffert and Loch (2005) continue on this by warning that the ideal solution lies in an intermediate point in which none of the three pillars can reach an optimum but in which the environmental, societal and organizational interests are carefully and equally weighted.

Within this research TBL will be used to point out the different backgrounds of different kinds of environmental and social frameworks, which will be later discussed. Next to this, it will be used in order to categorize certain topics and activities.

1.2 Management of Sustainability

Within companies a wide range of different kinds of *Sustainability Frameworks* are used to identify and manage topics related to the sustainable performance of companies. Those frameworks are increasingly recognized as a useful tool for the management of sustainability related topics and to communicate these topics (Singh et al., 2009).

A Management System (MS) is referring to a systematic, continuous and dynamic approach for the management within a company. Different kinds of MSs could be used to manage different kinds of aspects within a company. A MS is based on a comprehensive, systematic, planned and documented manner of reporting and continuously improvement. Three concepts regarding the management of sustainability are Environmental Management System (EMS), Corporate Social Responsibility (CSR) and Environmental and Social Reporting. In Appendix 1.2.1 these concepts are further explained.

1.2.1 Management of Sustainability within Organizations

Insights from Sustainable Development are on an increasingly scale applied within companies (O'Dwyer and Owen, 2005; Seiffert and Loch, 2005). Pursuing environmental policies within a firm can increase the expected value of a firm or reduce the business risks of a company (Reinhardt, 1999). Companies are using different kind of *Sustainability Frameworks* as guidance for reaching their environmental and social goals(Reinhardt, 1999; Garay and Font, 2012; Lynes and Andrachuk, 2008). Within companies a wide range of different kinds of *Sustainability Frameworks* are used to identify and manage topics related to the sustainable performance of companies. These frameworks are increasingly recognized as a useful tool for the management of sustainability related topics and to communicate these topics accordingly (Singh et al., 2009).

A Management System (MS) is referring to a systematic, continuous and dynamic approach for management within a company. Different kinds of MSs could be used to manage different kinds of aspects within a company.

Corporate Social Responsibility

According to Lynes and Andrachuk (2008), based on a publication by the European Commission, *Corporate Social Responsibility (CSR)* can be defined as the voluntary commitment of a company or a firm to contribute to environmental and social targets. CSR is a term which is interpreted in a broad way and is not sharply defined and even changing over the years by the notion of what a company relationship is with society (Garay and Font, 2012). Within this research the definition by the European Commission will be used (Lynes and Andrachuk, 2008). Liu et al. (2011) identified the main goals which a company could have to adopt CSR practices: From an economic viewpoint (1) in which CSR practices pay-off by getting a competitive advantages and from an ethical point of view (2) within companies which regard it as their moral duty to make efforts to improve their processes and products. Málovics et al. (2008) describe CSR as a concept which plays a deeper, non-economic role within in an organization in which activities are beyonf profit-oriented or commercial with as result an increase of well-being on the community. CSR practices can be divided in internal and external practices, the first include enhanced regulatory compliance in order to reduce environmental impacts to the community and improvement of worker conditions. External practices include the collaboration from the organization with environmental improvement project and community-supporting activities (Málovics et al., 2008).

Lynes and Andrachuk (2008) identify the transition from Social Responsibility within a firm (regarding employees) towards an approach in which also the external relations are included. Garay and Font (2012) identify the influence and impacts from and towards the stakeholders of an organization, while

Lynes and Andrachuk (2008) also mention the approach in which the environment and society should be seen as a stakeholder. Faisal (2010) continues on this by mentioning that CSR includes transparency or openness of organizations as well as taking into account and consideration the needs and expectations of the stakeholders and the obligations of the organization to be accountable to all the stakeholders of the organization in all the (operating) activities.

Environmental Management Systems

An *Environmental Management System* (EMS) is part of the Environmental Management of a company. According to Petrosillo et al. (2012) an EMS is a transparent and systematic corporate broad process. The goal of an EMS is to prescribe and implement environmental goals, responsibilities and policies. Next to this it ensures the auditing of these elements. Seiffert and Loch (2005) (p. 1198) define EMS as: *'A process where by formal and informal, public and private organizations apply mechanisms to develop and implement a set of cost effective priority actions on the basis of well-articled societal preferences and goals for: the maintenance of improvement of ambient environmental quality; the provision of environmentally derived or related services; and/or the conservation, maintenance and enhancement of natural resources and ecosystems'* EMSs have emerged as a tool to address environmental degradation at the firm company level (MacDonald, 2005). Standardized EMS systems can give organizations information regarding the organizations' state regarding the environment and environmental work and can assist decision-making processes within the organization (Petrosillo et al., 2012). EMS is often seen as part of the CSR of an organization (Cra, 2005).

The United Nations Environmental Programme (UNEP) has several programs on environmental management and is seen as one of the first steps in management of environmental aspects. The programme was launched in 1972 by the United Nations on the conference on the Human Environment held in Stockholm (Corbett and Kirsch, 2001). The UNEP has set up guidelines for international trade in harmful chemicals, air pollution and other potential problems. Its activities cover a wide range of issues regarding the atmosphere, marine and terrestrial ecosystems, environmental governance and green economy. In 1992 the British Standard institution (BSI) launched the first international recognized environmental management system: *BS7750*, this management system was a template for other management systems and eventually lead in 1996 to the development of the most familiar EMS: ISO 14001 (Whitelaw, 2004). According to Herreborg and Jorgensen (2008) ISO 14001 is worldwide accepted as the standard for EMS and is based on the ISO 9001 standard.

Environmental and Social Reporting

The last decade have witnessed an increase in the number of company reports on environmental and social performance. This is caused by an increase in companies which realize the importance of such reports in the planning, control, management and accountability of companies for their impacts (Williams et al., 2011; Castka and Balzarova, 2008). This is mainly, but not exclusively, done by larger companies in industrial sectors. Their main reporting method is publishing paper or web-based reports (O'Dwyer and Owen, 2005).The definition that O'Dwyer and Owen use for Sustainable Reporting is *'Reports that include quantitative and qualitative information on financial/economic, social/ethical and environmental performance in a balanced way'*. According to O'Dwyer and Owen (2005) sustainability reports are primarily based on the *Triple Bottom Line* and does not necessarily equals all subjects involved for sustainability.

Environmental and Social Reporting will be used within this research as manner to gather information about organizations and as a way for organizations to increase their sustainable performance.

1.2.2 Available Sustainability Frameworks

In this subsection an overview of the different Sustainability Frameworks (SF) which are available will be given. This is needed since the contents of certain frameworks will be used as contents for the SDMM. Existing frameworks will be used since this research is not intended as a research to find new definitions and approaches to realize sustainability but to continue on existing knowledge. It should be realized that it is almost, if not completely impossible to give a complete overview of all SF available. After an extended research to available frameworks, the frameworks mentioned in Louette and House (2007) appeared to give many common frameworks used. A selection will be made for frameworks which could be used as contents for the SDMM. This will be done in Section 2.4.

Louette and House (2007) have published a large report on the different sustainability frameworks used around the world. In this research, the different frameworks identified in this publication will be used to give an overview of relevant sustainability frameworks that could be used for companies in Europe. Louette and House (2007) identify Management Tools (MT) for different areas around the world such as Americas (North and South America) and Europe. Next to this in the article globally used standards and certifications (SC) to asses sustainable performance of different communities of people living together and organizations such as companies have been identified. A table of the different sustainability frameworks has been made and can be found in Appendix B.

In this table properties of the different Sustainability Frameworks can be found as well as their website and the different Knock-Out criteria (K.O. criteria). Starting point of this table is the information from Louette and House (2007). For example: the *Good Corporation* framework has been published by *Good Corporation Ltd.* which has its headquarters in the United Kingdom. The framework covers all three pillars of sustainability and is a Standard or Certification. The organization has a website (www.goodcorporation.com) and has been published in the English language and has an organizational scope. Since no scientific publications of the framework were found the framework was eliminated for use and thus no website links in Google have been given.

A more elaborate explanation of the contents of the table has been given in Section 2.4. This information has been expanded by information from the websites of the frameworks and quantitative information from websites such as www.springerlink.com and www.google.com.

1.3 Improved organizational performance

For various reasons a company can decide to work on one or more topics to improve. Therefore it is is needed to identify how an organization can improve its organizational performance. To improve organizational performance organizations may use various kind of resources, which are owned and are part of an organization (Galbreath, 2005). In this section different parts of organizational improvement are discussed.

1.3.1 Improvement of organizational performance

Galbreath (2005) differs for this between two main categories: tangible and intangible resources. Tangible resources are well defined and include factors such as financial or physical value that can be measured and reported by the organization's balance sheet. On the other hand there are intangible resources. Intangible resources include non-physical factors and cannot be included in the organization's balance sheet. Intangible resources are harder to identify and categorize then tangible resources and are resources such as assets (something what an organization 'has') and capabilities (something what an organization 'does'). Examples of assets are intellectual property rights, organizational assets

and reputational assets. Organizations might use both tangible as intangible resources to improve the performance.

1.3.2 Improvement of organizational processes

For a successful implementation of SD practices within an organization, it is important to have broad support in all layers of the organization. It is important that all layers recognize the importance of the measures that will be taken. Because of this, it is important to involve all layers of the organization in both identifying and implementing the measures to avoid a lack of motivation (caused by transparency issues) or other problems (Boonstra, 2005).

1.3.3 Improvement of organizational learning

One of the best known management system standards is the ISO 9001 standard for quality management (Castka and Balzarova, 2008). ISO 9001 gives company requirements for quality management, but does not give the practical, company-specific, realization of the system. Because of this ISO 9001 is useful for many kinds of companies and therefore a widely accepted system for quality management (Herreborg and Jorgensen, 2008). Important part of the ISO 9001 standard is the concept of continuous improvement based on the *Deming-cycle*. The Deming-cycle consists of four repeated phases: plan, do, check and act.

According to Whitelaw (2004) the Deming-Cycle is used in many management systems as a basis for continual improvement. This will be discussed in Section 2.1. Koppen et al. (2005) couple the Deming cycle with the different development stages of a management system for respectively Quality management and Environmental management, this can be found in Figure 1.1. The influence of the Deming Cycle is clearly illustrated in this figure.

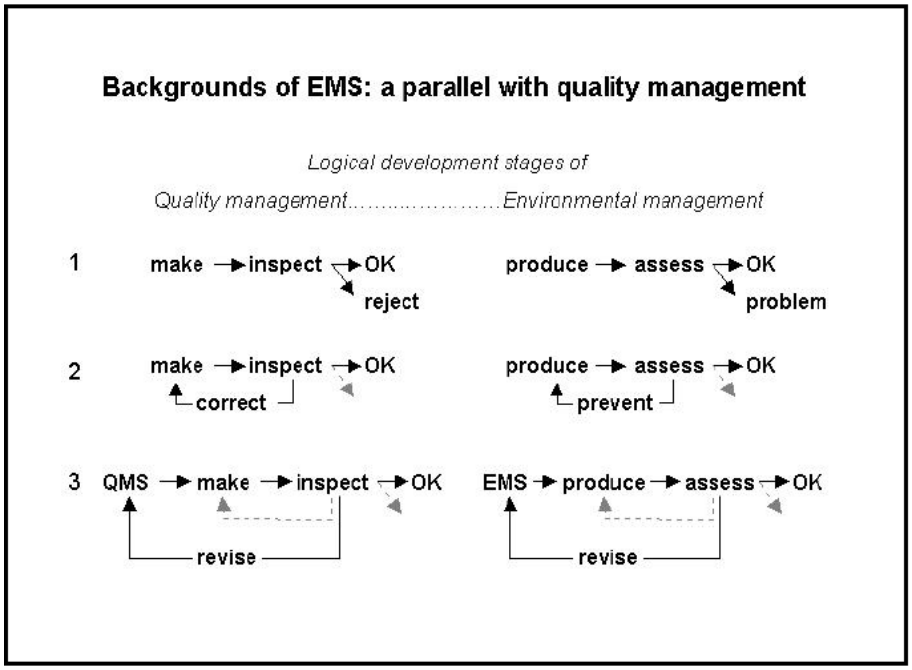

Figure 1.1: Development stages of management according to Koppen et al. (2005)

Based on the previous section it might be observed that a large number of aspects are related to organisational learning. Boonstra (2005) presents organization development by a co-generative model. In this model a distinction between the 'insiders' and 'outsiders' has been made (Figure 1.2).

1.4 Limitations and challenges

According tot Singh et al. (2009) there is a widely recognised need to find new models, tools and assessment methods to identity the ways in which current activities by humans are unsustainable and able to improve these activities accordingly. Singh et al. identify that this need needs to be fulfilled by individuals, companies, organizations and societies as a whole. This process must be led by organizations of higher education such as universities (Shriberg, 2002). MacDonald (2005) reports that confusion can exist within a company regarding the qualities, differences and linkages between the different sustainability frameworks and how these frameworks could be applied. This might result in shortcomings on the sustainable performance of an organization.

Within current frameworks for the management of sustainability within organizations one of the major obstacles is the lack of agreement on the concept of SD (Singh et al., 2009). Actions and tools are often already in the implementation phase while there are still arguments about what SD actually constitutes of. This might in non-successful or incomplete actions. According to MacDonald (2005) companies may have a clear vision of principles but a gap between those principles and actual actions is obstructing successful implementation. According to Herreborg and Jorgensen (2008) standards such as ISO 9001, ISO 14001 and OHSAS 18001 are primarily focussing on the processes within a company. Unsustainable practices frequently appear in parts of the product chain other than the certified company. Though the sustainable performance within a company is important, most potential for improvement are often in other stages of the process (Herreborg and Jorgensen, 2008) and thus a company should be analysed by its resources (Schoenherr, 2011). Next to this also the participation of the other stakeholders in the process is important (Seiffert and Loch, 2005).

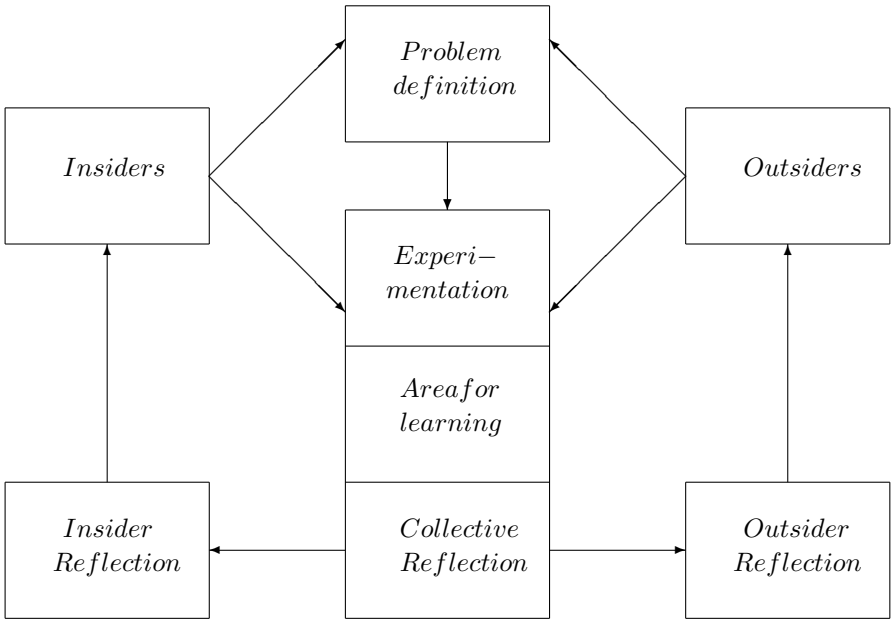

Figure 1.2: Co-generative model of organizational development according to Boonstra (2005)

Based on above paragraphs the following can be concluded: There is a need to find new models and tools to manage sustainability within a company (1). This need include the guidance of new tools with scientific insights from universities and other forms of higher education (2). High quality frameworks are available but a comprehensive, linked, system-based framework is missing (3). Existing frameworks often only include performance within the company boundaries (4). A lack of agreement on the definition of SD is often a problem for successful implementation (5) and actions should be chosen based on intrinsic values within the company. Based on these five points a new framework will be proposed, the *Sustainable Development Maturity Model*. The SDMM is based on the Capability Maturity Model which will be explained in section 1.5.

1.5 Capability Maturity Model

The Capability Maturity Model (CMM) is a model describing different levels of maturity for processes within an organization. The model helps companies and organizations to improve their processes from ad-hoc to disciplined management processes. The most well-known example of a CMM is a model used for defining the maturity of the design and implementation of software, the software CMM. This model is used in the field of Information Technology (IT). The model is divided in five well-defined levels for different subjects. When an organization fulfils all criteria for a level the organization will go to the next level.

Fraser et al. (2002) and Strutt et al. (2006) state that the concept of CMM is increasingly applied, both as an assessment tool and as part of a framework for improvement within the field of product development. Next to this Fraser et al. give an overview of different fields of industries where the CMM has been applied: quality management, supplier relationships, R&D effectiveness, product development, innovation, product design, collaboration and product reliability. CMM is used to asses the capability (something what an organizations does) of an organizations on their key organizational processes which are required to deliver a service or product. The extent to which it is capable is named maturity, more mature organizations are better capable of handling with certain topics. According to Strutt et al. (2006) the CMM can also be used to meet goals for safety and environmental risks as shown in the DCMM, a CMM for safety. One of the strengths of the CMM is that it is generic and adaptable. Starting in the field of IT it has emerged as a tool used in a wide range of industries (Strutt et al., 2006).

1.5.1 Benefits of CMM

SEI (2011) (Software Engineering Institute), the organization behind the original CMM, claims on its website a number of reasons why a company should implement a CMM (SEI:2011):

1. Increase of business success including improvements in schedule and cost performance, improved forecasting, product and service quality, satisfaction of customers, productivity, higher return on investment and others.
2. Cost effectiveness on investments by meanings of return on investments
3. CMM can be combined with other technologies including ISO standards and other standards
4. Many organizations, from a large variety of industries, use CMM. Organizations share information in community discussions.
5. Many users which started using the CMM since 1995 are still using CMM and the tool is still improving to meet the needs of business and organizations around the world.
6. CMM has a good reputation among government and research institutes.

It should be taken into account that the presented reasons are published by SEI and are thus not independent claims. SEI (2011) also published examples of different benefits which companies experienced worldwide after implementing a CMM. These examples can be found in Table A.1 (Appendix A). In this Table six categories for improved organisational aspect can be found identified by SEI (2011). For all these categories companies which had improvements regarding this category can be found. In the last column the results of the improvement can be found. For example, in the category *Improved Quality* the company *Siemens Information Systems Ltd* achieved a reduction of defect density in three technical areas with an average over 71 %. Though the exact meaning of the words used may be vague their meaning will not further be explained, though it is important to observe the positive effects of the implementation of the CMM.

1.6 Research Questions

The following research question has been used:

How can insights from the concept of the Capability Maturity Model be combined with insights from the existing frameworks on sustainable development management in order to build a tool to help organizations identify their opportunities and weaknesses related to their sustainable performance and how can organizations improve their maturity?

To answer this main question the following sub-questions are needed to be answered:

1. What is the Capability Maturity Model and which ingredients are essential to build a new type of maturity model?
2. Which Sustainability Frameworks for the management of sustainability are available and which properties do these frameworks have, such as target group, language, scientific background and triple bottom line pillars?
3. Which areas and aspects should an organization manage in order to behave more sustainable?
4. How can the organizational performance of an organization be improved both in terms of structural changes as in applying certain practices or aspects?

1.7 Outline of this report

In the next chapter the methodology of this research will be discussed. Firstly a more thorough background on the CMM will be explored which is relevant for this research. In the second section the methodology for the definition of levels within the SDMM will be explained. The third section explains the approach for how the scoring system has been developed. In section four of the methodology the identification and selection of KSA's, activities and topics out of different Sustainability Frameworks will be explained, including an example of the definition of topics. In the fifth section a brief explanation how the practices for improvement of organizational performance will be explained. Finally, the approach of building the model in Microsoft Excel has been explained. In the results chapter the results from the previous sections (without the background on CMM) will be explained. The results are followed by a chapter with conclusions and a chapter with recommendations.

CHAPTER 2

Methodology

In this chapter the methodology of building the new Sustainable Development Maturity Model will be discussed. The model has been based on the Capability Maturity model.

2.1 Relevant insights from CMM

In the previous chapter the Capability Maturity Model has been introduced. In this section a more thorough explanation of relevant insights from the CMM will be given as necessary for the development of the SDMM. This section start with a review of the CMM in relation to the challenges and limitations (Section 1.4, page 6), followed by an exploration of the use and different contents of a CMM.

It should be realised that the implementation of this tool will not directly lead to a better sustainability performance within the company or within the supply chain of a company, this will be discussed in Section 3.5.4. The implementation of SDMM will help provide vision and indirectly improve sustainable performance within a company for further implementation of the management system as well as identify gaps.

2.1.1 Contents of CMM

A CMM has a strong focus on the management on organizations and especially the management and people involved in the organization. CMM requires that organizations should identify key management processes and the behaviour of teams that influence the creation of a system in a development environment or project (van der Pijl et al., 1997).

Strutt et al. (2006) describe the history of CMM which has been based on the work of Crosby (Crosby, 1979, 1996). Crosby describes five levels of maturity within the management of organizations regarding the behaviour of management. These five levels are described in Table 2.1 according to Crosby (1979) and were later updated to: Certainty (5), Enlightenment (4), Awakening (3), Regression (2) and Uncertainty (1) (Crosby, 1996).

Next to the levels, the CMM needs categories for different aspects of an organization. These are different dimensions and process areas of an organization. In Table 2.3 different categories as used by Crosby has been given as well as so-called *Key Sustainability Activities* (KSA's). All the KSA's need to be fulfilled in order to fulfil a maturity level and go to the next level. This results in a so-called 'staged' model. This is in contrast the *SE-CMM* for systems engineering. This framework is based on the software CMM but is based on a continuous process instead of a staged process. This means that this allows companies to focus on improving the capability in specific KSA's rather than improve all the KSA's for the CMM level (Fraser et al., 2002). While keeping in mind the lack of agreement on the definition of SD this could be for great use in the proposed SDMM.

Throughout different version of models based on the CMM different numbers of levels are used which have a different amount of levels. The most used number of levels is 5 levels by for example both the Crosby (Crosby, 1996) and the Software CMM (van der Pijl et al., 1997). Important is that CMM models

Table 2.1: Overview of different levels according to Crosby (1979)

Level	Stage	Management Perspective
5	Certainty	'We know why we do not have problems with quality'
4	Wisdom	'Defect prevention is a routine part of our operation'
3	Enlightenment	'Through management commitment and quality improvement we are identifying and resolving our problems'
2	Awakening	'It is absolutely necessary to always have the problems with quality? '
1	Uncertainty	'We do not know why we have problems with quality'

should have descriptive text for the different levels and parts, more levels increase the complexity of the model (Fraser et al., 2002).

Based on the work of Fraser et al. (2002) the following components, which a CMM model might have, can be given:

- A number of levels. This may vary between 3 to 6 levels (Strutt et al., 2006)
- General descriptor of each level. This are descriptors like initial, repeatable, defined, managed and optimizing (see Figure 2.1, page 10).
- Generic description of the contents and characteristics of each capability level. In table 2.2 an example of these generic definitions of capability levels is given as used in Strutt et al. (2006).

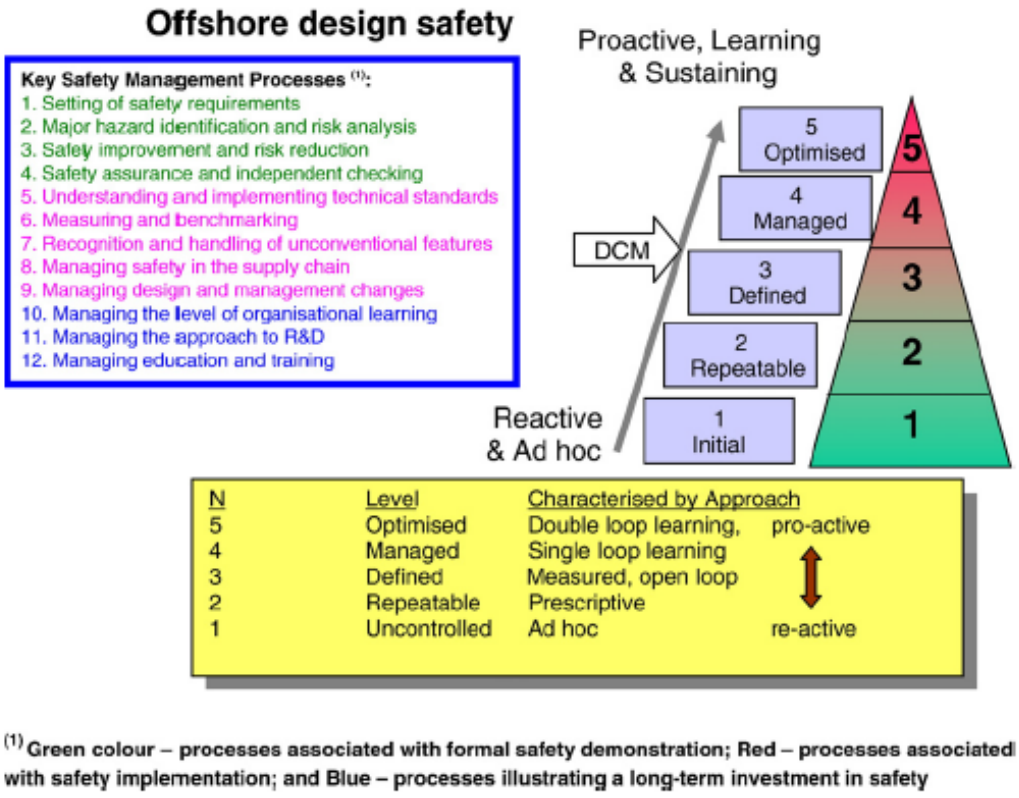

Figure 2.1: Schematic view of CMM according to Strutt et al. (2006)

Table 2.2: Description of levels of maturity in ISO 9004 according to Strutt et al. (2006)

Level	Maturity Level	Description
5	Best in class performance	Strongly integrated improvement process; best in class benchmarked results demonstrated
4	Continual improvement emphasised	Improvement process in use; good results and sustained improvement trends
3	Stable formal system approach	Systematic process-based approach, early stage of systematic improvements; data available on conformance to objectives and existence of improvement trends
2	Reactive approach	Problem or prevention based systematic approach; minimum data on improvement results available
1	No formal approach	No systematic approach evident, no results, poor or unpredictable results

- A number of KPA's or dimensions. An example op KPA's can be found in Figure 2.1 page 10). The 12 coloured statements on the left of the figure give the KPA's within this CMM for safety .
- A number of topics and activities for each KPA
- A description of each activity as it might be executed or performed at each maturity level. Typical there is an overall description for the maturity levels, but not an additional description for each activity (Fraser et al., 2002). An example is given in Table 2.3, page 12.

Fraser et al. (2002) conclude in their paper: *'(...) it is difficult to make the maturity grid design process completely rigorous and it is suggested that some compromise is necessary and appropriate in the interests of producing a useful and usable tool*'.

2.1.2 Structure of the SDMM

Though, as mentioned before, a lot of high quality frameworks for the management of sustainability within organization is available a comprehensive model is lacking. The SDMM will try to fill this gap, not as a quantitative tool for certification or ranking but as a qualitative tool meant for internal purposes only which will be based on intrinsic values. The SDMM could be compared with a psychological test in which a participant can manipulate its answer but at the end will only fool him or herself.

The structure of the SDMM will be different from a typical structure of a CMM such as the DCMM by Strutt et al. (2006). In Figure 2.2 a typical structure of a CMM is given (based on the work of Strutt et al. (2006). The CMM consists of several Key Performance Areas (KPA's) (see also Figure 2.1, page 10). Within existing research several definitions for Key Performance Areas (or Key Performance Activities) exist (Strutt et al., 2006) though within this research it is mainly a category, as used in the different Sustainability Frameworks, which will be called Key Sustainability Activities. Below the KSA's are one or more activities *or* topics. For each activity or topic practices are given to improve the maturity.

The SDMM-structure will be based on this CMM but will have some differences. In Figure 2.3 the structure can be found. Instead of KSA's as first aspect of the model there are three Sustainability Frameworks (SF) (Environmental, Worker and Social, see Section 2.4.2, page 18). Under these SF are the SF-related Key Sustainability Activities (KSA's) of the framework. The KSA's consist of several Activities and the Activities consist of Topics. For all aspects a generic explanation for improvement of organizational performance to perform more sustainable.

Table 2.3: The Quality Management Process Maturity Grid according to Crosby (1996)

	Management Concepts	Definition	System	Performance Standard	Measurement
Certainty	'No reason for not doing things right'	Confirm the requirements	Prevention	Zero Defects	The price of non-conformance
Enlightenment	'Get serious about quality'	Satisfy Customer	What do we really need to know?	Six Sigma	Complete transaction rating
Awakening	'We need to get better'	Continuous Improvement	ISO 9000: Mi-Q-9858	Continuous Improvement	Customer complaints
Regression	'Lets apply for the award'	Delight the customer	Buy some guru tapes and show them	Acceptable Quality Levels	Bench-marking
Uncertainty	'Let's get certified'	Goodness	Award Criteria	What traffic will bear	Opinion

The alternative structure is chosen to enable the possibility of more detail in the SDMM due to the complexity of all the aspects connected to SD. Though it also might be chosen to left-out the fifth layer of the SDMM structure in Figure 2.3 to get a 'light' version of the tool.

Though the SDMM should be able to be used in any kind of organization the main focus at this moment are production companies, however since this might be expanded on a later moment to other kinds of companies organizations on a later moment the term *organizations* is used rather then companies. The SDMM will focus in the first place on the organization itself, though through the different aspects which will be used the use of the SDMM also might have consequences on the rest of the supply chain both upstream as downstream.

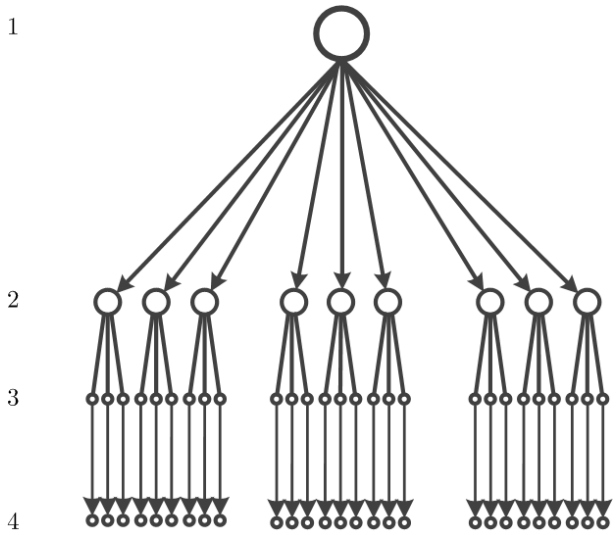

Figure 2.2: Overview of a CMM with 1) CMM, 2) Key Performance Areas, 3) Topics and Activities, 4) Practices to improve maturity

2.1.3 Relevance to Industrial Ecology

The SDMM will not limits itself to a technological solution but will also focus on societal aspects from the perspective of organization. Next to this a system approach will be used, since the change of a company, by using the SDMM, can have positive influence on the life cycle of the organization. Next to this the ecosystem paradigm as used by Boons and Baas (1997) will be used.

2.1.4 Using CMM

Assessment of an organization using the CMM can both be done by an external auditor, or by self-assessment within the organization. Fraser et al. (2002) identify the importance of doing this as a team activity encouraging consensus and team-building. Appliance of the CMM will decrease risks and waste and increase productivity and quality (Curtis and Paulk, 1993). Main value of applying a CMM audit on an organization is its ability to identify weaknesses in different managerial processes. The model shows the management of an organization what an organization is doing well and which processes and practices are needed to further improve their performance (Strutt et al., 2006). In figure 2.1 (page 10) a schematic overview of the CMM is given. There are five levels within this version of the CMM. Characteristics for these levels are also given. The reduction of risks and waste and thus an increase of productivity and quality has been visualized in this figure.

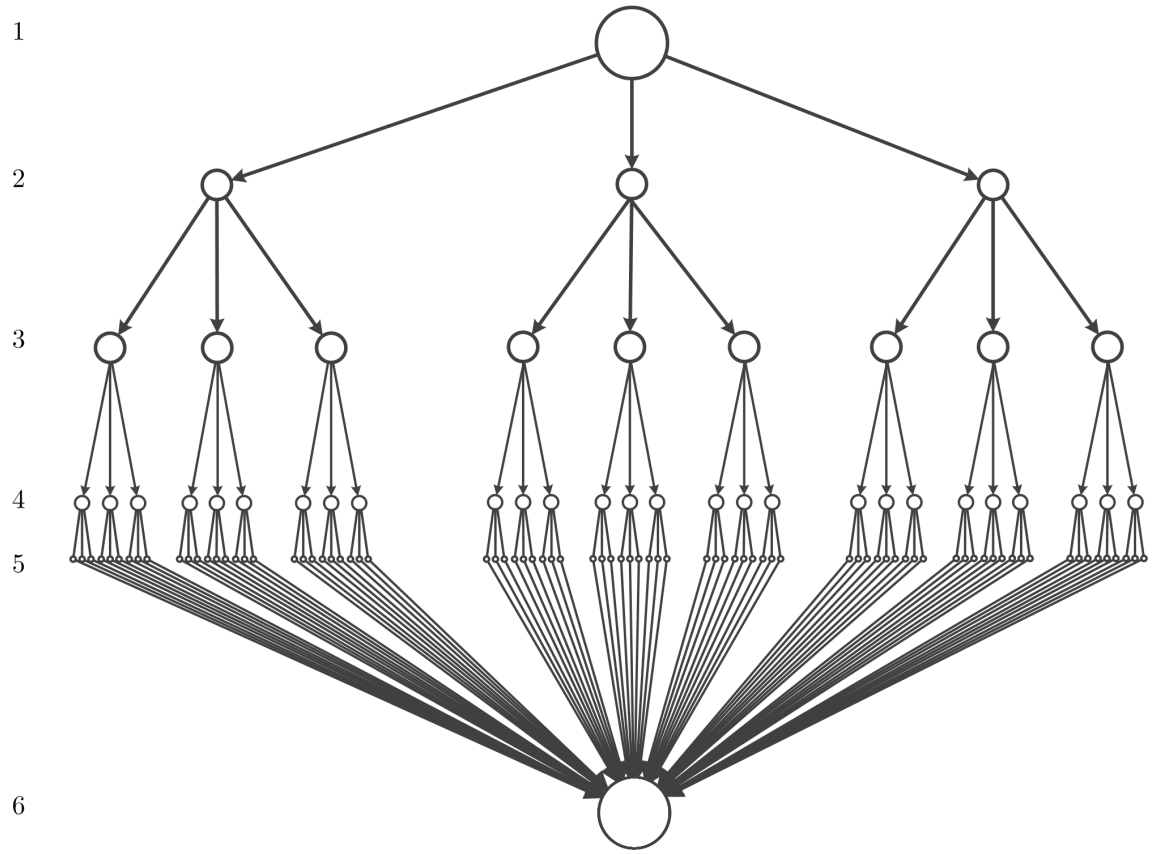

Figure 2.3: Overview of the SDMM with 1) SDMM, 2) Sustainability Framework, 3) Key Sustainability Activities, 4) Activities, 5) Topics and 6) Practices to improve organizational performance

2.2 Defining levels

As shown in the previous section different interpretations of the Capability Maturity Model (CMM) are available. These insights will be used as basis for the different maturity levels for the SDMM. For the specific criteria regarding the sustainability aspects insights from Sustainable Development, such as Environmental Management and Corporate Social Responsibility will be used.

In this step the different maturity levels for the SDMM will be defined. These will be based on existing definitions. The paper by Fraser et al. (2002) focusses on the origins from the model mainly within software development, whereas Strutt et al. (2006) discusses a new kind of CMM model focussed on process safety. Both Fraser et al. (2002) and Strutt et al. (2006) are using definitions for the levels for the DCMM and CMM respectively. The definitions which have been used are given Table 2.5 and Table K.1.

Within different versions of the CMM different number of levels are used. The number of level vary between three and six. Five levels is most commonly used (Fraser et al., 2002). As described before the SDMM is likely to have strong similarities with the Safety maturity model (DCMM) as described by Strutt et al. (2006). Both this version of the CMM as the original CMM use five levels. Because of this also the SDMM will use five levels. Next to this Strutt et al. (2006) suggest the implementation of a level 0 in which conformance with legal requirements is not fulfilled. Based on this the five levels for the SDMM need to be defined. Within the SDMM the level 0 will be used for non-compliance with any kind of regulations. The levels 1 to 5 will be used to indicate the sustainability-maturity levels. In the publication by Strutt et al. (2006) an overview of different learning-modes and characteristics belonging to the different maturity levels has been given. This table can be found in Table 2.4. This table can also be used for the SDMM to find maturity levels and characteristics for the SDMM. From the five levels in the SDMM, level 1 is the initial level; level 3 and 5 are milestone levels while level 2 and 4 are intermediate levels towards the milestones.

2.3 Create scoring system

A scoring system will be needed to be developed which indicate the relation between the scores of the different layers after the levels for the topics have been determined. This score system should not give a too pessimistic score since this might demotivate organizations to perform more sustainable nor should give a too positive score since this might, as described by (Strutt et al., 2006), mask serious shortcomings on the topic or activity layer of the model. Therefore choices need to be made which will be needed to be documented. The scoring system will be used within the model.

In section 2.2 (page 14) the introduction of a level 0 has been discussed based on legal compliance. If this level is achieved, which means that the topic does fulfil legal requirements, five levels to indicate the maturity will be given for the organization. The SD practices of an organization are divided in several KSA's, activities and topics (See Figure 2.4) .

In this figure, the four layers, which form the SDMM, have been shown. The definitions of the maturity levels will be applied on the lowest layer (Topic) of the model. The individual scores of the different topics this will influence the score for the 'Activity'-layer. The different scores for the activities will influence the score for the KSA. The three scores for the KSA's will at the end give the final maturity score.

The scoring system will be tested on sensitivity by doing several case-studies in which the sensitivity of the scoring will be tested by looking to the influence of different scores on the end-score.

Table 2.4: Description of maturity levels in a CMM as used by Strutt et al. (2006)

Level	Maturity Level	Learning mode	Process characteristics and effect
5	Optimised	Adaptive-double loop learning	Processes are adapted to optimise product safety
4	Managed	Quantified-single loop learning	Processes are quantified and influence product safety
3	Defined	Measured-open loop	Processes are defined for safety. There is partial influence on product safety
2	Repeatable	Prescriptive	Processes are standardised but lack real influence on product safety
1	Ad hoc	Reactive	Processes are not standardised and are largely uncontrolled
0	Violation		

Table 2.5: Description of maturity levels in a CMM as used by Fraser et al. (2002)

Level	Maturity Level	Description
5	Optimising	Continuous process Improvement is enable by quantitative feedback from the process and from piloting innovative ideas and technologies
4	Managed	Details measures of the software process and product quality are collected. Both the software process and products are quantitatively understood and controlled
3	Defined	The software process for both management and engineering activities is documented, standardised, and is integrated into a standard software process for the organisation. All projects use an approved, tailored version of the organisation's standard software process for developing and maintaining software.
2	Repeatable	Basic project management processes are established to track cost, schedule and functionality . The necessary process discipline is in place to repeat earlier successes on projects with similar application.
1	Initial	The software process is characterised as ad hoc and occasionally even chaotic. Few processes are defined and success depend on individual effort and heroics.

Table 2.6: Description of actions for maturity levels in a CMM as used by Strutt et al. (2006)

Level	Description
4 to 5	Ensure that feedback from benchmarking is used to both improve long term safety processes, organisational structure and education and training
3 to 4	Implement feedback from benchmarking processes to improve safety in designed product
2 to 3	Implement documentation and procedures to ensure all safety processes are defined and recorded, and set targets and requirements
1 to 2	Ensure that previous processes are well recorded and can be repeated

2.4 Selection of Frameworks for SDMM

In this section the approach for selecting KSA, Activities and Topics out of existing Sustainability Frameworks will be discussed. Firstly a selection will be made using Knock-Out criteria. Secondly a selection will be made based on theoretical backgrounds of the frameworks. Thirdly the relevant KSA's and Activities will be identified for the three chosen frameworks. Finally for one framework the selection of topics will be explained.

2.4.1 Elimination of Frameworks for SDMM using K.O. Criteria

The definitions of Key Sustainability Activities (KSA's) and goals will be made based on existing frameworks. Existing frameworks will be used in order to ensure that companies are more likely to be familiar with the contents of these frameworks and thus even might have these frameworks already implemented in the company. Many sustainability frameworks are used throughout the world and throughout companies to manage and asses sustainability. In Section 1.2 (page 2) an overview of different SF as found by Louette and House (2007) has been given. This overview can be found in Appendix B. Based on this overview a selection of SF, which could be used in the SDMM, will be made. In order to make this selection unsuitable SF will be eliminated by using criteria that can quickly determine the usability of the SF, the so-called K.O. criteria. A framework that does not fulfil a criterion will be eliminated directly from the research. This means that a framework which does not fulfil the first K.O. criterion but which would fulfil the second or third not is mentioned as passing this second or third criterion. The outcomes can be found in the right part of the table in Appendix B. In Section 1.2 the first part of this table has been explained. The following K.O. criteria have been used:

1. Website availability: It is assumed that a widely used framework at least has a website in which the framework is presented by its author.

2. Language: Since the focus of this research is companies in Western Europe the framework should be in English or have (a proper) English version available.

3. Company Perspective: The framework should be used to evaluate or manage (aspects of) sustainability within a company.

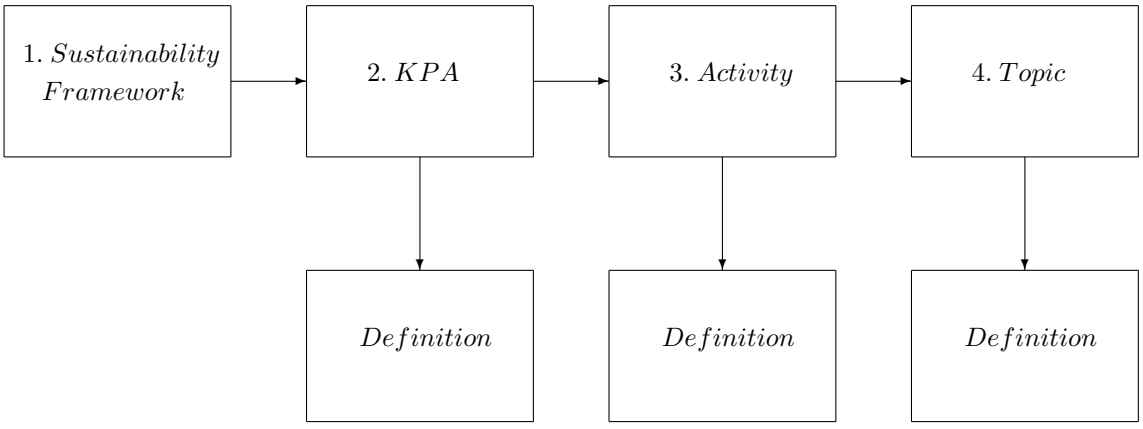

Figure 2.4: Relation between the different layers of the SDMM

4. Scientific Backround: Since this research is part of a scientific research the framework should have a scientific background.

Website

In order to find information about the language and the company perspective of the framework the website of the company is needed. Therefore, the name and the organization of the framework has been put in the Google search engine (www.google.co.uk) and out of this the website from the framework has been found in most cases. A framework which is used on a large scale is assumed to have a own website or should have information from the framework on the organizations website.

Language

As described before K.O. criteria have been used in order to eliminate not suitable frameworks for the SDMM. The first K.O. criterion that has been used is the language. All frameworks should be available in language that can be understood by people from different countries, in the case of Europe this is English. Based on the information found on the website of the framework this K.O. criterion is applied.

Company perspective

The second K.O. criterion is that the framework should have a company perspective, this since the desired SDMM will have production companies as the main target group. Therefore information by Louette and House (2007) and information from the framework website has been used to look if a framework might have a business perspective. This has been done by looking if the description by these two sources mentions other purposes then to be used within a company.

Scientific Background

A scientific background is of great importance for the reliance of the SDMM framework from a scientific perspective, which has been confirmed by the publication of Shriberg (2002) (see Section 1.4, page 6). Therefore, the third K.O. criterion is that there should be scientific publications about the framework, this has been done by investigating the scientific publications database of Springerlink (www.springerlink.com). An evaluation criterion for this is that the name of the framework should be mentioned in the title or summary. This is since it may also be the case that a framework is mentioned in an article but not as a (main) subject. By using the advanced search option of the website the name of the framework, as mentioned in the table, was entered in the field *"Content"* and the option *Title & Abstract* was selected. Based on these outcomes it was determined if scientific articles fulfilling this evaluation criteria were present, in that case the framework passed the criterion.

Google Hits

Based on information published by Louette and House (2007), websites of frameworks and a scientific database a number of frameworks that could be useful have been found. In the next section, a choice of frameworks, which will be used, will be made, but firstly Google will be used to determine popularity of the different frameworks that could be used for selecting the SF. This is done since it is also important that the frameworks are used by companies. When companies are using a certain framework the company is likely to put this kind of information on their websites and that third parties will, positively or negatively, discuss on this. For the final choice of frameworks, this might be used to choose for one framework above another one.

2.4.2 Selection of Frameworks to be used in the SDMM

By applying the K.O. criteria several frameworks which could be used will remain. For these frameworks a choice will be needed to be made. As explained before the three pillars of sustainability consist of people, planet and profit. Within the SDMM it is needed to cover all three dimensions. Profit is a boundary condition which should be covered at all time to give the organization the right to exist. The environmental part is the influence of the organization on its environment. The social part can be divided in two categories: external and internal. External means the impact that the organization has on the society it consists of. Internal means the organization as a society of which the workers are part of. Because of this difference there has been differed between those two categories. Within this research the first category is defined as the CSR part (Social Conditions), the second part as Worker Conditions (WC). For both the environmental part (Environmental Conditions), the CSR part and the Worker Conditions part one framework should be selected. In this step a choice will be needed to be made based on theory found on the different frameworks. Included in this is an overview of the KSA's in the remaining frameworks.

2.5 Identification of KSA's and Activities from selected frameworks

For the chosen frameworks the identified KSA's will be compared. By comparing them overlapping KSA's will be neglected in the model to avoid extra complicity and possible contradictions between the models. For the remaining KSA's the activities will be needed to be found and reported based on information from the framework and other literature.

Validation of selected KSA's and Activities on familiarity within organizations

After the KSA's and Activities have been identified validation is needed to make sure that identified KSA's are indeed corresponding with organizational practices. Therefore Sustainability Reports of large chemical companies will be used and checked for the presence of identified KSA's and Activities for the framework described in the next step.For the reports it is chosen for the 2010 sustainability report or website of five large companies which are all performing reasonable well regarding sustainability: Shell, BP, Unilever, Akzo and DSM. In this report it will be checked if the found activities are present in the publication. If no activity is found it does not mean that an organization is not managing the activity, but that no information could be found in the publication. In this step only the presence is checked, not the activity maturity. It is expected that the five companies will have most of the aspects in place, since they are all or were all part of the Dow Jones Sustainability Index (DSJI, S2010) (see also Table 2.7).

2.5.1 Example of Topics and description from 1 framework

As described in the beginning of this chapter the SDMM will contain of KSA's, Activities and Topics. In the previous step the KSA's and Activities have been determined. In this subsection for one framework also the Topics and description for Activities and Topics will be made. Purpose of this is to show that it is possible to make this definitions and to show the detail level of the definitions. Based on the guidance document of the framework an overview will be made. This starts with the descriptions of various aspects that should be managed. These aspects are categorized and a definition for each aspects will be made. For the topics a Topic name will be made based on the definition of the topic. For the activity this is the name of the Activity found in the previous step.

In SF documents the different KSA's and sometimes the activities have numbers indicating the KSA or activity number. For all three the frameworks numbers will be used to indicate the KSA, Activity and Topic in such a way that each aspects has a unique number.

Table 2.7: Chosen organization in DJSI index

Name	Company	Average in sector	Best of sector	Is best of sector?
Unilever	80	50	80	Yes
BP	Not in DJSI as of 2010			
Shell	Not in DJSI as of 2010			
Akzo	80	55	80	Yes
DSM	85	55	80	Yes

2.6 Improve organizational performance

In section 1.3 (page 4) different aspects for the improvement of organizational performance have been discussed. To obtain a higher maturity in the SDMM processes have to be improved. Therefore ways and practices for improved organizational performance will be discussed. Since a lot of information is available and research has been done on Organizational Development (OD) this research limits to the work of Boonstra (2005) as a basis. Found information and practices have where needed be expanded with other sources. Relevant information and practices will be given, not as a practical guide but as an inspiration to make improvements possible.

2.7 Build a concept of the model

In the previous three phases the KSA's and maturity levels have been defined and a scoring system has been developed. In this phase, these three phases will be combined. This done by building a MS Excel Version of the model. In the planning phase of this research, the purpose was to show a complete model including all the different SF. During the research, it appeared that this was not possible within the time-span available. In this section the implementation of one framework in a working model will be given.

2.7.1 Basis concepts to be used

During this research three different SF will be selected for possible use in the SDMM. For all those three KSA's and Activities will be identified. In this test version of the model the contents of one of the frameworks will be applied to the test-SDMM.

The definitions as identified in Section 2.4.2 for the SDMM will be used within the test-SDMM.

The version of MS Excel uses MS Excel 2010, Dutch release. The formulas which will be used in the mode will be translated in this step to their English equivalent.

CHAPTER 3

Results

In the previous chapter the methodology for this research has been discussed. In this chapter the results of this research will be dealt with. At the end of each section a brief discussion will be given on the results. In the first section the result of defining the different maturity levels, as necessary for the SDMM, will be handled. In section 2 the scoring system will be reported as well as some examples to show the sensitivity of the scoring system. In section 3 the selection of different frameworks for the KSA's and Activities for the SDMM will be explained. In section 4 the KSA's and Activities from these frameworks will be justified.

In section 5 different ways of improving the organizational performance will be explained which could be used to improve the maturity. For this there has been differed between the improvement of business performance, organizational processes and organizational learning. These three parts have been followed by some insights how these aspects could be used in order to behave more sustainable. Finally the found aspects are coupled to the different maturity levels in order to mitigate from one level to another. In section 6 the model has been built using Excel and a review on the use of the model. Finally, in section 7, the results will be summarized and a review will be given on these results.

3.1 Definition of the levels

One of the starting points for the development of a CMM is the development of maturity levels. The maturity levels within the SDMM will indicate the maturity of the organization regarding SD in relation to the different KSA's, Activities and Topics. As discussed in section 2.2 the SDMM will consist of 6 levels in which level 0 indicate non-compliance and level 5 the best-performance. In the next subsections the levels will be determined, first by reporting the relevant backgrounds on the levels followed by the definition of the levels as used in the SDMM. As described in Chapter 1 there are strong similarities between safety management and the management of SD. Therefore as a basis the definitions for the maturity levels by Strutt et al. (2006) has been used. Next to this the proposed *Level 0* will be introduced in which the organization does not comply with regulations for the Activity or Topic. An overview of the levels can be found in Table 3.1. In the next subsections the background of the levels will be discussed.

3.1.1 Level 0 - Non Compliance

Lynes and Andrachuk (2008) define CSR as voluntary commitment of an organization to contribute to environmental and social targets. Allenby (1999); Liu et al. (2011) define Sustainable Development as development within an organization beyond compliance. This means that, in order to perform sustainable on any level, the organization should fulfil legal requirements that have been set by local, regional, national or international regulations. The following definition has been used: *The organization is not complying with regulations to which the organization should comply regarding this activity.*

Table 3.1: Description of maturity levels as used in the SDMM

Lvl	Maturity Level	Description
5	Reinforced Sustainability	The organization can prove to be operating according to and beyond the requirements for the definition of the activity and has set quantitative targets for the activity and has implemented processes and policies to continuously improve the activity. The organization can prove that is has expanded the definition of the activity to provide solutions for bigger problems on a global and a local scale beyond the interests of the company in which money is not used as, or only limited used, as a comparative method.
4	Sustainable Transformation	The organization can prove to be operating according to and beyond the requirements for the definition of the activity and has set quantitative targets for the activity and has implemented processes and policies to continuously improve the activity. The organization can prove that is has expanded the definition of the activity to provide solutions for bigger problems on a global and a local scale beyond the interests of the company.
3	Light Sustainability	The organization can prove to be operating according to and beyond the requirements for the definition of the activity and has set quantitative targets for the activity and has implemented processes and policies to continuously improve the activity.
2	Initial Transformation	The organization can prove that it has been taken steps and has put operations in action to operate according to the definition of the activity as well as methods to improve these operations.
1	Initial	The organization has not taken any steps to operate according to the definition of the topic or has been taken steps based on consumer or market demands.
0	Non-Compliance	The organization is not complying with regulations to which the organization should comply regarding this activity.

3.1.2 Level 1 - Initial

For level 1 the organization has limited experience regarding sustainability. Actions will mainly be done on an ad-hoc base without any guidance. This means that no systematic approach is present and results are poorly measured (Strutt et al., 2006). Actions are mainly done due to consumer or market demands (Reinhardt, 1999). Improvements are mainly based on the improvement of existing technologies or by using end-of pipe solutions (Vollenbroek, 2002). One of the major reasons why a company might be engaging is sustainability is in terms of legal and economic liability (more profit) instead of a full conceptualization of SD (Schoenherr, 2011; Bevan et al., 2012). Based on this the following definition for level 1 has been used: *The organization has not taken any steps to operate according to the definition of the topic or has been taken steps based on consumer or market demands*.

3.1.3 Level 2 - Initial Transformation

For level 2 the organization has identified that it has problems with sustainability related issues and is trying to work on these problems. Though the organization has taken its first steps in becoming more sustainable a systematic process-based approach is lacking (Strutt et al., 2006). The organization understands that innovation does not only result in economic strength, but also in a better quality of the environment and social circumstances (Vollenbroek, 2002). According to Seiffert and Loch (2005) this includes the formal and informal mechanisms in order to develop and implement cost effective actions

based on societal pressures related to sustainability issues. The following definition has been used: *The organization can prove that it has been taken steps and has put operations in action to operate according to the definition of the activity as well as methods to improve these operations*.

3.1.4 Level 3 - Light Sustainability

For Level 3 the organization has implemented standardized processes to manage sustainable practices. Within companies a wide range of different kinds of *Sustainability Frameworks* are used to identify and manage topics related to the sustainable performance of companies. Those frameworks are increasingly recognized as a useful tool for the management of sustainability related topics and to communicate these topics (Singh et al., 2009). As discussed before this includes several standards for Environmental Management, Corporate Social Responsibility and Worker Conditions. This means that processes are highly standardized and subject of continuous improvement (MacDonald, 2005). This means that successful implementation of (parts of) an EMS, CSR or WC standard will give the organization the level 3.

Brekke (1997) differs between Weak Sustainability and Strong Sustainability. Weak Sustainability is development that is non-diminishing over time. Strong Sustainability is defined as development in which life opportunities are not diminished over time. Derived from Brekke (1997) this level of sustainability will be called 'Light Sustainability' since the basis is that profit will increase over time for an organization by applying sustainable practices. For this 'Light Sustainability' the following definition for level 3 has been used: *The organization can prove to be operating according to and beyond the requirements for the definition of the activity and has set quantitative targets for the activity and has implemented processes and policies to continuously improve the activity*.

3.1.5 Level 4 - Sustainable Transformation

Though the full implementation of those standards might suggest a success story regarding sustainability Doane (2005) warns that 'the outcomes of a CSR program are less than one might have expected' which might be reinforced by 'a Tobacco Company on the Dow Jones Sustainability index which screens not those that contribute to a better society, but those are the 'best of the baddies''. Doane (2005) concludes that rather risks and reputation are managed rather then impacts with higher impacts. Because of this organizations should pay attention to their impact on the ecosystems they are part of. Because of this it is important to consider SD within organizations beyond the environmental and social standards since these often only suggests that these actions only include the organization's interest (Doane, 2005). Organizations can influence the way decisions can be made within governmental organizations and can, to a limited extend, influence consumer behaviour (Málovics et al., 2008). Based on this and the earlier definitions the following definition for level 4 has been used: *The organization can prove to be operating according to and beyond the requirements for the definition of the activity and has set quantitative targets for the activity and has implemented processes and policies to continuously improve the activity. The organization can prove that is has expanded the definition of the activity to provide solutions for bigger problems on a global and a local scale beyond the interests of the company*.

3.1.6 Level 5 - Reinforced Sustainability

Organizations should try to find ways to deliver solutions to the bigger global problems and challenges in the world such as climate change, poverty and inequality by regarding themselves as part of this world (Doane, 2005).

This means that an organization should make plans to improve topics beyond the interests of the organization such as profit. As major player in the ecosystem the organization has the responsibility to

maintain this ecosystem and that the ecosystem and circumstances for life will not diminished over time. To obtain this it means that an organization should have strong intrinsic motives (so not pure based on earning money) to put changes into action since this will not or only limited result in a higher profit or image. Because of this this levels is named 'Reinforced Sustainability".

To put Reinforced Sustainability practices into action in a successful way for all the topics and for an entire organization might be quite ambitious and an utopia but still a good philosophy to work for. Resulting from this the following definition has been used *The organization can prove to be operating according to and beyond the requirements for the definition of the activity and has set quantitative targets for the activity and has implemented processes and policies to continuously improve the activity. The organization can prove that is has expanded the definition of the activity to provide solutions for bigger problems on a global and a local scale beyond the interests of the company in which money is not used as, or only limited used as a comparative method*.

3.1.7 Remarks

Like Strutt et al. (2006), the SDMM uses a five level ranking system. Next to this a level zero has been introduced which has also be described by Strutt et al.. In Table K.1 (page 120) there has been differed between single-loop and double loop learning for respectively level 3 and 4 and 5. For the SDMM the double-loop learning has been implemented on a lower level then for the CMM by Strutt et al. since a MS uses a double-loop learning mechanism. Since the MS is similar to a level 3 performance it can be said that double-loop learning is practised at level 3 of the model. To go further on this the co-generative model of organizational learning combined with two Deming cycles, which has been described in Section 3.5.3 (page 40), can be seen as a higher level of learning which would mean a level 4 performance in the SDMM.

Though the definitions of level 0 and level 1 could be seen as quite similar there is an essential difference between those. Level 0 is only focussing on the legal requirements, while level 1 indicating a development level. For instance an organization could be operating for an aspect on a level 2, but since this is not coherent with legal requirements the organization would have a level 0 score. Level 1 indicates that the organization has not, or only poorly, developed its operations, though it does fulfil legal requirements.

It can be questioned if these generic levels can be applied on the individual level of an activity or topic. The current definitions might suggest that the score of an individual level is similar to the overall level of sustainability. Of course this is not the case and indicates its individual contribution to the overall performance.

3.2 Creating scoring system

Based on Figure 2.4 the scoring system can be developed. For each SF a list with KSA's, Activities and Topics have been made with definitions accordingly. This means that for every SF a number will indicate the overall maturity.

Starting from the topics the organization can indicate to which level a topic is managed. For all topics together of an activity the lowest level will determine the overall score for the activity.

For the KSA score the average score of the activities belonging to the KSA will determine the score for the KSA except if a level 0 has been scored for one of the activities. All activities have the same relative weight and thus a same relative importance. This means that a KSA with four activities all 4 activities have a weight of 1/4th of the overall score of the KSA.

The overall score for the SF will again be based on the lowest score of the previous layer, which means for the KSA.

3.2.1 Sensitivity of scoring

Now that a scoring system has been developed a view on the meaning of this scoring system by means of sensitivity has been researched. In other words, how does a certain score influence the results. Therefore the scoring system as explained before, with the different layers as in Figure 2.4, has been put in Microsoft Excel. The different layers Sustainability Frameworks (S), KSA's (K), Activities (A) and Topics (T) have been put in this Excel sheet in their relation (as shown in Figure 2.3, page 13). Formulas have been used to define the different 'mathematical'-relationships as shown in Figure 2.4. In Appendix I the formulas have been explained.

The table consists of 1 Hypothetical Framework with 3 KSA's with each 3 Activities and with each 3 Topics, which has been made to indicate the influence of the scoring for the different layers of the result. Basis is a score of 5 for all topics and thus for all the Activities and KSA's. Any changes on this score will give the best image on the influence of this change. A colouring system has been used to illustrate the different levels in which level 0 is red and level 5 is dark green. The following six scenarios have been used:

1. The influence of low score (1) for a topic on the overall score with the rest of the table scoring highest (5).
2. The influence of low score (1) for two topics on the overall score with the rest of the table scoring highest (5).
3. The influence of low score (1) for three topics on the overall score with the rest of the table scoring highest (5).
4. The influence of low score (1) for a topic on the overall score with the rest of the table scoring moderate (3) instead of highest (5).
5. The influence of a KSA having a double amount of activities (6 instead of three) on the overall score with one topic (thus activity) a score of one (lowest) and the rest of the table scoring highest (5).
6. The influence of a non-compliance score (0) on the overall score

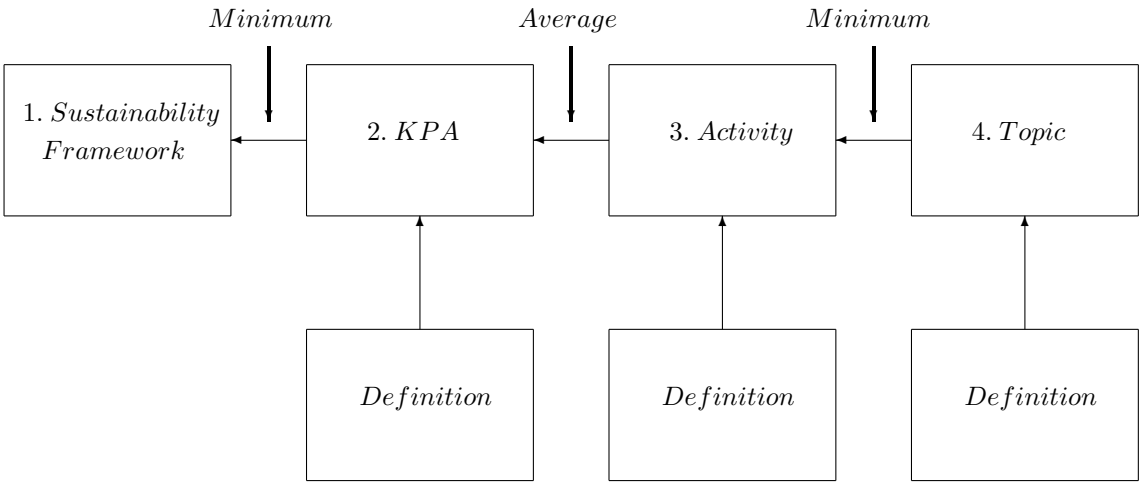

Figure 3.1: Relation between the different layers of the SDMM with scoring

In Figure 3.2 the results from the six different scenarios can be found. In the left column (Column A) the scenarios 1 to 3 can be found en in the right column (Column B) the scenarios 4 to 6. The figure of scenario 1 clearly illustrates that the low score of the topic complete influences the score for the activity, which is logically since this is the lowest score and also have influence on the KSA layer and thus the Sustainability Framework layer. The figure of scenario 2 illustrates that the influence of a low score is a lot bigger with two low topic scores (S-score of 2) and even bigger for the last on (scenario 3).

In the second column the first figure (scenario 4) shows the influence of a lowest score when the rest of the table is also lower. The figure of scenario 5 shows that with more activities in a KSA the influence of one lowest topic score has less influence on the overall score. This means that KSA's with a large number of activities might be sensitive of masking shortcomings, this is something which can, within the current system, not be prevented. In the last figure it is shown that the level 0 score of one topic results in a level 0 score for the overall score.

3.2.2 Remarks

Within Strutt et al. (2006) the inclusion of a level 0 has been discussed. In the SDMM it is chosen to use the level 0. Bottom-line for SD is, as discussed before, development beyond compliance. To avoid a too much complicated tool, with region or sector specific-regulations, these regulations are not included.

Within the SDMM a scoring system is used for the connection between the different layers in the model. Within Strutt et al. the advantages and disadvantages of using averages has been explained. For the SDMM for certain layers the average is used, for other layers the lowest score. If at the topic level a level 0 has been filled in this will result in a 0 score for the framework at the end. Thus it is not possible to get a score if the organization does not comply with regulations. An addition to the SDMM can be to give final scores in a spider diagram, giving an oversight of the different scores at the different layers, this will be shown in Section 3.6.1.

Though the development of the scoring system might be seen as a subjective choice it is tried to make a balance between a motivational score and a score which does not mask shortcomings.

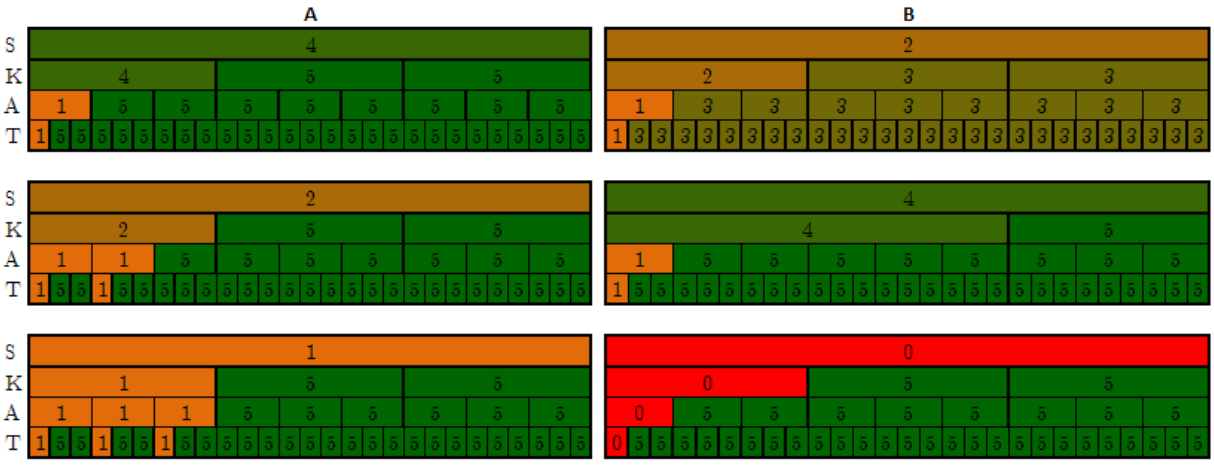

Figure 3.2: Six scenarios showing the sensitivity of the scoring system

3.3 Selection of Frameworks for SDMM

In Section 1.2 (page 2) an overview of different SF as found by Louette and House (2007) has been given. This overview can be found in Appendix B. Based on this overview a selection of SF, which could be used in the SDMM, will be made. In order to make this selection unsuitable SF will be eliminated by using criteria that can quickly determine the usability of the SF, the so-called K.O. criteria.

After eliminating the frameworks which could not be used three frameworks have been selected based on their contents. An overview of KSA's and Activities in these frameworks have been made. For one framework also definitions for the Activities and Topics and an overview of these Topics have been made. These KSA's have been validated using company reports.

3.3.1 Elimination of Frameworks for SDMM using K.O. Criteria

For the quick elimination of frameworks K.O. criteria have been used. A framework that does not fulfil a criterion will be eliminated directly from the research. This means that a framework which does not fulfil the first K.O. criterion but which would fulfil the second or third not is mentioned as passing this second or third criterion. The outcomes can be found in the right part of the table in Appendix B. In Section 1.2 (page 2) the first part of this table has been explained.

Website

For six different frameworks no website has been found. Special case was the website of *Det Social Indeks* which does exist but announces that the frameworks has been rejected as of February 2011. Therefore, this framework also is categorized as being off-line and thus not have a website.

K.O. Criterion - Language

Most of the frameworks did have an English version and could therefore potentially be used for the design and application of the SDMM. Ten frameworks did not pass this criterion. Special case is the *Albatros* framework: although English contents could be found a complete overview as found in the native language is lacking. Because of this, the framework is perceived as not being a suitable framework.

K.O. Criterion - Company Perspective

For instance the *Bilan Societal* framework mentions in the description by Louette that the framework is primary used to communicate social responsibility with the stakeholders of a company. Two frameworks, *CSR toolkit for SME* by *COSORE* and *Alliance Guide* by *CSR Europe* specifically mention that the frameworks are used for small and medium sized (SME) companies, because of this these frameworks are not suitable for bigger companies and thus eliminated.

K.O. Criterion - Scientific background

In some cases, publications were found which were not related to the framework. For example when doing the search for *EMAS*, several articles in the field of Medicines and articles in the field of Psychology were found. It may be clear that the found articles are not referring to the EMAS standard but to different topics. When looking into these articles it appeared indeed that EMAS has other meanings in these fields of study. This means that after the articles were found the number of articles was further narrowed down by selecting the relevant collections or by checking if the article is indeed related to the framework.

After this step eight frameworks which fulfilled all the K.O. criteria have been found. Two of the frameworks found have been identified by Louette and House as being a Management Tool, the other six as Standard or Certification. The following frameworks have been found:

1. ISO 14001 - SC
2. ISO 26000 - SC
3. EMAS - SC
4. OHSAS 18001 - SC
5. SA8000 - SC
6. AA1000 - SC
7. The Natural Step - MT
8. Global Reporting Initiative - MT

Based on a list of 35 different frameworks as published by Louette and House (2007) a table of sustainable frameworks has been made (see Appendix B) . In this table basic information about the frameworks, such as name, organization and country of origin has been presented. By using Knock-out criteria, the frameworks have been evaluated for use in the Sustainable Development Maturity Model. Resulting from these K.O. criteria eight frameworks have been found. Two of them are Management Tools, the other six Standard or Certificates. After doing a brief study to the contents of the frameworks it appeared that MT would not be useful for the SDMM since it focusses on the management of sustainability, while SC focusses on the different topics.

Google hits

The name of the framework has been put in the Google search engine (www.google.co.uk), for this apostrophes has been used to keep the query together.

3.3.2 Selection of Frameworks to be used in the SDMM

Resulting from the previous section six frameworks have been selected for possible use. Three different types of frameworks have been identified: CSR standards, EMS standards and standard for worker conditions (see section 2.4.2). In this step for each type a framework will be selected based on their contents and popularity. For all the six frameworks an overview of the KSA's that are included in the framework will be given.

ISO 14001

ISO 14001 is an environmental management standard firstly published by the ISO in 1994 (Castka and Balzarova, 2008). ISO 14001 has emerged as the leading management tool for EMS within organizations (MacDonald, 2005). The first version of ISO 14001 was launched in 1996 and has been revised in 2004 (Salomone, 2008).

ISO 14001 provides an organization with guidelines for the design and development of an EMS which includes an environmental policy, environmental aspects related to an organization's activities and environmental management programmes with a clear structure of responsibility for the management of environmental issues (Petrosillo et al., 2012). ISO 14001 is based on continuous improvement based on the Deming Cycle (MacDonald, 2005). Though ISO 14001 is a voluntary standard the wide-spread implementation of the standard forced other organizations to implement the standard in their organization (Castka and Balzarova, 2008). At the end of 2005 111,162 organizations have obtained ISO 14001, of which 47,837 in Europe (Salomone, 2008), this number is still growing ever since.

According to Casadesus et al. (2008) the ISO 14001 standard consists of five major sections:

1. Environmental Policy, including making a statement which states the environmental intentions and principles
2. Planning, in which the organization should specify their processes in use in order to identify the environmental problems the organization is facing and to define specific objectives and targets.
3. Implementation and operation, defining responsibilities for the system and ensure the recognition of training purposes, both internal and external knowledge of the system and the preparation and handling of emergency situations.
4. Checking and corrective action, which contains the procedures to monitor operations and preventing and mitigating any non-compliance with objectives and targets.
5. Management Review, which includes the setting up of a system to evaluate the suitability and effectiveness of the system and if necessary introduce changes.

The KSA's and Activities discussed in ISO 14001, as reported by MacDonald (2005), can be found in Appendix C.

EMAS

The *Eco-management and Audit Scheme* (EMAS) is a management standard developed by the European Commission. First launched in 1995, the original scope of the standard was aimed at industrial facilities (Abeliotis, 2006). In 2001 a second version was launched, also known as EMAS II (Petrosillo et al., 2012). According to Abeliotis (2006) this second standard was focussing on all kind of organizations that are willing to improve their environmental performance. In 2009 the third version of EMAS (EMAS III) was launched (Petrosillo et al., 2012). Throughout this research the term EMAS will be used for the standard instead of different versions. EMAS is a common practice among European countries though ISO 14001 is more widely accepted (Abeliotis, 2006). In June 2010 4507 organizations implemented EMAS on 7709 different sites (Petrosillo et al., 2012). (Petrosillo et al., 2012) identifies EMAS, together with ISO 14001 as one of the main schemes for EMS design and certification.

EMAS is in its contents and requirements similar to ISO 14001 (Ciliberti et al., 2008), in which, according to Petrosillo et al. (2012) the last mentioned is even adopted within the EMAS standard. Though there are a lot of similarities EMAS is more rigorous then ISO 14001 in the analysis of different environmental aspects and by having the requirement that organizations should, in order to provide validated information to the public, issue an environmental statement (Petrosillo et al., 2012). Next to this EMAS focusses on encouraging changes in the environmental performance of organizations while ISO 14001 is primarily focussing on the improvement of the management within an organization (Ciliberti et al., 2008).

The different topics within EMAS as reported by Petrosillo et al. (2012) can be found in Appendix C.

ISO 26000

Just like ISO 14001, ISO 26000 is a generic and voluntary standard. ISO 26000 is a standard on Social Responsibility, going beyond the company perspective, The standard includes guidance on concepts, definitions and methods for evaluating social responsibility within an organization (Schwartz and Tilling, 2009).

ISO 26000 was launched in 2008 by the *International Standardization Organization* after the standard was initiated in 2005 (Castka and Balzarova, 2008). The standard was carried by a large amount of stakeholders from the beginning: 52 ISO member countries and 33 liaison organizations. Within the 33 liaison organizations the six main stakeholder groups were present: Industry, Government, Consumer, Labour, Non-Governmental Organizations and Service, Support, Research and Others (Castka and Balzarova,

2007). According to Castka and Balzarova (2007) this was the largest Working Group ever used by the ISO so far.

The different ISO standards are often build-up in a similar way. Though ISO 26000 has strong similarities compared with e.g. ISO 9001 and ISO 14001 there are several differences. Whereas the other two ISO standards are intended for third-party certification and have strong demands ISO 26000 is intended as a standard providing guidance regarding CSR and uses a more guiding position for the standard and is thus mentioned as a 'guidance standard' rather than a 'management standard' (Castka and Balzarova, 2007). This means that the ISO 26000 standard should not be used as an assessment tool and this is also explicitly mentioned by ISO (Schwartz and Tilling, 2009).

AA1000

AA1000 is a standard for social accountability developed by the Institute of Social and Ethical Accountability in 1999. This means that it focusses on securing the quality of social and ethical accounting, auditing and reporting on social, environmental and economic performance (Ciliberti et al., 2008). Both conceptual views on policies, audits, management reviews and continuous improvement are included which are also part of ISO 14001 (Castka and Balzarova, 2008). According to O'Dwyer and Owen (2005) the standard is guiding organizations in *'establishing systematic accountability processes that involve Stakeholders in the generation of strategies, policies and programmes as well as associated indicators, targets and communications systems, which effectively guide decisions, activities and overall organizational performance'*.

Louette and House (2007) have given an overview of the different topics within AA1000 as well as a definition for the topics. An overview of the topics can be found in Appendix C.

OHSAS 18001

OHSAS 18001 is an international management system standard for occupational health and safety management (Vinodkumar and Bhasi, 2011). The standard was originally published in 1999 (Jorgensen et al., 2006) and has been based on several other standards and documents including the BS8800 standard. OHSAS 18001 specifies requirements for an organization to manage and control the occupational health and safety risks in order to improve the organization's performance (Zeng et al., 2008). According to Vinodkumar and Bhasi (2011) the frameworks was developed in response to a widespread need for a standard to asses and certify occupational health and safety systems. According to Vinodkumar and Bhasi (2011) OHSAS 18001 is lacking scientific research on the validation of the tool or a comparative study with other frameworks. At the end of 2005 there were 2000 companies which have been certified for OHSAS 18001 (Salomone, 2008).

The system was developed to be compatible with ISO 14001 and 9001 to avoid duplication of effort and reduce resource inputs (Zeng et al., 2008) and has several cross-references with these frameworks (Jorgensen et al., 2006).Though compatible with above mentioned ISO standards the ISO organizations does not or will not publish a own version of the standard (Jorgensen et al., 2006).

Topics within OHSAS 18001 can be found in Appendix C. The topics were reported by Louette and House (2007).

SA8000

Social Accountability 8000 (SA8000) was first published in 1997 followed by a version in 2001 and 2007 (Salomone, 2008). The standard was developed by Social Accountability International (SAI) (Jorgensen et al., 2006). Purpose of SA8000 is to protect the rights of employees (Jorgensen et al., 2006) and to improve workplaces (Stigzelius and Herbert, 2009). SA8000 is not only focussing on the internal processes but tends to create a supply chain effect in which also the supply chain should be managed (Rohitratana,

2002). Benefits for an organization to implement SA8000 practices are improved working environment, enhanced workers-management communication, reduction of labour turnover and enhanced productivity (Stigzelius and Herbert, 2009). SA8000 ensures the consumer that the goods or services have been produced and delivered in accordance with a commonly accepted and socially acceptable set of values (Rohitratana, 2002).

The amount of companies which have implemented SA8000 is only limited: 881 at the end of 2005 and 1200 at the end of 2006, this in contrast with for example ISO 14001: 9500 firms (2006) (Salomone, 2008). According to Jorgensen et al. (2006) the publication of ISO 26000 was an answer from ISO for providing guidelines on CSR next to SA8000. According to Rohitratana (2002) SA8000 is the first widespread international benchmark for workplace practices.

Both Louette and House (2007), Rohitratana (2002) and Stigzelius and Herbert (2009) have identified the different topics within SA8000. These topics can be found in Appendix C. Rohitratana (2002) also gives a definition for all these topics.

Choice

The six remaining standards have been described both in background as for contents. A general division in frameworks for Environmental Management, Social Responsibility and Worker Conditions can be made:

1. **Environmental Management:** ISO 14001 and EMAS
2. **Social Responsibility:** ISO 26000 and AA1000
3. **Worker conditions:** OHSAS 18001 and SA8000

Environmental Management

Both EMAS as ISO 14001 are commonly used frameworks around European organizations and have a lot of similarities since EMAS is based on ISO14001 (Salomone, 2008; Casadesus et al., 2008; Petrosillo et al., 2012). Because of this ISO 14001 will be used within this research.

Social Responsibility

ISO 26000 and AA1000 are left regarding Social Responsibility. Both frameworks are compatible with ISO standards such as ISO 14001. ISO 26000 is part of the ISO family (Schwartz and Tilling, 2009) while AA 1000 is also having a similar structure (Castka and Balzarova, 2008). AA1000 is a framework focussed on the accountability of impacts of an organization (Ciliberti et al., 2008) while ISO 26000 is intended as a document for guidance (Castka and Balzarova, 2007). Since the SDMM will be used as a tool within this guidance and ISO 26000 is part of this ISO family ISO 26000 will be used within the SDMM.

Worker Conditions

Both SA8000 and OHSAS 18001 are frameworks focussing on the rights and protection employees of an organization (Stigzelius and Herbert, 2009; Vinodkumar and Bhasi, 2011). OHSAS 18001 is, according to the search with Google, more widely used then SA8000. On the other hand SA8000 is not only focussing on the workers conditions of workers within the company but also of the processes in the supply chain and encouraging further improvement in its stakeholders (Rohitratana, 2002). Since the SDMM tool will both focus on the internal processes as on the processes downstream and upstream the SA8000 framework will be used.

3.3.3 Remarks on chosen frameworks

Within this research three frameworks for the management of sustainability have been chosen. Though it is advised to use these frameworks, organizations may decide to use other frameworks for certain aspects. For example an organization might decide to use EMAS instead of ISO 14001 for the environmental part since the organization has already implemented the EMAS framework implemented within the organization. Within the Sustainable Development Maturity Model this is possible though a change in the Sustainable Development Maturity Model model is needed since the contents have to be adapted to this other framework. Though the Sustainable Development Maturity Model is a flexible tool which enables the use of other frameworks some steps need to be taken to make another framework suitable for use in the Sustainable Development Maturity Model. This might be a more time-consuming task but might be worthwhile since the organization will have the necessary documentation for performing the Sustainable Development Maturity Model already in place. It is important to realize that the organization should have the different frameworks in its possession which will be needed for the Sustainable Development Maturity Model in their possession. For SA8000 this is only a matter of downloading the documentation, while for ISO 14001 and ISO 26000 this means that the documentation should be bought.

3.4 Selection of KSA's and Activities from selected frameworks

The KSA's belonging to the different chosen SF have been given in Appendix C. In this table the KSA's and when available the Activities of the six frameworks from the previous section can be found. Based on this Appendix an overview of the KSA's for ISO 14001 and ISO 26000 and for SA8000 have been made in Table 3.2. Between the different SF there is some overlap between the KSA's. For instance both ISO 26000 and SA8000 contain worker related conditions. Since SA8000 is focussed on worker conditions, the KSA in ISO 26000 will not be used. ISO 26000 contains the KSA 'Environment' while ISO 14001 is more extensive related on this. Both ISO14001 and SA8000 contain a managerial aspect. The overlapping KSA's are indicated with a gray colour and will not be used in the SDMM.

Activities for KSA's

Based on this overview of the different KSA's for the three SF an overview of the different activities for each KSA can be identified. These tables are also derived from Appendix C and can be found in Table D.1, Table D.2 and Table D.3 in Appendix D. In this Appendix for the different frameworks the KSA's and Actives can be found. For example ISO 26000 has 8 KSA's of which one is *Labour Practices*. The Activities belonging to this KSA are *Employment and employment relationships*, *Conditions of work and social protection*. *Social dialogue*, *Health and Safety at work* and *Human development and training in the workplace*. The activities are directly derived from literature for ISO 14001 and ISO 26000. For ISO 14001 this was a book by (Woodside and Aurrichio, 2000), for ISO 26000 the standard itself (ISO) was used. For SA8000 the activities were based on the standard itself (SAI). The topics were derived from the 'SA8000 requirements' for each KSA.

Definitions for Activities and Topics

For all three SF definitions have been made for the Activities. The KSA's are only for categorizing the different Activities and so, it does not have a definition. No definitions for the Topics have been made in this research, though an example of definitions for topics will later on be given for the KSA's and Activities from one SF. Within the publication of ISO (2009) information about the different subjects relevant for the ISO 26000 have been discussed. For each KSA information is given on the contents of this subject. For each KSA general principles (Activity) have been given. These general principles have

Table 3.2: KSA's within the different SF as given in Appendix C with in gray KSA's which are overlapping and thus will not be used

#	**ISO14001**	**ISO26000**	**SA8000**
1.	General Requirements	Organizational Governance	Child labour
2.	Environmental policy	Human Rights	Forced labour
3.	Planning	*Labour practices*	Health and safety
4.	Implementation and operation	*Environment*	Freedom of association and right to collective bargaining
5.	Checking and corrective action	Fair operating practices	Discrimination
6.	Management Review	Consumer issues	Disciplinary practices
7.		Community involvement and development	Working hours
8.			Compensation
9.			Management Systems

been used within the SDMM and combined in a standardized format of *'The organizations should / is . . . '*. Within the other two standards (SA8000 and ISO 14001) often the word *Company* is used rather then *Organization*. Within this report it is chosen to use the word *Organization*. This means that the guidelines can both be used on a company-scale as on section-scale, department-scale or plant scale or can be used for other organizations then companies.

Next to the General-activity also other activities are given in the ISO 26000 standard. Each activity starts with 'Description of the issues'. Based on this description the definition of the activity has been made. In some cases this was literately one or two sentences of this description while in other cases this was a summary of the contents. For ISO 14000 the section *Audit methodology* for every Activity has been used to make the definitions for the Activities in the book Woodside and Aurrichio (2000), since the framework itself is not freely accessible, nor there is a draft version. For SA8000 the *Requirements* of each Activity has been used in the document SAI (2005).

The overview of the definitions for the Activities can be found in Appendix F (Social Conditions), Appendix G (Worker Conditions) and Appendix H (Environmental Conditions). In Appendix F an overview of the different KSA's, Activities and Topics as well as their definitions have been given. In section 3.4.2 the definition of the topics will be further explained. For the two other appendices an overview of the KSA's and Activities have been given, as well as the definition for the Activities.

Within this research the work of Woodside and Aurrichio (2000) has been used. This is an ISO 14001 auditing manual and not the standard itself, next tot this it is likely that it has used an

3.4.1 Validation of selected KSA's and Activities on familiarity within organizations

Based on the Sustainability Reports 2010 (Shell, 2011; BP, 2011; DSM, 2011; Unilever, 2011) and a Sustainability Website (AkzoNobel, 2011) the ISO 26000 KSA's and Activities have been evaluated. Within the different publications most of the KSA's and Activities have been found in all of the publications. The reports only have been quantitatively evaluated (on their presence) and not qualitatively (on their level) since this is in line with the purpose of this validation: not to show their level, but if organizations are working on certain aspects. In Tables 3.3 to 3.5 the results can be found for the different KSA's and Activities. A bullet means that the Activity was found in the publication. If an Activity was not found it could mean that an organization did not report on this activity, or that this information was not found. It does not mean that the organization is not doing anything with the activity. Based on this overview it

may be concluded that the KSA's and Activities are corresponding with what organizations do report.

Findings in Publications

In the first table (Table 3.3) the identified KSA's and Activities from the previous sections have been given. For every organization the activities, using the definitions from Appendix F, have been checked on their presence in the reports or website. If the activity was found it has been indicated with a bullet. For all five the companies most of the social activities were found in the publications. For the KSA *Human Rights* all the activities were found in all of the reports. For *Fair operating practices* this was not the case, no information about *Fair competition* were found for the publications by BP and Unilever. *Respect of property rights* were not found in the publications by Shell and BP. It could be observed that for this activity those two companies are both operating in the same sector. The contents of the activity *Fair marketing, information and contractual practices* have not been found in the publication by Shell, while *Consumer service, support and dispute resolution* have not been found in the publications by Shell and BP, while *Consumer data protection and privacy* was also not found for Shell. Possible explanation for this is that these two companies have less contact with consumers than the other companies. No information on *Access to essential services* was found in the DSM publication.

The second table (Table 3.4), the KSA's and Activities for the Worker Conditions have been given, as well as there presence in the five company publications. The definitions for Activities can be found in Appendix G. The *Dormitory facilities* and the *Sanitary facilities* have not been found in the publications from BP and Unilever. The definition of the Activity *Corporal punishment and verbal abuse* (and thus the KSA *Discipline*) was not identified in the publication by BP and DSM. Both *Overtime* and *Required Overtime* were not reported by BP. Both BP and Unilever did not report on *Evidence requirements third parties*.

The Environmental table (Table 3.3) contains the KSA's and activities for the environmental part as can be found in Appendix H. All the companies did report on all the activities. Most likely reason for this is that a quick search on the internet already showed that all the companies which have been researched have the ISO 14000 standard implemented in their company while for the other two aspects (the social and worker conditions) this was not the case. Since the environmental conditions (the SF) for the SDMM have been derived from ISO 14000 this resulted in a complete filled in table.

Remarks

In the previous subsections three SF for the SDMM have been selected and KSA's and Activities have been identified and defined. In this subsection these KSA's and Activities have been validated using company reports and websites. Disadvantage of this method is that this are only the aspects which the organizations are communicating, this means that the organization might communicate that they are dealing with topics while they are in fact not or that they are dealing with topics, but not communicating these topics accordingly. Though this disadvantages cannot be prevented without doing an extensive research (which will not be done) the outcomes of this steps do indicate that organizations are aware of most of the aspects and thus are likely to have documentation on these aspects accordingly.

3.4.2 Example of Definition of Topics for Social Conditions (ISO 26000)

Based on a draft version of the ISO 26000 standard (ISO, 2009) an overview of the Topics have been made. For the Topics within the SDMM the subsection called 'Related actions and expectations' has been used from this publication. In the 'Related actions and expectations' an overview of different aspects which should be managed can be found. These aspects have been used within the SDMM as

Table 3.3: Check-list companies Reports Social Aspects

KSA or Activity	Shell	BP	Unilever	Akzo	DSM
1.3 - Human Rights					
1 - Due diligence	•	•	•	•	•
2 - Human risk situations	•	•	•	•	•
3 - Avoidance of complicity	•	•	•	•	•
4 - Resolving grievances	•	•	•	•	•
5 - Discrimination and vulnerable groups	•	•	•	•	•
6 - Civil and political rights	•	•	•	•	•
7 - Economic, social and cultural rights	•	•	•	•	•
8 - Fundamental rights at work	•	•	•	•	•
1.6 - Fair operating practices					
1 - Anti-corruption	•	•	•	•	•
2 - Responsible political involvement	•	•	•	•	•
3 - Fair competition	•			•	•
4 - Promoting social responsibility in the sphere of influence	•	•	•	•	•
5 - Respect of property rights			•	•	•
1.7 - Consumer issues					
1 - Fair marketing, information and contractual practices		•	•	•	•
2 - Protecting consumers health and safety	•	•	•	•	•
3 - Sustainable consumption	•	•	•	•	
4 - Consumer service, support and dispute resolution			•	•	•
5 - Consumer data protection and privacy		•	•	•	•
6 - Access to essential services	•	•	•	•	
7 - Education and awareness	•	•	•	•	•
1.8 - Community involvement and development					
1 - Community involvement	•	•	•	•	•
2 - Education and culture	•	•	•	•	•
3 - Employment creation and skills development	•	•	•	•	•
4 - Technology development	•	•	•	•	•
5 - Wealth and income creation	•	•	•	•	•
6 - Health	•	•	•	•	•
7 - Social Investment	•	•	•	•	•

described above. These aspects have been used to make definitions for the different topics identified. Based on this description a title for the Topics has been made.

In some cases (for both activities and topics) a sub-list with principles and/or expectations were present within the ISO standard. E.g. an overview of related or overlapping aspects or examples of the aspects. In the first case this has been used as separate aspects, in the second case the examples have been combined in one aspect.

A total of 220 KSA's, Activities and Topics have been found. Except for the KSA's for each aspect a definition has been made. The overview of KSA's, Activities and Topics can be found in Appendix F.

3.4.3 Example of layers related to the SDMM structure

In Section 2.1.2 the structure of the SDMM has been discussed (see Figure 2.3, page 13). How do these proposed layers relate to the actual layers in the SDMM as can be concluded from this section? In Figure 2.3 the layers for the KSA, Activity and Topic have been indicated (2 to 5). From the framework level to the topic-layer the different layers will be explained to give a better feeling of the layers. The item that will be used in the next subsection is indicated with **bold**.

Table 3.4: Check-list companies Reports Worker Conditions

KSA or Activity	Shell	BP	Unilever	Akzo	DSM
2.1 - Child labour:					
1 - Engagement	•	•	•	•	•
2 - Actions	•	•	•	•	•
3 - Education	•	•	•	•	•
4 - Hazardous situations	•	•	•	•	•
2.2 - Forced labor					
1 - Engagement	•	•	•	•	•
2 - Support & Deposits	•	•	•	•	•
2.3 - Health and Safety					
1 - Safe working environment	•	•	•	•	•
2 - Senior management representative	•	•	•	•	•
3 - Health and Safety training	•	•	•	•	•
4 - Potential threats	•	•	•	•	•
5 - Sanitary facilities	•			•	•
6 - Dormitory facilities	•			•	•
2.4 - Freedom of Association and Right to Collective Bargaining:					
1 - Trade Unions	•	•	•	•	•
2 - Independent associations	•	•	•	•	•
3 - Personnel representatives & discrimination	•	•	•	•	•
2.5 - Discrimination					
1 - Discrimination	•	•	•	•	•
2 - Interference with rights of personnel	•	•	•	•	•
3 - Sexually coercive behaviour	•	•	•	•	•
2.6 - Discipline					
1 - Corporal punishment and verbal abuse	•		•	•	
2.7 - Working hours					
1 - Work-week	•	•	•	•	•
2 - Overtime	•		•	•	•
3 - Required overtime	•		•	•	
2.8 - Remuneration					
1 - Minimum wages	•	•	•	•	•
2 - Deductions from wages	•	•	•	•	•
3 - labour-only contracting	•	•	•	•	•
2.9 - Management systems					
1 - Policy for SR and labour conditions	•	•	•	•	•
2 - Top management review	•	•	•	•	•
3 - Senior management representative	•	•	•	•	•
4 - communication with senior management	•	•	•	•	•
5 - Understanding of requirements of standard	•	•	•	•	•
6 - Procedures for evaluation	•	•	•	•	•
7 - Commitment of third parties	•	•	•	•	•
8 - Evidence requirements third parties	•	•		•	•
9 - Home workers			•	•	•
10 - Conformance	•		•	•	•
11 - Remedial and corrective action	•	•	•	•	•
12 - Communication	•	•	•	•	•
13 - Conformance to the requirements	•	•	•	•	•
14 - Evidence of conformance	•	•	•	•	•

Framework

The three frameworks are, as mentioned before, **ISO 26000**, ISO 14000 and SA8000. For ISO 26000, containing the social aspects of the model, further examples will be given.

Table 3.5: Check-list companies Reports Environmental Aspects

KSA or Activity	Shell	BP	Unilever	Akzo	DSM
3.2 - Environmental Policy					
1 - General	•	•	•	•	•
3.3 - Planning					
1 - Environmental aspects	•	•	•	•	•
2 - Legal and other requirements	•	•	•	•	•
3 - Objectives and targets	•	•	•	•	•
5 - Environmental management programs	•	•	•	•	•
3.4 - Implementation and operation					
1 - Structure and responsibility	•	•	•	•	•
2 - Training, awareness and competence	•	•	•	•	•
3 - Communication	•	•	•	•	•
4 - EMS Documentation	•	•	•	•	•
5 - Document control	•	•	•	•	•
6 - Operational control	•	•	•	•	•
7 - Emergency preparedness and response	•	•	•	•	•
3.5 - Checking and corrective action					
1 - Monitoring and measurement	•	•	•	•	•
2 - Non-conformance and corrective and preventive action	•	•	•	•	•
3 - Records	•	•	•	•	•
4 - Environmental Management System audit	•	•	•	•	•
3.6 - Management review					
1 - General	•	•	•	•	•

KSA

ISO 26000 consist of 8 KSA's, being: General, Organizational Governance, Human Rights, Labour Practices, Environment, Fair operating practices, **Consumer issues** and Community involvement and development. For one of the layers, *Consumer issues* the contents will be further explored.

Activities

The KSA *Consumer issues* consists of 7 activities. For all the activities in ISO 26000 an activity title and an activity definition has been given. The 7 activities and definitions for the *Consumer issues* are:

1.7.0.0 General : The organization respects and use fair marketing practices, protection of health and safety, sustainable production, dispute resolution and redress, data and privacy protection, access to essential products and services and education

1.7.1.0 Fair marketing, information and contractual practices : The organization is using fair marketing practices based on factual and unbiased information and fair contractual practices in a manner which can be understood by consumers.

1.7.2.0 Protecting consumers health and safety : The organization should provide products and services which are safe, regardless of whether or not legal safety requirements are in place since the organization's reputation may be directly affected by the impact on consumer's health and safety of its products and services.

1.7.3.0 Sustainable consumption : The organization should offer consumers socially and environmentally beneficial products and services considering the full life cycle and reduce adverse impacts on the environment and society.

1.7.4.0 Consumer service, support and dispute resolution : The organization should provide clear advice to consumers on appropriate use and on resource or remedies of faulty performances.

1.7.5.0 Consumer data protection and privacy : The organizations should help to maintain their credibility and the confidence of consumers through the use of rigorous systems for obtaining, using and protecting consumer data.

1.7.6.0 Access to essential services : The organization should contribute to the rights to satisfaction of basic needs

1.7.7.0 Education and awareness : The organization is supporting education and awareness initiatives to enable consumers to be well informed, conscious of their rights and of their responsibilities

For one of these activities, *Protecting consumers health and safety* an example of the topics will be given in the next subsection, the rest of the definitions can be found in Appendix F.

Topics

The Activity *Protecting consumers health and safety* consists of 9 Topics which should be managed. For all the Topics in the ISO 26000 framework a Topic title and Topic definition has been given. For the Activity *Protecting consumers health and safety* this are the following topics and definitions:

1.7.2.1 Safe for users : The organization should provide products and services that, under normal and reasonably foreseeable conditions of use, are safe for users and other persons, their property, and the environment

1.7.2.2 Adequacy of laws : The organization should assess the adequacy of health and safety laws, regulations, standards and other specifications to address all health and safety aspects . An organization should go beyond these minimum safety requirements where there is evidence that these higher requirements would achieve significantly better protection, as indicated by the occurrence of accidents involving products or services that conform to the minimum requirements, or the availability of products or product designs that can reduce the number or severity of accidents

1.7.2.3 Minimize risks in design : The organization should minimize risks in the design of products by identifying the likely user group(s) and giving special care to vulnerable groups; identifying the intended use and the reasonably foreseeable misuse of the process, product or service and hazards arising in all the stages and conditions of use of the product or service; estimating and evaluating the risk to each identified user or contact group, including pregnant women, arising from the hazards identified and reduce the risk by using the following order of priority inherently safe design, protective devices and information for users.

1.7.2.4 Product development : The organization should in product development, avoid the use of harmful chemicals, including but not limited to those that are carcinogenic, mutagenic, toxic for reproduction, or that are persistent and bio-accumulative. If products containing such chemicals are offered for sale, they should be clearly labelled

1.7.2.5 Human health risks assessment : The organization should as appropriate, perform a human health risk assessment of products and services before the introduction of new materials, new technologies or production methods and, when appropriate, make relevant documentation available

1.7.2.6 Using symbols : The organization should convey vital safety information to consumers using symbols wherever possible, preferably internationally agreed ones, in addition to the textual information

1.7.2.7 Proper use : The organization should instruct consumers in the proper use of products and warn them of the risks involved in intended or normally foreseeable use

1.7.2.8 Prevention of unsafe situations : The organization should adopt measures that prevent products from becoming unsafe through improper handling or storage while in the care of consumers

1.7.2.9 Withdrawing products : The organization should when a product, after having been placed on the market, presents an unforeseen hazard, has a serious defect or contains misleading or false information, withdraw all products that are still in the distribution chain, and recall products using appropriate measures and media to reach people who purchased the product. Measures for traceability may be relevant and useful.

3.4.4 Remarks

Within Section 1.4 (page 6) it has been identified that one of the problems within SD is the lack of agreement on SD on a conceptual basis. To avoid this problem the SDMM uses KSA's from existing sustainability frameworks. Based on these KSA's the Actions and Topics have been identified. This resulted in a comprehensive tool including high quality frameworks.

Though the concept of using existing frameworks has successful be applied this was a extensive, time-consuming task. Because of this a lower-detail level has been obtained for the total SDMM and for one framework the tool has been fully developed in full detail (ISO 26000). This resulted in an extensive list of over 200 definitions for Activities and Topics. In Section 3.5, (page 39) it has been discussed that the group process for the improvement of Organizational Performance. Since the SDMM resulted in such a complex tool it is questionable if this is still possible since it might be too complex and too extensive to execute during a group meeting with multiple disciplines.

Because of this it is suggested to use supporting questions to make activities and topics identifiable and discussed in an easy way for further research. Woodside and Aurrichio (2000) uses in its auditing manual questions to get to know certain information. With an inspiration from this method also for one KSA in the SDMM this has been done. These questions can be found in Appendix J. Based on this list Activities and Topics can be identified. Unfolding these questions to other KSA's can make the SDMM better to fill in after answering these questions in a group.

3.5 Improve organizational performance to increase maturity

Based on findings from literature several aspects that can improve organizational performance have been found.

3.5.1 Improvement of organizational performance

In Appendix E an overview of all the aspects that can be used to improve organizational performance can be found. This will be mainly based on intangible resources based on the work of Boonstra (2005). An example of an aspect described in this appendix is: ***Appreciative inquiry*** *is an attempt to create a collective image of future perspectives by using the best of what is and has been. Appreciative inquiry begins with a thorough observation of best-practices so far, then through vision and logic collaboratively articulates of what might be, in which the consent of those in the system is ensured to what the system should be and by experimenting*

with 'what can be' (Boonstra, 2005; West and Thomas, 2005). These aspects will later be used in this section to couple to the different maturity levels in order to improve the maturity.

3.5.2 Improvement of organizational processes

Boonstra (2005) identifies a hierarchical structure as cause of communication and transparency problems in which there is 'redundancy of parts'. This means that there are more 'parts' within the organization than are required to perform a task at any given point in time. In practice, this means that the responsibility and control is always located at least one level above the place where the work is done. Individuals in an organization have fragmented tasks and goals. Boonstra describes that this typically the case in hierarchical organizations.

As an opposite Boonstra (2005) describes also non-hierarchical systems (see figure 3.3 - B) in which there is 'redundancy of functions' which means that there are more skills and functions are present for every person than a person can use in any point of time.

According to Peterson et al. (1998) the typical structure of a 'redundancy of functions' can also be found in ecological system. Taken into account the ecosystem-paradigm for Industrial Ecology as described by Boons and Baas (1997) this could be seen as a preferable structure as Industrial Ecology uses ecosystems as a metaphor. It might be concluded from this that an organization that would like to act and be more sustainable should consider the organizational structure of the organization. Non-hierarchical organizations motivate personnel and give them higher skills while hierarchical organizations do the opposite and decline communication problems (Boonstra, 2005).

3.5.3 Improvement of organizational learning

Different phases in the improvement of organizational improvement have been given by using experimental learning. Two learning cycles can be identified for both insiders and outsiders and include 2 merged cycles of: problem identification; experimentation; reflection; and learning. Boonstra reports

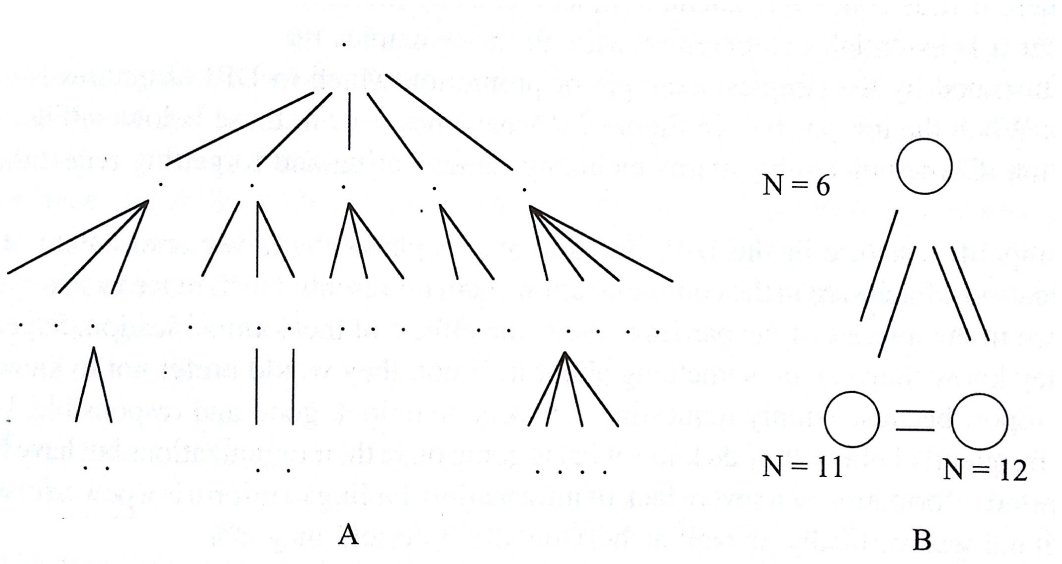

Figure 3.3: Two organizational structures: hierarchical and non-hierarchical, according to Boonstra (2005)

the importance in this of organised outside parties which take responsibility of improving the organization (learning) capacities and capabilities.

The four phases of the Deming-cycle (Plan, Do, Check, Act) could be compared with the four phases of the cycle of the model of Co-generative model of organizational development (problem identification; experimentation; reflection; and learning). When studying these two cycles the similarities are strong and thus have been combined in one cycle which has been presented in Figure 3.4 in which the red aspects are part of the Deming cycle. The problem identification is part of the planning phase since the following phase is the experimentation phase. The experimentation (in broad sense) and the area for learning are part of the execution (Do), this is followed by 2 reflection phases (Check) and finally based in insights from the insiders and outsiders the 'Act'-phase is present.

Having this knowledge is relevant since Management Standards are often using the Deming cycle (Whitelaw, 2004). According to Brekke (1997) an organization also should take care of its environment where it is part of.Boonstra (2005) identifies the importance of learning for organizational change and both include internal as external stakeholders in its model.

In relation to the Deming-cycle the development stages of management have been discussed (see Figure 1.1, page 5). On the left side of this figure the different steps in Quality management have been given, on the right side the management steps of environmental management (Koppen et al., 2005). Within this figure the SDMM could be used within the revising step of the EMS.

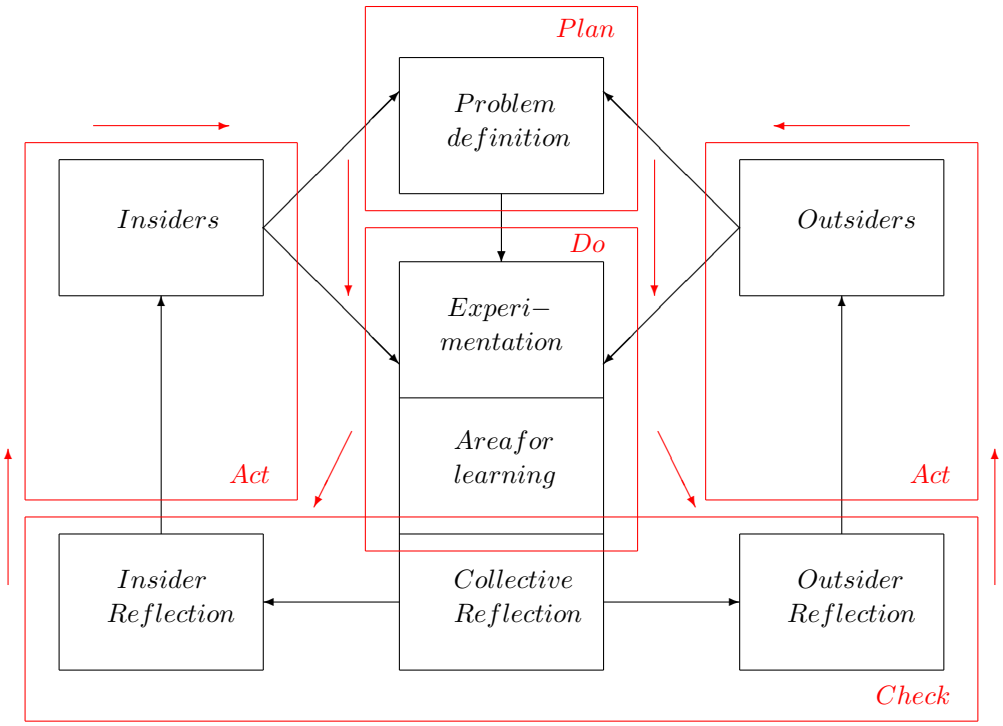

Figure 3.4: Co-generative model of organizational development combined with Deming-cycle based on Boonstra (2005) and Koppen et al. (2005).

3.5.4 How to be used

In Section 3.5, three major keystones for a better climate for a (sustainable) organizational change have been given being: improvement of organizational performance, improvement of organizational process and improvement of organizational learning.

For the improvement of organizational performance there has been differed between tangible and intangible resources. The Sustainable Development Maturity Model is mainly connected with the intangible resources although a higher quality of those will likely result in increased tangible resources. Within intangible resources there are assets and capabilities. Both are connected with the Sustainable Development Maturity Model although the capabilities will have the upper hand in this. Although a lot of actions have been taken to improve the assets and capabilities only limited work has been done to categorize and summarize them. Five different categories have been found and an overview of different assets and capabilities have been given. This overview could be used as inspiration to improve the sustainable organizational performance.

Within the improvement of organizational processes two different organizational structures have been explored based on two different functions of people. The first structure is a traditional, hierarchical organization which has been identified as demotivating and sensitive for communication problems. The second a non-hierarchical structure which is able to increase the motivation of employees within an organization, improvement of skills and decrease communication problems. Though Boonstra (2005) identifies these structures primarily on smaller organizations it is also a good starting point for larger, more complex, organizations.

The third kind of improvement discussed is the improvement of organizational learning. For this the concept of the Deming-cycle has again be discussed as well as the co-generative model of organizational development. It has been observed that the two models have strong similarities and could be ultimately improved by combining those within 2 learning cycles in which also the environment or society of the organization is part of. By combining these learning and experimental modes the organization should be better capable of learning from its activities, not only from an organizational, but also from a societal point of view. The position of the Sustainable Development Maturity Model is primarily in the 'Plan'-phase in which new possibilities can be discovered after in the 'Act'-phase the targets for the organization has been discussed. Based on these new targets the Sustainable Development Maturity Model can be filled-in and plans can be made based on the outcomes.

In section 2.1.1 (page 9) it has been reported that for every activity practices for each maturity level have to be described. By presenting above findings this is only done in a generic way. Though by taken into account the different kinds of improvement, the organization should be better capable of improving its sustainable performance after applying the Sustainable Development Maturity Model.

3.5.5 Increase maturity

In this subsection generic management steps, based on Section 3.1, will be given to increase the maturity of the organization for an Activity or Topic. This is done by looking into the contents of maturity level and its characteristics versus the contents of the different aspects for improvement of organizational processes as can be found in section 3.5.1. This resulted in the following aspects for each increase of level:

Level 0 to Level 1

The organization should be aware of regulations of which the organization should comply from different governmental agencies and should identify processes where it does not comply with these regulations

for the topic. Possible aspects which an organization might use to comply with regulations are: *Process management* and *Action Research*. Where necessary the organization may need *Restructuring* to comply to regulations.

Level 1 to Level 2

The organization should appoint a person or a team responsible for sustainability related issues (e.g. *Participative work groups*) which is identifying problems with sustainability and knows how to measure and does measures progress in sustainability related issues. The organization might mimic other organizations in finding more sustainable solutions for example by using *Appreciative Inquiry* or *Naturalistic Inquiry*. Example of possible aspects which might be used are *Business Process Redesign* (using a systematic-process-based-approach) and *Dialogue*.

Level 2 to Level 3

The organization should get at the level of the prescriptions by the standard. The standards provide in general information on how to manage the topic adequately for certification. Part of this is that process are highly standardized and subject of continuous change (*Double-loop learning*). For this *Collective Learning* could be used as well as *Leadership Training* to give managers adequate knowledge to provide the management processes involved.

Level 3 to Level 4

The organization uses information from its environment to change process which lead to changes in both the organization has its environment for example by *Cultural change programs*.The organization works together with stakeholders in its environment for example by having *Survey Feedback* or *Balanced Scorecards*. Internally the organization works on the personal development of its workers by for example *Sociotechnical Work Design*.

Level 4 to Level 5

The organization takes radical changes in its operations and processes to ensure a stable ecosystem. This means that the organization is not only focussing on money but on continuity of both the organization (Koppen et al., 2005) and the ecosystem. Since this requires organization or even location specific measures no concrete management steps are suggested.

3.5.6 Remarks

Strutt et al. (2006) discusses the identification of the different behaviours belonging which define the maturity as step in the development of a CMM. Within this phase two parts can be differed, the different learning principles and issues which have to be included. The learning principles have already been discussed and have been implemented in the SDMM. The 5 different issues which have been mentioned by Strutt et al. (2006) have not yet been implemented or dealt with in the SDMM. This could be a good addition for further research.

Next to this, in the development of the Safety CMM by Strutt et al. (2006) aspects and practices to improve the maturity for all the different aspects have been defined and have been recommended for a CMM this has not been done in this research in this way. Instead of this general practices for Organizational Development have been discussed. By applying this the organization can improve its organizational processes and also its SD practices. A large number of frameworks for improvement of SD are available (Singh et al., 2009), these could be used for the improvement of the organization's maturity.

Next to this the different SF will give guidance of this process. This phase of CMM development is thus not fully present in the SDMM since alternatives are adequately present. Next to this, in the Limitations and Challenges (Section 1.4, page 6) it has been reported that the main challenge is laying in finding a comprehensive framework.

3.6 Build the model and use of the model

As explained in Section 3.2 the weighting is as follows for the different aspects:

1. Topic: A score for the topic definition is needed to be given by the user based on the general layers as defined in the thesis.
2. Activity: Lowest score for the topics belonging to the activity determines the score for the activity
3. KSA's: The average score of the scores for the activities determine the score for the KSA. If an activity scores 0, this will be the score for the KSA.
4. SF: The score for the Sustainability Framework is determined by the lowest score of the sustainability frameworks. This means that if any violation can be reported in the topic-level this will mean no outcome on the SF level.

3.6.1 Structure of the sheet

The Excel-sheet consists of three different tabs. In Table I.1, Table I.2 and Table I.3 a schematic overview of the tabs have been given. In the first column the row numbers of the fields have been given, in the first line the columns letters have been given as corresponding with an MS Excel sheet. Several types of font faces have been used to indicate different functions of the fields:

1. Normal text to indicate a document structure field, such as a MS Excel column or line number, aspect code, or an Activity or Topic number
2. **Bold text** to indicate that the text is used to give a title for another field (e.g. to indicate that the next field contains the title of the KSA)
3. *Italic text* to indicate that the information is gather based on other fields in the document
4. Red text to indicate fields which are needed to make the fill in tables. Based on these fields the rest of the table is generated.
5. Blue text to indicate fields which need to be filled in by the end-user. These are the scores for the different Topics.

In Section I.1 it is explained how these fields are linked together.

Tab 1 - Definitions

In the first tab the definition as can be found in Appendix E can be found. All the aspects have been put in a list. See Table I.1 for a schematic overview of this tab. The excel name of this tab is *Definitions*.

In the first column the unique code can be found for each aspect. This code is used to later-on find the aspect. The code consists of four parts. The first digit indicates the SF. In this case, this is for all the aspects 1, since this identifies that it is from ISO 26000. The second digit after the dot indicates the KSA, this is corresponding with the KSA number as used in the different SF. Because of this, this is not a full

list of one to eight since some KSA's are excluded due to overlap. If this digit is followed by a '0' it indicates that the aspect is the KSA. The third digit after the second dot indicates the activity number. If this number is followed by a '0' it indicates that the aspect is the activity including its description. The last digit after the third dot indicates the topic number.

The second column contains the Title of the aspect. For the KSA and Activity, this is based on the name as found in the literature of the framework, for the Topic this has been based on the description of the Topic.

The third column contains the definition of the aspect. For the KSA's no definition has been made. The definition for the Activity is a summary of the description as given in the ISO 26000 manual. The definition of the Topic has been derived from the 'Related Actions and Expectations' section, which each Activity consists in the manual.

Tab 2 - Score sheet

This tab will be used for filling in the scores, which need to be filled in by the user. Tab 2 is a far more complex then Tab 1 to be built, but will be, if properly built, easy to be filled in by the user. In Table I.2 a schematic overview of this tab can be found. The tab consists of several tables, each table represents one Activity of a KSA. Each table consists out of three parts: a part which need to be filled in by the editor to get the contents of the table and with information for the editor, one part with standard information for each table which contain the lay-out of the table. The lay-out will contain titles and definitions from the first tab based on the information filled in by the editor and the last part are the score fields which needs to be filled in by the end-user.

Columns A en B contain information for the editor of the table. By filling in the SF id, KSA id and Activity id the contents of the table will be generated. By copying the table, several times the score-sheets for the different Activities and KSA respectively can easily be generated after filling in their id's.

The same score sheet will be needed for the other sustainability frameworks.

Tab 3 - KSA score-list

The KSA score list has a similar layout as the second tab. The first two columns contain information for the search query. The only field that need to be filled in by the editor, is field D2. The first digit explains the Sustainability Framework. The second digit the KSA id. Based on this id the rest of the table is generated. The scores from the score list (Tab 2) for this KSA are given in column F. Based on the scores of the activities the KSA score is calculated based on the average of the activity scores and rounded off. If a score of the activities is 0 (which mean that one of the topics does not comply with legal requirements) the outcome of the KSA score is 0.

In section 3.2.2 the use of a spider diagram is suggested to give a total and clear overview of the different scores.

Based on all the information gathered so far a first version of the model have been built using Excel. An example of the result can be found in Figure 3.5 and Figure 3.6. An example of the Spidar diagram as discussed in the introduction can be found in 3.7. In this figure the scores of the different activities can be found (blue) as well as the KSA end result (red).

The different formulas resulted in a working version of the model. After entering the formulas, the different tables can be copied and used for the activities and KSA's respectively. Caution should be taken when copying the cells within the table itself to ensure that the formulas are referring to the rights cells. Different formulas have been used within the Excel sheet, an explanation can be found in Appendix I.

3.6.2 Use of the model

The tool can be used as a method to identify possible actions. An organization might already perform several actions to act more sustainable but might not, or might not be able to, identify other shortcomings or possibilities. The top-management determines the frequency of how often the tool should be used. It is important that a team (the action-team) with a basic knowledge of sustainability is leading the process of using the SDMM, though the team should also be represented by management at the operating part of the organization. This person prepares a workshop session. During this one-day workshop session all layers of the organization should be represented. Based on questions of the action-team discussions can be held in which different aspects are discussed. En example of these questions has been given in Appendix J. In this appendix example questions which could be used to start a discussion and to identify the maturity have been given. In this appendix only one KSA's has been explained. This

Human Rights :	Economic, social and cultural rights	
Sustainability Framework	CSR	
Activity Score	3	
Activity Definition	An organization has a responsibility to respect economic, social and cultural rights by exercising due diligence to ensure that it does not engage in actions that infringe, obstruct or impede the enjoyment of such rights. The organization neither directly nor indirectly limit nor deny access to an essential product or resource, such as water.	
# Topic	Description	Score
1 Assesment	The organization should assess the possible impacts of its activities, products and services, as well as new projects, on these rights, including the rights of the local population.	3
2 facilitating access	The organization has thought of ways of facilitating access to, and where possible providing support and facilities for, education and life- long learning for community members;	4
3 joint efforts	The organization has thought of joining efforts with other organizations and governmental institutions supporting respect for and realization of economic, social and cultural rights;	4
4 fulfillement of rights	The organization has thought of exploring ways related to their core activities to contribute to the fulfilment of these rights	3
5 adoption of goods and services	The organization has thought of ways to adapt goods or services to the purchasing ability of poor people	4
6 cultural activities	The organization has thought of making its facilities and resources available for hosting occasional cultural activities in the community	5

Figure 3.5: Example of maturity table for activity in Excel model

	KSA Score
KSA 1.3 Human Rights	2
Activity	**Score**
0 General	2
1 Due diligence	1
2 Human risk situations	4
3 Avoidance of complicity	2
4 Resolving grievances	2
5 Discrimination and vulnerable groups	2
6 Civil and political rights	3
7 Economic, social and cultural rights	3
8 Fundamental rights at work	3

Figure 3.6: Example of maturity table for KSA in Excel model

table has not been based on existing work, though the work of Woodside and Aurrichio (2000) has been used as a basis of making these questions. Within their publication questions for ISO 14001 auditing are suggested in order to identify certain topics. Similar questions could be used for the stakeholders and to identify how certain aspects are managed within organizations downstream or upstream.

After the workshop the action-team fills in the SDMM. The outcomes can be presented to top-management and based on this the top-management might decide to deal and to plan action for certain aspects or topics and how this should be done e.g. by applying management systems and the time-frame belonging to these steps. This should not always be the aspects with the lowest score, since the impact of the aspects are more important as well as the choices of the organization. The action-team communicates and supports the operations with executing the actions. In a best-case scenario the top-management is also involved as part of the operations department (such as in the structure of Figure 3.3-B).

3.6.3 Relation to Challenges and limitations

In section 1.4 the challenges and limitations identified for successful implementation of Sustainable Development within organizations have been discussed. In the section five main limitations or challenges have been identified. First challenge is that there is a need for new tools for managing Sustainable Development. The Sustainable Development Maturity Model is a new tool for organization to identify management topics which are needed to be improved to operate more sustainable. Second challenge is that there are scientific-supported tools needed. The Sustainable Development Maturity Model will bring scientific insights into practice since insights from different fields have been used which have been based on scientific resources.

Third challenge was that there is no comprehensive framework available. The Sustainable Development Maturity Model which has been built is not a new framework but combines insights from existing frameworks into a comprehensive tool using the strengths of these frameworks. Fourth challenge is that existing frameworks only limit to the performance within the organization boundaries. Within the Sustainable Development Maturity Model a high level will be obtained if a organization is perform-

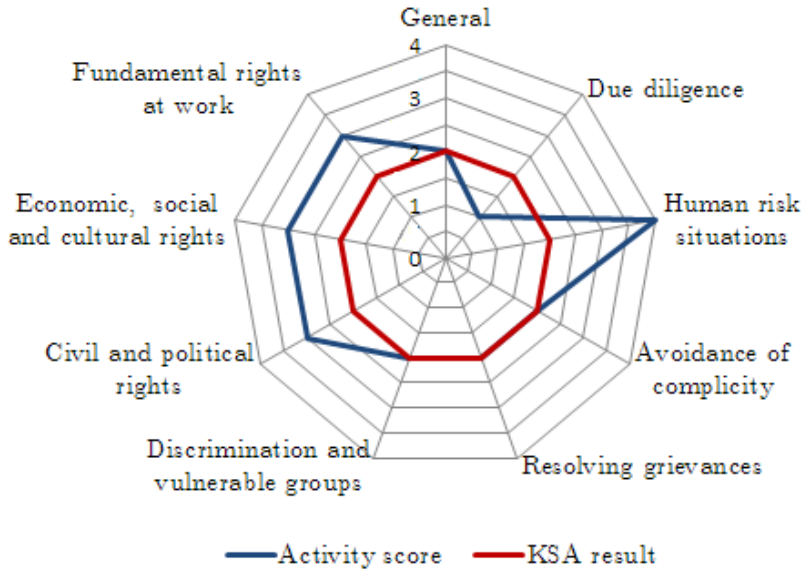

Figure 3.7: Example of maturity table for KSA in Excel model

ing its actions beyond the interests of the organization, next to this it lets the organization think about their impact on suppliers and clients. Fifth challenge is to overcome the lack of agreement on a conceptual basis. The Sustainable Development Maturity Model identifies shortcomings and strengths, based on the outcomes the organization may decide whether or not the organization will deal with the topics, though when the organization may decide to go for the framework accreditation improvement is still needed. Next to this the organization might to decide to use other frameworks then the selected frameworks. Thus, to overcome the lack of agreement of the concept of Sustainable Development, the Sustainable Development Maturity Model is providing predefined requirements though the organization can, if these frameworks do not comply with their vision on Sustainable Development, replace one or more frameworks with other frameworks.

3.6.4 Components of Sustainable Development Maturity Model

In Section 2.1 (page 9 different components which a CMM should have according to Fraser et al. (2002) have been discussed. In this section the contents of the components will be discussed related to the Sustainable Development Maturity Model.

A number of levels. The Sustainable Development Maturity Model consists of 6 levels, a level 0 to indicate the legal compliance and five levels which all can be found in Table 3.1.

General descriptor of each level. A descriptor has been made for each maturity level based on the generic description of the Capability Maturity Model. These descriptors are: Non-compliance; Initial; Initial transformation; Light Sustainability; Sustainable Transformation and Reinforced Sustainability.

Generic description of the contents and characteristics of each capability level. Based on scientific backgrounds levels for the Sustainable Development Maturity Model have been made. These levels can be found in Table 3.1.

A number of Key Sustainability Areas or dimensions. The Sustainable Development Maturity Model consist of a large number of Key Sustainability Areas which have been based on different Sustainability Frameworks. The used Key Sustainability Areas can be found in Table 3.2

A number of topics and activities for each Key Sustainability Area. Based on the three Sustainability Frameworks, Activities have been identified in the Sustainable Development Maturity Model. These Activities can be found in Appendix F, Appendix G and Appendix H.

A description of each activity as it might be executed or performed at each maturity level. For each activity in the three frameworks and for each topic within one of the frameworks (ISO 26000) a description has been made. In stead of a description of each activity or topic at each maturity level only a level 3 description has been given.

Based on above overview it an be concluded that all components of Fraser et al. (2002) are present within the Sustainable Development Maturity Model. Only for the last component a description for each activity or topic at each level is lacking since this would be too complex.

3.7 Summarizing results

Based on scientific backgrounds of SD and CMM levels for the different maturity levels within the SDMM have been made. For this recommendations and critics from SD and CMM have been used. An overview of the levels can be found in Table 3.1.

A scoring system for the SDMM has been developed in which the different layers of the SDMM (see Figure 2.4) have been coupled. The different steps in the scoring system have been described and a scoring system in which motivation and a too optimistic score have been accounted for in a balanced way. All aspects of an aspect of a higher level have the same weight.

Based on an extensive list of different Sustainability Frameworks different properties of these frameworks have been found (Appendix B). By using K.O. criteria this extensive list of frameworks have been filtered using additional information from websites and literature. Based on these criteria 6 Standards or Certificates which would be suitable for the SDMM have been found. Two Management Tools did pass the criteria but were found to be not suitable for the SDMM. For the Standards or Certificates a more thorough research in the contents has been done, including an overview of KSA's and Activities in the frameworks (Appendix C).

Based on found insights a choice for frameworks have been made for the three different categories (Environment, Social and Worker Conditions), these frameworks are: SA8000, ISO 14001 and ISO 26000. For these frameworks the KSA's and Activities have been identified (Appendix D). For all the frameworks definitions for the Activities have been made. For one framework (ISO 26000) also the Topic definitions have been made to show if it is possible to make these definitions. It can be concluded that this is indeed possible. These definitions can be found in Appendix F.

Different practices and aspect for organizational development which had been found have been combined with insights from SD. This resulted in: (1) An extensive list with different aspects that can be used to improve the organizational performance (Appendix E), (2) an improved non-hierarchical organization structure (see Figure 3.3 - B, page 3.3) which can be used for better organizational processes and (3) improvements for organizational learning in which the co-generative model for organizational development has been combined with insights from the Deming Cycle.

Finally the model has been built for ISO 26000 using Microsoft Excel. The different formulas used have been given. This resulted in several tables in which scores can be filled in and will be calculated and reported.

In the figure below a total, schematic overview of the model can be found in which the different aspects have been included. In Figure 2.3 the structure of the SDMM has been shown with the six different layers of the SDMM. In the figure below all found information has combined with this structure to show the final result. The SDMM (1) consists of three main categories based on the three Sustainability Frameworks: ISO 26000, ISO 14000 and SA8000. These main categories are the Social Conditions, Worker Conditions and Environmental Conditions (2). For the three categories KSA's have been found (3). The KSA's consists of several Activities (4) of which an example has been given for the Human Rights KSA. For all the Activities definitions have been made. The Activities consist of several topics which should be fulfilled. For the Social Conditions these topics have been defined. The topic-titles for 2 activities have been given (4). For both the KSA's, the Activities and the Topics the six levels can be applied (5), though by applying the levels to the topics the Activity, KSA and SF score will be given. Finally aspects to improve the maturity have been given on a general point-of-view (6).

Environmental Conditions	Management System	*KSA-specific activities*	*Activity-specific topics*	Aspects to improve the maturity of the organization 6	
	Compensation				
	Working hours				
	Disciplinary practices				
	Discrimination				
	Freedom of Association				
	Health and Safety				
	Forced Labor				
	Child Labor				
Worker Conditions	Management review				
	Checking and corrective action				
	Implementation and operation				
	Planning				
	Environmental Policy				
	General Requirments				
Social Conditions	Community involvement and development				
	Consumer issues				
	Fair operating practices				
	Human Rights	Economic soiclal and Cultural Rights			
		Civil and Politcal Rights			
		Discrimination and vulnerable groups			
		Resolving Grievances			
		Avoidance of Complicity			
		Human Risk Situations			
		Due diligence	Tracking of performance		
			Integration		
			Assessment		
			Policy		
			Potential for abuse		
			Impacts		
			Context		
		General	General		
	General				
	KSA	Activity	Topics	Lvl 0	The organization is not complying with regulations to which the organization should comply regarding this activity.
				Lvl 1	The organization has not taken any steps to operate according to the definition of the topic or has been taken steps based on consumer or market demands.
				Lvl 2	The organization can prove that it has been taken steps and has put operations in action to operate according to the definition of the activity as well as methods to improve these operations.
				Lvl 3	The organization can prove to be operating according to and beyond the requirements for the definition of the activity and has set quantitative targets for the activity and has implemented processes and policies to continuously improve the activity.
				Lvl 4	The organization can prove to be operating according to and beyond the requirements for the definition of the activity and has set quantitative targets for the activity and has implemented processes and policies to continuously improve the activity. The organization can prove that is has expanded the definition of the activity to provide solutions for bigger problems on a global and a local scale beyond the interests of the company.
				Lvl 5	The organization can prove to be operating according to and beyond the requirements for the definition of the activity and has set quantitative targets for the activity and has implemented processes and policies to continuously improve the activity. The organization can prove that is has expanded the definition of the activity to provide solutions for bigger problems on a global and a local scale beyond the interests of the company in which money is not used as, or only limited used as a comparative method.

1 2 3 4 5

CHAPTER 4

Conclusion, Discussion and Recommendations

In this chapter the discussion and conclusion will be given for this research. Firstly the research questions will be answered. After this a reflection will be given on different aspects of the model. This is followed by the conclusions for this research. Finally several recommendations will be given for further research.

4.1 Answering the research questions

In Section 1.6 the research questions have been introduced. The main research question for this research was:

How can insights from the concept of the Capability Maturity Model be combined with insights from the existing frameworks on sustainable development management in order to build a tool to help organizations identify their opportunities and weaknesses related to their sustainable performance and how can organizations improve their maturity?

In the next sections this main research question will be answered using the sub-questions.

What is the Capability Maturity Model and which ingredients are essential to build a new type of maturity model?

The Capability Maturity Model is a tool, originally used in the field of Information Technology, describing the maturity of processes within the organization. Throughout the years it has emerged as a tool used in a broad ways of industries and fields of study. This means that there are many different kinds of maturity models. The Capability Maturity Model typically consist of several levels (often 5) which are indicated with a descriptor and a definition for each level as well as characteristics for each level. Next to this a level zero is suggested within literature to indicate legal compliance.

The following components have been identified as essential for building a new Capability Maturity Model:

- A number of levels.
- General descriptor of each level.
- Generic description of the contents and characteristics of each capability level.
- A number of Key Performance Areas or dimensions.
- A number of topics and activities for each Key Performance Area
- A description of each activity as it might be executed or performed at each maturity level.

The Capability Maturity Model consist of Key Process Areas which consist of activities and topics defining various aspects which an organization should manage in order to increase its performance related to a field of study or type of industry. The organizations have a certain score for each activity and/or topic. For every activity and/or topic a definition is needed as well as a descriptor for the activity and/or topic. A scoring system is used for the relation between the different layers of the model.

Based on the score practices are suggested to improve the maturity and to bring the organization to the next level regarding the Key Process Area, Activity or Topic.

Which Sustainability Frameworks for the management of sustainability are available and which properties do these frameworks have, such as target group, language, scientific background and triple bottom line pillars?

A large number of Sustainability Frameworks is available throughout the world. It is hard or even impossible to give a complete overview. The following frameworks have been identified within this research: ABNT NBR 16001 , AA 1000, Responsible Competitiveness Index, SD 21000, AS 8003, Community Mark, CR Index, BS 8555, BS 8800, BS 8900, The Sigma Project, Albatros, QRES, Guide de la Performance Global, Bilan Societal, CSR toolkit for SME, CSR Europe-Alliances Guide, ValuesManagementSystem ^{ZFW}, Det Social Index, IMS, EMAS, Vastuun Askeleita, Forest Stewardship Council, Good Corporation, Global Reporting Initiative, Investors in People Standard, ISO 14001, ISO 26000, ECS2000, OHSAS 18001, Small Business Journey and Better Business Journey, Sistema de Gestión Ética Y Responsabilidad Social, SA 8000, SI 10000 and The Natural Step

Properties for these frameworks have been found. Based on the information found, frameworks have been selected for use in the Sustainable Development Maturity Model.

Which areas and aspects should an organization manage in order to behave more sustainable?

Key Sustainability Activities, Activities and Topics have been extracted from the chosen frameworks. Part of the Key Sustainability Activities were overlapping and thus only used once. The Key Sustainability Activities which have been used are:

Table 4.1: KSA's which have been used in the Sustainable Development Maturity Model based on Appendix C

#	ISO14001	ISO26000	SA8000
1.	General Requirements	Organizational Governance	Child labour
2.	Environmental policy	Human Rights	Forced labour
3.	Planning	Fair operating practices	Health and safety
4.	Implementation and operation	Consumer issues	Freedom of association and right to collective bargaining
5.	Checking and corrective action	Community involvement and development	Discrimination
6.	Management Review		Disciplinary practices
7.			Working hours
8.			Compensation
9.			Management Systems

For all three frameworks Activities have been found based on the contents of the reports and definitions for these activities have been made. For the social-conditions (ISO 26000) an overview of the different topics have been made as well as a definition for these topics.

The found Key Sustainability Activities and Activities have been validated using the Sustainability Reports and Sustainability Websites from 5 major production companies on their presence in the report. Based on this validated it has been found that the organizations use (most of) the Key Sustainability Activities and Activities in their reports. Based on these findings it can be concluded that the Key Sustainability Activities and Activities are suitable for use in the Sustainable Development Maturity Model.

How can the organizational performance of an organization be improved both in terms of structural changes as in applying certain practices or aspects?

An overview of different management steps to improve organizational performance have been given. For this a focus has been made on the improvement of business performance, improvement of organizational processes and improvement of organizational learning. For these 3 subject different aspects have been suggested which can lead to improved organizational performance which can be used to improve the maturity regarding Sustainable Development within the organization. Different aspects have been coupled to the different maturity levels to show which aspects an organization can use.

Now the sub-questions have been answered the main question can be answered:

How can insights from the concept of the Capability Maturity Model be combined with insights from the existing frameworks on sustainable development management in order to build a tool to help organizations identify their opportunities and weaknesses related to their sustainable performance and how can organizations improve their maturity?

By combining insights on Key Sustainability Activities, Actions and Topics, levels, a scoring system and improvement steps, the contents of different Sustainability Frameworks and insights on organizational improvement the Sustainable Development Maturity Model has been built. Due to the limitations in time of this project the model has not yet been finished and definitions for Environmental- and Worker Conditions-specific topics are needed.

Based on above mentioned findings a concept version of the Sustainable Development Maturity Model has been made in Microsoft Excel in which the findings have been combined into a working model, in which the Key Sustainability Areas, Activities and Topics from one framework have been included. Further development of the model is needed to include the other frameworks.

4.2 Conclusion

In this research the possibilities of the use of the Capability Maturity Model within implementation of sustainable practices in order to improve the Sustainable Development within organizations has been researched. Based on this research it can be concluded that the Capability Maturity Model can be combined with these practices, which has been named the *Sustainable Development Maturity Model*.

Different aspects of the Capability Maturity Model have been used such as the maturity levels and scoring system. The requirements as used in three often used Sustainability Frameworks, ISO 14001, ISO 26000 and SA8000, have been used as basis for the contents of the Sustainable Development Maturity Model. Based on the different layers of the Sustainable Development Maturity Model the contents of these frameworks has been used to indicate what an organization should do to become more sustainable. A six layers scoring system indicates the maturity of the current performance. Based on the scoring for a certain aspect practices to improve the maturity are suggested based on information from the field of Organizational Development.

The contents of the Sustainable Development Maturity Model have been validated using publications of 5 companies which are or have been scoring on a high level regarding sustainability (based on the Dow Jones Sustainability Index). From this validation it can be concluded that in relatively high-quality organizations the found Key Sustainability Areas and Activities are found in the publications and thus indicates that the organizations are aware of these aspects. It is expected that less high-quality organizations will have less awareness of these aspects and thus the use of the Sustainable Development Maturity Model will have added value for the management of sustainability in these organizations.

A concept version of the tool has been built using Microsoft Excel of which can be resulted that it is possible to use the contents of the tool into a more comprehensive framework.

4.3 Reflection

In this section reflections on the results will be given based on findings in literature.

4.3.1 Deming-cycle

Koppen et al. (2005) developed a generic scheme for the development of an EMS. Though the scheme is focussed on the development of an EMS, it could also be used for other management systems and frameworks. In the scheme five phases have been identified.

In the first phase at the start of the development, the goals, time schedule and other relevant choices have to be made. In the second phase, the (environmental) issues need to be analysed. The analysis gives the company data and insights about the issues the company is facing. In the third phase an environmental policy, need to be formulated together with a concrete plan of action. The third phase is followed by the fourth phase in which the plan is executed within the company. Finally this plan should be evaluated in the fifth phase in which the actions will be evaluated, based on these outcomes new input for the formulation phase will be made. The parallel between the last three phases and the Deming cycle (Whitelaw, 2004) can be observed. The 'Plan', 'Do', 'Check' and 'Act' phases of the Deming-cycle are identical to the formulation phases (Plan), the execution (Do), the Evaluation (Check) and use of this evaluation (Act) as identified by Koppen et al. (2005). The Sustainable Development Maturity Model can be used for both the orientation phase to come up with topics to manage as in the feedback loop between phases 5 and 3 in which new plans can be made to evaluate and further improve topics.

4.3.2 Relation to Triple Bottom Line

Within section 1.1 the Triple Bottom Line has been discussed which includes the three dimensions of sustainability: People, Planet and Profit. In this section it has been reported that these three pillars should be carefully weighted and included in operations. Looking to the Sustainable Development Maturity Model three different pillars have been chosen: Worker Conditions, Social Conditions and Environmental Conditions. Though the economical (profit) dimension has not been included it is one of the top priorities of the organization (Koppen et al., 2005), though it has of course been included in the boundary conditions of an organizations. Koppen et al. (2005) also identifies that the most important priority of an organization is continuity. Reflecting this to the Sustainable Development definition of the Brundtland commission (section 1.1) it becomes clear that an organization should take steps to ensure the needs of its own future. Although the profit dimension is not directly included in the Sustainable Development Maturity Model it has been included as boundary condition and as a result of improved environmental, social or worker conditions.

4.3.3 Management Tools & Standards and Certifications

Within section 1.2.2 an exploration into the different sustainability frameworks have been given. Within this first step of selection a difference has been made between Standards and Certifications versus Management Tools. In Section 3.3.1 Management Tools have been eliminated. Looking back to the results from the Standards and Certifications this appeared to be a good choice, since the SDMM can be used as part of a Management Tool (see section 4.3.1) and thus uses the Standards and Certifications as part of the Management Tool.

4.3.4 Relation to stakeholders

Within the formulation of the levels (Section 3.1) the importance of the 'world outside the organization' has been set as major cornerstone for successful 'Reinforced sustainability'. Next to this in section 3.5.4 the combination from the Deming-cycle with the co-generative model of organizational development has shown the relation with the external parties. Cra (2005) identifies the importance of stakeholders within the Corporate Social Responsibility of an organization, including the following activities:

1. List the expectations and demands of the stakeholders
2. Formulate a vision and mission related to Corporate Social Responsibility and if needed a code of conduct
3. The development of strategies both long-term as short-term related to Corporate Social Responsibility
4. Set up of a motoring system and reporting system
5. Implement the process into the quality and management system
6. Communicate both internally and externally about the approach and results

The first point is present in the Sustainable Development Maturity Model as can bee seen in Figure 3.4. The 'Deming-cycle' on the rights involves external parties with the 'Act'-phase of the improvement while using it for the 'Plan'-phase. The second point is the place where the 'intrinsic'-values, as described by Singh et al. (2009), are needed. Based on those values the mission and vision should be based. The Sustainable Development Maturity Model can be used to deal with the third point, since the Sustainable Development Maturity Model identifies the opportunities and weaknesses of the organization and based on those information the organization can choose certain aspects to deal with in their strategies, this may include aspects for organizational development (Appendix E). Point 4 and 5 are embedded in the chosen management systems. For point six the described adapted Deming-cycle is again used to communicate approach and results. Next to this the Sustainable Development Maturity Model may help organizations with identifying topics aspects which they would like to communicate.

4.3.5 One-third model or compact model

Within the current research for only one kind of conditions (Social Conditions) the topics have been explored as well as a definition of the tool as been given. For the other two kind of conditions (environmental and worker) this has only been done until the Activity-layer. One can argue that at this is only an unfinished version of the model or on the other hand one can say that so far a compact version of the model has been built, in which the Topic-layer is neglected. It could be even considered to only use this compact version of the model, though this would mean that this might not cover all aspect needed but is more easy to be filled in.

4.3.6 Aspect specific definitions

While Strutt et al. (2006) describes the need of a description of every level for each aspect the Sustainable Development Maturity Model only uses 6 generic levels and one definition for the level 3 of an aspect. When looking back to the structure of the traditional Capability Maturity Model (Figure 2.2) versus the structure of the Sustainable Development Maturity Model (Figure 2.2) it can be observed that the Sustainable Development Maturity Model contains a higher level of detail. This would mean that a larger number of aspect-specific levels would be needed, which would result in a far more complex tool. Within the current model the person filling-in the model can keep the generic levels in the back of his mind whereas for the specific levels every aspects needed more attention.

Disadvantage of this is that not every aspect has a same 'difficulty-level' to obtain. This could mean that to achieve a level 3 score for one aspect could be far more difficult than achieving a level 4 score for another. Though this might be give a wrong image it should not be a problem since the Sustainable Development Maturity Model is, as reported before, meant as an identification tool and not an assessment tool.

4.4 Recommendations

After one year of work only a limited, though extensive, result has been reached in developing the Sustainable Development Maturity Model. As can be concluded from the report including discussion and conclusion the following topics are recommended for the further development of the Sustainable Development Maturity Model.

4.4.1 Update ISO 26000

Within the current version of the Sustainable Development Maturity Model a draft version of the ISO 26000 standard has been used as the contents for the Activities and Topics which is downloadable on the internet. When a complete version of the model will be made it is recommended to use the official published version of the model. This version is for sale via the website of ISO (http://www.iso.org).

4.4.2 Implement ISO 14001 and SA8000

The Sustainable Development Maturity Model is supposed to contain three different Sustainability Frameworks to cover the three pillars of sustainability completely. At this moment only the ISO 26000 framework has been implemented in the Sustainable Development Maturity Model. This means that only a part of the pillars is covered at this moment of the CMM-development.

In the report it is recommended to use SA8000 for the Worker Conditions and ISO 14001 for the Environmental part of the Sustainable Development Maturity Model. These two frameworks are still needed to be implemented. For ISO 14001 it is very likely that this could be done in a similar way as the ISO 26000 standard since these frameworks are similar of structure. However for SA8000 this is more doubtful. During this research the KSA's and Activities for SA8000 have been determined. It appeared that the level of detail in the SA8000 was far less then the level of detail in ISO 26000. This will likely mean that it is harder to create the Topic-contents for the SA8000 standard.

4.4.3 Development of different aspects and practices to improve the maturity

Mainly based on the work of Boonstra (2005) several aspects and practices to improve the organizational performance and thus the maturity have been suggested. These practices are however on a generic approach and not on a activity or topic layer-level as Strutt et al. (2006) suggest. It would be interesting to expand the model with practices and aspects to improve the maturity levels for the different layers of the Sustainable Development Maturity Model. This could be done by both looking into the above named standards as by looking to other relevant literature.

4.4.4 Overview of meaning of aspects in Sustainability Frameworks

Within the current model standard-specific terms have been used which might, for a full understanding of the term, still be vague or ambiguous. For a more clear and useful use of the Sustainable Development Maturity Model is is advised to make a complete and clear list of the different terms in the standards. The standards often already define terms in their standards. When filling in the Sustainable Development Maturity Model uncleanness arises on a term it is advised to look into the standard.

4.4.5 Government

Within the Discussion it was mentioned that currently there is a compact model of the Sustainable Development Maturity Model in place. Governmental agencies could provide the Sustainable Development

Maturity Model to organizations in order to help them in finding new opportunities.

4.4.6 Training

Although the Sustainable Development Maturity Model is a relatively simple method to determine the sustainability and to improve this sustainability, training of the assessor as well as people working with the Sustainable Development Maturity Model is suggested. Firstly to ensure that the Sustainable Development Maturity Model is properly filled-in, secondly to make the coupling to the suggested practices for the improvement of organizational processes and the practice of this as well as the guidance of the entire process. An one day training is expected to be sufficient for this, with the expectation that the participants have a background in managing and in sustainability.

4.4.7 Further development of the model

A real test-case for filling in the Sustainable Development Maturity Model to see the result of the model as well as testing and validation the suggested aspects for the improvement of organizational processes.

A concept model of the Sustainable Development Maturity Model has been made in Excel. Though this shows that the current information has a well structured basis and can be used in a computational tool, the use of Excel is not the best. It is advised to build the tool in a program or working environment which would be easier to use for the user and easier to maintain. Within this research no information has been found on suitable programs.

As can be concluded from the previous sections: a lot still has to be done to further develop the tool even in such a way that: *'further research is needed'* would be an understatement though a good beginning of the tool has been made.

Bibliography

Experiences with structuring corporate social responsibility in Dutch industry. *Journal of Cleaner Production*, 13(6):583 – 592, 2005.

K. Abeliotis. A review of EMAS in Greece: is it effective? *Journal of Cleaner Production*, 14(18):1644 – 1647, 2006.

AkzoNobel. Akzonobel report 2010. `http://report.akzonobel.com/2010/ar/sustainability.html`, Visited on 14th April 2012 2011.

B.R. Allenby. *Industrial Ecology, Policy Framework and Implementation*. Prentice Hall, New Jersey, first edition, 1999.

D. Bevan, H. Corvellec, and E. Faÿ. Responsibility beyond CSR. *Journal of Business Ethics*, pages 1–5, 2012.

F.A.A. Boons and L.W. Baas. Types of industrial ecology: The problem of coordination. *Journal of Cleaner Production*, 5(12):79 – 86, 1997.

J.J. Boonstra. *Dynamics of Organizational Change and Learning*. John Wiley & Sons Ltd., 1 edition, 2005.

BP. *Sustainability Review*. BP PLC, 1 edition, 2011.

K.A. Brekke. *Economic Growth and the Environment: On the Measurement of Income and Welfare*. Edward Elgar Publishing Ltd, United Kingdom, 1 edition, 1997.

M. Carson. Saying it like it isn't: The pros and cons of 360-degree feedback. *Business Horizons*, 49(5):395 – 402, 2006.

M. Casadesus, F. Marimon, and I. Heras. ISO 14001 diffusion after the success of the ISO 9001 model. *Journal of Cleaner Production*, 16(16):1741 – 1754, 2008.

P. Castka and M.A. Balzarova. A critical look on quality through csr lenses: Key challenges stemming from the development of ISO 26000. *International Journal of Quality & Reliability Management*, 24(7): 738–752, 2007.

P. Castka and M.A. Balzarova. The impact of ISO 9000 and ISO 14000 on standardisation of social responsibility - an inside perspective. *International Journal of Production Economics*, 113(1):74 – 87, 2008.

N. Celik, S. Lee, E. Mazhari, Y. Son, R. Lemaire, and K.G. Provan. Simulation-based workforce assignment in a multi-organizational social network for alliance-based software development. *Simulation Modelling Practice and Theory*, 19(10):2169 – 2188, 2011.

F. Ciliberti, P. Pontrandolfo, and B. Scozzi. Logistics social responsibility: Standard adoption and practices in italian companies. *International Journal of Production Economics*, 113(1):88 – 106, 2008.

C.J. Corbett and D.A. Kirsch. International Diffusion of ISO 14000 Certification. *Production and Operations Management*, 10:327–342, 2001.

P.B. Crosby. *Quality is free: the art of making quality certain*. McGraw-Hill, New York, first edition, 1979.

P.B. Crosby. *Quality is still free: making quality certain in uncertain times*. McGraw-Hill, New York, first edition, 1996.

B Curtis and M. Paulk. Creating a software process improvement program. *Information and Software Technology*, 35(6-7):381 – 386, 1993.

D. Doane. Beyond Corporate Social Responsibility: minnows, mammoths and markets. *Futures*, 37(2 - 3):215 – 229, 2005.

DSM. *Integrated Annual Report*. Royal DSM N.V., 1 edition, 2011.

M.J. Earl. The new and the old of business process redesign. *The Journal of Strategic Information Systems*, 3(1):5 – 22, 1994.

P. Eskerod. Action learning for further developing project management competencies: A case study from an engineering consultancy company. *International Journal of Project Management*, 28(4):352 – 360, 2010.

N.F. Faisal. Analysing the barriers to corporate social responsibility in supply chains: an interpretive structural modelling approach. *International Journal of Logistics Research and Applications*, 13(3):179–195, 2010.

P. Fraser, J. Moultrie, and M. Gregory. The use of maturity models/grids as a tool in assessing product development capability. In *Engineering Management Conference, 2002. IEMC '02. 2002 IEEE International*, volume 1, pages 244 – 249 vol.1, 2002.

J. Galbreath. Which resources matter the most to firm success? an exploratory study of resource-based theory. *Technovation*, 25(9):979 – 987, 2005.

L. Garay and X. Font. Doing good to do well? Corporate Social Responsibility reasons, practices and impacts in small and medium accommodation enterprises. *International Journal of Hospitality Management*, 31(2):329 – 337, 2012.

J. Hendry and V. Hope. Cultural change and competitive performance. *European Management Journal*, 12(4):401 – 406, 1994.

T. Herreborg and Jorgensen. Towards more Sustainable Management Systems: through Life Cycle Management and Integration. *Journal of Cleaner Production*, 16(10):1071 – 1080, 2008.

ISO. *Guidance on Social Responsibility*. International Organization for Standardization.

T.H. Jorgensen, A. Remmen, and M.D. Mellado. Integrated management systems - three different levels of integration. *Journal of Cleaner Production*, 14(8):713 – 722, 2006.

C.S.A. Koppen, J.L.F. Hagelaar, and H.J. Bremmers. *Environmental Management and Industry Course Book*. Wageningen University, 1 edition, 2005.

M. Krazmien and F. Berger. The coaching paradox. *International Journal of Hospitality Management*, 16(1): 3 – 10, 1997.

X. Liu, S. Jia, and F. Li. Corporate Social Responsibility as a legitimate concern for Chinese enterprises: An analysis of media depictions. *Public Relations Review*, 37:207–216, 2011.

A. Louette and W.H. House. *Social and Environmental Management Tools*. Antakarana Cultura Arte Ciencia. Ltda. Willis Harman House, 1st edition, 2007.

J.K. Lynes and M. Andrachuk. Motivations for Corporate Social and Environmental Responsibility and Environmental Responsibility: A case study of Scandinavian Airlines. *Journal of International Management*, 14:377–390, 2008.

J.P. MacDonald. Strategic Sustainable Development using the ISO 14001 Standard. *Journal of Cleaner Production*, 13(6):631 – 643, 2005.

G. Málovics, N.N. Csigéne, and S. Kraus. The role of corporate social responsibility in strong sustainability. *Journal of Socio-Economics*, 37(3):907 – 918, 2008. ISSN 1053-5357.

J. McAvoy and T. Butler. The impact of the abilene paradox on double-loop learning in an agile team. *Information and Software Technology*, 49(6):552 – 563, 2007.

B. O'Dwyer and D.L. Owen. Assurance statement practice in Environmental, Social and Sustainability Reporting: a critical evaluation. *The British Accounting Review*, 37(2):205 – 229, 2005.

G. Peterson, C.R. Allen, and C.S. Holling. Ecological resilience, biodeversity, and scale. *University of Nebraska - Lincoln*, 4:6–18, 1998.

I. Petrosillo, A. De Marco, S. Botta, and C. Comoglio. EMAS in local authorities: Suitable indicators in adopting environmental management systems. *Ecological Indicators*, 13(1):263 – 274, 2012.

J.R.R. Picard. Leadership training : An essential for the company of tomorrow. *Utilities Policy*, 1(5):419 – 420, 1991.

G. Porter, K. Blaufuss, and F.O. Acheampong. Gendered patterns of imt adoption and use: Learning from action research. *Research in Transportation Economics*, 34(1):11 – 15, 2012.

F. Reinhardt. Market Failure and the Environmental Policies of Firms: Economic Rationales for 'Beyond Compliance' Behavior. *Journal of Industrial Ecology*, 3(1):9–21, 1999.

K. Rohitratana. SA 8000: a tool to improve quality of life. *Managerial Auditing Journal*, 17(1/2):60–64, 2002.

R. Salomone. Integrated management systems: experiences in italian organizations. *Journal of Cleaner Production*, 16(16):1786 – 1806, 2008.

T. Schoenherr. The role of Environmental Management in Sustainable Business Development: A multi-country investigation. *International Journal of Production Economics*, 2011.

B. Schwartz and K. Tilling. 'ISO-lating' corporate social responsibility in the organizational context: A dissenting interpretation of ISO 26000. *Corporate Social Responsibility and Environmental Management*, 16:289–299, 2009.

SEI. Software Engineering Institute - Why CMMI, Visited on 21st November 2011 2011. URL `http://www.sei.cmu.edu/cmmi/why/index.cfm`.

M.E.B. Seiffert and C. Loch. Systemic thinking in environmental management: support for Sustainable Development. *Journal of Cleaner Production*, 13(12):1197 – 1202, 2005.

Shell. *Sustainability Report*. Royal Dutch Shell, 1 edition, 2011.

M. Shriberg. Toward Sustainable Management: the University of Michigan Housing Division's approach. *Journal of Cleaner Production*, 10(1):41 – 45, 2002.

R.K. Singh, H.R. Murty, S.K. Gupta, and A.K. Dikshit. An overview of sustainability assessment methodologies. *Ecological Indicators*, 9(2):189 – 212, 2009.

I. Stigzelius and C.M. Herbert. Tailoring corporate responsibility to suppliers: Managing SA8000 in indian garment manufacturing. *Scandinavian Journal of Management*, 25(1):46 – 56, 2009.

J.E. Strutt, J.V. Sharp, E. Terry, and R. Miles. Capability Maturity Models for offshore organisational management. *Environment International*, 32(8):1094 – 1105, 2006.

Unilever. *Annual Report and Accounts 2010*. Unilever, 1 edition, 2011.

G.J. van der Pijl, G.J.P. Swinkels, and J.G. Verrijdt. ISO 9000 versus CMM: Standardization and certification of IS development. *Information & Management*, 32(6):267 – 274, 1997.

M.N. Vinodkumar and M. Bhasi. A study on the impact of management system certification on safety management. *Safety Science*, 49(3):498 – 507, 2011.

F. A. Vollenbroek. Sustainable development and the challenge of innovation. *Journal of Cleaner Production*, 10(3):215 – 223, 2002.

D. West and L. Thomas. Looking for the a 'bigger picture': An application of the appreciative inquiry method in renfrewshire council for voluntary services. *International Journal of Information Management*, 25(5):429 – 441, 2005.

K. Whitelaw. *ISO 14001 environmental systems handbook*. Elsevier/Butterworth Heinemann, 2004.

B. Williams, T. Wilmshurst, and R. Clift. Sustainability reporting by local government in Australia: Current and future prospects. *Accounting Forum*, 35(3):176 – 186, 2011.

F.W.H. Wong, P.T.I. Lam, and E.H.W. Chan. Optimising design objectives using the balanced scorecard approach. *Design Studies*, 30(4):369 – 392, 2009.

G. Woodside and P. Aurrichio. *ISO 14001 Auditing Manual*. McGraw-Hill, 1 edition, 2000.

S.X. Zeng, Vivian W.Y. Tam, and C.M. Tam. Towards occupational health and safety systems in the construction industry of China. *Safety Science*, 46(8):1155 – 1168, 2008.

Abbreviations

AA	AccountAbility
CMM	Capability Maturity Model
CSR	Corporate Social Responsibility
DCMM	Design Safety Capability Maturity Model
DSI	Dow Jones Sustainability index
EMAS	Eco-Management and Audit Scheme
EMS	Environmental Management System
IE	Industrial Ecology
IS	Industrial Symbiosis
ISO	International Organization for Standardization
IT	Information Technology
K.O.	Knock-Out
KPA	Key Performance Area
KSA	Key Sustainability Activity
MS	Microsoft
MT	Management Tool
OHSAS	Occupational Health and Safety Advisory Services
PDCA	Plan, Do, Check, Act
R&D	Research and Development
SA	Social Accountability
SC	Sustainability Certificate or Standard
SD	Sustainable Development
SDMM	Sustainable Development Maturity Model
SEI	Software Engineering Institute
SF	Sustainability Framework
SME	Small and Medium Sized Enterprises
UNEP	United Nations Environmental Programme
WC	Worker Conditions

Index

Appendices

APPENDIX A

Benefits of CMM

Table A.1: Example of benefits of the appliance of CMM of companies world-wide based on SEI (2011)

Category	Company	Result
Decreased Costs	Siemens Information Systems Ltd.	Cost of quality reduced from 45% to under 30% over a 3 year period
	TATA Consultancy	$4.6 million reduction on all development centres
	General Dynamics Advanced Information Systems	Reduced maintenance staff costs by 64% while the size of the organizations doubled
Improved On-Time Delivery	General Motors	Improvement of milestones (goals) which have been achieved by 50% to 85%
	Raytheon North Texas Software Engineering	Schedule performance by 8% with a 50% decrease in variation
	JPMorgan Chase	reduction of average slippage of project delivery dates by 70-80%
	Tufts Associated Health Plans	100% on time delivery of major IT projects in a full year
Improved Productivity	IBM Australia Application Management Services	Improvement of account productivity of over 20 %
	SAIC System and Network Solutions Group	Productivity doubled
	Warner Robins	Reduction of efforts to deliver test program sets by 25 %
Improved Quality	Siemens Information Systems Ltd.	Reduction of defect density in three technical areas with and average of 71%
	IBM Australia Application Management Services	Closure of 95% of problems within the time frame specified by customer
	Tufts Associated Health Plans	Decrease of software defects identified in testing by 25%
Improved Customer Satisfaction	Lockheed Martin Management and Data Systems	Increase of award fees by 55%
	Siemens Information Systems Ltd.	Increase of customers satisfaction index with an average of 42%
	Northrop Grumman IT, Defense Enterprise Solutions	98% of possible customer award fees received
Improved Return on Investment	Accentuate	Decrease of 5 to 1 ROI for quality activities
	Siemens Information Systems Ltd.	For three years 2 to 1 ROI
	Reuters	3 to 1 ROI from reducing post-release defects

APPENDIX B

Overview of different Sustainability Frameworks

B.1 Name of the framework

The name of the framework is the name as identified in the publications by Louette and House (2007). This name is later used for searches into the websites of the framework and for the search to scientific reports. In some cases the name as mentioned by Louette and House (2007) was not fully correct or unclear. This was the case for the following frameworks:

AS 8003-2003 is mentioned in the publication as *AS 8003* however the name *AS 8003-2003* is more common used since this is the latest version of this framework.

Global Reporting Initiative is mentioned in the publication title as *G3* while this is, according to he publication itself, referring to the version of this guideline (third version, launched in 2006). The name used to point out he framework is the *Global Reporting Initiative* or *GRI*.

Albatros is a Belgium framework which is within the publication mentioned as '*Albatroz*' and '*Albatros*'. A search on the internet did result in the finding that the correct name is '*Albatros*'.

Small Business Journey and Better Business Journey is a sustainability framework of which no information could be found.

ValuesManagementSystem^{ZFW} is both used written in this way as written as *Values Management System* ^{ZFW}.

SA 8000 is in the publication writen as '*Social Accountability SA 8000*' while this 'Social Accountability' is not used on websites or in other publications as part of the name.

B.2 Organization

The organization is the name of the organization that is the owner or publisher of the framework, gathered from the publication by Louette and House (2007). It is good to realize that not in each case this organization is responsible for the benchmarking or application of the framework. For instance ISO 14001 accreditation is not done by the International Standard Organization but by third party organizations, other organization are actually doing the accreditation themselves. The name of the organization will be used for finding the website of the framework together with the name of the framework. Information about the organizations from the selected frameworks will be researched later if needed.

B.3 Country

The country column contains the country of origin. This is in almost all cases the country in which the organization, or the headquarters of the organization, are situated. The country is also gathered from the publication by Louette and House (2007). For the *CSR toolkit for SME* by *COSORE*, the framework is

in the table writen down as being from Germany, in fact this is a cooperation among organizations from different companies and organizations situated in different European countries. Though the abbreviation *SME* would suggest that the tool is both for small as for medium sized companies the tool is in fact made for small and micro companies.

B.4 Triple Bottom Line

The triple bottom Line is used to show the three dimensions that need to fulfilled to realize sustainability. These three dimensions are people, planet and profit which have been discussed in Section 1.1.1. Louette describes for each sustainability framework which dimension is included. It can be observed that there are several frameworks that, according to Louette and House (2007), do cover all three dimensions of sustainability, however there are also frameworks which only cover one or two dimensions.

B.5 Category

The category in the table mentions if the framework is a Management Tool (MT) or a Standard or Certification (SC).

Overview of Sustainability Frameworks identified by Louette and House (2007) and the different Knock-Out phases used. In the table below a short description of the abbreviations and their meaning has been given. For a detailed description see Section 1.2 and Section 2.4.

Abbreviations and short description:

Framework Name	Framework Name	Name of the frameworks
Organization	Organization	Organization of the Framework
Cntry	Country	Country of origin from the organization
P1	People	People dimension
P2	Planet	Planet dimension
P3	Profit	Profit dimension
Cat.	Category	Category of SF
Website	Website	Website of the framework
Lang.	Language	English version of the framework available
Comp.	Company	Company perspective within the framework
Lib.	Library	Number of articles found in scientific research
WWW	Internet	Number of websites found on Google

Framework Name	Organization	Cntry	P1	P2	P3	Cat.	Website	Lang.	Comp.	Lib.	WWW (x1000)
ABNT NBR 16001	ABNT	BR	Yes	Yes	Yes	SC	www.abnt.org.br	No	N\A	N\A	N\A
AA 1000	AccountAbility	UK	Yes	Yes	Yes	SC	www.accountability.org	Yes	Yes	Yes	212
Responsible Competitiveness Index	Accountability	UK	Yes	Yes	Yes	MT	www.accountability.org	Yes	No	N\A	N\A
SD 21000	AFNOR	FR	No	Yes	No	SC	www.afnor.org	No	N\A	N\A	N\A
AS 8003	Australian Standards	AUS	Yes	Yes	Yes	SC	www.saiglobal.com	Yes	Yes	No	N\A
Community Mark	BITC	UK	Yes	Yes	No	SC	www.bitc.org.uk	Yes	Yes	No	N\A
CR Index	BITC	UK	Yes	Yes	Yes	MT	www.bitc.org.uk	Yes	Yes	No	N\A
BS 8555	BSI	UK	No	Yes	No	SC	www.bsigroup.com	Yes	Yes	No	N\A
BS 8800	BSI	UK	Yes	No	No	SC	www.bsigroup.com	Yes	Yes	No	N\A
BS 8900	BSI	UK	Yes	Yes	Yes	SC	www.bsigroup.com	Yes	Yes	No	N\A
The Sigma Project	BSI	UK	Yes	Yes	Yes	MT	www.projectsigma.co.uk	Yes	Yes	No	N\A
Albatros	Business & Society Belgium	BE	Yes	Yes	Yes	MT	www.businessandsociety.be	No	N\A	N\A	N\A
QRES	CELE	IT	Yes	Yes	Yes	SC	No Website	N\A	N\A	N\A	N\A
Guide de la Performance Global	CJD	FR	Yes	Yes	Yes	MT	No Website	N\A	N\A	N\A	N\A
Bilan Societal	CJDES	FR	Yes	Yes	Yes	MT	www.cjdes.org	No	N\A	N\A	N\A
CSR toolkit for SME	COSORE	GE	Yes	Yes	Yes	MT	www.cosore.com	Yes	No	N\A	N\A
CSR Europe-Alliances Guide	CSR Europe	FR	Yes	Yes	Yes	MT	www.csreurope.org	Yes	No	N\A	N\A
ValuesManagementSystem ^{ZFW}	DNWEZFW	GE	No	No	Yes	SC	www.dnwe.de	No	N\A	N\A	N\A
Det Social Index	DSI	DK	Yes	No	No	SC	No Website	N\A	N\A	N\A	N\A
IMS	ECO4WARD	AUS	No	Yes	Yes	MT	No Website	N\A	N\A	N\A	N\A
EMAS	European Commission	EU	No	Yes	No	SC	ec.europa.eu	Yes	Yes	Yes	794
Vastuun Askeleita	Finnish Business and Society	FIN	Yes	Yes	Yes	MT	www.fibsry.fi	No	N\A	N\A	N\A
Forest Stewardship Council	FSC-IC	GE	No	Yes	No	SC	www.fsc.org	Yes	No	N\A	N\A
Good Corporation	Good Corporation Ltd	UK	Yes	Yes	Yes	SC	www.goodcorporation.com	Yes	Yes	No	N\A
Global Reporting Initiative	GRI	NL	Yes	Yes	Yes	MT	www.globalreporting.org	Yes	Yes	Yes	648
Investors in People Standard	Investors in People	UK	Yes	No	No	SC	www.investorsinpeople.co.uk	Yes	Yes	No	N\A
ISO 14001	ISO	SE	Yes	Yes	Yes	SC	www.iso.org	Yes	Yes	Yes	3,280
ISO 26000	ISO	SE	Yes	Yes	Yes	SC	www.iso.org	Yes	Yes	Yes	1,050
ECS2000	JBES	JP	Yes	Yes	Yes	SC	No Website	N\A	N\A	N\A	N\A
OHSAS 18001	Occupational Health and Safety Advisory Services	USA	Yes	No	No	SC	www.ohsas-18001.com	Yes	Yes	Yes	7,170
SBJ and BBJ	SBC	UK	Yes	Yes	Yes	MT	No Website	N\A	N\A	N\A	N\A
Sistema de Gestion Etica Y Responsabilidad Social	SGE 21 FORETICA	ES	Yes	Yes	Yes	SC	www.foretica.org	No	N\A	N\A	N\A
SA 8000	Social Accountability	USA	Yes	No	No	SC	www.sa-intl.org	Yes	Yes	Yes	1,940
SI 10000	Standards Istrael	ISR	Yes	Yes	Yes	SC	www.sii.org.il	No	N\A	N\A	N\A
The Natural Step	The Natural Step	SE	Yes	Yes	Yes	MT	www.naturalstep.org	Yes	Yes	Yes	245

APPENDIX C

KSA's and Activities within different Standards and Certificates

In this Appendix the KSA's of the frameworks which have been found after the Knock-Out elimination can be found. The overview have been made based on secondary sources and not on information supplied by the frameworks.

C.1 ISO 26000

ISO 26000 has the following KSA's (Castka and Balzarova, 2008):

1. General
2. Organizational Governance
3. Human Rights
    1. Due diligence
    2. Human risk situations
    3. Avoidance of complicity
    4. Resolving grievances
    5. Discrimination and vulnerable groups
    6. Civil and political rights
    7. Economic, social and cultural rights
    8. Fundamental rights at work
4. Labour Practices
    1. Employment and employment relationships
    2. Conditions of work and social protection
    3. Social dialogue
    4. Health and safety at work
    5. Human development and training in the workplace
5. Environment
    1. Prevention of pollution
    2. Sustainable resource use
    3. Climate change mitigation and adaptation
    4. Protection and restoration of the natural environment
6. Fair operating practices
    1. Anti-corruption
    2. Responsible political involvement
    3. Fair competition
    4. Promoting social responsibility in the sphere of influence

    5. Respect of property rights
7. Consumer issues
    1. Fair marketing, information and contractual practices
    2. Protecting consumers health and safety
    3. Sustainable consumption
    4. Consumer service, support and dispute resolution
    5. Consumer data protection and privacy
    6. Access to essential services
    7. Education and awareness
8. Community involvement and development
    1. Community involvement
    2. Education and culture
    3. Employment creation and skills development
    4. Technology development
    5. Wealth and income creation
    6. Health
    7. Social Investment

C.2 EMAS

The EMAS standard consist of the following topics (Petrosillo et al., 2012):

1. Emissions to air
2. Releases to water
3. Waste production and management
4. Use and contimination of land
5. Use of natural resources, energy and raw materials (including additives, auxiliaries and semi-manufactured goods)
6. Local issues (noise, vibration, odour, dust, visual appearance, etc.)
7. Transport issues (both for goods and services and employees)
8. Possible environmental risk related to incidents, accidents and potential emergency situations
9. Effects on biodiversity

C.3 ISO 14001

ISO 14001 consists of the following clauses (Corbett and Kirsch, 2001):

1. General Requirements
2. Environmental policy
3. Planning
    1. Environmental aspects
    2. Legal and other requirements
    3. Objectives and targets
    4. Environmental management program(s)
4. Implementation and operation
    1. Structure and responsibility

2. Training, awareness and competence
3. Communication
4. Environmental Management System Documentation
5. Document control
6. Operational control
7. Emergency preparedness and response

5. Checking and corrective action
    1. Monitoring and measurement
    2. Non-conformance and corrective and preventive action
    3. Records
    4. Environmental Management System audit
6. Management review

C.4 OHSAS 18001

OHSAS 18001 consists of the following subjects (Louette and House, 2007):

1. Commitment to following a risk management policy
2. Identification and assesment of risk factors and areas
3. Identification of objectives and programs
4. Capacity - building
5. Implementation of control processes
6. Preparation of emergency situations
7. Establishment of surveillance procedures
8. Implementation of Accident prevention measures
9. Establishment of a regular certification procedure

C.5 SA8000

Both Louette and House (2007), Rohitratana (2002) and Stigzelius and Herbert (2009) identified the topics within SA 8000 as:

1. Child Labour
2. Forced Labour
3. Health and Safety
4. Freedom of association and right to collective bargaining
5. Discrimination
6. Disciplinary practices
7. Working hours
8. Compensation
9. Management Systems
10. Auditing Process

Rohitratana (2002) also gives a definition for al these topics.

C.6 AA1000

According to Louette and House (2007) AA1000 contains the following topics. Next to this Louette and House also identify the definitions for these topics.

1. Scope and Nature of the Organization's process
    1. Completeness
    2. Materiality
    3. Regularity and Timeliness
2. Meaningfulness of Information
    1. Quality of Assurance Data
    2. Accessibility
3. Information Quality
    1. Comparability
    2. Reliability
    3. Relevance
    4. Understandability
4. Management of the Process on Ongoing Basis
    1. Embeddedness
    2. Continuous Improvement

APPENDIX D

Overview of KSA's and Activities in chosen frameworks

Table D.1: Overview of Activities in ISO14001

KSA	**Activity**
General Requirements	General
Environmental Policy	General
Planning	General Environmental aspects Legal and other requirements Objectives and targets Environmental management program(s)
Implementation and operation	General Structure and responsibility Training, awareness and competence Communication EMS Documentation Document control Operational control Emergency preparedness and response
Checking and corrective action	General Monitoring and measurement Non-conformance and corrective and preventive action Records Environmental Management System audit
Management review	General

Table D.2: Overview of Activities in ISO26000

KSA	**Activity**
General	General Organizational governance
Organizational Governance	General Civil and Political Rights Vulnerable groups Economic, social and cultural rights Fundamental rights at work
Human Rights	General Due diligence Human rights risk situations Avoidance of complicity Resolving grievances Discrimination and vulnerable groups Civil and political rights Economic, social and cultural rights Fundamental principles and rights at work
Fair operating practices	General Anti-corruption Responsible political involvement Fair competition Promoting social responsibility in the value chain Respect for property rights
Consumer issues	General Fair marketing, factual and unbiased information and fair contractual practices Protecting consumers' health and safety Sustainable consumption Consumer service, support, and complaint and dispute resolution Consumer data protection and privacy Access to essential services Education and awareness
Community involvement and development	General Community involvement Education and culture Employment creation and skills development Technology development and access Wealth and income creation Health Social investment

Table D.3: Overview of Activities in SA8000

KSA	**Activity**
Child labor:	General Engagement Actions Education Hazardous situations Engagement Support & Deposits
Forced Labour	General Engagement Deposits
Health and Safety	General Safe working environment Senior management representative Health and Safety training Potential threats Sanitary facilities Dormitory facilities
Freedom of Association and Right to Collective Bargaining:	General Trade Unions Independent associations Personnel representatives & discrimination
Discrimination	General Discrimination Interference with rights of personnel Sexually coercive behaviour
Discipline	General Corporal punishment and verbal abuse
Working hours	General Work-week Overtime Required overtime
Remuneration	General Minimum wages Deductions from wages labor-only contracting
Management systems	General Policy for SR and labour conditions Top management review Senior management representative communication with senior management Understand of requirements of standard Procedures for evaluation Commitment of third parties Evidence requirements third parties Home workers Conformance Remedial and corrective action Communication Conformance to the requirements Evidence of conformance

APPENDIX E

Overview of aspects that an organization can use to improve organizational performance

360^o Feedback is a methodology for giving feedback to a person by capturing input from the person's supervisors, colleagues, subordinates and customers as well as evaluation of the person's own performance. The methodology is most used for upper leadership positions. By giving a more complete insight to the person's performance the persons understands better what needs to be improved and how (Carson, 2006).

Action learning is a process in which the organization learns by actual doing things and evaluate and learn from these actions. By doing this it tries to improve the performance (Boonstra, 2005; Eskerod, 2010).

Action research involves the process of actively participating in an organization change situation whilst conducting research. Action research can also be undertaken by larger organizations or institutions, assisted or guided by professional researchers, with the aim of improving their strategies, practices, and knowledge of the environments within which they practice. As designers and stakeholders, researchers work with others to propose a new course of action to help their community improve its work practices (Boonstra, 2005; Porter et al., 2012).

Appreciative inquiry is an attempt to create a collective image of future perspectives by using the best of what is and has been. Appreciative inquiry begins with a thorough observation of best-practices so far, then through vision and logic collaboratively articulates of what might be, in which the consent of those in the system is ensured to what the system should be and by experimenting with 'what can be' (Boonstra, 2005; West and Thomas, 2005).

Balanced scorecard is a performance management tool that summarizes an organization's performance from multiple perspectives by assessing activity performance on an organisation, based on four perspectives: financial, customer, internal business and innovation and learning. By applying the scorecard organizations should be able to know more about an organization's needs while ensure the alignment of the management processes and log-term strategies (Wong et al., 2009).

Business Process Redesign is an example of restructuring within an organization (Boonstra, 2005), and is an analysis and design of work flows and processes both within as between organizations. This is done by performing a set of logically related tasks which need to be performed in order to achieve a defined business outcome (Earl, 1994)

Benchmarking is the process of an organization's business processes and performance metrics to industry bests and/or best practices from other organizations or industries. Dimensions typically measured are quality, time and cost (Boonstra, 2005).

Career Paths are the experiences and events, the ongoing interaction between the employee and thee organization which shapes the career over time influencing the employee development. By managing career paths the organization can help the employee developing him or herself which will

give a positive attitude which will result in higher productivity (Boonstra, 2005; Hendry and Hope, 1994).

Coaching is a managerial tool for getting things done by using the people from the organization including daily guidance and instruction of people. By doing this it will help people to improve work performance and building competency. Coaching involves managerial assistance and guidance or instruction on employees' specific performance possibilities. This will provide employees constructive feedback that will keep employees focused on the demands of their job (Krazmien and Berger, 1997).

Collective learning is a process in which the organizational changes result in capacity of people which can be connected to de-construct and reconstruct meaning together and to re-order those relationships and activities to take account of the external varieties (Boonstra, 2005).

Cultural change programs are a response from to companies for losing control caused by growing individualism and informed structures. To restore control companies can be advised to value and empower staff more highly by for instance work on values to recreate a sense of community and control by consensus (Hendry and Hope, 1994).

Dialogue as part of changing a process is together with communication the most important methods when changing a process within an organization. Dialogue can be used to try to learn from each other's experiences. Aim of the dialogue is the realize cognitive and emotional restructuring of subjective realities (Boonstra, 2005).

Double-loop learning is one of the two ways of learning identified by McAvoy and Butler (2007). Double-loop learning does not only question the facts resulted from a research or findings but it also questions the logic behind the facts. The concept of double-loop learning can also be found in the CMM as presented by Strutt et al. (2006). According to Strutt et al. (2006) double-loop learning occurs when errors are detected and corrected in ways that include the adjustment of the underlying norms, policies and objectives of an organization, whereas single-loop learning only detects and corrects the errors and continuous on present policies and objectives.

Group development is the process of working on group-dynamics to improve relations and processes within a group or parts of the group. This can both include improvement on a same level of hierarchy or in several layers of hierarchy (Boonstra, 2005).

Leadership Training is grown from the importance of organizational capabilities of firms which has grown over the years. Managers will have to challenge new business challenges, both on a global, international and local scale. Because of this leaders (such as managers) of companies should master all necessary skills by doing leadership training (Picard, 1991).

Mutual gains negotiation is an approach in which a learning process is staged so that actors involved can learn about theiir differences and commonalities. Strength of this approach is the agreement of the conflicting interests of the participants as a natural fact (Boonstra, 2005).

Naturalistic inquiry is used as a quantitative research method. Naturalistic inquiry allows methods to evolve during the course of research rather than requiring that methodologies be determined ahead of the research (Boonstra, 2005).

Participative work groups such as Quality Circles are a relatively old principle from organizational management. Quality Circles are 'a group from a like work area who meet usually once a week, usually on company time, usually for an hour, to identify, analyse, and solve problems of the work area'.

Process management refers to all kind of interventions, actions and activities that has a focus on structuring processes of change in organizations. Process management is used in situations where no objective solution is available or is less spontaneously be accepted by all involved parties (Boonstra, 2005).

Restructuring organizations is a practice which could be used to improve business performance, profitability and competitive advantage (Boonstra, 2005).

Selection *and* Reward Systems of personnel can have positive consequences for the productivity of the personnel and thus on business performance (Boonstra, 2005)

Search conferences are meetings in which participants from a wide range of different backgrounds participate to get a broad overview to tackle challenges. This involves in self-managing teams to create an open system (Boonstra, 2005).

Simulations are done within a business environment in several ways. A general definition is hard to find within literature but a publication by Celik, Lee, Mazhari, Son, Lemaire, and Provan (2011) gives a good general description. Purpose of a simulation is to predict the behaviour of organizational aspects for the company and its network. Although simulations could have a high uncertainty they might give directions for organizations to execute or not execute certain actions (Celik et al., 2011).

Sociotechnical Work Design is the principle of adjusting workers tasks to personal needs. It approaches work redesign from a motivational perspective to enrich work to be more motivating and satisfying. Purpose is to better integrate technology and people (Boonstra, 2005).

Story telling is a method to let recessive stakeholders such as employees by retelling and recording their stories. Story telling uses assumptions, norms, metaphors, language tools and social practices that resource and constrain possibilities. Story telling can open-up new methods and possibilities (Boonstra, 2005).

Survey feedback is an active two-way process in which survey feedback is systematically collected about the situation in an organization by using questionnaires and returning results to individuals and groups at the different levels of an organization. Purpose is to let all the stakeholders work together in analysing and interpreting the meaning of data and developing ideas for solutions, alternatives and problems of a situation (Boonstra, 2005).

SWOT analyses is an analysis in which an organization's strengths and weakness are compared to opportunities and threats in the organization's competitive environment. Based on this an organization can create a strategy in which the strengths and opportunities are used to build, while accounting for the organization's weaknesses and threats (Boonstra, 2005).

Team building is the process of improving relations between co-workers to get to know each other better in order to improve business performance both by doing formal and informal activities whether or not organized by the organization itself (Boonstra, 2005).

Third-party interventions are interventions in which an external party is asked to intervene in a situation or a (potential) conflict between two different parties. It is important that this third party is not involved in any sense in the conflict, takes and objective position and that is does not have a preference for a specific situation. This is often done by a consultant or a manager (Boonstra, 2005).

Time-Based competition is a concept that time is a resource and that time should be reduced to obtain competitive advantage. The core of this concept is the a strategy for change utilizing analytical techniques to explore the organization while it is seeking for contentious improvements in the use of time (Boonstra, 2005).

Total Quality Management (TQM) is a management philosophy intended to empower every member of the organization in order to promote continuous, sustained and long term improvement in quality and productivity. Next to this it tries to avoid employers fear of change. Basic principle of TQM is that the cost of prevention is less than the cost of correction and because of this delivering competitive advantage (Fraser et al., 2002).

APPENDIX F

Definitions Social-activities and topics based on ISO26000

1.1 General

1.1.0.0 General : For each core subject an organization should identify and address all those issues that have a relevant or significant influence on its decisions and activities.

1.2 Organizational Governance

1.2.0.0 General : The organization has set decision-making processes and structures which are conducive to social responsibility and which promote the practical use on the principles and practices of the organization. The organization has set in place processes, systems and structures that make it possible to apply the principles and practices of social responsibility

1.2.0.1 Nurture environment : The organization's decision making process enables the organization to create and feed an environment in which CSR practices are executed

1.2.0.2 Economic and Non-economic incentives : The organization's decisions making process enables the organization to create a system of economic and non-economic incentives related to their CSR performance

1.2.0.3 Use of resources : The organization's decision making process enables the organization to use financial, natural and human resources efficiently

1.2.0.4 Promotion of under-represented groups : The organization's decision making process enables the organization to promote fair representation of under-represented groups (including women and racial and ethnic groups)

1.2.0.5 Needs of organization : The organization's decision making process enables the organization to balance the needs of the organization and its stakeholders, including immediate needs and those of future generations;

1.2.0.6 Communication with stakeholders : The organization's decision making process enables the organization to establish two-way communication processes with its stakeholders that take into account the stakeholders' interests and assist in identifying areas of agreement and disagreement and in negotiation to resolve possible conflicts;

1.2.0.7 Participation in decision-making processes : The organization's decision making process enables the organization to encourage effective participation of all levels of employees in the organization's decision making on issues of social responsibility;

1.2.0.8 Level of authority : The organization's decision making process enables the organization to balance the level of authority, responsibility and capacity of people who make decisions on behalf of the organization;

1.2.0.9 Accountability of results : The organization's decision making process enables the organization to keep track of the implementation of decisions to ensure that these decisions are followed through and to determine accountability for the results of the organization's decisions and activities, either positive or negative

1.2.0.10 Governance processes : The organization's decision making process enables the organization to periodically review and evaluate the governance processes of the organization.

1.3 Human Rights

1.3.0.0 General : The organization respects human rights, including in its sphere of influence.

1.3.0.1 Inherent : The organization respects and is aware that human rights are inherent, in that belong to every person by virtue of being human;

1.3.0.2 Inalienability : The organization respects and is aware that human rights are inalienable, in that people cannot consent to giving them up or be deprived of them by governments or any other institution

1.3.0.3 Universality : The organization respects and is aware that human rights are universal, in that apply to everyone regardless of any status

1.3.0.4 Indivisibility : The organization respects and is aware that human rights are indivisible, in that no human rights may be selectively ignored

1.3.0.5 Interdependency : The organization respects and is aware that human rights are interdependent, in that realization of one right contributes to the realization of other rights.

1.3.1.0 Due diligence : The organization is, beyond compliance, also managing the risk of human rights harm with a view to avoiding it. The organization identifies, prevents and addresses actual or potential human rights impacts resulting from their activities or the activities of those with which the organization has relationships.

1.3.1.1 Context : The organization has considered the context of the country in which the organization operations or in which the activities of the company take place.

1.3.1.2 Impacts : The organization has identified the potential and actual human rights impacts of its own activities

1.3.1.3 Potential for abuse : The organization has identified the potential for abuse of human rights resulting from the actions of other entities or persons whose activities are significantly linked to those of the organization.

1.3.1.4 Policy : The organization has a human rights policy for the organization that gives meaningful guidance to those within the organization and those closely linked to the organization

1.3.1.5 Assessment : The organization has means of assessing how existing and proposed activities may affect human rights;

1.3.1.6 Integration : The organization has means of integrating the human rights policy throughout the organization

1.3.1.7 Tracking of performance : The organization has means of tracking performance over time, to be able to make necessary adjustments in priorities and approach.

1.3.2.0 Human risk situations : The organization is respecting human rights and is preventing any situation in which human rights might be harmed. The organization has considered the potential consequences of its actions so that the desired objective of respecting human rights is actually achieved.

1.3.2.1 General : The organization is respecting human rights and is preventing any situation in which human rights might be harmed. The organization has considered the potential consequences of its actions so that the desired objective of respecting human rights is actually achieved.

1.3.3.0 Avoidance of complicity : The organization has taken steps to avoid participation in wrongful acts or others that are inconsistent with, or disrespectful of, international norms of behaviour that the organization, through exercising due diligence, knew or should have know, which could lead to substantial negative impacts on the environment or society.

1.3.3.1 Security arrangements : The organization has and verifies that it's security arrangements respects human rights and are consistent with international norms and standards for law enforcement. The organization has (arranged that) security personnel has been adequately trained including in adherence to standards of human rights. Complaints about security personnel are addressed and investigated promptly and, if needed, independently.

1.3.3.2 Providing goods : The organization does not provide goods or services to an entity that uses them to carry out human rights abuses

1.3.3.3 Formal partnership : The organization does not enter into a formal partnership with a partner that commits human rights abuses in the context of the partnership

1.3.3.4 Conditions : The organization does inform itself about the social and environmental conditions in which purchased goods and services are produced

1.3.3.5 Making public : The organization does consider making public, or taking other action indicating that it does not condone acts of discrimination occurring in employment in the country concerned

1.3.3.6 Benchmark : The organization has integrated common features of legal and societal benchmarks into its due diligence processes

1.3.4.0 Resolving grievances : The organization has established a mechanism for those who believe their human rights have been abused to bring this to the attention of the organization and seek redress. This mechanism should not prejudice access to available legal channels. Non- state mechanisms should not undermine the strengthening of state institutions, particularly judicial mechanisms, but can offer additional opportunities for recourse and redress.

1.3.4.1 Legitimate : The organization has established remedy mechanisms to resolve grievances in which the mechanisms are legitimate This includes clear, transparent and sufficiently independent governance structures to ensure that no party to a particular grievance process can interfere with the fair conduct of that process.

1.3.4.2 Accessible : The organization has established remedy mechanisms to resolve grievances in which the mechanisms are accessible Their existence should be publicized and adequate assistance provided for aggrieved parties who may face barriers to access, such as language, illiteracy, lack of awareness or finance, distance or fear of reprisal

1.3.4.3 Predictable : The organization has established remedy mechanisms to resolve grievances in which the mechanisms are predictable There should be clear and known procedures, a clear time frame for each stage and clarity as to the types of process and outcome they can and cannot offer, and a means of monitoring the implementation of any outcome

1.3.4.4 Equitable : The organization has established remedy mechanisms to resolve grievances in which the mechanisms are equitable Aggrieved parties should have access to sources of information, advice and expertise necessary to engage in a fair grievance process

1.3.4.5 Rights-Compatible : The organization has established remedy mechanisms to resolve grievances in which the mechanisms are rights-compatible The outcomes and remedies should accord with internationally recognized human rights standards

1.3.4.6 Clear and Transparent : The organization has established remedy mechanisms to resolve grievances in which the mechanisms are clear and transparent Although confidentiality might sometimes be appropriate, the process and outcome should be sufficiently open to public scrutiny and should give due weight to the public interest

1.3.4.7 Based on dialogue and mediation : The organization has established remedy mechanisms to resolve grievances in which the mechanisms are based on dialogue and

1.3.5.1 Stakeholders : The organization has taken care to ensure that it does not discriminate against employees, partners, customers, stakeholders, members and anyone else with whom it has any contact or on whom it can have an impact. mediation Aggrieved parties should have the right to seek alternative, independent mechanisms for adjudication where bilateral mechanisms involving only the aggrieved and the organization fail

1.3.5.0 Discrimination and vulnerable groups : The company has an active approach to ensure equal opportunity and respect for all individuals

1.3.5.2 Examination : The organization examines its own operations and the operations of other parties within its sphere of influence, to determine whether direct or indirect discrimination is present. It may wish to seek advice from local or international organizations, with expertise in human rights. An organization may be guided by the findings and recommendations of international or national monitoring or investigative procedures.

1.3.5.3 Awareness raising : The organization facilitates the raising of awareness of their rights among members of vulnerable groups.

1.3.5.4 Redressing discrimination : The organization contributes to redressing discrimination or the legacy of past discrimination, wherever practicable.

1.3.6.0 Civil and political rights : The organization respects all individual civil and political rights

1.3.6.1 Live of individuals : The organization respects life of individuals

1.3.6.2 Freedom of opinion : The organization respects freedom of opinion and expression. An organization should not aim to suppress anyone's views or opinions, even when the person expresses criticism of the organization internally or externally

1.3.6.3 Peaceful assembly and association : The organization respects freedom of peaceful assembly and of association;

1.3.6.4 Freedom to seek : The organization respects freedom to seek, receive and impart information and ideas through any means, regardless of national borders

1.3.6.5 Due process : The organization respects access to due process and the right to a fair hearing before any internal disciplinary measure is taken. Any disciplinary measure should be proportionate and not involve physical punishment or inhuman or degrading treatment.

1.3.7.0 Economic, social and cultural rights : The organization has a responsibility to respect economic, social and cultural rights by exercising due diligence to ensure that it does not engage in actions that infringe, obstruct or impede the enjoyment of such rights. The organization neither directly nor indirectly limit nor deny access to an essential product or resource, such as water.

1.3.7.1 Assessment : The organization should assess the possible impacts of its activities, products and services, as well as new projects, on these rights, including the rights of the local population.

1.3.7.2 Facilitating access : The organization has thought of ways of facilitating access to, and where possible providing support and facilities for, education and life- long learning for community members;

1.3.7.3 Joint efforts : The organization has thought of joining efforts with other organizations and governmental institutions supporting respect for and realization of economic, social and cultural rights;

1.3.7.4 Fulfilment of rights : The organization has thought of exploring ways related to their core activities to contribute to the fulfilment of these rights

1.3.7.5 Adoption of goods and services : The organization has thought of ways to adapt goods or services to the purchasing ability of poor people

1.3.7.6 cultural activities : The organization has thought of making its facilities and resources available for hosting occasional cultural activities in the community

1.3.8.0 Fundamental rights at work : *In Worker-Conditions*

1.6 Fair operating practices

1.6.0.0 General : The organization conducts ethically with other organizations and individuals such as partners, suppliers, contractors and competitors and associations of which they are members

1.6.1.0 Anti-corruption : The organization is not involved in corruption, or abuse of entrusted power for private gain.

1.6.1.1 Identification : The organization does identify the risks of corruption and implement, apply and improve policies and practices that counter corruption, bribery and extortion

1.6.1.2 Leadership : The organization does ensure the leadership sets an example for anti-corruption and provide commitment, encouragement and oversight for implementation of the anti-corruption policies

1.6.1.3 Support : The organization does support its employees and representatives in their efforts to eradicate bribery and corruption, and provide incentives for progress

1.6.1.4 Training : The organization does train and raise the awareness of its employees and representatives about corruption and how to counter it

1.6.1.5 Remuneration : The organization does ensure that the remuneration of its employees and representatives is appropriate and for legitimate services only

1.6.1.6 Internal controls : The organization does establish and maintain an effective system of internal controls to counter corruption

1.6.1.7 Encourage of reporting : The organization does encourage its employees, partners, representatives and suppliers to report violations of the organization's policies by adopting mechanisms that enable reporting without fear of reprisal

1.6.1.8 Criminal law : The organization does bring violations of the criminal law to the attention of the relevant law enforcement authorities

1.6.1.9 Relationships : The organization does work to oppose corruption by influencing others with which the organization has operating relationships to adopt similar anti-corruption practices

1.6.2.0 Responsible political involvement : The organizations should prohibit use of undue influence and avoid behaviour, such as manipulation, intimidation and coercion, that can undermine the public political process

1.6.2.1 Training : The organization should train and raise the awareness of its employees and representatives about responsible political involvement and contributions and how to deal with conflicts of interest

1.6.2.2 Transparency : The organization should be transparent regarding its policies and activities related to lobbying, political contributions and political involvement

1.6.2.3 Policies : The organization should establish and implement policies and guidelines to manage the activities of people retained to advocate on the organization's behalf

1.6.2.4 Political contributions : The organization should avoid political contributions that amount to an attempt to control policy-makers in favour of a specific cause

1.6.2.5 Prohibition of activities : The organization should prohibit activities that involve misinformation, misrepresentation, threat or compulsion

1.6.3.0 Fair competition : The organization helps to build a climate in which anti-fair operating behaviour is not tolerated since this benefits everyone

1.6.3.1 Consistent manner : The organization should conduct its activities in a manner consistent with competition laws and regulations and co-operate with the appropriate authorities;

1.6.3.2 Procedures : The organization should establish procedures and other safeguards to prevent engaging in or being complicit in anti-competitive behaviour;

1.6.3.3 Awareness : The organization should promote employee awareness of the importance of compliance with competition legislation and fair competition;

1.6.3.4 Encourage competition : The organization should support anti-trust and anti-dumping practices, as well as public policies that encourage competition

1.6.3.5 Social context : The organization should be mindful of the social context in which it operates and not take advantage of social conditions, such as poverty, to achieve unfair competitive advantages.

1.6.4.0 Promoting social responsibility in the sphere of influence : The organization should consider the potential impacts or unintended consequences of its procurement and purchasing decisions on other organizations, and take due care to avoid or minimize any negative impact and also stimulate demand for socially responsible products and services. These actions should not be viewed as replacing the role of authorities to implement and enforce laws and regulations.

1.6.4.1 Distribution and contracting policies : In its environment or sphere of influence the organization should integrate ethical, social, environmental and gender equality criteria, including health and safety, in its purchasing, distribution and contracting policies and practices in order to improve consistency with social responsibility objectives

1.6.4.2 Encouragement to other organizations : In its environment or sphere of influence the organization should encourage other organizations to adopt similar policies, without indulging in anti-competitive behaviour in so doing

1.6.4.3 Investigations : In its environment or sphere of influence the organization should carry out relevant and appropriate investigations and monitoring of the organizations with which it has relationships, with a view to preventing compromise of the organization's commitments to social responsibility

1.6.4.4 Support to SMO's : In its environment or sphere of influence the organization should consider providing support to SMOs, where appropriate, including by providing them with awareness raising on issues of social responsibility and best practice and with additional assistance (for example, technical, capacity building or other resources) to meet socially responsible objectives

1.6.4.5 Raising awareness : In its environment or sphere of influence the organization should actively participate in raising the awareness of organizations with which it has relationships about principles and issues of social responsibility

1.6.4.6 Costs and benefits : In its environment or sphere of influence the organization should promote fair and practical treatment of the costs and benefits of implementing socially responsible practices throughout the value chain, including, where possible, enhancing the capacity of organizations in the value chain to meet socially responsible objectives

1.6.5.0 Respect of property rights : The organization recognizes property rights in order to promote investments and economic and physical security as well as the encouragement of creativity and invention

1.6.5.1 Traditional knowledge : The organization should implement policies and practices that promote respect for property rights and traditional knowledge

1.6.5.2 Use or disposal of property : The organization should conduct proper investigations to be confident it has lawful title permitting use or disposal of property

1.6.5.3 Property violations : The organization should not engage in activities that violate property rights, including misuse of a dominant position, counterfeiting and piracy

1.6.5.4 Fair compensation : The organization should pay fair compensation for property that it acquires or uses

1.6.5.5 Expectations of society : The organization should consider the expectations of society, human rights and basic needs of the individual when exercising and protecting its intellectual and physical property rights.

1.7 Consumer issues

1.7.0.0 General : The organization respects and use fair marketing practices, protection of health and safety, sustainable production, dispute resolution and redress, data and privacy protection, access to essential products and services and education

1.7.0.1 UN privacy guidelines : The organization respect the 8 principles that underpin the UN guidelines for Consumer Protection

1.7.0.2 Other principles : The organization respects additional principles such as respect for the right to privacy (Universal Declaration of Human Rights, Article 12), precautionary approach (Rio Declaration on Environment and Development and others), Promotion of gender equality and empowerment of women (Universal Declaration of Human Rights and Millennium Development Goals) and Promotion of Universal design

1.7.1.0 Fair marketing, information and contractual practices : The organization is using fair marketing practices based on factual and unbiased information and fair contractual practices in a manner which can be understood by consumers.

1.7.1.1 Wrong information : When the organization is communicating to consumers the organization should not engage in any practice that is deceptive, misleading, fraudulent or unfair, including omission of critical information

1.7.1.2 Identification of advertisements : When the organization is communicating to consumers the organization should clearly identify advertising and marketing

1.7.1.3 Total prices and taxes : When the organization is communicating to consumers the organization should openly disclose total prices and taxes, terms and conditions of the products and services as well as any accessory required for use and delivery costs. When offering consumer credit, provide details of the actual annual interest rate as well as the average percentage rate charged (APR), which includes all the costs involved, amount to be paid, number of payments and the due dates of instalment payments

1.7.1.4 Facts and information : When the organization is communicating to consumers the organization should substantiate claims or assertions by providing underlying facts and information upon request

1.7.1.5 Stereotyping of communication : When the organization is communicating to consumers the organization should not use text or images that perpetuate stereotyping with respect to, for example, gender, religion, race and sexual orientation

1.7.1.6 Vulnerable groups : When an organization is communicating to consumers the organization should not unfairly target vulnerable groups

1.7.1.7 Provision of information : When the organization is communicating to consumers the organization should provide complete, accurate, understandable and comparable information in the languages of the point of sale on all relevant aspects of products and services; key quality aspects of products; health and safety aspects of products and safety; information regarding accessibility; physical address of the organization

1.7.1.8 Contracts : When the organization is communicating to consumers the organization should use contracts that are written in clear and understandable language; are transparent about the duration of the contract and cancellation periods; not include unfair contract terms and provide clear and sufficient information about prices, terms conditions and costs

1.7.2.0 Protecting consumers health and safety : The organization should provide products and services which are safe, regardless of whether or not legal safety requirements are in place since the organization's reputation may be directly affected by the impact on consumer's health and safety of its products and services.

1.7.2.1 Safe for users : The organization should provide products and services that, under normal and reasonably foreseeable conditions of use, are safe for users and other persons, their property, and the environment

1.7.2.2 Adequacy of laws : The organization should assess the adequacy of health and safety laws, regulations, standards and other specifications to address all health and safety aspects . An organization should go beyond these minimum safety requirements where there is evidence that these higher requirements would achieve significantly better protection, as indicated by the occurrence of accidents involving products or services that conform to the minimum requirements, or the availability of products or product designs that can reduce the number or severity of accidents

1.7.2.3 Minimize risks in design : The organization should minimize risks in the design of products by identifying the likely user group(s) and giving special care to vulnerable groups; identifying the intended use and the reasonably foreseeable misuse of the process, product or service and hazards arising in all the stages and conditions of use of the product or service; estimating and evaluating the risk to each identified user or contact group, including pregnant women, arising from the hazards identified and reduce the risk by using the following order of priority inherently safe design, protective devices and information for users.

1.7.2.4 Product development : The organization should in product development, avoid the use of harmful chemicals, including but not limited to those that are carcinogenic, mutagenic, toxic for reproduction, or that are persistent and bio-accumulative. If products containing such chemicals are offered for sale, they should be clearly labelled

1.7.2.5 Human health risks assessment : The organization should as appropriate, perform a human health risk assessment of products and services before the introduction of new materials, new technologies or production methods and, when appropriate, make relevant documentation available

1.7.2.6 Using symbols : The organization should convey vital safety information to consumers using symbols wherever possible, preferably internationally agreed ones, in addition to the textual information

1.7.2.7 Proper use : The organization should instruct consumers in the proper use of products and warn them of the risks involved in intended or normally foreseeable use

1.7.2.8 Prevention of unsafe situations : The organization should adopt measures that prevent products from becoming unsafe through improper handling or storage while in the care of consumers

1.7.2.9 Withdrawn of products : The organization should when a product, after having been placed on the market, presents an unforeseen hazard, has a serious defect or contains misleading or false information, withdraw all products that are still in the distribution chain, and recall products using appropriate measures and media to reach people who purchased the product. Measures for traceability may be relevant and useful.

1.7.3.0 Sustainable consumption : The organization should offer consumers socially and environmentally beneficial products and services considering the full life cycle and reduce adverse impacts on the environment and society.

1.7.3.1 Health and environmental impact of product and services : The organization should offer consumers socially and environmentally beneficial products and services considering the full life cycle and reduce adverse impacts on the environment and society by eliminating, where possible, or minimizing any negative health and environmental impact of products and services, such as noise and waste

1.7.3.2 Recycling : The organization should offer consumers socially and environmentally beneficial products and services considering the full life cycle and reduce adverse impacts on the environment and society by designing products and packaging so that they can be easily reused, repaired or recycled and, if possible, offering or suggesting recycling and disposal services

1.7.3.3 Production and delivery : The organization should offer consumers socially and environmentally beneficial products and services considering the full life cycle and reduce adverse impacts on the environment and society by providing consumers with traceable information about the environmental and social factors related to production and delivery of their products or services, including information on resource efficiency where relevant, taking the value chain into account

1.7.3.4 Information : The organization should offer consumers socially and environmentally beneficial products and services considering the full life cycle and reduce adverse impacts on the environment and society by providing consumers with information about products and services, including on performance, country of origin, energy efficiency (where applicable), contents or ingredients (including, where relevant, use of genetically modified organisms), impacts on health, aspects related to animal welfare, safe use, maintenance, storage and disposal of the products and their packaging

1.7.3.5 Eco-labelling : The organization should offer consumers socially and environmentally beneficial products and services considering the full life cycle and reduce adverse impacts on the environment and society by making use of relevant, independent, and robust labelling schemes, for example, eco-labelling, to communicate positive environmental aspects, energy efficiencies, and other socially beneficial characteristics of products and services

1.7.4.0 Consumer service, support and dispute resolution : The organization should provide clear advice to consumers on appropriate use and on resource or remedies of faulty performances.

1.7.4.1 Returning products : The organization should take measures to prevent complaints by offering consumers, including those who obtain products through distance selling, the option to return products within a specified period or obtain other appropriate remedies

1.7.4.2 Complaints : The organization should review complaints and improve practices in response to complaints

1.7.4.3 Warranties : The organization should if relevant, offer warranties that exceed periods guaranteed by law and are appropriate for the expected length of product life

1.7.4.4 After-supply services : The organization should clearly inform consumers how they can access after-supply services and support as well as dispute resolution and redress mechanisms

1.7.4.5 Support and advice systems : The organization should offer adequate and efficient support and advice systems

1.7.4.6 Maintenance and repair : The organization should offer maintenance and repair at a reasonable price and at accessible locations and make information readily accessible on the expected availability of spare parts for products

1.7.4.7 Resolutions : The organization should make use of alternative dispute resolution, conflict resolution and redress procedures that are based on national or international standards, are free of charge or are at minimal cost to consumers and that do not require consumers to waive their rights to seek legal recourse.

1.7.5.0 Consumer data protection and privacy : The organizations should help to maintain their credibility and the confidence of consumers through the use of rigorous systems for obtaining, using and protecting consumer data.

1.7.5.1 Type of information : The organization should limit the collection of personal data to information that is either essential for the provision of products and services or provided with the informed and voluntary consent of the consumer

1.7.5.2 Obtaining information : The organization should only obtain data by lawful and fair means

1.7.5.3 Purpose of information : The organization should specify the purpose for which personal data are collected, either before or at the time of data collection

1.7.5.4 Unauthorized use : The organization should not disclose, make available or otherwise use personal data for purposes other than those specified, including marketing, except with the informed and voluntary consent of the consumer or when required by the law

1.7.5.5 Verification : The organization should provide consumers with the right to verify whether the organization has data relating to them and to challenge these data, as defined by law. If the challenge is successful, the data should be erased, rectified, completed or amended, as appropriate

1.7.5.6 Safeguards : The organization should protect personal data by adequate security safeguards

1.7.6.0 Access to essential services : The organization should contribute to the rights to satisfaction of basic needs

1.7.6.1 Time-frames for payment : The organization that supplies essential services should not disconnect essential services for non-payment without providing the consumers with the opportunity to seek reasonable time-frames to make the payment.

1.7.6.2 Transparency : The organization that supplies essential services should operate in a transparent manner, providing information related to the setting of prices and charges

1.7.6.3 Disconnection : The organization that supplies essential services should not resort to collective disconnection of services that penalize all consumers regardless of payment, in cases of non-payment of bills payable collectively by a group of consumers

1.7.6.4 Interruption of supply : The organization that supplies essential services should manage any curtailment or interruption of supply in an equitable manner, avoiding discrimination against any group of consumers and

1.7.6.5 Maintaining : The organization that supplies essential services should continually maintain and upgrade its systems to help prevent disruption of service

1.7.7.0 Education and awareness : The organization is supporting education and awareness initiatives to enable consumers to be well informed, conscious of their rights and of their responsibilities

1.7.7.1 Health and safety education : In educating consumers, the organization, when relevant, should address health and safety, including product hazards

1.7.7.2 Legal issues : In educating consumers, the organization, when relevant, should address information on appropriate laws and regulations, ways of obtaining redress and agencies and organizations for consumer protection

1.7.7.3 Labelling : In educating consumers, the organization, when relevant, should address product and service labelling and information provided in manuals and instructions

1.7.7.4 Quantitative information : In educating consumers, the organization, when relevant, should address information on weights and measures, prices, quality, credit conditions and availability of essential services

1.7.7.5 Risks : In educating consumers, the organization, when relevant, should address information about risks related to use and any necessary precaution

1.7.7.6 Financial and investments products : In educating consumers, the organization, when relevant, should address financial and investment products

1.7.7.7 Environmental protection : In educating consumers, the organization, when relevant, should address environmental protection

1.7.7.8 Use of resources : In educating consumers, the organization, when relevant, should address efficient use of materials, energy and water

1.7.7.9 Disposal : In educating consumers, the organization, when relevant, should address proper disposal of wrapping, waste, and products

1.7.7.10 Sustainable consumption : In educating consumers, the organization, when relevant, should address sustainable consumption

1.8 COMMUNITY INVOLVEMENT AND DEVELOPMENT

1.8.0.0 General : The Organization should engage in a respectful manner with the community and its institutions reflect and reinforce democratic and civic values.

1.8.0.1 Part of community : The organization should consider itself as part of, and not separate from, the community in approaching community involvement and development

1.8.0.2 Rights of community : The organization should recognize and respect the rights of community members to make decisions in relation to their community and thereby pursue, in the manner they choose, ways of maximizing their resources and opportunities

1.8.0.3 Characteristics of community : The organization should recognize and respect the characteristics and history of the community while interacting with it and

1.8.0.4 Partnerships : The organization should recognize the value of working in partnership, supporting the exchange of experiences, resources and efforts.

1.8.1.0 Community involvement : The organization should contribute to its communities through their participation in and on society and environment.

1.8.1.1 Community Groups : The organization should systematically consult representative community groups in determining priorities for social investment and community development activities. Special attention should be given to vulnerable, discriminated marginalized, unrepresented and under-represented groups, to involve them in a way that helps to expand their options and respect their rights

1.8.1.2 Development : The organization should consult and accommodate indigenous and local communities on the terms and conditions of development that affect them. Consultation should occur prior to development and should be based on complete, accurate and accessible information

1.8.1.3 Local associations : The organization should participate in local associations as possible and appropriate, with the objective of contributing to the public good and the development objectives of communities

1.8.1.4 Transparent relationships : The organization should maintain transparent relationships with local government officials and political representatives, free from bribery or improper influence

1.8.1.5 Policy formulating : The organization should contribute to policy formulation and the establishment, implementation, monitoring and evaluation of development programmes. When doing so, The organization should respect the rights and views of others to express and defend their own interests

1.8.2.0 Education and culture : The organization preservatives and promotes culture and promotion of education compatible with respect for human rights

1.8.2.1 Education : The organization should promote and support education at all levels, and engage in actions to improve the quality of and access to education, promote local knowledge and eradicate illiteracy

1.8.2.2 Learning opportunities : The organization should in particular, promote learning opportunities for vulnerable or discriminated groups

1.8.2.3 Children : The organization should encourage the enrolment of children in formal education, and contribute to the elimination of barriers to children obtaining an education (such as child labour)

1.8.2.4 Cultural activities : The organization should promote cultural activities, respect and value the local cultures and cultural traditions, consistent with the principle of respect for human rights. Actions to support cultural activities that strengthen the identity of historically disadvantaged groups are especially important as a means of combating discrimination

1.8.2.5 Human rights education : The organization should consider facilitating human rights education and awareness raising

1.8.2.6 Cultural heritage : The organization should help conserve and protect cultural heritage, especially where the organization's operations have an impact on it

1.8.2.7 Use of traditional knowledge : The organization should promote the use of traditional knowledge and technologies of indigenous communities

1.8.3.0 Employment creation and skills development : The organization invests in the development of skills in order to reduce poverty and promote economic and social development.

1.8.3.1 Analysing : The organization should analyse the impact of its investment decisions on employment creation and, where economically viable, may make direct investments that alleviate poverty through employment creation

1.8.3.2 Impact on employment : The organization should consider the impact of technology choice on employment and, where economically viable in the longer term, select technologies that maximize employment opportunities

1.8.3.3 Outsourcing : The organization should consider the impact of outsourcing decisions on employment creation, both within the organization making the decision and within external organizations affected by such decisions

1.8.3.4 Development programmes : The organization should consider participating in local and national skills development programmes, including apprenticeship programmes, programmes focused on particular disadvantaged groups, life-long learning programmes and skills recognition and certification schemes

1.8.3.5 Improve skills development programmes : The organization should consider helping to develop or improve skills development programmes in the community where these are inadequate, possibly in partnership with others in the community

1.8.3.6 Vulnerable groups : The organization should give special attention to vulnerable groups in respect of employment and capacity building

1.8.3.7 Create employment : The organization should consider helping to promote the framework conditions necessary to create employment.

1.8.4.0 Technology development : The organization should contribute to improve access to information and communication technologies through training, partnerships and other actions and to improve human resources development and technology diffusion.

1.8.4.1 Low cost technologies : The organization should consider contributing to the development of low cost technologies that are easily replicable and have a high positive impact on poverty and hunger eradication

1.8.4.2 Developing knowledge : The organization should consider, where economically feasible, developing potential local and traditional knowledge and technologies while protecting the community's right to that knowledge and technology

1.8.4.3 Research : The organization should consider engaging in partnerships with local organizations such as universities or research laboratories to enhance scientific and technological development with partners from the local community, and employ local people in this work

1.8.4.4 Technology transfer : The organization should adopt practices that allow technology transfer and diffusion, where economically feasible. Where applicable, the organization should set reasonable terms and conditions for licenses or technology transfer so as to contribute to local development. The capacity of the local community to manage the technology should be considered

1.8.5.0 Wealth and income creation : The organization should contribute to wealth and income creation through compliance with laws and regulations and by playing a positive role in the development of communities through their value chain. The organization should seek to create opportunities that will enable groups outside the legal framework to achieve greater and ultimately full compliance with the law, especially concerning economic relationships.

1.8.5.1 Entering and leaving communities : The organization should consider the economic and social impact of entering or leaving a community, including impacts on basic resources needed for the sustainable development of the community

1.8.5.2 Diversification : The organization should consider supporting appropriate initiatives to stimulate diversification of existing economic activity in the community

1.8.5.3 Local suppliers : The organization should consider giving preference to local suppliers of products and services and contributing to local supplier development where possible and practicable

1.8.5.4 Value chains : The organization should consider undertaking initiatives to strengthen the ability of and opportunities for locally based suppliers to contribute to value chains, giving special attention to disadvantaged groups within the community

1.8.5.5 Assisting organization : The organization should consider assisting organizations to operate within the appropriate legal framework

1.8.5.6 Low level development organizations : The organization should engage in economic activities with organizations that, owing to low levels of development, have difficulty meeting the legal requirements only where the purpose is to address poverty and the activities of these organizations are consistent with human rights and there is a reasonable expectation that these organizations will consistently move towards conducting their activities within the appropriate legal framework

1.8.5.7 Business and cooperatives : The organization should consider contributing to programmes and partnerships that assist community members, especially women, to establish businesses and co-operatives, in improving productivity, promoting entrepreneurship and encouraging the efficient use of available resources. Such programmes could, for example, provide training in business planning, marketing, quality standards required to become suppliers, management and technical assistance, access to finance, and facilitation of joint ventures

1.8.5.8 Technical specification : The organization should consider appropriate ways to make procurement opportunities more easily accessible to community organizations, including, for example, through capacity-building on meeting technical specifications, and making available information about procurement opportunities

1.8.5.9 Local employment : The organization should consider supporting organizations and persons that bring needed products and services to the community, which can also generate local employment as well as linkages with local, regional and urban markets where this is beneficial for the welfare of the community

1.8.5.10 community-based associations : The organization should consider appropriate ways to help in the development of community-based associations of entrepreneurs

1.8.5.11 Tax responsibilities : The organization should fulfil its tax responsibilities and provide authorities with the necessary information to correctly determine taxes due

1.8.6.0 Health : The organization should contribute where possible to improving access to health services. Even in countries where it is a role of the state to provide a public health system, all organizations can consider contributing to health in communities.

1.8.6.1 Health impacts : The organization should seek to minimize or eliminate negative health impacts of any production process, product or service provided by the organization

1.8.6.2 Promotion of good health : The organization should consider promoting good health by, for example, contributing to access to medicines and vaccination and by encouraging healthy lifestyles, including exercise and good nutrition, by early detection of diseases, and by discouraging the consumption of unhealthy products and substances. Special attention should be given to child nutrition

1.8.6.3 Major diseases : The organization should consider raising awareness about health threats and major diseases and their prevention, such as, according to local circumstances and priorities, HIV/AIDS, cancer, heart disease, malaria, tuberculosis and obesity and

1.8.6.4 Essential health care : The organization should consider supporting access to essential health care services and to clean water and appropriate sanitation as a means of preventing illness.

1.8.7.0 Social Investment : Organizations should encourage community involvement in the design and implementation of projects as this can help projects to survive and prosper when the organization is no longer involved. Social investments should prioritize projects that are viable in the long-term and contribute to sustainable development

1.8.7.1 Social investment projects : The organization should take into account the promotion of community development in planning social investment projects. All actions should broaden opportunities for citizens, for example by increasing local procurement and any outsourcing so as to support local development

1.8.7.2 Dependency : The organization should avoid actions that perpetuate a community's dependence on the organization's philanthropic activities, on-going presence or support

1.8.7.3 Feedback : The organization should assess existing community-related initiatives and provide feedback on their success and suitability to the community and to people within the organization and identify where improvements might be made

1.8.7.4 Contribution : The organization should consider contributing to programmes that provide access to food and other essential products for vulnerable or discriminated groups and persons with low income, taking into account the importance of contributing to their increased capabilities, resources and opportunities. Special attention should be given to child nutrition

APPENDIX G

Definitions Worker Conditions-activities based on SA8000

2.1 CHILD LABOUR

2.1.1.0 Engagement : The company shall not engage in or support the use of child labor

2.1.2.0 Actions : The organization shall establish, document, maintain, and effectively communicate to personnel and other interested parties policies and procedures for redetermination of children found to be working in situations which fit the definition of child labour above,

2.1.3.0 Education : The organization shall establish, document, maintain, and effectively communicate to personnel and other interested parties policies and procedures for promotion of education for children covered under ILO recommendation

2.1.4.0 Hazardous situations : The organization shall not expose children or young workers to situations in or outside of the workplace that are hazardous, unsafe or unhealthy.

2.2 FORCED LABOUR

2.2.1.0 Engagement : The organization shall not engage in or support the use of forced labour

2.2.2.0 Support & Deposits : The organization shall not engage in or support the use of forced labour , nor shall personnel be required to lodge 'deposits' or identity papers upon commencing employment with the organization.

2.3 HEALTH AND SAFETY

2.3.1.0 Safe working environment : The organization, bearing in mind the prevailing knowledge of the industry and of any specific hazards, shall provide a safe and healthy working environment and shall take adequate steps to prevent accidents and injury to health arising out of, associated

2.3.2.0 Senior management representative : The organization shall appoint a senior management representative responsible for the health and safety of all personnel, and accountable for the implementation of the health and safety elements of this standard.

2.3.3.0 Health and Safety training : The organization shall ensure that all personnel receive regular and recorded health and safety training, and that such training is repeated for new and reassigned personnel.

2.3.4.0 Potential threats : The organization shall establish systems to detect, avoid or respond to potential threats to the health and safety of all personnel.

2.3.5.0 Sanitary facilities : The organization shall provide, for use by all personnel, clean lavatories, access to potable water, and if appropriate, sanitary facilities for food storage.

2.3.6.0 Dormitory facilities : The organization shall ensure that, if provided for personnel, dormitory facilities are clean, safe, and meet the basic needs of the personnel.

2.4 Freedom of Association and Right to Collective Bargaining

2.4.1.0 Trade Unions : The organization shall respect the right of all personnel to form and join trade unions of their choice and to bargain collectively.

2.4.2.0 Independent associations : The organization shall, in those situations in which the right to freedom of association and collective bargaining are restricted under law , facilitate parallel means of independent and free association and bargaining for all such personnel.

2.4.3.0 Personnel representatives & discrimination : The organization shall ensure representatives of such personnel are not the subject of discrimination and that such representatives have access to their members in the workplace.

2.5 Discrimination

2.5.1.0 Discrimination : The organization shall not engage in or support discrimination in hiring, remuneration, access to training, promotion, termination or retirement based on race, caste, national origin, religion, disability, gender, sexual orientation, union membership, political affiliation, or age

2.5.2.0 Interference with rights of personnel : The organization shall not interfere with the exercise of the rights of personnel to observe tenets or practices, or to meet needs relating to race, caste, national origin, religion, disability, gender, sexual orientation, union membership, or political affiliation

2.5.3.0 Sexually coercive behaviour : The organization shall not allow behaviour, including gestures, language, and physical contact, that is sexually coercive, abusive or exploitative

2.6 Discipline

2.6.1 Corporal punishment and verbal abuse : The organization shall not engage in or support the use of corporal punishment, mental or physical coercion, and verbal abuse.

2.7 Working hours

2.7.1.0 Work-week : The organization shall comply with applicable laws and industry standards on working hours. The normal work-week shall be as defined by law but shall not on a regular basis exceed 48 hours. Personnel shall be provided with at least one day off in every seven

2.7.2.0 Overtime : Other than as permitted in Section 2.7.3 (below), overtime work shall be voluntary.

2.7.3.0 Required overtime : Where the organization is party to a collective bargaining agreement freely negotiated with worker organizations (as defined by the ILO) representing a significant portion of its workforce, it may require overtime work in accordance with such agreement to me

2.8 Remuneration

2.8.1 Minimum wages : The organization shall ensure that wages paid for a standard working week shall always meet at least legal or industry minimum standards and shall be sufficient to meet basic needs of personnel and to provide some discretionary income.

2.8.2 Deductions from wages : The organization shall ensure that deductions from wages are not made for disciplinary purposes, and shall ensure that wage and benefit remuneration are detailed clearly and regularly for workers

2.8.3 Labour-only contracting : The organization shall ensure that labour-only contracting arrangements and false apprenticeship schemes are not undertaken in an effort to avoid fulfilling its obligations to personnel under applicable laws pertaining to labour and social security legislation

2.9 MANAGEMENT SYSTEMS

2.9.1.0 Policy for SR and labour conditions : Top management shall define the organization' policy for social accountability and labour conditions to ensure that it includes a commitment to conform to all requirements of this standard and requirements to which the organization subscribes

2.9.2.0 Top management review : Top management shall periodically review the adequacy, suitability, and continuing effectiveness of the organization's policy, procedures and performance results vis-á-vis the requirements of this standard and other requirements to which the organization subscribes

2.9.3.0 Senior management representative : The organization shall appoint a senior management representative who, irrespective of other responsibilities, shall ensure that the requirements of this standard are met;

2.9.4.0 communication with senior management : The organization shall provide for non-management personnel to choose a representative from their own group to facilitate communication with senior management on matters related to this standard.

2.9.5.0 Understand of requirements of standard : The organization shall ensure that the requirements of this standard are understood and implemented at all levels of the organisation; methods shall include, but are not limited to: a) clear definition of roles, responsibilities, and authority; b) training

2.9.6.0 Procedures for evaluation : The organization shall establish and maintain appropriate procedures to evaluate and select suppliers/subcontractors (and, where appropriate, sub-suppliers) based on their ability to meet the requirements of this standard.

2.9.7.0 Commitment of third parties : The organization shall maintain appropriate records of suppliers '/subcontractors' (and, where appropriate, sub-suppliers') commitments to social accountability, including, but not limited to, the written commitment of those organizations

2.9.8.0 Evidence requirements third parties : The organization shall maintain reasonable evidence that the requirements of this standard are being met by suppliers and subcontractors.

2.9.9.0 Home workers : In addition to the requirements of Sections 9.6 and 9.7 above, where the organization receives, handles or promotes goods and/or services from suppliers/subcontractors or sub-suppliers who are classified as home workers, the organization shall take special steps

2.9.10.0 Conformance : The organization shall investigate, address, and respond to the concerns of employees and other interested parties with regard to conformance/non-conformance with the organization's policy and/or the requirements of this standard

2.9.11.0 Remedial and corrective action : The organization shall implement remedial and corrective action and allocate adequate resources appropriate to the nature and severity of any non-conformance identified against the organization's policy and/or the requirements of the standard.

2.9.12.0 Communication : The organization shall establish and maintain procedures to communicate regularly to all interested parties data and other information regarding performance against the requirements of this document, including, but not limited to, the results of management

2.9.13.0 Conformance to the requirements : Where required by contract, the organization shall provide reasonable information and access to interested parties seeking to verify conformance to the requirements of this standard; where further required by contract, similar information and access

2.9.14.0 Evidence of conformance : The organization shall maintain appropriate records to demonstrate conformance to the requirements of this standard.

APPENDIX H

Definitions Environmental-activities based on ISO 14000

3.1.0 GENERAL REQUIREMENTS

3.2.0 ENVIRONMENTAL POLICY

3.2.1 General : The organization has met requirements of the ISO 14001 standard with respect to this aspect by reviewing evidence that top management has defined and documented the organization's environmental policy

3.3 PLANNING

3.3.1 Environmental aspects : The organization has established and maintained a procedure for the identification of significant aspects

3.3.2 Legal and other requirements : The organization has a procedure for identifying and providing access to legal requirements and other voluntary requirements to which the organization subscribes

3.3.3 Objectives and targets : The organization has considered the elements required by ISO 14001 standard when setting objectives and targets.

3.3.4 Environmental management programs : The organization has in place and is following an environmental management program that meets the requirements of ISO 14001 and that supports the objectives and targets set for activities, products and services.

3.4 IMPLEMENTATION AND OPERATION

3.4.1 Structure and responsibility : Environmental management roles, authorities and responsibilities have been defined by the organization

3.4.2 Training, awareness and competence : The organization has identified training needs and personnel whose work may create a significant impact upon the environment have received appropriate training

3.4.3 Communication : The organization has established and implemented procedures for internal communication and external communication from interested parties about the EMS

3.4.4 EMS Documentation : The organization of the organizations EMS and documents that interact with the core elements have been identified.

3.4.5 Document control : The organization has a procedure to ensure that documents are controlled.

3.4.6 Operational control : The organization has identified operations and activities that are associated with the identified significant aspects in line with its policy objectives and targets

3.4.7 Emergency preparedness and response : The organization has established, maintained and tested procedures to identify potential for and to respond to accidents and emergency situations and for preventing and mitigating the environmental impacts that may be associated with them.

3.5 Checking and corrective action

3.5.1 Monitoring and measurement : The organization has established and maintained procedures to monitor and measure, on a regular basis, the key characteristics of its operations and activities that can have a significant impact on the environment

3.5.2 Non-conformance and corrective and preventive action : The organization has established and implemented a procedure for handling non-conformance and for corrective and preventive action.

3.5.3 Records : The organization has established, implemented and maintained a procedure for the identification, maintenance and disposition of environmental records.

3.5.4 Environmental Management System audit : The organization has established and implemented EMS audit procedures and programs and has reported audit results to management

3.6 Management review

3.6.1 General : The top-management periodically reviews the EMS to determine its continuing suitability, adequacy and effectiveness.

APPENDIX I

Formulas and Lay-out of Excel sheets

I.1 Formulas used

In the following subsection the different formulas which have been used for constructing the model have been explained. For this, it should be realized that in this context a formula is not a mathematical action but an input in Excel. A basic knowledge of MS Excel is assumed.

I.1.1 Tab 1 - Definitions

On this tab no formulas have been used.

I.1.2 Tab 2 - Score sheet

For the three different parts the following formulas have been used:

Editor part

Based on cells the SF id(B2), KSA id(B3) and Activity id(B4) the values for Cat (B5) and Parent (B6) the following formulas have been used respectively:

```
=B2&"."&B3&"."&B4
=B2&"."&B3
```

For the cells B7 and higher the following code has been used in which NR is the Topic number as can be found in D9 and higher (except for the activity code, this is 0):

```
=B5&"."&NR
```

Lay-out

In this part the title and definition of the topic is found based on the topic code. The lay-out part starts with an overview of the KSA and activity.

In cell D2 the name of the KSA is found based on the SF id (B2) and KSA id (B3) from the overview of definitions (Tab 1). Therefore, the following formula is used:

```
=VLOOKUP(B2&"."&B3&"."&"0",Definitions!A:C,2,FALSE)&" :"
```

VLOOKUP is used to find a definition in a vertical range of cells. In the first part of the formula, the KSA id is generated which is the search query. The second part of the formula gives instruction on where to find the KSA (Definitions-tab, columns A to C) and in which column the results should be found and is followed by a ":" for lay-out reasons.

For the Activity-title a similar formula is used with the different that the Activity id is included instead of the *0*. This makes the following formula:

```
=VLOOKUP(B2&"."&B3&"."&B4&".0",Definitions!A:C,2,FALSE)
```

The next formula can be found in the Activity score field (F5). This is the score of this activity based on the individual scores of the topics. The lowest score of the topics is the score for the Activity. Based on this the formula for this field is:

```
=MIN(G9:G20)
```

In addition, the activity definition is gathered from the first tab (Definitions). In this formula, it is first checked if the query has an outcome; if false it will return with an empty cell, if true the query will result in the activity definition. For this the formula *ISNA* is used followed by the look-up query as a input to check if this look-up query to be checked. If true the look-up will be done. The following formula is used:

```
=IF(ISNA(VLOOKUP($B7,Definitions!$A:$C,3,FALSE)),"",
VLOOKUP($B7,Definitions!$A:$C,3,FALSE))
```

Note the $ signs in the formula using the $ signs will lock the Column number, Row number or entire cell respectively. By doing this the table can easily be copied and expanded.

The table with the definitions (D9-H9 and upwards) contains in the first column (D9 and upwards) the topic number. A topic number will only be given if there is a Topic title available. No topic title is available if a similar formula as described above gives a negative result, which means that the topic does not exist in the Definitions overview. For this, the following formula is used:

```
=IF(E9="","",1)
```

In which the 1 is the topic number

The second column of the table (E9 and upwards) contains the Topic title. If the topic would not exist the Excel sheet would return with N\A. To avoid this the following formula has been used:

```
=IF(ISNA(VLOOKUP($B9,Definitions!$A:$C,2,FALSE)),"",
VLOOKUP($B9,Definitions!$A:$C,2,FALSE))
```

This result in an empty cell if no value exists.

For the cells F9 and upwards (the description of the topic) an identical formula has been used with as difference that it will return from the third column from the search area.

For layout reasons the option *conditional formatting* has been used. This is used in such a way that only fields will be white for the topics that do exist.

I.1.3 Tab 3 - KSA score-list

The formulas for the KSA score list are quite similar to the ones used for the score-list.

An exception is the calculation of the KSA score, based on the activities. For this the following formula has been used:

```
=ROUND(IF(MIN(F4:F14)=0,0,AVERAGE(F4:F14)),0)
```

In the Editor part, the Activity code is generated based on a very simple formula which uses the KSA code (D2) and the Activity number (A4 and upwards):

```
=D2&"."&A4
```

For the Table itself it is checked in column D if no activity does exist, if so the activity number is given, if not an empty cell will be given. The following formula is used for this:

```
if{=IF(E4="","",A4)}
```

This formula is based on the outcome of the Activity name in column E. In column E it is checked if the activity does exists using the activity code. For this the following formula has been used:

```
=IF(ISNA(VLOOKUP(B4&".0",Definitions!A:C,2,FALSE)),"",
VLOOKUP(B4&".0",Definitions!A:C,2,FALSE))
```

For the last column (the Score of the activities), a similar formula has been used; only now referring to the Score sheet:

```
=IF(ISNA(VLOOKUP(B4,CSR!B:H,5,FALSE)),"",VLOOKUP(B4,CSR!B:H,5,FALSE))
```

I.2 Lay-out

In Table I.1 a schematic overview of the Excel sheet can be found.

Table I.1: Schematic overview of the first tab

	A	B	C
1	**Code**	**Title**	**Definition**
2	1.1.0	Title of KSA	Definition of KSA
3	1.1.1.0	Title of Activity	Definition of Activity
4	1.1.1.1	Title of Topic	Definition of Topic
~	~	~	~

Table I.2: Schematic overview of the second tab

	A	B	C	D	E	F	G	H
1								
2	**SF id**	SF id		*Name of the KSA*		*Name of the Activity*		
3	**KSA id**	KSA id						
4	**Activity id**	Activity id		**Sustainability Framework**		**CSR**		
5	**Cat**	*Cat*		**Activity score**		*# Score*		
6	**Parent**	*Parent i.d.*		**Activity Definition**		*Definition of Activity*		
7	**Activity code**	*Activity code*			**Topic**	**Description**	**Score**	
8								
9	**Topic code #1**	*Topic code #1*		Topic number #1	*Topic title #1*	*Topic Description #1*	Score #1	
10	**Topic code #2**	*Topic code #2*		Topic number #2	*Topic title #2*	*Topic Description #2*	Score #2	
~	~	~		~	~	~	~	

Table I.3: Schematic overview of the third tab

	A	B	C	D	E	F	G
1						**KSA Score**	
2			**KSA**	SF & KSA id	*KSA name*	*Total score of KSA*	
3		**Activity code**		**Activity Number**	**Activity**	**Activity Score**	
4	Number #0	*Activity code #0*		*Activity number #0*	*Activity title #0*	*Activity score #0*	
5	Number #1	*Activity code #1*		*Activity number #1*	*Activity title #1*	*Activity score #1*	
6	~	~		~	~	~	

APPENDIX J

Questions to fill-in SDMM for Social

Table J.1: Questions for Social part of the SDMM - Human Rights

2.	**Human Rights**
2.1.	**General**
2.1.1.	What do we know about human rights in relation to our products and services? What are human rights?
2.1.2.	Can we prove that we respect human rights for anyone connected to our organization?
2.1.3.	Have there been any situation where we did not respect human rights?
2.1.4.	What do we know at the human rights in our stakeholders (upstream/downstream)? What do we do with this knowledge?
2.2.	**Due diligence**
2.2.1.	What means human rights for the region where we are doing business?
2.2.2.	Have we identified impacts of our activities on human rights? What about our stakeholders?
2.2.3.	Do we have a policy for guidance for managing human rights?
2.2.4.	How have we integrated human rights in our organization? How do we track performance? How do we make adjustments in priorities and approach?
2.3.	**Human risk situations**
2.3.1.	Do we have objectives for human rights? Where can these objectives be found? How are the disturbed throughout our organization?
2.4.	**Avoidance of complicity**
2.4.1.	Which steps have we taken to avoid any situations in which human risks may be harmed?
2.4.2.	Have we taken actions to avoid delivering services or goods to organizations or parties or cooperating with those parties which do not or might not respect human rights?
2.4.3.	How do we ensure that the products and services that we use are not connected with harmed human rights?
2.5.	**Resolving grievances**
2.5.1.	How can people, who have the opinion that their rights are abused, bring this to the attention of the organization? What is done with this information and how is the information handled?
2.5.2.	Which remedy mechanisms to avoid harm of human rights do we have? Can we prove situations in which these mechanisms worked?
2.6.	**Discrimination and vulnerable groups**
2.6.1.	How do we handle with discrimination within our organization and within our stakeholders?
2.6.2.	How do we create awareness for discrimination both for our organization as for our stakeholders?
2.7.	**Civil and political rights**
2.7.1.	Can we prove that we as organization respect civil and political rights, as well as rights connected to these
2.8.	**Economic, social and cultural rights**
2.8.1.	Which steps have we taken and wow can we prove that we respect civil and political rights such as the right to life with dignity, the right to freedom from torture, the right to security, the right to own property, liberty and integrity of the person and the right to due process of law and fair hearing when facing criminal charges?
2.8.2.	Which cooperation's do we have or had to promote the above mentioned rights with other organizations and governmental institutions?
2.8.3.	How do we promote cultural activities in our community?
2.9.	**Fundamental rights at work** *In SA 8000*

APPENDIX K

Development stages of a CMM

In the previous section, the different contents of the CMM have been discussed. In this section, the different aspects of the design and application of a new CMM will be researched. In a publication by Strutt et al. (2006) an approach of the development of a CMM model has been given, the *Design Safety Capability Maturity Model* (DCMM). The DCMM is designed to improve safety processes within the offshore industry. Strutt et al. describe the following stages and (relevant) approach in the design and application of their CMM:

1. Identification of goals and KPA's
2. Definition of the different maturity levels
3. Development of a scoring system for the CMM
4. Identification of the different behaviours belonging which define the maturity
5. Development of the different aspects and practices to improve the maturity
6. Testing of the new CMM
7. Application of the CMM and further improvements based on feedback

In the next paragraphs a more elaborate overview of the different stages into the design and implementation of the CMM will be given.

Identification of goals and KPA's

First step in developing a CMM is the definition of KPA's and goals for the organization (Strutt et al., 2006). This is of course mainly depending of the use of the CMM and appliance (Fraser et al., 2002). The understanding of the different organizational challenges is for great importance in defining the KPA's. For the proposed SDMM the different goals and KPA's will be based on existing Sustainability Frameworks and thus called KSA's . The organization itself may decide to whether or not include the KSA's in the scope of the organization. The KSA's can later be divided in main categories, bundling related KSA's (Strutt et al., 2006).

Definition of the different maturity levels

In this stage, the different maturity levels have to be defined. In the case of Strutt et al. (2006) a five level ranking system has been chosen in which level one is corresponding to the initial or learning level. The highest level is level 5 corresponding to best practice or an optimised process. The understanding of the actually meaning of the different levels is from great importance in order to apply a CMM. Strutt et al. (2006) uses description of levels as shown in Table K.1. Strutt et al. use different kind of learning for these different levels. Herby there is a division between single-loop learning and double-loop learning. Single-loop learning is the adjustments and correction of errors within an organization without changing policies. Double-loop learning includes the adjustment of policies and practices to prevent future errors. Both types are in the top of the CMM, with (quantified) single loop learning in level four and double loop learning in level five. Next to this a level zero will be implemented which indicate legal compliance.

Development of a scoring system for the CMM

As discussed in the previous paragraph a CMM consist of a number of levels with a generic definition. After these levels and definition a CMM scoring system should be developed. Within Strutt et al. (2006) the introduction of a level 0 is suggested in which regulations are violated.

After applying of the definitions for the different KSA's and activities a score between 1 to 5 for each topic or subtopic can be given. To have a oversight of the overall sore the scores should be collated giving an overall assessment of capability whether or not in total or only for the different KSA's. One of the identified approaches is to average the scores for the different topics. Disadvantage for this approach is that this might mask important shortcomings since they could be compensated by other high-scored topics. A suggestion given by Strutt et al. (2006) is the use of a spider diagram in which all the KSA's or even topics are included which gives a total overview of the individual scores.

Identification of the different behaviours belonging that define the maturity

For this phase a concise and clear description of the different processes for each maturity level should be made. A precise description is needed in order to ensure the identification of characteristics and to discriminate the capability level.

Strutt et al. (2006) have identified interpretations for the different maturity levels and types of learning. This table is given in Table 2.4. The descriptions of the levels will need to reflect these interpretations related to learning mode and process characteristics. Next to this, the following issues have been identified which might be needed to included in a CMM:

- Issues regarding leadership and issues should be addressed (Commitment to perform).
- Issues regarding manpower and time, competence of staff and tools to be provided to support the implementation of processes should be addressed (Ability to perform).
- Addressing issues as the procedures to execute the different processes as well as the kind of assessment tools both qualitative and quantitative as well as strategies to improve the processes (Methodology).
- The extent of integration of management processes in order to obtain overall goals and commitments (Organizational).

Table K.1: Description of maturity levels in a CMM according to Strutt et al. (2006)

Level	Maturity Level	Description
5	Optimised	The Organization is 'best practice', capable of learning and adapting itself. It not only uses experience to correct any problems, but also to change the nature of the way it operates.
4	Managed	The Organization can control what it does in the way of processes. It lays down requirements and ensures that these are met through feedback.
3	Defined	The Organization can say what it does and how it goes about it.
2	Repeatable	The Organization can repeat what it has done before, but not necessarily define what it does.
1	Initial	The Organization has limited experience and is at a learning and development stage.

- Addressing the strength of evidence of adopted behavioural characteristics and performed processes (Evidence).

Development of the different aspects and practices to improve the maturity

Based on a bottom-up approach improvement steps will need to be developed. This will result in a table showing how organizations can improve on the maturity ladder for each process. Within the research from Strutt et al. (2006) it has been identified that a table with improvement steps was found most useful for organizations.

Testing of the new CMM

An important stage in developing a CMM is the testing-phase. According to Strutt et al. (2006) the testing of the model has a threefold purpose. First of all in order to validate the model, secondly to obtain feedback on how the model worked in practice within an organization and thirdly to identify further practical improvements of the model.

Application of the CMM and further improvements based on feedback

The CMM can now be applied on different processes and organizations. Based on experiences and new insights it might be needed to adjust the model and to launch new versions.