



Universiteit Utrecht

Comparison of different certifiable and non-certifiable Corporate
Social Responsibility standards in the European
telecommunications industry

45 ECTS Master Thesis

In cooperation

with

Deutsche Telekom AG

Supervisors:

Dr. Walter J.V. Vermeulen

Dr. Hens A.C. Runhaar (*2nd reader*)

Internship Coordinator at Deutsche Telekom:

Mr. Reiner Sinnigsohn

Faculty of Geosciences

Department of innovation, Environmental and Energy Science

Sustainable Development – Environmental Policy & Management Track

Daniel Enno Gdaniec

3607682

D.E.Gdaniec@students.uu.nl

August 2012



Acknowledgement

This master thesis is a result of seven month of hard work with many ups and downs, but in the end this work taught me a lot and gave me a lot of new knowledge and led to interesting debates with experts in the field of sustainability and CSR. The research for this thesis has been executed in cooperation with the CR Department of Deutsche Telekom AG under the overall supervision of Utrecht University.

First of all, I would like to thank my thesis supervisor Dr. Walter Vermeulen for his valuable feedback and patience with the ups and downs of my work. He always helped me finding the right direction for my thesis and supplied me with new ideas or useful theories related to my topic.

Secondly, I would like to thank my internship coordinator at Deutsche Telekom Mr. Reiner Sinnigsohn for his valuable feedback and his personal efforts to supply me with every material, information or contacts needed for answering the research questions of this master thesis.

Furthermore, I would like to thank next to Karsten Zimmermann, Ulrich Bausen, Silke Thomas, Antonio Luz-Veloso, Anais Fabinger and Andreas Kröhling, the entire CR Department of Deutsche Telekom under the lead of Birgit Klesper and Luis Neves for their help and support during my research for answering all my questions and providing me with further ideas, insights and materials for this thesis.

Finally, I would like to thank my parents for their support and their never-ending faith in me and this work and my friends for supporting my work and keeping my head from exploding with too many thoughts and worries about this thesis.

Abstract

The CSR / sustainability governance systems agenda gained momentum during the past years when several new standards got published. Two standards were developed as a response to the ISO 26000 standard and a new German sustainability standard was published for example. With these new standards and the older ones such as GRI, AA1000 being available on the market, questions such as which is the standard with the highest contribution to sustainable development or what is the difference between a certifiable and non-certifiable standard are yet to be answered. In this master thesis, a set of criteria has been developed for analysing and comparing the scientific quality of these standards. These criteria include aspects such as content, the quality of the control mechanisms and legitimacy. Furthermore, based on these criteria, the design of an optimal CSR standard will be explained.

The aim of this thesis, as it has been described, is to find out which of the seven standards is the 'best' one. This standard will then be analysed in how far Deutsche Telekom complies with it and what are the missing gaps. Based on the detected gaps recommendations for achieving full compliance will be given.

Overall, this thesis provides an overview about the available CSR / sustainability governance systems and further provides an insight into the telecommunications industry by stating which environmental and social impacts occur during the life cycle of operating a mobile network. Additionally, the CSR and sustainability approaches and strategies of the most important European telecommunication companies as well as inter-industry associations will be presented.

List of abbreviations

CED	Center for Economic Development
CR	Corporate Responsibility
CSR	Corporate Social Responsibility
CS	Corporate Sustainability
E-LCA	Environmental Life Cycle Assessment
ICT	Information and Communication Technology
JAC	Joint Audit Cooperation
GeSI	Global e-Sustainability Initiative
GHG	Greenhouse gases
GRI	Global Reporting Initiative
GSC	German Sustainability Code
GSMA	Groupe Speciale Mobile Association
ITU	International Telecommunications Union
LCA	Life Cycle Assessment
PWB	Printed-Wiring Boards
SD	Sustainable Development
S-LCA	Social Life Cycle Assessment
SR	Social Responsibility
UNEP	United Nations Environmental Program
WBCSD	World Business Council for Sustainable Development

Table of Contents

Chapter 1: Introduction	9
1.1: Problem definition and knowledge gap	10
1.2: Research objectives	11
1.3: Research questions	11
1.4: Structure of the thesis	12
Chapter 2: Theoretical background and assessment framework	13
2.1: Research Context	13
2.2: Theoretical background	15
2.2.1: Sustainable Development and Sustainability indicators	15
2.2.2: Life-Cycle Assessment and environmental and social impacts	17
2.2.3: Policy Cycle	22
2.2.4: Good Governance	23
2.3: Application of the theoretical background to the business view of CSR	24
2.4: Assessment framework	25
Chapter 3: Methodology	27
3.1: Research design	27
3.2: Research strategy	27
3.2.1: Step 1	28
3.2.2: Step 2	28
3.2.3: Step 3	30
3.2.4: Step 4	30
3.2.5: Step 5	31
3.2.5.1: Content	32
3.2.5.2: Quality of the control mechanisms	34
3.2.5.3: Legitimacy	34
3.2.6: Step 6	35
3.2.7: Step 7	37
3.2.8: Step 8	39
3.3: Data collection	39
Chapter 4: Optimal Standard	40
4.1 Content:	40
4.2 Type of Control	42
4.3 Legitimacy	42

Chapter 5: Environmental and social impacts and effects of the telecommunications industry	44
5.1: Source	44
5.2: Infrastructure and consumer products	45
5.3: Service and service user	47
5.4: Recycling and disposal	48
Chapter 6: CSR in the European telecommunications industry:	51
6.1: Overview of the international mobile communication market	51
6.2: The European mobile communications market	55
6.3: Activities by the international industry associations	56
6.3.1: ITU	56
6.3.2: GSMA	56
6.3.3: ETNO	57
6.3.4: GeSI	58
6.4: Activities by the main market actors	59
6.4.1: Deutsche Telekom	59
6.4.2: France Telecom-Orange	63
6.4.3: Telefonica	65
6.4.4: Vodafone	67
6.4.5: KPN	68
6.4.6: British Telecom (BT)	70
6.5: Comparison and evaluation	71
Chapter 7: Corporate Social Responsibility standards	74
7.1: Standards used in the European telecommunications industry	74
7.2: CSR standards	75
7.2.1: ISO 26000	75
7.2.1.1: Content	76
7.2.1.2: Quality of the control mechanisms	76
7.2.1.3: Legitimacy	77
7.2.2: SR10	77
7.2.2.1: Content	78
7.2.2.2: Quality of the control mechanisms	78
7.2.2.3: Legitimacy	78
7.2.3: DS 49001	79
7.2.3.1: Content	79

7.2.3.2: Quality of the control mechanisms	80
7.2.3.3: Legitimacy.....	80
7.2.4: GRI principles	80
7.2.4.1: Content	81
7.2.4.2: Quality of the control mechanisms	82
7.2.4.3: Legitimacy.....	82
7.2.5: AA 1000	83
7.2.5.1: Content	83
7.2.5.2: Quality of the control mechanisms	84
7.2.5.3: Legitimacy.....	84
7.2.6: German Sustainability Code	85
7.2.6.1: Content	85
7.2.6.2: Quality of the control mechanisms	86
7.2.6.3: Legitimacy.....	86
7.2.7: SA 8000	87
7.2.7.1: Content	87
7.2.7.2: Quality of the control mechanisms	88
7.2.7.3: Legitimacy.....	88
7.3: Comparison and evaluation of the standards	88
7.3.1: Content.....	89
7.3.2: Quality of the control mechanisms	92
7.3.3: Legitimacy	93
7.4: Evaluation.....	94
Chapter 8: Gap analysis at Deutsche Telekom	Fehler! Textmarke nicht definiert.
8.1: ISO 26000 gap analysis	Fehler! Textmarke nicht definiert.
8.2: SR 10 gap analysis	Fehler! Textmarke nicht definiert.
8.3: Conclusion	Fehler! Textmarke nicht definiert.
Chapter 9: Conclusion:.....	96
9.1: Summary.....	96
9.2: Answer to the research question	97
9.3: Recommendations for Deutsche Telekom	99
9.4: Discussion of the methodology	100
References.....	102
List of Interviews	109
List of figures	110

Appendices.....	111
Appendix 1: Statement on Coltan by Deutsche Telekom Group.....	111
Appendix 2: Statement on Extractives by Deutsche Telekom Group.....	112
Appendix 3: ISO 26000 gap analysis.....	113
Appendix 4: SR 10 gap analysis	114
Appendix 5: List of documents used for the gap analysis of ISO 26000 and SR 10.....	115
Appendix 6: ETNO Sustainability Charter.....	117

Chapter 1: Introduction

During the past few decades the concept of Sustainable Development has become more important and has been spread all over the world. More and more people have begun to realize that the environment has to be protected and that the world should consequently be transformed to a sustainable one. The concept of Sustainable Development was first introduced in the Brundtland report of 1987. The definition used in that report is still valid until today while acknowledged as the most common one. According to the Brundtland report Sustainable Development can be defined as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (Brundtland, 1987, p.43).

In order to achieve a sustainable society, all parts of the society have to assume their responsibility. The concepts of Sustainable Development as well as of governance define three actors as the main actors that can assume the responsibility and consequently can participate in the process of working towards a sustainable society, namely: governments, the market (private sector) and civil society (Meadowcroft, 2007, Stoker, 1998). Tabbush (2005) identified that the government has been the strongest actor in promoting sustainable development because governments are seen as the sole actors that have responsibility over common goods such as the environment. However, during the past decades a shift in this view has occurred. Nowadays, also civil society and especially the market have responsibilities and can promote a sustainable society. In the academic world, there are many studies focussed on the role and possible contributions of the private sector towards achieving sustainable development (Lockett, 2006, Scherer, 2006). The literature shows that no dominant theory or methodology explaining the contribution of the market has evolved and can be recognised. As a basis, this master thesis uses two of the many theories centred around the contributions of the private sector, namely sustainable supply chain governance and, most importantly, Corporate Social Responsibility.

This shift of responsibilities was further intensified by the progress of globalisation. Until the start of globalisation national governments approached the topics of commodity chains and negative externalities. However, with the emergence of globalisation and increased world trade national regulations and laws were not able to reach the complex linkages in supply chains anymore and ensure that these supply chains comply with environmental and social legislation. As a response to that, non-governmental actors began to take up responsibility and the first non-governmental supply chain and Corporate Social Responsibility standards and systems were developed. The concept of CSR was first introduced in the 1960s but with no universally accepted definition. The first universal definition centred around the responsibilities that companies have for society and the environment was created by the Center for Economic Development (CED) in the United States of America in 1971 (Carrol, 1991). Corporate Social Responsibility spread around the world in the 1980s and more scholars began to focus on the concept and discuss it. This resulted in a further development of the concept of CSR in the 1990s, when the first standards related to CSR were developed. About 10 years later, in the beginning of the new millennium, the first standards and guidance documents focusing on all aspects of CSR were initiated and

developed. The first standard that combined environmental with social issues was the UN Global Compact published in the year 2000.

As described above one of the concepts of private actor contributions to a sustainable society is CSR. This concept has gained since the development of the UN Global Compact more and more prominence in executive and advisory boards of companies. The debates in the boardrooms have focused on the role companies can play and what obligations they have towards society and the environment (Dahlsrud, 2008). The shift in view of companies towards taking responsibilities has several reasons. The first reason is, as already described above, that the influence and powers of governments in that field has diminished. As a consequence companies, as a part of the private sector, have gained more power. This new gain of power of the private sector was also recognized by governments, non-governmental organisations and the media, which in turn put pressure on managers and companies. Companies facing that pressure began to demonstrate their environmental and social conscience (Cramer, 2004, Carroll, 1999). During the last few years a shift of thinking has occurred in companies and in the literature discussing CSR. Whereas McIntosh (2004) suggested that the main responsibility of a company is to satisfy its shareholders with high profits, today many scholars as well as managers see that companies do not only have a responsibility towards their shareholders but also to other stakeholders and that pursuing a CSR strategy is not an obligation but instead can be seen as an opportunity (Cramer, 2004, Grayson & Hodges, 2004).

1.1: Problem definition and knowledge gap

In order to achieve a sustainable future, production and consumption patterns have to change and companies have to acknowledge that they have a responsibility towards the environment and the society. However, often companies do not know how they can fulfil their responsibility towards the society in general. In order to work on this shortcoming and to live up to their responsibility Corporate Responsibility (CR) departments have been introduced in companies. Nowadays many companies take this responsibility seriously and are actively participating in changing the world towards a sustainable one. In order to help companies pursue this path and develop a methodology and guidance, several standards and norms centred around CSR have been developed by different organisations. This supply of standards on guiding and certifying social activities of companies has led to the confusion as to which standard they should follow and which standard has the highest contribution to sustainable development. This is not only a problem for companies, but also for the academic world as a void exists in the academic literature on these standards and their contribution to sustainable development. Hence, a knowledge gap in academic research and literature exists on explaining and analysing the standards as well as on comparing the standards with the goal of finding out which standard has the highest contribution to sustainable development. This knowledge gap can be further expanded to the following problem: Companies such as Deutsche Telekom that want to get certified for their CSR activities face the problem that some standards such as ISO 26000 are not certifiable. In response to demands from companies a certifiable version based on ISO 26000 has been developed, but the question

arose how existing standards differ from each other and what distinguishes the certifiable from the non-certifiable version of ISO 26000.

1.2: Research objectives

This thesis aims at exploring the different standards for Corporate Social Responsibility. The first research objective is to generate knowledge about the development and background of the standards, by analysing the process of development and which stakeholders have been involved in that process. Furthermore, this thesis aims at filling the void of a comparison of these standards with the goal in mind to find out which standard has the highest contribution to sustainable development and how the standards differ in respect to requirements, coverage and control mechanisms. The final goal of this master thesis is to present recommendations to Deutsche Telekom on how to approach the topic of CSR and sustainability.

1.3: Research questions

After the research objectives have been explained, the following main research question has been derived:

‘Which third party Corporate Social Responsibility/Sustainability governance system could be used in the ICT industry, what is the scientific basis for the quality of these systems and how can they be implemented at a company from the ICT sector’.

Based on this main research question the following sub research questions have been developed in order to structure the research and to be able to answer all interesting sub-aspects and questions related to the main research question that has been presented to me during the research phase at Deutsche Telekom and in conversation with professors at Utrecht University.

A first sub research question related to step two is which norms are used in the European telecommunications industry and what needs to be done if a company wants to be the leading company in the sector?

A second research question related to step three in the process is to find out which standard has the biggest impact on sustainable development and which norm is the most sustainable one?

A third research question is to find out what distinguishes a certifiable standard for CSR from a non-certifiable one.

1.4: Structure of the thesis

The first chapter, the introduction, introduces the topic for this master thesis. The second chapter sets the theoretical foundation for this master thesis by explaining the research context and the theoretical background. This leads to the assessment framework by which the seven standards will be analysed. The next chapter describes in full detail the methodology of this master thesis. With the fourth chapter, the main analysis of this master thesis starts. The fourth chapter describes how the most effective standard should be designed in order to achieve sustainability. In this chapter it will be explained which elements the optimal standard should include. The next chapter focuses on environmental and social impacts that occur during the life cycle of the main product and service the telecommunications industry offers, namely operating a mobile network with the use of mobile devices. The sixth chapter is named 'CSR in the telecommunications industry' as this chapter focuses on the CSR programs and strategies the most important actors in the industry are pursuing. This chapter begins with explaining the CSR activities of the global and European telecommunications industry associations. The second part of this chapter then compares the Corporate Social Responsibility approach of Deutsche Telekom with its main competitors. For this comparison, the CSR objectives, strategies and policies of the competitors will be presented and analysed as well.

The seventh chapter, with the title 'CSR standards' contains the main analysis of this master thesis, the analysis and comparison of the seven chosen Corporate Social Responsibility standards. For reasons of simplicity and comprehension, the standards will be listed below:

1. ISO 26000
2. IQNet SR 10 management system
3. DS 49001 management system
4. AA1000 standard
5. SA 8000 standard
6. German Sustainability Code
7. Principles of the Global Reporting Initiative (GRI)

In the beginning of the seventh chapter, a short overview will be given about the utilisation of the chosen standards in the telecommunications industry. This part is closely linked to the sector analysis, as again the main competitors of Deutsche Telekom will be analysed on the basis of which of the chosen standards they have implemented or plan on implementing in the future. This is followed by the analysis and comparison of the standards, succeeding the theoretical framework presented in chapter two.

The eight chapter, as the last chapter of the main analysis of this master thesis contains the gap analysis of the most sustainable standard. This gap analysis shows how Deutsche Telekom implements the most sustainable standard and which requirements are not yet fulfilled. The result of this analysis is to present recommendations to Deutsche Telekom of how the most sustainable standard can be implemented that full compliance with the standard can be certified. The presentation of the recommended actions is closely related to the last chapter of the thesis, which contain the recommendations and conclusions.

Chapter 2: Theoretical background and assessment framework

The first section of this chapter presents the concept Corporate Social Responsibility and explains its development. The second section of this chapter explains the theoretical background of this master thesis including the theories, concepts and tools used. The concept of sustainability and its appliance in a scientific and business perspective is presented in section 2.3, followed by a description of what CSR means for companies and how it can be related to the sustainable development indicators. This section leads to the fourth section of this chapter, the presentation of the assessment framework by which the chosen CSR standards will be analysed.

2.1: Research Context

In the 1950s and 1960s several topics related to Social Responsibility, namely environmental protection and labour standards gained prominence on the political agenda and were later merged into the context of sustainable development, which emerged with the Brundlandt Report in 1987. Until that time the issue of commodity chains and the related negative externalities were approached by national and local governments in forms of laws and regulations. However, as globalisation emerged and world trade increased it became obvious that national regulations are not suitable anymore, for the international linkages of supply chains, to assure that these supply chains are sustainable or include environmental and social standards. As a response to that the first non-government systems began to develop. These systems were developed by the market and the civil society, mostly Non-Governmental organizations. According to Vermeulen and Seuring (2009) “environmental policies have been embedded in the broader concept of sustainable development, including issues of community responsibility of producers and promotion of fair distribution of the benefits of the nature’s rich resources” (p.269). This explains the emergence of sustainability or how it is also called Corporate Social Responsibility in the context of companies. This shows that companies have a responsibility; not only for the environment but also for the society and that they became aware of this responsibility. This development not only led to the emergence of eco-labels but also to a higher responsibility for companies for the society and the environment. Furthermore, these developments and debates paved the way towards the term Corporate Social Responsibility. The term first emerged and was used in the 1960s (Carroll, 1991). However, scholars and businesses could not come up with one single, coherent definition. One of the first definitions found in an academic journal was developed by Keith Davis in 1960. According to him corporate social responsibility refers to businesses “decisions and actions taken for reasons at least partially beyond the firm’s economic and technical interest” (Davies, 1960, 71). The term CSR was further developed and more meaning was attached to it in the 1970s, when in the USA social legislation such as the Occupational Health and Safety Act (OSHA) were initiated and the Environmental Protection Agency (EPA) was founded.

In 1971, the Center for Economic Development (CED) in the United States developed the first universal acceptable definition of CSR and presented it in a way which is still valid (Carroll, 1991). According to the CED (1971), the concept CSR has three circles. The inner circle depicts economic functions such as production, growth and jobs. The second circle displays that the economic functions of the inner circle shall be exercised with an awareness of social values and changing social priorities. The outer circle depicts new responsibilities that companies have and should become more actively involved in for the society and the environment.

According to Carroll (1999), during the 1970s and 1980s, the definitions of CSR began to proliferate and the concept became prominent around the world. Especially in the late 1970s and in the 1980s many scholars discussed the concept of CSR and conducted more research on it. While scholars debated the concept of CSR without finding a common definition (Waddock, 2001; Wood, 1991), companies began to use the concept of CSR and implemented it as a feature of corporate policy (Whitehouse, 2006). Hester further states that “there has been no general agreement as to the meaning of Corporate Social Responsibility or how it should be implemented . . . businessmen enthusiastically have adopted the concept.” (Hester, 1973, p.25). In regard to the lack of a common definition Kerr *et al.* state that “this definitional gap could be explained by the fact that CSR is in a constant state of evolution” (Kerr *et al.* , 2009, p.5). Therefore, no universal definition can be given.

The next step in the development of CSR first took place in the 1990s, when the first international standard related to the topics of CSR was developed, the SA 8000 standard on social accountability. This standard was introduced in 1997 and was one of the first certifiable standards on social/labour issues. In 1996, the ISO 14001 standard was developed and marked the beginning of successful and global management systems. In the end of the 1990s, the meaning of CSR changed because it began to appear in discussions on sustainability and globalization. (Buhr & Grafström, 2002). One event that triggered the new meaning of the concept of CSR, and led to the development of code of conducts by multinational organisations, such as the UN or the OECD, was the protests against the WTO congress in Seattle in 1999. (Buhr & Grafström, 2002, p.22). However, it took until the year 2000, when the issues of society, labor and environment were combined in a first voluntary framework, the UN Global Compact. Similarly, the OECD Guidelines for Multinational Enterprises were formulated next to the first strategy on CSR by the European Commission (Tengblad & Olsson, 2009). The UN Global Compact consists of ten principles covering areas from environment, labour standards to human rights and anti-corruption policies. The UN Global Compact has the aim, as it is a purely voluntary standard, that companies adopt sustainable and socially responsible policies. The standard was first published in 2004. The developments around CSR accelerated in the beginning of the 21st century as several national and international standards in regard to CSR were simultaneously developed. Later in 2010, the first standard that covers all areas of CSR was developed by the International Organization for Standardization (ISO). The ISO 26000 standard can be seen as the first standard that covers all areas that belong to the wide field of CSR, ranging from human rights, consumer issues, environment to fair operating practices, community involvement and labour practices. However, this standard is not a management system and companies cannot get certified for it. Also in 2010, the Danish Standardization group (Dansk Standard) published their standard DS

49001 on a CSR management system. This standard, next to the Spanish standard on Social Responsibility, were the first two standards on CSR that were certifiable. In 2011, the global industry association of certifying companies (IQNet) began to work on a certifiable version of the ISO 26000. The SR10 standard, a certifiable version of ISO 26000 was published in January 2012. One reason for developing this standard was that more and more companies asked for a certification on Corporate Social Responsibility, which is with the ISO 26000 standard not possible.

Besides the academic discussion on the content and meaning of CSR, further related concepts emerged. One related concept is 'Corporate Sustainability' (CS) which can be defined as "business approach that creates long-term shareholder value by embracing opportunities and managing risks deriving from economic, environmental and social developments" (Dow Jones Sustainability Index, n.d). This new concept gained considerable interest in the academic and business world. Van Marrewijk (2003) and Gao & Zhang (2006) mention the importance of the concept for businesses and give several reasons why companies should implement the approach of Corporate Sustainability. Gao and Zhang refer to it as "businesses should integrate sustainability principles into corporate strategic policies and business processes. The rationale for this integration is that sustainability affects the triple-bottom line and long-term profitability of a business and should, therefore, be treated as strategic assets of the business" (Gao & Zhang, 2006, p. 1463).

The development of the concept of the Corporate Sustainability leads to the question what the differences are between the concepts of CSR, CS and Sustainable Development. This question will be answered in the next section.

2.2: Theoretical background

This master thesis is based on the following theories, concepts and tools. First, the concept of Sustainable Development and the related concepts of the planetary boundaries by Rockstrom *et al* (2009) and the sustainable development indicators by Kates & Parris (2003) will be explained, followed by a description of the Life Cycle Assessment tool. In relation to the LCA tool and the sustainable development indicators, the environmental and social topics that should be included in a sustainability governance system will be presented. The fourth theory used and presented is the Policy Cycle and its adaption to the business world, the Plan-Do-Check-Act cycle. The fourth concept described is Good Governance as developed by the UN.

2.2.1: Sustainable Development and Sustainability indicators

The concept of Sustainable Development gained prominence in the 1970s. The declaration of the United Nations Conference on the Human Environment, which was held in Stockholm in 1972 referred to sustainable development as "to defend and improve the human environment for present and future generations" (United Nations, 1972). During the 1980s, the concept of Sustainable Development was further developed by the UN and the World Commission on Environment and Development WCED, which was commissioned by the UN. The Commission had the task to develop long-term environmental strategies for the international

community. The final report of the Commission with the title “Our Common Future”, which is also known as the Brundtland report, popularised the concept of Sustainable Development by stating a definition, which nowadays is the most common used: “Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (Brundtland report, WCED, 1987, p.43). The concept of Sustainable Development was further developed and indicators to measure sustainable development as well as indicators to describe trends in sustainable development have been developed. In order to classify the topics that sustainable development should address, Rockstrom *et al* (2009) created the concept of planetary boundaries. Rockstrom *et al.* defines the concept of planetary boundaries as” a novel concept for estimating a safe operating space for humanity with respect to the functioning of the Earth System.” (p. 2). The idea behind the concept is to identify key processes that are vital for the functioning of the earth as an ecosystem. According to Rockstrom the following planetary boundaries have been defined:

- Climate change
- Ocean acidification
- Stratospheric ozone
- Global P and N cycles
- Atmospheric aerosol loading
- Freshwater use
- Land use change
- Biodiversity loss
- Chemical pollution

All these nine boundaries present vital processes that have to be addressed by the concept of Sustainable Development if the earth should not be destroyed. This list of vital aspects related to sustainable development is not complete. In order that all important topics are addressed, the indicators developed by Kates & Parris (2003) should be added to the list of Rockstrom *et al.* Kates and Parris (2003) divide between two types of indicators. The following indicators have been worked out while having the question in mind what has to be developed, what has to be sustained and for how long shall it be sustained (Kates & Parris, 2003, p.8068).

The first type of indicators focuses on human needs and the second type on life support systems. For the human needs the following goals and indicators have been identified:

- Improving health (childhood mortality)
- Provision of education (literacy, male-female secondary enrolment rates)
- Reduction of hunger (prevalence of undernourishment, prevalence of vitamin A deficiency)
- Reduction of poverty (poverty rate)
- Provision of housing (access to improved sanitation services)

The second type of indicators ‘life support systems’ includes the following goals and indicators:

- Reduction of emissions of atmospheric pollutants (GHG emissions, SO_x emissions)
- Stabilisation of ocean productivity (biological community condition)
- Maintaining of fresh water availability (consumptive fresh water withdrawals)
- Reduction of land use/ cover change (land use /cover change)
- Maintaining biodiversity (land use /cover change in biodiversity hotspots)
- Reduction of emissions of toxic substances (dioxin and furan emissions)

The indicators and trends, as Rockstrom *et al.* and Kates & Parris define them, represent a full list of aspects that the concept of Sustainable Development has to address if a transition to a more sustainable world shall be successful.

2.2.2: Life-Cycle Assessment and environmental and social impacts

The second theory used is the Life Cycle Assessment tool. The LCA tool can be defined as *“a systematic set of procedures for compiling and examining the inputs and outputs of materials and energy and the associated environmental [and social] impacts directly attributed to the functioning of a product or service throughout its life cycle” (ISO 14040, 2006, p.3).*

The LCA tool is used to determine the environmental and social impact of a service or product during its life cycle from the extraction of the raw materials to the end-of-life of the product or service. The most common type of LCA is the environmental LCA, which focuses only on environmental impacts. However, for this master thesis, the newly developed social LCA method will be used because S-LCA focuses on environmental and social impacts and hence is the most accurate and complete version of the different LCA types. The term S-LCA has been invented by the UNEP. The UNEP defines S-LCA as

“a social and socio-economic impact (and potential impact) assessment technique that aims to assess the social and socio-economic aspects of products and their potential positive and negative impacts along their life cycle encompassing extraction and processing of raw materials; manufacturing; distribution; use; re-use; maintenance; recycling; and final disposal.”(UNEP, 2009, p. 37).

Within the E-LCA and S-LCA approach, between several types of LCAs can be distinguished. The two most common types are cradle-to-grave LCAs and cradle-to-cradle LCAs. For reasons of clarification only the term LCA will be used and means the above mentioned approach. The life cycle of a product is explained in figure 2.1:

Figure 2.1: Representation of Product Life Cycle¹



¹ Solidworks:: <http://www.solidworks.com/sustainability/docs/LCA>.

In LCA theory, this graphic shown above symbolises a cradle-to-grave approach of LCA. However, in contrast to the graphic above, in this master thesis, the S-LCA cradle-to-cradle approach is used because in terms of sustainability, the life cycle of a product or service does not end with the ‘end of life, as the product can be recycled and the re-gained materials can be used again in the manufacturing stage. Unfortunately no feasible graph of a cradle-to-cradle approach has been found. Ideally, the loop of the life cycle is closed and no waste is generated as all components of the product can be re-used. The S-LCA cradle-to-cradle approach covers the following stages throughout a product life cycle. In the beginning the raw materials are extracted, followed by the processing of the raw materials. The third stage is the first manufacturing step of the products, followed by the assembling step as the fourth stage. The next stage of the life cycle is the product use, followed in the end by the end-of life of the product which means that the product is completely recycled and the gained materials are used again in the beginning of the cycle and resource depletion can be reduced.

Several authors and organisations such as UNEP propose a list of topic ranges that should be covered by sustainability governance systems. The list of topics covered by a sustainability governance system is similar to the environmental and social effects that occur during the life cycle of products and services. One example of topics that should be covered in the optimal standard is taken from the UNEP and TU Delft guide on ‘Design for Sustainability – a step-by-step approach’. This report suggests the following categorization: environmental and social impacts. The figure 2.2 below presents the environmental aspects and detailed sub-aspects that should be considered:

Figure 2.2: Environmental aspects

Impact Area	Impacts
Pollution of air	Greenhouse (carbon dioxide; methane) Ozone depletion (CFC's) Acidification and smog (sulphur dioxide; nitrous oxide; dust; hydrocarbons)
Pollution of water	Eutrophication Toxic contamination
Pollution of land	Solid waste / land fill Heavy metals (lead, cadmium, chromium, mercury)
Resource depletion	Biodiversity reduction Extinction Resource scarcity
Other	Noise Visual

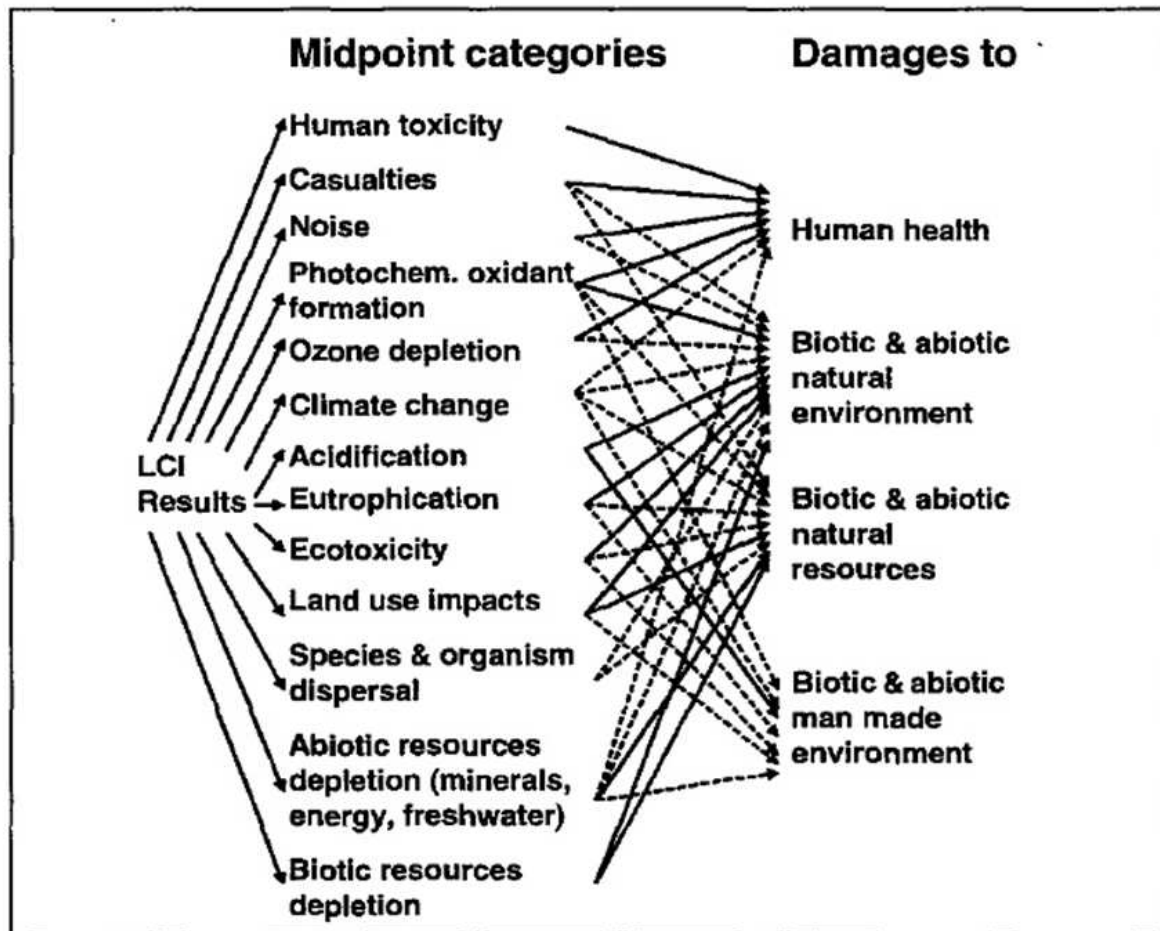
In regard to social impacts, the report considers the following categorization, pictured below:

Figure 2.3: Social impacts

Impact Area	Considerations
Human rights	Millennium goals; freedoms; legal protection; education; association
Labour issues	Child labour; health and safety
Governance and management	Control over social impacts; transparency in business; Corruption / bribery

This categorisation can be seen as a good starting point for developing the categories of a sustainability governance system. However, the categories presented in the UNEP & TU Delft report is not detailed enough. Jolliet *et al* (2003a, 2003b) propose in their report a more detailed categorisation of environmental impacts. Additionally, Jolliet *et al* (2003b) introduce a slightly adjusted version of the above mentioned LCIA midpoint framework under the name of IMPACT 2002+. This IMPACT 2002+ also uses the midpoint framework to describe the environmental impacts but labels the ‘damages to’ categories differently. The following graphic presents these categories based on midpoint categories which have negative effects on the impact areas which have been described above. In the following graphic, the impact areas are labelled differently, but the impact areas described by the UNEP and TU Delft report and the impacts described in the figure 2.4 below are similar and can be used interchangeably:

Figure 2.4: Environmental impacts (Midpoint categories)



By taking these environmental aspects and damage categories into account, all important environmental impacts and topics are covered as Jolliet *et al* (2004) suggests that the midpoint categories present the optimal way to describe and cluster the environmental impacts of life cycle assessments. A second reason why this midpoint framework is used in this master thesis is that the available LCA literature by Scharnhorst *et al* (2005, 2006) uses the IMPACT 2002+ approach by Jolliet *et al* (2003) to present and explain the environmental impact that occur during the life cycle of mobile network infrastructure equipment.

In regard to the social categories presented by the UNEP & TU Delft guide, it has to be stated that their social categories are also not detailed enough. The UNEP guide on S-LCA presents additional, more detailed categories for the social aspects, displayed in figure 2.5 below:

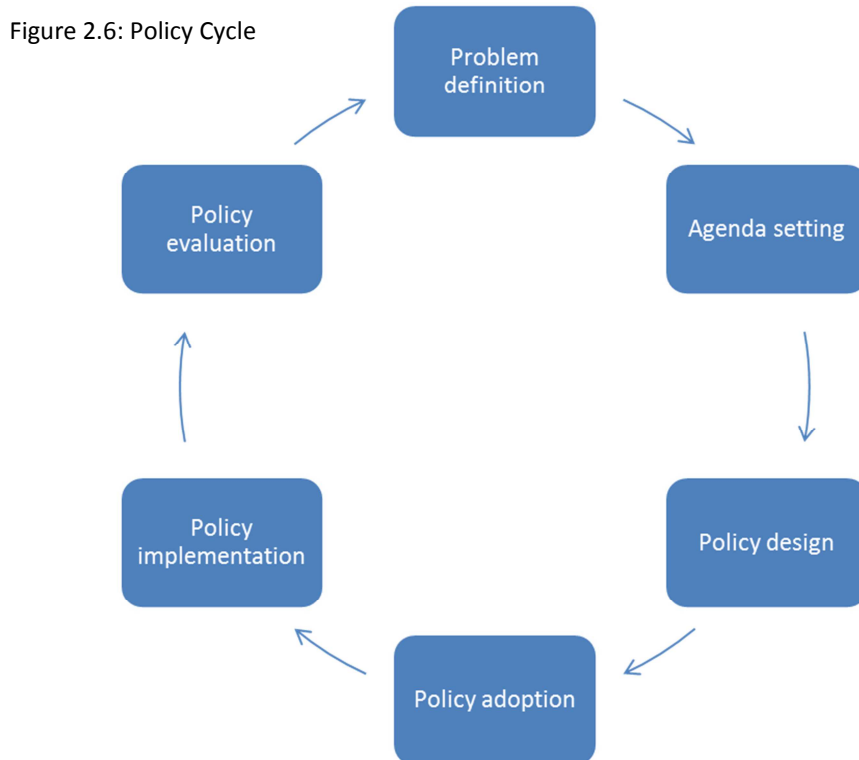
Figure 2.5: S-LCA social categories

Categories	Subcategories
Stakeholder “worker”	<ul style="list-style-type: none"> Freedom of association and collective bargaining Child labor Fair salary Working hours Forced labor Equal opportunities/discrimination Health and safety Social benefits/social security
Stakeholder “consumer”	<ul style="list-style-type: none"> Health and safety Feedback mechanism Consumer privacy Transparency End of life responsibility
Stakeholder “local community”	<ul style="list-style-type: none"> Access to material resources Access to immaterial resources Delocalization and migration Cultural heritage Safe and healthy living conditions Respect of indigenous rights Community engagement Local employment Secure living conditions Public commitments to sustainability issues Contribution to economic development
Stakeholder “society”	<ul style="list-style-type: none"> Prevention and mitigation of armed conflicts Technology development Corruption
Stakeholder “value chain actors,” not including consumers	<ul style="list-style-type: none"> Fair competition Promoting social responsibility Supplier relationships Respect of intellectual property rights

The combination of both categories is the basis for the description of which topics sustainability governance systems should include and which general environmental and social impacts occur during the life cycle of a product or a service.

2.2.3: Policy Cycle

The Fourth theory used in this thesis, is the Policy Cycle, which is presented in figure 2.6 below:



The Policy Cycle as described in the literature (Lineberry 1977, Theodoulou & Kofinis 2004) consists of several steps. The first step is the problem definition. In this step the problem is identified and examined and if possible further research on the nature of the problem is made. The second step ‘agenda setting’ involves the discussion of possible solutions to the problems on the one hand among policy-makers and on the other hand also among the public or the community. After the policy-makers agreed on one solution, the policy is designed, meaning that the policy is drafted. After the policy has been drafted, it will be adopted. The next step, the implementation of the policy determines the effectiveness and performance of the policy. The sixth step in the policy cycle is the policy evaluation. In this step the effectiveness and performance of the policy in regard to solving the problem is analysed. Based on this evaluation, the policy will be changed, improved or a new policy will be drafted, meaning that the policy cycle starts all over again.

The concept of the Policy Cycle with the important aspect of evaluation and continuous improvements has also been adopted in a business context. The element of evaluation and continuous improvement is a major principle of management systems. In management systems it is described as the Plan-Do-Check-Act (PDCA) cycle. This means that first a plan is made which is then executed in the ‘do’ phase. During the ‘check’ phase the implementation is evaluated for its performance and effectiveness and further actions are developed and implemented in order to improve the system.

For this master thesis the aspect of evaluation and continuous improvements is of special importance because many sustainability governance systems are based on this principle.

2.2.4: Good Governance

The concept of Good Governance was developed by the United Nations and consists of the following points²:

- Consensus Orientation
- Participation
- following the Rule of Law
- Effectiveness and Efficiency
- Accountability
- Transparency
- Responsiveness
- Equity and Inclusiveness

The first aspect ‘Consensus orientation’ means that the different interests of the stakeholders are included and that based on these interests a broad consensus is reached through mediation. Furthermore, a long-term and broad perspective in regard to sustainable development is needed. The second aspect ‘Participation’ refers to the inclusion of all stakeholders in the governance system. This however, does not mean that all stakeholder interests have to be taken into consideration. It only means that freedom of associations and expression are respected. The third aspect ‘Rule of law’ means that Good Governance requires a legal framework with an independent judiciary. Furthermore, the legal framework also should be fair. The concept of Good Governance further requires that it is efficient and effective. This means that institutions produce results that fulfil requirements of society and sustainable development with the best use of available resources. In regard to Sustainable Development the concept of Good Governance also includes the sustainable use of natural resources and the protection of the environment. The idea of accountability refers to the key requirement that all types of governance institutions such as governmental ones but also institutions from civil society must be accountable to the public and their institutional stakeholders. The aspect of ‘accountability’ is related to the aspect of ‘transparency’ which focuses on transparent decision-making processes and implementation processes. Furthermore, information for stakeholders should be available for free and in an easily understandable way. The seventh aspect ‘responsiveness’ requires that institutions respond to the stakeholders’ opinions,

² UNESCAP: <http://www.unescap.org/pdd/prs/ProjectActivities/Ongoing/gg/governance.asp>

demands and critics in a reasonable timeframe. The last aspect 'Equity and inclusiveness' refers to the inclusion of all groups of society and no exclusion of them. Furthermore, the improvement of the well-being of society is included in this aspect.

The idea behind the concept of Good Governance is that every governance system, including its interaction between the actors and stakeholders, should be based on these above presented principles.

The concept of Good Governance is the basis for the guidelines of Good Practice by the ISEAL Alliance organisation, which aims at improving the quality of environmental and social standards. The ISEAL Alliance developed a Code of Good Practice for the creation of environmental and social standards. In this code the optimal design and features of environmental and social standards is described.

2.3: Application of the theoretical background to the business view of CSR

After having explained the concept and indicators of Sustainable Development, the question arises of how it is related to the concept of CSR, which is more used in the business world and presents the responsibility that all kind of organisation such as businesses have towards the environment and society. A second related question is what the differences between these two concepts are. De Hoo (2011), as well as other authors (Dahlsrud, 2008) have worked on answering these questions. Several authors state explanations for the differences between the two concepts. According to de Hoo "the term '*sustainable development*' is mainly used in a wider context in the policies pursued by national and supranational governments as well as international organisations. The term '*corporate social responsibility*' is used mainly as an elaboration of sustainable development with specific responsibilities and performance requirements for companies." (De Hoo, 2011, p.13). This definition of the two concepts clarifies the differences between the two concepts. Further authors, such as Tengblad & Olsson (2009), van Marrewijk (2003) or Whitehouse (2006) developed similar definitions for the differences between CSR and Sustainable Development. After the differences have been explained, the following paragraph explains the implications that the concept and indicators of Sustainable Development have on CSR and on sustainability aspects pursued in businesses.

The aspects that the sustainable development indicators describe have a large implication for businesses because of the following reasons. At first, businesses such as any other type of organisation use resources of the ecosystem earth and discharge emissions and produce negative externalities and impacts on the environment. A second reason is that companies as employees have a responsibility towards the society for creating jobs and helping to reduce poverty and providing education. This responsibility towards the society is also expressed by the CSR definition of the World Business Council for Sustainable Development which states that "corporate social responsibility is the commitment of business to contribute to sustainable economic development, working with employees, their families, the local community and society at large to improve their quality of life" (WBCSD, 2002, p.2). Therefore, companies have to address the aspects of the sustainable development indicators within their company and have to develop goals and strategies of how these goals can be achieved and the negative impacts are reduced and social aspects are improved. In order to address these topics, next to a few others, that emerge from a business context, such

as stakeholder communication processes, companies introduced sustainability or Corporate Responsibility departments. These departments have the task to implement a CSR or sustainability program at the companies in order to take the responsibility they have towards the environment and the society seriously. In order to structure the activities of these departments and in order to allow a comparison between the different activities and strategies, code of conducts and later CSR standards or sustainability management systems have been developed. The development of these systems can be seen as the logical consequence of the often uncoordinated CSR activities of companies. Due to the different meanings and contents of the concept of CSR, companies need a system which clusters and gives a framework in regard to the activities they should pursue and which topics related to Sustainable Development should be covered. The development of such systems further has the positive impact that at least some of the aspects presented by Rockstrom *et al.* and Kates & Parris can be categorised and be implemented in companies. This means that standards such as the ISO 26000 or the UN Global Compact cover some of the topic areas of the planetary boundaries and the sustainable development indicators. Currently, more than 400 sustainability and eco labels and standards are available. In order to find out which of these standards is the most effective one to achieve sustainability in a sense of the planetary boundaries and the sustainable development indicators, the standards have to be analysed and compared. However, as the standards and the business connotations of the concept of CSR and sustainability do not cover all topics and indicators of the planetary boundaries, the optimal standard, which covers all indicators and trends, has to be described and will be presented in chapter four.

Based on the implications presented above, the following assessment framework has been developed. By the framework, presented in the following section, the seven chosen standards will be analysed and compared with the goal of which standard is the most effective one to achieve sustainability in a sense of the trends and indicators of Sustainable Development.

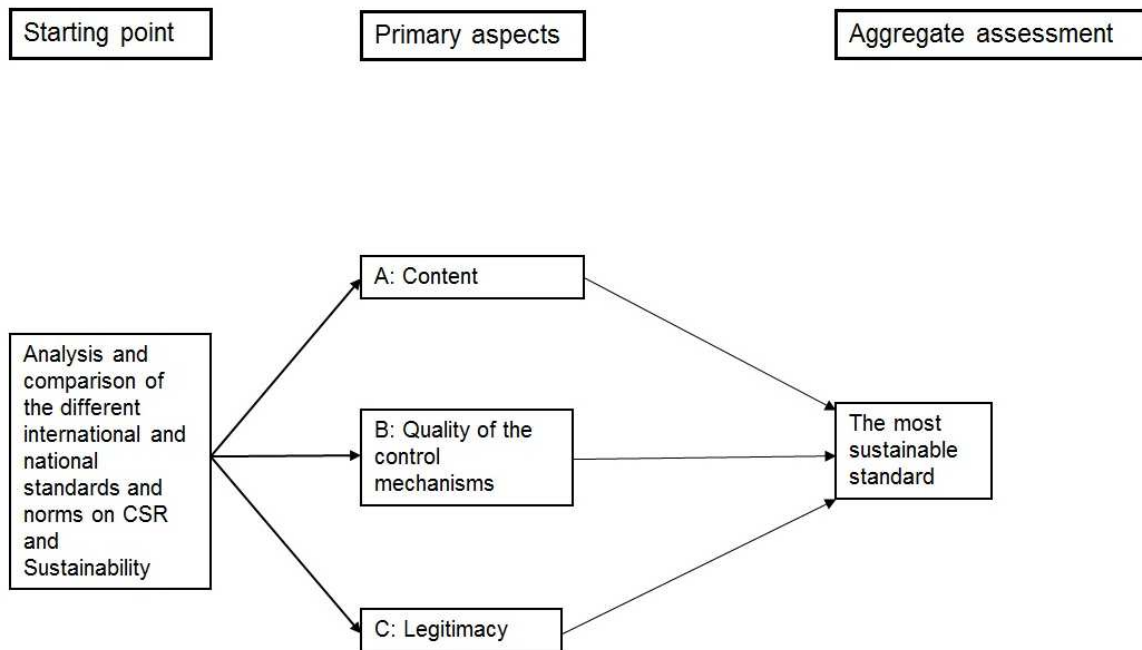
2.4: Assessment framework

To recall the main research question:

‘Which third party Corporate Social Responsibility/Sustainability governance system could be used in the ICT industry, what is the scientific basis for the quality of these systems and how can they be implemented at a company from the ICT sector’.

This overall research question focuses on CSR/sustainability governance systems (standards) and their quality. In order to analyse and compare the quality of the governance systems such as the standards, the following assessment framework has been developed.

Figure 2.7:Assessment Framework



The assessment framework consists of three primary aspects ‘content’, ‘quality of the control mechanisms’ and ‘legitimacy’. Based on these three criteria, the chosen standards will be analysed and compared. The full assessment framework will be presented and explained in the next chapter.

Chapter 3: Methodology

The research is performed in cooperation with Deutsche Telekom AG. The benefit of the cooperation is that some of the standards are supplied and that their experts on CSR and sustainability issues are available for interviews and further information materials.

The research has two objectives in mind that are important for Deutsche Telekom. The first objective is to find out what distinguishes a certifiable from a non-certifiable standard on Corporate Social Responsibility. Secondly, recommendations to Deutsche Telekom are provided on which standard they should implement if they want to be the leading company in sustainability matters in the European telecommunications industry.

The first section of this chapter presents the research design of this thesis, followed by the detailed description of the research strategy. The last section of this chapter explains how data was collected for this master thesis.

3.1: Research design

The research design for this master thesis is a qualitative one through performing a comparison of different CSR standards, followed by desk research using a literature review on relevant literature on the chosen standards as well as on the CSR strategies and policies of the competitors of Deutsche Telekom AG. The desk research will be accompanied by interviews with experts in the field of CSR at Deutsche Telekom and their competitors. A qualitative approach has been chosen on the basis that many of the chosen standards are quite new. This means that nearly no literature about them is available and that no research about a comparison of such standards covering the topics of CSR and sustainability has been published yet. Therefore, following a quantitative approach would be very difficult, nearly impossible as nearly no evidence or comparable studies exist, which could be used as a starting point and, hence, the results would rather be premature.

3.2: Research strategy

The research strategy follows several steps as displayed below:

1. Design of the optimal standard
2. Description of the environmental and social impacts occurring in the telecommunications industry
3. Sector analysis of the telecommunications industry and their CSR and sustainability approaches
4. Presentation of the standards
 - a. Explanation on choosing the standards
 - b. Presentation of the chosen standards
5. Analysis of the standards
6. Comparison of the standards
7. Gap analysis of the standard with the highest contribution to Sustainable Development
8. Presentation of recommendations for Deutsche Telekom

3.2.1: Step 1

As a starting point, the first step is centred on the question how the perfect standard should look like. In this step it will be explained how a standard should be designed and which topic areas and elements to implementation it should cover that the result is a standard with the highest contribution possible to Sustainable Development. This is important as the aim of this master thesis is to find out which standard is the best one and hence has the highest contribution to Sustainable Development. Therefore, as a reference object the optimal standard will be described. The description of how the optimal standard should be designed follows on the one hand the concept of Good Governance, developed by United Nations, in combination with the guidelines and rules laid out by the Good Practice approach by the ISEAL Alliance organisation of how environmental and social standards should be designed. Furthermore, the concept of the Policy Cycle will be used to explain the design of the optimal standard in regard to the type of control. On the other hand, referring to the aspect of being content related it is based on different approaches to measure sustainability such as the planetary boundaries proposed by Rockstrom *et al* (2009), or sustainable development indicators developed by Kates & Parris (2003) discussed in chapter two. The topic areas to be covered is explained in more detail on the basis of guidelines developed by the UNEP and the TU Delft for sustainability aspects and the guidelines of the S-LCA tool developed by the UNEP as presented in chapter two. In regard to the structure and control mechanisms of the optimal standard, the concepts of the Policy Cycle and the guidelines for the design of environmental and social standards by ISEAL Alliance will be used. For explaining the legitimacy of the optimal standard the concept of Good Governance, as presented in chapter two will be used. The use of all three concepts and the ISEAL Alliance guidelines present the scientific basis for the description of how the optimal sustainability standard should be designed.

3.2.2: Step 2

The second step in the research strategy is the identification and description of the environmental and social impacts of operating a mobile phone network. In order to execute this step of the research strategy, the Life Cycle Assessment (LCA) tool and the environmental and social impacts that are associated with and derived from the LCA tool will be used as explained in chapter two. The stages of the LCA tool, presented in chapter two, are general stages and focus on the life cycle of products and not on the life cycle of a service. However, as only a service and not a product is analysed with the help of the LCA approach, the life cycle and the different stages has to be adjusted. For this master thesis, the following stages of the life cycle will be developed and analysed:

Figure 3.1: Adapted Life Cycle



The first stage ‘source’ includes the raw materials and the material processing, meaning that the focus is on the supply chains of the mobile operator companies. The second stage ‘infrastructure and consumer products’ describes the environmental and social impacts that occur during the manufacturing and assembling process of the infrastructure needed to operate a mobile network as well as, the products needed to use the service, such as mobile phones for example. There is no separation between infrastructure and consumer products as the raw materials used and the impacts are similar. A second reason is that a separation between these two product types could be used to distinguish between different type of suppliers and hence a different level of influence on these suppliers. In order to assure full compliance in regard to sustainability, no differences should be made. The third stage ‘service and service user’ includes all impacts that occur during the product use. The product use means for example the energy consumption of the mobile network and the mobile phone of the service user. The last stage ‘recycling and disposal’ describes the impacts that occur during the recycling and disposal process of the infrastructure and the consumer products. This master thesis is structured based on this adjustment of the life cycle of a product. This structure is used for describing and explaining the environmental and social impacts that occur in the mobile communication industry. For this master thesis, however, not the entire ICT industry will be covered in the analysis of the environmental and social impacts. The focus is put on the core business of most European ICT companies, the operation of a cell phone network. Therefore, only the impacts that occur from the activities of operating a cell phone network, including consumer products such as mobile phones will be analysed, based on the limited available LCA literature about these products and on further impacts acknowledged by the industry and listed in their sustainability reports. Additionally, this structure will also be used in chapter sixth, which explains the sustainability and CSR strategies and activities of the European telecommunications industry associations and Deutsche Telekom and its main European competitors.

This step pursues one goal. When talking about CSR in the telecommunications industry it is important to identify the main negative impacts on the environment and society. For the analysis of the environmental and social impacts a literature review will be conducted. However, the results show that not many researchers published articles about LCAs on mobile network infrastructure or mobile devices. In general, it has to be stated that the availability of scientific articles and industry-based articles on the impact is low.

3.2.3: Step 3

The third step in the research strategy is the sector analysis which identifies and analyses the CSR strategies and policies of Deutsche Telekom and their most important competitors, which are the following companies:

- France Telecom-Orange
- British Telecom
- Vodafone
- Telefonica
- KPN

Deutsche Telekom identified these five competitors on the reasons of economic size, competition in the German market and reputation. Next to the CSR strategies and programs of the main competitors, also the strategies and programs of the telecommunications industry associations will be presented in order to get an overview of the sustainability activities that the inter-branch organisations pursue. By analysing these programs, a good overview of the for the ICT sector important sustainability topics and issues can be given. In order to get the information about the sustainability programs and strategies, the homepages and available publications, such as CR and sustainability reports of the industry associations and companies will be analysed. Additionally, interview requests were sent to all companies, in order to get further insights and a more detailed overview of the sustainability activities. Next to the interview requests, a survey with questions related to the use of the most common sustainability and CSR standards have been sent to all companies. The results of this survey will be presented in chapter eight.

3.2.4: Step 4

The fourth step can be divided into two parts. At first, the standards will be chosen and it will be explained why these standards have been decided on for the analysis. Several sources such as ecolabelindex.com state that more than 400 eco and sustainability standards exist, of which most are product or industry specific. In order to get only the most relevant ones, the criteria used for choosing the seven standards are manifold. The first criterion is that the standards must at best be available in English or German. A second criterion is that the standards are universally applicable and valid at the time of this research. This means that the standard is neither product nor industry specific and hence can be applied and linked to different products or services. The third criterion is that they are related to the topic of Sustainable Development or Corporate Social Responsibility. Preferably, the standards cover all aspects of sustainability, economic, social and environmental topics and issues. A further criterion is that a few of the standards are related to each other and are based on each other. Therefore, the related standards have also been included in the analysis in order to find out in how far these related standards differ from each other and how a certifiable standard can be distinguished from a non-certifiable standard.

The last criterion used for choosing the standards is that the standards must be relatively new or updated and not outdated. Based on these five criteria the following seven standards have been chosen because they fulfil at least four of the five mentioned criteria. On the market

there are more than seven standards that fulfil these requirements. Hence, the final decision on which standards to be analysed was made with help of Deutsche Telekom. Interviews with responsible managers of the CR department were conducted and based on their experience and knowledge the seven most appropriate and relevant standards have been chosen:

1. ISO 26000
2. SR 10
3. DS 49001
4. AA 1000
5. German Sustainability Code
6. Principles of the Global Reporting Initiative
7. SA 8000

The ISO 26000 standard has been chosen on the basis that it is one of the first standards that covers all important topics related to Sustainable Development. Related to the ISO 26000 standard are the SR 10 and the DS 49001 standards because these two standards are based on the ISO 2600 standard. A second reason why these two standards have been chosen is that Deutsche Telekom wants to find out how a certifiable version of the ISO 26000 standard, namely the SR 10 and DS 49001 standards are different from the original ISO 26000 standard which as a guideline is not certifiable. The next chosen standard also covers the aspects of sustainability and is fairly new on the market. The AA 1000 standard therefore will be analysed as well. The Principles of the Global Reporting Initiative (GRI) standard does not cover all criteria. However, this standard has been chosen because it is always mentioned with the other standards such as ISO 26000 or AA 1000. Besides that, the GRI principles play an important role in the CR and sustainability departments of companies as this standard defines the principles or rules of how a sustainability report shall be designed and what topics it should cover. Based on the GRI principles, the German Sustainability Code has been developed and presented in January 2012. This standard has also been chosen on the reason that Deutsche Telekom wants to find out how this standard differs from the ISO 26000 or the AA 1000 standard. The last standard is the only standard which does not cover all aspects of sustainability. The SA 8000 standard is labour and social issues specific, but the standard is also, such as the GRI principles, always mentioned with the above mentioned standards. It seems that confusion about the scope of this standard exists. In order to clarify and solve this confusion, the SA 8000 standard will be analysed as well.

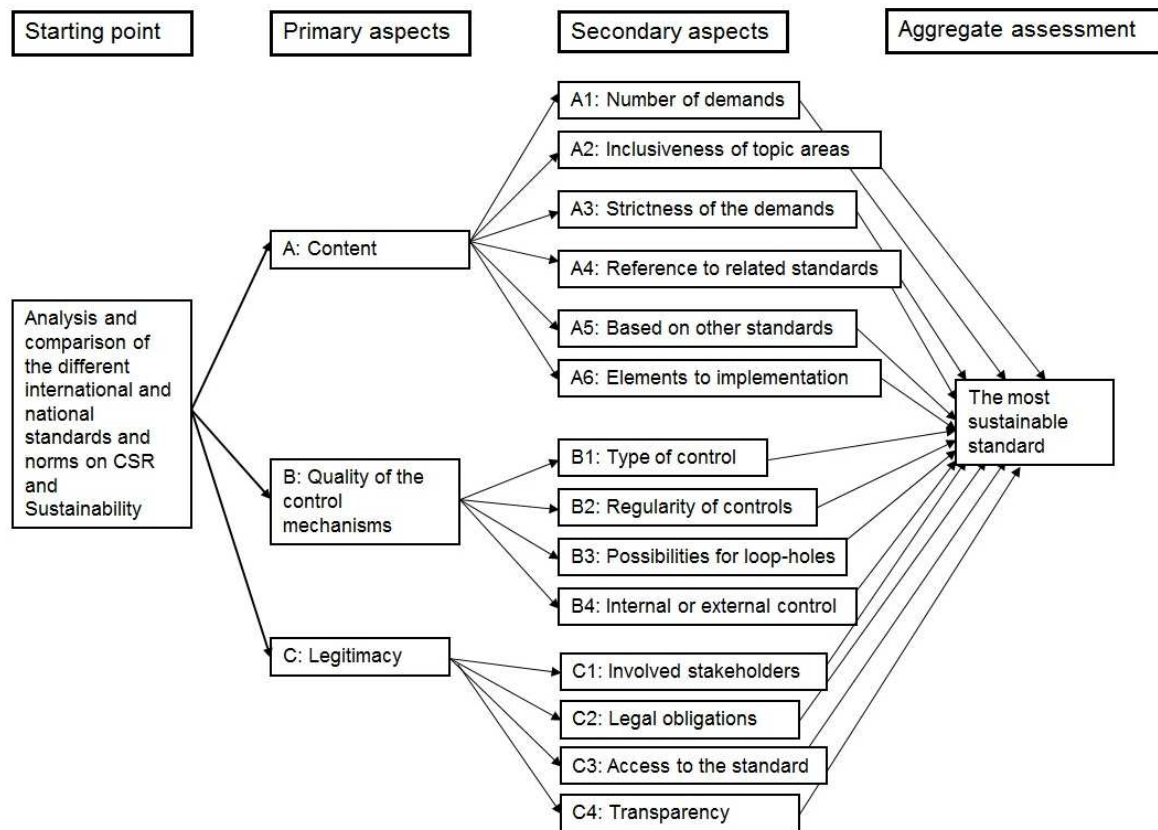
The second part of this fourth step will present and explain the standards. This presentation of the standards includes three aspects. First, the development of the standards will be analysed and explained. This part also includes the second aspect, the involved stakeholders during the formation process of the standards. As the third aspect, the nature and type of the organisation has been chosen. This aspect is important as it helps understanding why the standard has been developed and what the reasoning was behind the process of developing the standards.

2.3.5: Step 5

The fifth step in the research design is the analysis of the seven different CSR/sustainability standards. For the analysis and comparison of the different standards the assessment framework shortly presented in chapter two will be used. The graphic below presents the

criteria of the assessment framework in detail and explains how they will be applied to the seven standards.

Figure 3.2: Assessment framework



The assessment of the standards and norms focuses on three primary aspects: ‘*Content*’, ‘*quality of the control mechanisms*’ and ‘*legitimacy*’. These three primary aspects are further divided into secondary aspects which will be explained in the following paragraphs.

3.2.5.1: Content

The first primary aspect ‘*content*’ includes six detailed aspects ranging from ‘number of the demands’ to the ‘elements of implementation’. The first secondary aspect is ‘*number of demands*’; this aspect focuses on the number of detailed demands and requirements that can be derived from the standard. For assessing this aspect, the quantity of demands is the focal point. However, not only the quantity of the demands is important but also to a small extent the quality of these demands and requirements. This means that it will be analysed whether the demands and requirements are described in detail and contain only one requirement per sentence or if several requirements are combined into one single sentence. In order to assess the quality of the systems and which standard has the highest contribution to Sustainable Development, a high number of demands and requirements in the standard is regarded as better. Hence, the standard with the highest number of demands will be ranked as the best standard in this category.

The second secondary aspect is '*inclusiveness of topic areas*' and focuses on the aspect if all topic areas that are related to Sustainable Development are covered by the standard. The assessment of this secondary aspect can be divided into two phases. In the first phase, the inclusion of the three general topic areas of Sustainable Development – environmental, social and economic aspects will be checked. In the second phase the three general aspects will be analysed in more detail, with the aim of finding out whether the standards focus on all aspects that can contribute to a sustainable development.

The third secondary aspect is '*strictness of the demands*'. Whereas the first secondary aspect focuses on the quantity of the demands, this aspect points at the quality of the demands. This means that it will be analysed how strict the demands and requirements of the standards are and if and in what way they contribute to sustainable development. Secondly, it will also be analysed how the demands have been formulated, looking at the language of the demands, if they are expressed in a strict, hard way or in a soft way or tone. Furthermore, this assessment also looks at the fact if terms such as *might*, *if possible*, *shall* etc. are used in the demands as these expressions 'soften' the demands. This detailed aspect is closely related to the first aspect of comparison as one hypothesis is that the more detailed the demands are, the higher the quality of the demands is, meaning that standards that have a high number of demands also have a higher contribution to sustainable development as their demands and requirements have a higher quality expressed in stricter demands.

The fourth secondary aspect of the primary aspect '*content*' is '*reference to related standards*'. This aspect of the analysis focuses on the question whether the chosen standards refer in their demands and requirements to other related standards in the field of all three topic areas of sustainable development. A standard that refers to other standards or norms that have an impact and hence also contribute to sustainable development will be ranked higher than a standard that does not refer to any other documents.

This previous secondary aspect is related to the next assessment criteria, the '*based on other standards*' question. It will be analysed whether the standard is based on or makes clear reference to other standards which have been incorporated in included during the development process. A standard that scores high in this category makes reference to many other standards and is based on them. If a standard is based on other further detailed standards or guidance documents, the quality can be higher and more detailed demands are maybe included.

The last secondary aspect of the first primary aspect '*elements to implementation*' looks at the scope of the standard as well as at the elements to implementation that are covered by the standard. This means that it will be analysed what the scope of the standard is. Furthermore it is analysed if it only focuses on the reporting of sustainability indicators, if strict demands for a contribution to sustainable development are made or if a CSR policy has to be developed and if the implementation process has to be documented or not. A second aspect of this assessment is that it will be analysed whether the standard follows the general rules of a management system or just has been developed as a guidance document for CSR policy or reporting purposes.

3.2.5.2: Quality of the control mechanisms

The second primary aspect of the assessment framework '*quality of the control mechanisms*' focuses on the compliance with the standards and how it is checked and made sure that the companies follow and have implemented correctly the chosen standards.

The first secondary aspect is the '*type of control*' which focuses on the quality of the compliance checks. The control mechanisms will be analysed whether the companies only have to write a performance or progress report or if the compliance is controlled by a third party like an auditing company.

The next secondary aspect '*regularity of the controls*' looks at the quantity of the controls, whether it will be controlled only every few years or every year on a regular basis. If the compliance checks are on a regular basis, it can be assumed that the standards are correctly implemented and that a higher degree of compliance will be achieved.

The third element that is related to the type of the control is whether the control is internal and or external. This aspect focuses on the question whether the compliance checks are performed by accredited auditors from independent parties such as auditing companies or if the checks are made by internal managers of the company. This aspect is related again to the secondary aspect B1 of this second primary aspect as several possible types of the control mechanisms can be checked by third parties, like auditing companies. The auditing companies can perform the compliance check itself or they can check and certify the performance or progress reports.

The last assessment criterion '*possibilities for loop-holes*' is centred around the question whether the standards include loop-holes that allow companies to get the compliance certificate even if not all demands and requirements are fulfilled for example. This aspect is related to the '*strictness of the demands*' as the formulation of the demands and requirements shows possible loop-holes. Examples that refer to possible loop-holes are terms like 'if possible, if applicable' for example.

3.2.5.3: Legitimacy

The third primary assessment criterion '*legitimacy*' has a focus on two important topics. The first topic revolves around the question of the development process of the standard. Therefore, the first secondary aspect that will be analysed deals with the '*involved stakeholders*'. In order, to develop a coherent CSR/sustainability standard actors of all three areas on which Sustainable Development is built, the market, the society, and the state shall be involved or at least heard throughout the formation process. The chosen standards will be analysed and compared on the point of how many and which actors were involved in the development process. Furthermore, it will be looked at the development process itself, how the standard came to life.

The second topic that this third primary aspect is centred on is the question of legitimacy, how the standard is legitimised and how it at the same time tries to establish legitimacy for it. In order to answer this question, it will be analysed if '*legal obligations*' can be derived from the standards and if reference to the compliance to laws is made. A standard that makes reference to laws in general will be ranked higher than a standard with no specific

reference to laws or legal obligations. However, it must be noted that no special reference to a national or in the case of the European Union to a supranational law can be made as the standards have the goal of being universally applicable all around the world. However, some references to laws and legal obligations may be found in the standards.

‘*Access to the standard*’ is the third secondary aspect that will be analysed. This aspect is of special importance because when a standard tries to establish legitimacy it should be available to the public and all stakeholders should be able to download or request the standard for free. Hence, the accessibility as well as if further information about the standard, its development and the involved stakeholders, that can be found on the homepages of the organisation that developed the standards will be analysed. A further minor aspect that is included in this secondary assessment criterion is a short description of the nature of the organisation that developed the standard. This however is only a minor aspect as it can hardly be ranked if a certain type of organisation produces standards with a higher quality than other types of organisations. However, for the legitimacy it is important to know the background of the organisation that developed the standard.

The last secondary aspect to be analysed is ‘*transparency*’. This aspect relates on the one hand to the aspect C3 and on the other hand to the aspect C1. However, it is in one special aspect different from the above mentioned aspects. ‘*Transparency*’ focuses on two aspects. First, it incorporates in how far the developed standard is regularly evaluated and updated, for example by adding new important requirements or updating them to new legislations. The second aspect is in how far users of the standards are able to submit their feedback on the usage of the standard and in how far they can influence the decision making process when the standard is reviewed. This second aspect does not only apply to users of the standards but also to all other relevant stakeholders. The question is whether the company that developed the standard offers an open stakeholder dialogue about the standard and its revision.

3.2.6: Step 6

The next step in the research strategy, after the standards have been analysed based on the above mentioned criteria, is that the results of this analysis will be presented and the standards will be compared. For visualising the comparison tables and text descriptions will be used. Some of the criteria of the theoretical framework can be easily visualised with tables. Tables also have the advantage that all seven standards can be put next to each other and the differences between the standards can easily be portrayed.

The following criteria of the framework will be displayed in form of tables:

- Content
 - Number of demands
 - Topics covered
 - Detailed overview of the topics covered
 - Elements to implementation
- Quality of the control mechanisms
 - Type of control (including internal or external)
 - Possibilities for loop-holes
- Legitimacy
 - Detailed aspects of legitimacy/transparency

➤ Involved stakeholders

The three topics that have to be covered by a sustainability standard are ‘economic’, ‘social’ and ‘environment’. In order to be more detailed on which aspects of the three main topics are covered by the standards the coverage of the following sub aspects will be analysed. For the topic ‘economic’, the following four sub aspects have been chosen:

- Financial development
- Economic development
- Consumer issues
- Corruption

The first aspect ‘financial development’ covers requirements related to financial reporting, fair operating practices and further financial aspects. The second sub aspect ‘economic development’ includes demands related to the economic development of the community, contracts with local suppliers and contractors, or the outsourcing of jobs. The third aspect ‘consumer issues’ included requirements related to the supply of information to consumers about products, the warranty of products, conflict resolution processes for consumer demands and requests, fair prices and fair advertising and marketing practices. The fourth aspect ‘corruption’ focuses on the requirements for avoiding and abolishing corruption with the company and the supply chains as well as, responsible political participation.

For the second topic ‘social’ the following sub aspects have been chosen:

- Employee relations
- Consumer (health & safety)
- Human Rights
- Community development
- Supply chain actors
- Stakeholder engagement

The first sub-aspect ‘employee relations’ includes requirements such as fair wages, the right to found and participate in labour unions, or health & safety issues related to employees. The second aspect ‘consumer – health & safety’ focuses on information given on health risks and health issues of the products, the safety features of the product, sustainable and safe usage of the product or sustainable consumption patterns. The third aspect ‘human rights’ covers requirements related to due diligence, the protection of vulnerable groups, political and cultural rights, and avoiding complicity. The fourth aspect ‘community development’ includes requirements related to the development of local communities in regard to the creation of jobs, abolishment of child labour, the participation of vulnerable groups and discriminated groups in the political and cultural life, the support of education and the participation in local political and cultural processes. The fifth aspect ‘supply chain actors’ covers all aspects related to supply chains, such as fair labour practices at suppliers or the abolishment of child labour. The last sub-aspect ‘stakeholder engagement’ includes requirements related to communication processes with stakeholders and how to deal with stakeholder requests, demands and critics.

For the third topic ‘environment’ the following sub aspects have been chosen on the basis of the sustainable development indicators and planetary boundaries.

- Biodiversity
- Energy (sustainable use)
- Climate change

- Air and water quality
- Waste
- Resource depletion

The sub-aspects of the topic ‘environment’ are based on the concepts of planetary boundaries and the sustainable development indicators. Furthermore they represent all aspects that are covered in these concepts.

The table on the ‘elements to implementation’ includes the requirement of a mission statement of the company which describes their CSR vision. Secondly, the requirement of a CSR policy, in which the CSR strategies, goals and targets are explained, is demanded. The next requirement is ‘guidelines’. This requirement focuses on whether specific guidelines or demands of how to achieve sustainability are presented, followed by specific requirements related to the implementation and measurement of the CSR activities. The last two aspects focus on requirements related to audits and the reporting of the CSR activities.

The next displayed table of comparison focuses on the type of control and whether the standards are auditable and externally certifiable, followed by the table on the possibility of loop-holes in the standards.

The second last aspect that is presented in a form of a table focuses on the legitimacy of the standards and includes the specifications whether the standard is developed by a non-profit organisation, a non-governmental organisation, the accessibility of the standard and whether stakeholders are engaged in the revision process of the standards.

The last aspect presented in a form of a table shows which stakeholders have participated in the development of the standard. In this table it will be distinguished between stakeholders from governments, the market and the society.

The remaining criteria of the assessment framework (A3, A4, A5, B2, C4) will be presented in text form with a description of how the standards are different in regard to the secondary criteria.

3.2.7: Step 7

The seventh step in the research strategy is the gap analysis of the standard that has been identified as the most sustainable one after the analysis in step five. The gap analysis includes the analysis of the standard and how it is implemented or can be implemented at Deutsche Telekom. The gap analysis can also be described and labelled as a pre-audit. For this step all necessary documents such as policies, guidance documents and notices from the executive board of Deutsche Telekom will be analysed. A gap analysis is an analysis with which a company can check whether and in how far they adhere to the requirements of the chosen standard. Based on the analysis and comparison of the standards, the SR 10 standard in combination with the ISO 26000 standard is the most effective system to achieve sustainability. The first step in performing the gap analysis is that the detailed requirements of the chosen standards are listed and presented. As the second step, all kind of official documents, such as guidelines, policies, etc. of the company will be analysed in how far the requirements of the standards are met. The third step in performing the gap analysis is to write down if the requirement is met or not and if it is met to state where the ‘proof’ can be found and which person or department is responsible for the implementation. The fourth step is

developing recommendations if requirements are not met. This means, if a company does not adhere to all requirements, the missing aspects will be listed and recommendations will be drawn. A recommended action shows where further work is needed when the company wants to comply fully with the standard. Besides this work, also the responsible person or department will be listed and informed. The final step of the gap analysis is to present the 'blank spots' in complying with the standard and to show, where further work is needed, in order to get in the end the certification for the successful and complete implementation of the standard.

The first step of the task of performing the gap-analysis is the analysis of the standard. As it has been already explained above, the SR 10 standard, the social responsibility management system is based on the content of the ISO 26000 standard and completes this standard with adding elements of a management system. Hence, for the gap analysis this means that content wise, the ISO 26000 requirements will be analysed and for the SR 10 standard only the components that were built around that core and contain requirements about the management system. This first task was completed with the creation of two excel files which contain every single detailed requirement of the two chosen standards. In the appendix, the excel files are displayed.

After this task has been performed, the excel file has been extended by adding the following rows: (The rows that the excel-sheet contains are presented from left to right)

- Core subject
- Issue
- Clause
- Description of the clause
- Relevance
- Reasoning for relevance
- Implementation status
- Document/policy/Directive (Source)
- Comment
- Responsible manager
- Informant
- Recommended action

Based on this excel-sheet which has been created for both standards, the gap-analysis is carried out.

The analysis of the requirements contains two steps. The first sub-step, as required by the ISO 26000 standard is finding out, whether the requirement is relevant for Deutsche Telekom or not. In order to find this out, interviews with the responsible managers and departments have been conducted and the requirements concerning them have been presented to them.

The second sub-step is the main task of the gap analysis because for each single detailed requirement (description of the clause) documents, such as policies, directives etc. have been read and analysed whether it can be proven that this requirement is fulfilled or not. In order to execute this step, the document data-base of Deutsche Telekom has been searched for all kind of documents that seem relevant and are related to the core issues of the ISO 26000.

All documents that were analysed and used for the gap analysis are listed in the appendix of this thesis. In cases where no source could be found or questions arose interviews with the responsible departments were conducted in order to clarify whether the requirements are met or not. Most of the interviews were conducted with members of the Corporate Responsibility department but also with other departments such as Procurement, Compliance, Diversity, Human Resources, Marketing, Public Relations and Public Affairs. In the case of analysing the SR 10 standard, only interviews with the CR department have been conducted because only the additional requirements for the management system have been analysed.

3.2.8: Step 8

After the gap analysis has been performed, the last step of the research strategy is to present a list of recommendations for Deutsche Telekom if they want to get certified for the standard and what they should do and which standard they should implement if they want to be the leading company in CSR matters in the European telecommunications industry. The recommendations will be based on the results of the gap analysis and show the aspects and requirements of the standards that Deutsche Telekom does not fulfil yet. In order to present the results of the gap analysis, for reasons of simplicity, only the requirements which are not or only partly fulfilled of each of the seven core issues will be presented and the consequently developed recommendations will be explained.

3.3: Data collection

In order to answer the research question, data was systematically collected about the standards, their development and what the competitors of Deutsche Telekom are doing and which goals related to CSR they are pursuing. The research material collected for this master thesis will consist of four sources. Although four sources are used, it is possible to speak of a triangulation of sources, as a literature review, expert interviews and an analysis of policy documents have been conducted. In the context of this research it means that a) the standards itself will be analysed, b) a literature review on these standards among other topics will be conducted, c) expert interviews with managers from the competitors of Deutsche Telekom as well as with the CSR managers at Deutsche Telekom will be conducted and d) for the gap analysis, CSR strategy and policy documents of Deutsche Telekom will be used and analysed.

Chapter 4: Optimal Standard

This chapter presents and explains how an optimal sustainability standard should be set up and designed in regard to content and structure. The structure of this chapter is based on the assessment framework explained in chapter three. This means that the optimal standard is described on the basis of the three aspects and secondary criteria developed for the assessment framework.

The design of the optimal standard can be divided into three parts. The first part, which includes the aspect ‘content’, focuses on the topics and substance of the standard in regard to sustainability. This first part is based on the concept of planetary boundaries, developed by Rockstrom *et al* (2009) and sustainable development indicators developed by Kates & Parris (2003). Furthermore, the identified impacts of the environmental and social LCAs will be used for defining the optimal standard. The second part, which includes the aspect ‘quality of the control mechanisms’ is based on the concept of the Policy Cycle and its focus on continuous improvement and regular performance checks of the system. The third part, which includes the aspect ‘legitimacy’ is based on the Code of Good Practice, developed by the ISEAL Alliance organisation and on the concept of Good Governance, defined by the UN.

4.1 Content

In regard to the content, the optimal standard should cover all topic areas that are related to sustainability, which have been defined by Rockstrom *et al* (2009) and the indicators for sustainable development by Kates & Paris (2003). This means that the content of the optimal standard should address the nine planetary boundaries of Rockstrom. Furthermore, the sustainable development indicators which address the topics of ‘human-needs’ and ‘life support system’ shall be included and addressed as well. This description of the topics to be covered relates to the second aspect of the criterion ‘content’, A2. However, only using the above mentioned topics is not sufficient, especially the social aspect is not addressed adequately. Therefore, in order to complete the content of the optimal sustainability standard, the midpoint categories, developed by Jolliet *et al* (2003a, 2003b) as well as the content criteria of the S-LCA tool by UNEP shall be covered as well.

In regard to A1, the optimal standard should be as inclusive as possible, meaning that the requirements are laid down in full detail and are not combined. Therefore, the optimal standard should address all aspects related to sustainability with a high quantity of demands. A high number of demands is important because of a strict quantitative correlation: the higher the number of demands, the higher the number of aspects and details addressed by the standard.

In regard to A3, the optimal standard should use a strict and easy to understand language, and should include a sufficient number of explanations and definitions in order to avoid misunderstanding that may weaken the demands and requirements. This is also taken up by the ISEAL Code of Good Practice. The ISEAL code requires that “standards shall avoid language and structure that may create ambiguities in their interpretation.” (ISEAL Alliance, 2010, p.14). Furthermore, in regard to the strictness, the demand should aim at having the

highest contribution to sustainable as possible. However, as the standard should be an universal one, specific targets should not be included, only references or proposals for targets and goals should be given.

In regard to the criterion A4, the optimal standard should be compatible with other standards or management systems in order to allow companies to combine different standards into an integrated management system. Furthermore, references to related standards should be made in order to give a complete overview of all important systems available covering the aspects of sustainability. The ISEAL Alliance mentions in regard to other standards that a consistency between the standards should be encouraged.

Related to the above described criterion is A5, which focuses on the basis of the standard, meaning which other standards should be used as a basis for the optimal standard. The optimal standard should be based on all major standards that cover each topic area specifically. As an example, the optimal standard should be based on the UN Fundamental Rights, on ISO 14001 as an environmental management system and the SA 8000 or BS OHSAS 18001 in regard to labour and health & safety topics. For example, it can be based on the ILO conventions and the UNEP guidelines for LCA and S-LCA. By this the inclusiveness of the topic areas can be guaranteed. In regard to the basis of a standard, Leipziger states that “a standard should benefit from the experience of other standards” (Leipziger, 2003, p.47).

The last criterion of the first ‘primary aspect’ A6 focuses on the scope and elements of the standard. In regard to this criterion, the optimal standard should include the following elements as the European Commission proposes³:

- Mission statement
- Policy
- Implementation
- Measurement
- Continual Improvement
- Auditing
- Reporting

If all of these aspects are covered, the cycle of continuous improvement is completed. The cycle is taken from management systems such as ISO 9001, or ISO 14001 (Plan-Do-Check-Act). First, the goals, mission statement and policy is developed, then the programmes are implemented, followed by an audit and check of the success of the programs and the last step is about the communication of the goals and targets.

The second primary aspect of the theoretical framework focuses on the quality of the control mechanisms. The optimal sustainability standard should follow the Policy Cycle and its adaptation for businesses, the PDCA cycle of continuous improvements and regular external performance and conformity checks. Furthermore it should include the aspects of Good Governance of the UN, especially accountability, equity and inclusiveness and it should follow the rule of law.

³ European Commission: Mapping Instruments for CSR, 2003, p.26

4.2 Quality of the control mechanisms

In regard to the general outline of the control mechanisms, Leipziger states that “a standard should define a clear process for achieving compliance and for demonstrating how this compliance can be achieved” (Leipziger, 2003, p.47).

The first secondary aspect focuses on the type of control of the optimal standard. In this regard, the optimal standard should be designed as a certifiable management system. The ISEAL code refers to this aspect as “standards shall be structured to allow for monitoring and evaluation of progress toward achieving the standard’s objectives” and “administrative requirements relating to conformity assessment and marks of conformity shall be presented” (ISEAL, 2010, p. 14,15) This relates to the other secondary aspects of the primary aspect B. In regard to the regularity of the control, the optimal standard should be reviewed every year in order to check the performance of the system and to allow constant improvements of the system each year. A second aspect of the regularity of control is external control; an external audit should be performed every year in order to guarantee full compliance and continuous improvement of the management system. In regard to loop-holes, companies should not have the option to opt out of some of the strict requirements, because all requirements are relevant for all companies through responsibility for the entire supply chain. The optimal standard shall be a management system with external control because several authors such as Castka et al (2004), Castka & Balzarova *et al.* (2004), Pentland (2000) suggest that only a strict management system with external control, such as a regular external audit by an auditing company allows for a high efficiency of any standard implemented. Furthermore, the authors argue that through an external audit, companies can make CSR resilient and can compare their CSR/sustainability approaches. Only with a certificate from an external audit, compliance can be assured to external stakeholders. This is important for transparency and legal issues related to sustainability (Castka & Balzarova *et al.* 2004).

4.3 Legitimacy

The third primary aspect ‘legitimacy’ focuses on the development and the nature of the organisation that developed the standard. This last criterion of the optimal standard should be completely based on the principles of Good Governance and the Code of Good Practice by the ISEAL Alliance.

In regard to the first secondary aspect C1, the optimal standard shall be developed by many actors from the society, the market and the government. It is important, that NGOs that focus on sustainability topics are included as well as stakeholders from companies and countries all over the world, especially from small and medium sized enterprises and also from third-world countries. Additionally, all stakeholders should be allowed to influence the process and to state their opinion during the drafting process. Castka & Balzarova (2008) express the importance of a multinational and multi-stakeholder approach in designing a standard on the topic of sustainability. This importance is further expressed by Leipziger, who states that “stakeholder participation is necessary not only to make the standard more

legitimate but also to enhance its implementation” (Leipziger, 2003, p.47). In regard to the legitimacy of the standard, the following Good Governance principles of the UN should be applied. The standard shall be responsive, based on a participatory development process, be transparent and it should be consensus oriented. The ISEAL code frames the participation of stakeholders under the term ‘stakeholder mapping’ and ‘public consultation’ (ISEAL, 2010, p.7,9).

The second aspect C2 shall be in a way included that legal obligation can be derived from the compliance with the standard, meaning that if non-compliance is detected and not solved within a reasonable time frame, the certificate shall be deprived. Furthermore, reference to other standards shall be made which should be included and should be complied with as well.

The third aspect C3 is about the accessibility of the standard to the public. The optimal standard shall be publicly available as well as further guiding documents and notes about the drafting process with the opinion, critic and expectations of the different stakeholders (ISEAL 2010, p. 12).

In regard to the fourth and final aspect C4, the optimal standard should be revised at least every five years in order to be improved. Furthermore, users of the standard should be allowed to state their opinion and remarks on the standard. Therefore, every five years a conference about the revision of the standard shall take place, in which all stakeholders are invited. The ISEAL code further suggests that underrepresented groups should be proactively invited to contribute to the development or revision of the standard. One last aspect about the transparency of the optimal standard is that the standard shall be developed by an NGO, in order to avoid conflicts in regard to monetary issues. However, as companies get certified they should contribute in a form of a donation to the NGO in order to assure that further developments and improvements of the standard will not fail because of monetary reasons.

Chapter 5: Environmental and social impacts and effects of the telecommunications industry

This chapter focuses on the environmental and social impacts that occur during the life cycle of operating a mobile network and the life cycle of using a mobile device. As explained in the third chapter, the theoretical basis for this chapter is the LCA tool. Besides the LCA tool, the adjusted life cycle, which has been presented in Chapter three, will be used as a basis for explaining and describing the environmental and social impacts that occur during the different stages of the life cycle. To recall, the four different stages are ‘source’, ‘infrastructure and consumer devices’, ‘service and service user’ and ‘recycling and disposal’.

Before the impacts can be described, the term ‘telecommunications industry’ or as it is often referred to as ‘ICT industry’ has to be explained in order to show which environmental and social impacts are of importance. For this master thesis, the definition of the term ‘ICT industry’ is taken from the ‘Global e-Sustainability Initiative (GeSI). According to GeSI, the ICT sector covers the following subsectors⁴:

1. PCs and peripherals: (laptops, tablets, monitors and printers)
2. IT services: (data centres, clouds, servers, storage and cooling components)
3. Telecoms networks and devices: (network infrastructure components, mobile phones, chargers, landline phones and internet equipment)

This chapter focuses, as explained in chapter three, only on the main business operation of the European telecommunication companies, namely operating a mobile network and the related production of the needed equipment such as the network infrastructure and mobile devices.

5.1: Source

The first stage ‘source’ contains the steps raw materials and their processing. The industry initiative GeSI⁵ describes as the first environmental and social impact the problem of mining. The ICT industry is dependent on many different metals. Some of these minerals and ores are mined in conflict areas. GeSI names two examples of minerals, namely coltan and gold, that are often mined in conflict areas. Yu *et al* (2010) name further metals that are used in mobile phones, namely copper, aluminium, iron, nickel, tin, silver and palladium. The mining of these metals has a high social and environmental impact, as several authors claim, such as Yu *et al* 2010, Scharnhorst *et al* (2006a), because the metals are often mined in conflict regions or child work is used for example. Furthermore, the environmental and safety regulations and standards are often not adequate to prevent damage to the environment, such as water or air pollution or to human health. According to Tan (2005) and Williams *et al* (2002, p.5504), one mobile phone contains about seven grams of integrated circuits, which are made from the above mentioned materials. In order to make 2 grams of integrated circuits about 1.7 kg of materials, such as minerals, metal and fossil fuels, is needed. In regard to the network technology which is needed to operate a mobile network Scharnhorst *et al* (2006b) state that resource depletion of metals is the most important environmental impact related to the extraction and processing of the raw materials. Scharnhorst further states that “the amounts of

⁴ Climate Group & GeSI, 2008, p. 63

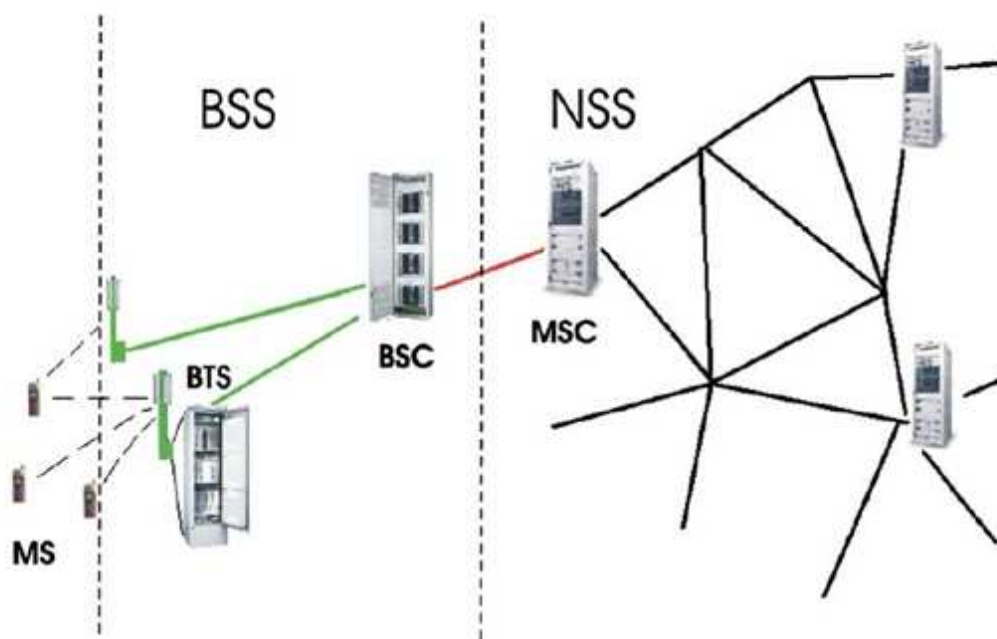
⁵ GeSI: <http://gesi.org/Initiatives/SupplyChain/tabid/75/Default.aspx>

precious metals like gold, silver or palladium used in mobile phones distinctively contribute to a reduction of the natural resources of these metals” (Scharnhorst, 2008, p.76). Related to the resource depletion of the metals and noble earths is the depletion of crude oil which is needed for the production of base materials for mobile phones such as epoxies or plastic. Furthermore Scharnhorst *et al* (2005b) state that “the production of [further] basic materials only has a minor impact [on resource depletion]. Recycling and substitution of the recovered materials for basic materials does not lead to notable impact reductions.” (p. 554). Therefore, these further basic materials and their impacts are not explained in this thesis.

5.2: Infrastructure and consumer products

The second stage ‘infrastructure and consumer products’ describes the impacts that occur during the manufacturing and assembling process of the mobile network infrastructure and the mobile devices. However, before the different forms of environmental and social impact during the manufacturing process of the infrastructure can be listed and explained, the components that a mobile network contains has to be explained. The figure 5.1 below shows which components are needed to operate and use a mobile network.

Figure 5.1: Structure of a typical mobile phone network



A typical mobile network infrastructure can be divided into three subsystems. The network infrastructure consists of the network Switching Station (NSS), the Base Station Subsystem (BSS) and the Mobile Station (MS). The NSS consists of the Mobile Switching Centres (MSC). These centres have the task to route the different services offered by a mobile

network, such as phone calls, messages, faxes etc. (Duque-Anton, 2002). The BSS consists of the Base Station Controller (BSC) and the Base Transceiver Stations (BTS). The BSC, according to Duque-Anton (2002), can be described as a switch that allocates the radio resources and manages the performance of the BTS. The BTS is nothing else than the ‘normal’ mobile network antennas. One BSC controls and manages up to 100 antennas. The antennas are the interface between the mobile device and the stationary part of the mobile network infrastructure. One single antenna consists of the following objects⁶:

- Cabinet housing
- Three or four antenna racks
- Back-up batteries
- Antenna mast
- Radiating units

The MS is the last subsystem and consists of the mobile device with which the consumer uses the service provided by the mobile network operator.

Scharnhorst *et al* (2005b and 2006b) and Faist-Emmenegger *et al* (2006) performed an E-LCA on second and third generation mobile network infrastructure. According to these authors, the main environmental impacts are resource depletion, energy, climate change, human health and ecosystem quality. In regard to resource depletion, Faist-Emmenegger *et al* (2006) list a number of resources that are depleted during the manufacturing process and the usage of the system. The following resources are used during the life-time of a mobile network infrastructure system, such as described above:

- Copper
- Brown coal
- Hard coal
- Crude oil
- Uranium
- Natural gas
- Water

Furthermore, the list of Faist-Emmenegger *et al* (2006) contains emissions to air and water that are emitted during the life-time of such a network infrastructure. The following emissions occur:

- Emissions to air:
 - NH₃ (Ammonia)
 - CH₄ (Methane)
 - CO₂ (Carbon-dioxide)
 - HCL (Hydrochlorid acid)
 - NMVOC (Non methane volatile organic compounds)
 - NO_x (Nitrogen oxide)
 - SO_x (Sodium oxide)
- Emissions to water:
 - COD (Chemical oxygen demand)
 - Sulfate
 - Zinc

The analysis of Scharnhorst *et al* (2006b) covers the second and third generation of mobile network infrastructure. Unfortunately, the report does not explain in detail the environmental

⁶ Scharnhorst *et al*, The end of life treatment of second generation mobile phone networks, (2005), p. 547

impact and only compares which system has the lower environmental impact. The result is that the third generation (UMTS/3G) network infrastructure uses less resources and energy than the second generation infrastructure. The next environmental impacts that Scharnhorst *et al* (2006b) describe are climate change and energy consumption. These impacts are seen as the most important ones because CO₂ emissions are very high during the process of manufacturing these infrastructure systems. The impact of energy as included in climate change and energy consumption is expressed in CO₂ emissions. The second most important impact is ‘human health’ because often working conditions are not adequate and conform to ILO standards for example. One prominent example about bad working conditions in factories producing mobile devices is FoxConn the producer of Apples’ iPhone⁷. The social and environmental impacts as described in the article by CNN⁸ reveal unpaid overtime on regular basis, not adequate health & safety standards and not paying an adequate salary. Yu *et al* (2010) further states that human health is a major impact of mobile device producers as mobile devices contain toxic substances such as palladium, chromium, or mercury, against which employees are not adequately protected. In a further study Scharnhorst *et al* (2005) state that “the effects of inorganic emissions on human respiratory organs” (Scharnhorst *et al*, 2005, p. 554) are the most important environmental impacts on human health during the assembling of the network infrastructure and mobile devices. The main inorganic emissions are sulphur dioxides and nitrogen oxides. Furthermore, Scharnhorst *et al* (2005b) state that “the impact of the production phase is dominated by direct SO₂ emissions to air released in the processing of primary palladium and platinum and SO₂ emissions to air are caused by the roasting of the platinum group metal ores” (p. 554) are further important negative environmental impacts.

The last environmental impact that Scharnhorst *et al* (2006b) identified is the impact on the ecosystem quality. Scharnhorst lists a few environmental impacts and emissions that occur during the production processes that have an impact on the ecosystem, ranging from copper to soil, zinc to water, aluminium to water from aluminium oxides from the production of the lead batteries, to zinc to soil pollution. According to Scharnhorst *et al* (2005), further heavy-metal emissions to water, such as zinc and arsenic, occur during the electricity production for the production and use phase.

5.3: Service and service user

The third stage ‘service and service use’ release the following environmental impacts. The first impact ‘carbon emissions’ is probably the most important aspect or impact factor of the ‘service and service user’ stage because the telecommunications industry uses a great amount of electricity for operating their networks and data centres. For the industry association GeSI, carbon footprint and the related reduction of it is one of the two most important topics⁹. The major importance of carbon reductions is also expressed by a study of Greenpeace, which analyses the environmental impacts of clouds¹⁰. The study of Greenpeace focuses solely on

⁷ CNN: <http://edition.cnn.com/2012/02/06/world/asia/china-apple-foxconn-worker/index.html>

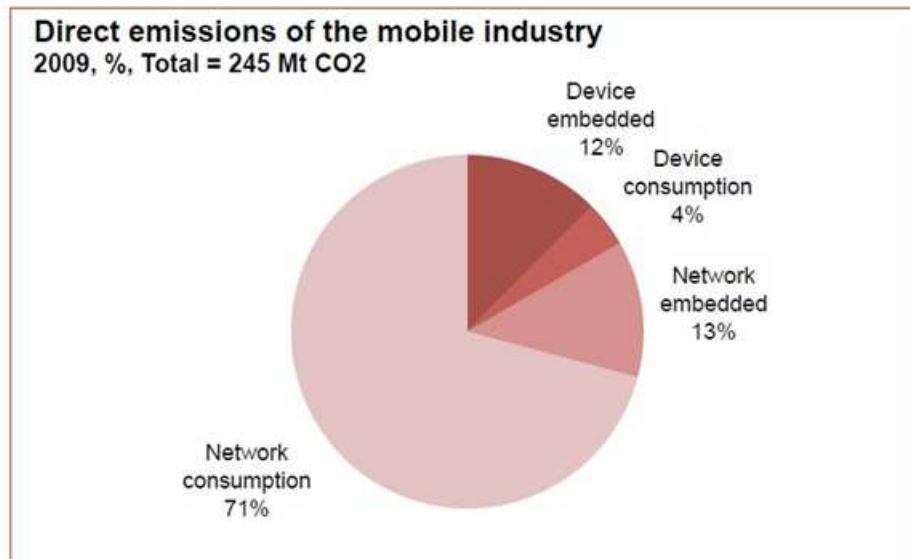
⁸ CNN: <http://edition.cnn.com/2012/02/06/world/asia/china-apple-foxconn-worker/index.html>

⁹ Climate Group & GeSI, 2008, SMART 2020

¹⁰ Greenpeace, 2012, How clean is your cloud

carbon emissions as part of energy-efficiency. The related carbon emissions are the most important environmental impact of this industry. Greenpeace describes the ‘cloud industry’ as of “energy-intensive nature” (Greenpeace, 2012, p.5). Not only the ‘clouds’ use a high amount of electricity also all other services and products of the ICT industry are intensively consuming electricity. According to GSMA and ETNO most energy is needed for the operation of the mobile network as the figure 5.2 below presents.

Figure 5.2: Direct emissions of the mobile industry



More than 80 % of the total energy consumption is needed for producing and operating the mobile infrastructure. The remaining 20 % are subdivided in producing and using (charging) a mobile phone. Therefore, the choice of which energy such as coal, gas, nuclear energy, or regenerative energies to be used for the production of electricity has a major impact on the environment, climate change and society in general as CO₂ emissions can be decreased by switching to renewable energy sources. For using the network infrastructure and mobile devices, the only major environmental impact that is elaborated upon is CO₂ emissions generated from the energy consumption of the devices. A further major environmental impact related to the ‘service’ is resource depletion, in case that the energy is produced from fossil fuels such as coal or oil, that in turn generates further emissions to water and air which have a negative impact on the ecosystem. Related to the production of electricity consumed during the ‘use-phase’ of the product are the following emissions such as heavy-metal emissions (zinc and arsenic), inorganic emissions such as SO₂ and NO_x occur, NMVOC emissions and carcinogenic effects derived from the release of benzo(a)pyrene to air or arsenic to air (Scharnhorst *et al*, 2005).

5.4: Recycling and disposal

The last stage ‘recycling and disposal’ lists the impacts that occur during the recycling and disposal process. As the ICT industry is growing rapidly and new technologies are introduced every few years, a huge amount of electronic waste is produced. In Europe, the return and the

recycling of old electronic equipment is regulated by two laws of the European Union. Referring back to the topic waste and the environmental impact, through returning and recycling of old electronic equipment such as mobile phones, chargers etc. a high amount of waste can be prevented. With regard to hazardous substances used in electronic equipment, mobile network equipment has to be mentioned such as antenna racks and old network devices and equipment. The disposal of the e-waste has a further negative impact on the ecosystem and on human health if the toxic or hazardous substances are released to air or water. Scharnhorst *et al* (2005, p.553) identifies the inputs that are needed for the end-of-life thermal treatment of mobile network infrastructure and PWB (Printed-Wiring Boards) of mobile phones in a smelter unit and also identifies the environmental impacts, namely the outputs the treatment has. For the thermal treatment of 6.3 kg of network infrastructure and 1 kg of PWB the following resources are needed:

- 0.28 kg of lignite,
- 0.34 kg of natural gas,
- 0.3 kg raw oil,
- 0.36 kg of gravel and
- 0.34 kg of hard coal

The thermal treatment of network infrastructure and PWB hence leads to a further resource depletion of nearly all non-renewable energy sources such as natural gas, coal or oil. The output of the thermal treatment is on the one hand the gained secondary raw materials that can be used again and on the other hand the environmental impacts such as emissions to air, water and soil. Based on the data determined by Scharnhorst *et al* (2005, p.553) the following secondary raw materials are gained:

- 1.35 kg of aluminium,
- 0.04 kg of iron,
- 1.91E-06 kg of gold,
- 0.4 kg of copper,
- 0.0005 kg of palladium,
- 0.00016 kg of selenium,
- 0.00038 kg of silver and
- 4.9 kg of steel

However, with the thermal treatment not only secondary raw materials are gained also negative environmental impacts occur:

- Emissions to air:
 - 3.1 kg of carbon dioxide
 - 0.0095 kg of nitrogen oxide
 - 0.005 kg of sulphur dioxide
 - 0.0046 kg of carbon monoxide
- Emissions to water:
 - 0.07 kg of hydrocarbons to water
- Emissions to soil:
 - 0.00053 kg of oil (unspecified)

A further impact is that in developing countries often the electronic waste is recycled and disposed not according to environmental and health & safety standards and laws. Widmer *et al* (2005) describe that the impacts on human health and the ecosystem are especially high when the electronic waste is burned or recycled without any protective measures or protective

clothing for the workers. Although, the 1989 'Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal' which entered into force in 1992 bans the export of electronic waste to developing countries, electronic waste is still exported and recycled at lower costs than in Europe at the expense of negative impacts on the ecosystem and human health.

Based on the literature about the environmental and social impacts that occur in the ICT industry, it has to be stated that relevant scientific literature on LCAs of mobile network technologies and mobile devices are limited. Additionally, also the industry has not published many articles and reports on the environmental and social impacts of mobile devices and the infrastructure needed to operate a mobile network. A second result of the analysis of available literature on the impacts is that the articles leave a lot of environmental and nearly all social effects out. The main focus of the available literature is on energy issues and resource depletion. Further environmental and social impacts on biodiversity or human health are not covered.

Based on the literature about the environmental and social impacts that occur in the ICT industry, the most important environmental effects are resource depletion, the impact on ecosystems such as toxic and hazardous emissions to air and water, which in turn also have an impact on biodiversity, and CO₂ emissions as a part of energy consumption and the related impact on climate change. The last important impact is the recycling and disposal of waste. If it is not executed according to high environmental standards and laws further toxic substances are emitted to the ecosystem. In regard to social impacts, the main impacts occur in the process of mining the raw materials and the illegal recycling of electronic waste. If the recycling of the devices and network infrastructure is expanded, the resource depletion and energy demand can be reduced. Therefore, recycling is a major step in achieving sustainability in the ICT industry.

Chapter 6: CSR in the European telecommunications industry

This chapter focuses on how CSR and sustainability is viewed and managed in the telecommunications industry. This chapter starts with an overview of the global and the European telecommunications sector. This section presents some facts and figures about the telecommunications industry and gives a short outlook to the future. This part is followed by a short introduction to the CSR activities and programs of the international and European telecommunications industry associations. The second section of this chapter presents and analyses the CSR strategy of Deutsche Telekom. This part explains the goal of Deutsche Telekom of becoming the leader in regard to CSR in the telecommunications industry and explains their objectives and targets by which the goal shall be reached. The third part of this chapter presents the sector analysis. In this section the competitors of Deutsche Telekom will be presented and their CSR strategy is reviewed and analysed. The last section compares the CSR programs of the competitors with Deutsche Telekom and evaluates the performance of Deutsche Telekom.

6.1: Overview of the international mobile communication market

The most important international association of the telecommunications industry is the 'ITU' the 'International Telecommunications Union'. The ITU is the United Nations specialized agency for the telecommunications sector, focusing on information and communication technologies. The ITU is the only UN agency which has a public and private sector membership. The ITU, which was founded in 1865¹¹ and became an UN agency in 1947, has 173 Member States and more than 700 members of the private sector¹². The second important international mobile network operators association is the GSMA (Groupe Speciale Mobile Association), which represents the interests of the majority of all mobile operators and many other companies which operate in the ICT industry, such as mobile phone producers, software companies and equipment providers¹³. The GSMA was founded in 1982 and started as an European industry association. However, over the years the association grew world-wide and nowadays represents more than 1000 companies operating in the field of telecommunications.

Before the tasks of the ITU and GSMA, especially their work in regard to Corporate Social Responsibility is explained; some facts and figures about the global ICT industry will be presented. The ITU¹⁴ (2011) estimates that by the End of 2011; there will be more than 5.9 billion mobile cellular subscriptions worldwide. In comparison to 2005 the numbers have more than doubled. In 2005 there were about 2.1 billion mobile cellular subscriptions. Furthermore, by the end of 2010 more than 90 % of the world population will have access to mobile networks. However, a forecast from the ITU also states that the growth rate will slow down worldwide. While the growth rate was at about 24 % in 2005, the growth rate in 2010 is

¹¹ ITU: www.itu.int/en/about/Pages/history.aspx

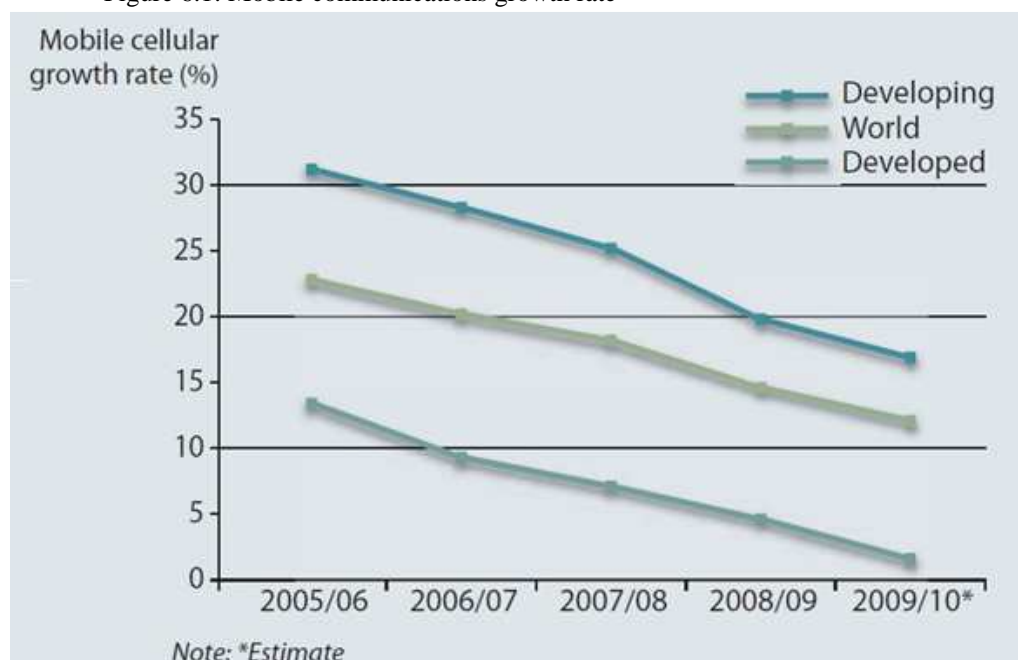
¹² ITU: www.itu.int/en/about/Pages/overview.aspx

¹³ GSMA: www.gsm.org/aboutus/

¹⁴ ITU: The world in 2011: ICT facts and figures, 2011

expected to slow down to around 11 %¹⁵. A more detailed look at the growth rate, which is displayed below, shows that the mobile market in developed countries is nearly saturated and that high growth rate only occur in the developing countries. The figure 6.1 below measures the growth rate of mobile communications.

Figure 6.1: Mobile communications growth rate

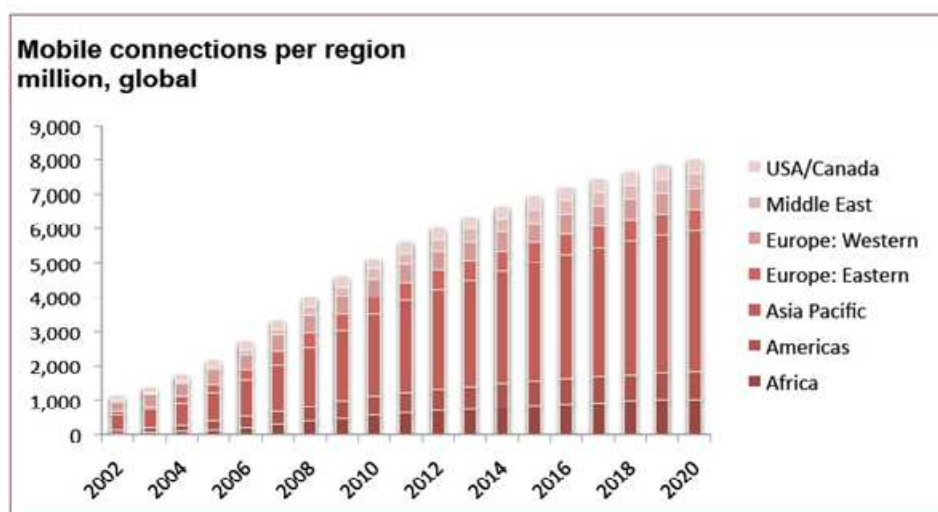


The ITU further estimates that in 2011, more than 45 % of the world population will have access to 3G mobile networks, as their development and expansion is executed worldwide¹⁶. This is of importance because with the new generation of mobile networks energy consumption can be reduced drastically. According to the ITU and the GSM association, mobile cellular subscriptions will increase up to 9 billion in 2020, as the figure 6.2 below presents.

¹⁵ ITU: The world in 2010: ICT facts and figures, 2010

¹⁶ ITU: The world in 2011: ICT facts and figures, 2011

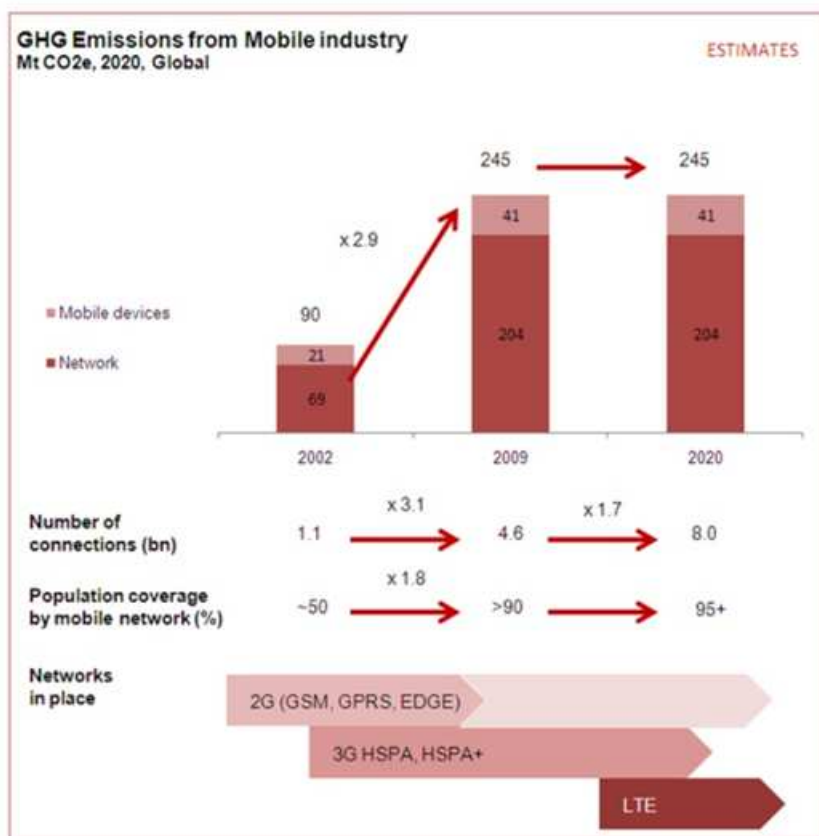
Figure 6.2: Mobile connections per region



Therefore, it is of special importance to reduce the average energy consumption of the mobile network sector in order to keep the energy consumption stable or even to decrease it although more mobile phones are used and more data is sent via the networks. The ITU estimates that in 2011 about 200.000 SMS will be sent per second worldwide. Additionally, also the mobile broadband connections are increasing to about 1.2 billion worldwide in 2011¹⁷. The total energy consumption of the different types of mobile networks expressed in GHG emissions is presented in the following figure 6.3:

¹⁷ ITU: The world in 2011: ICT facts and figures, 2011

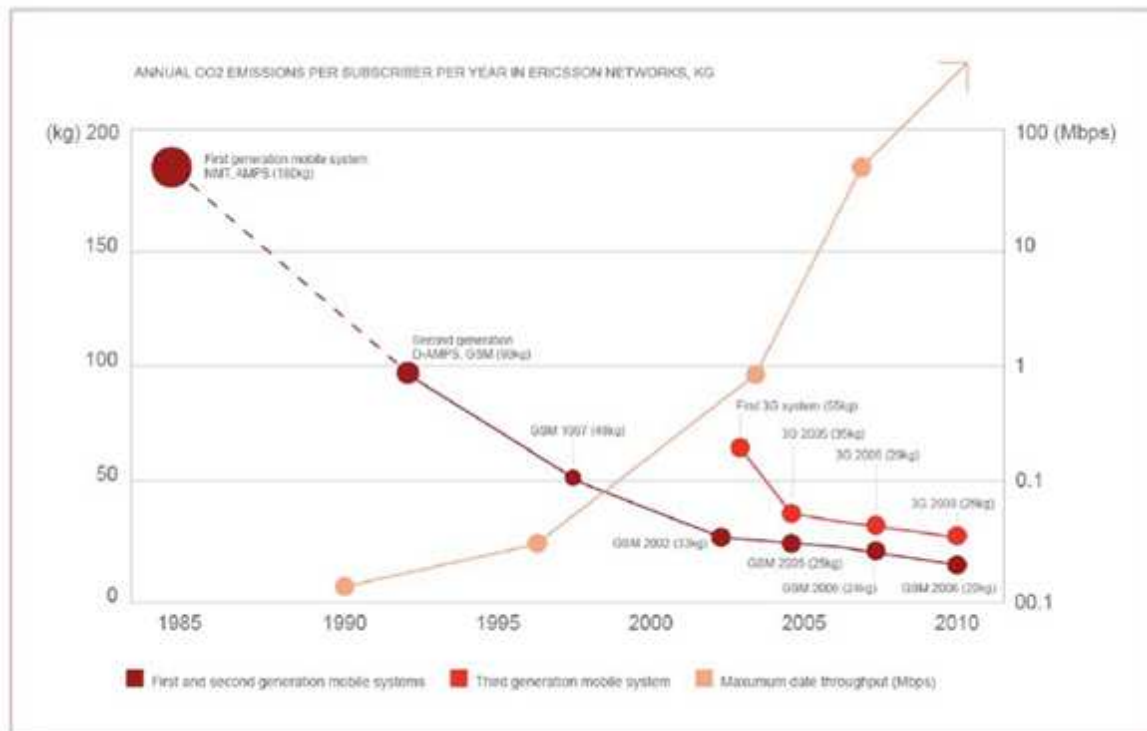
Figure 6.3: GHG emissions from Mobile industry



The figure 6.3 above shows that although the number of mobile connections increased steadily from 1.1 billion in 2002 to estimated 8 billion in 2020, the total GHG emissions, in Mt CO₂, of the networks and the mobile phones used will be stable from 2009 onwards compared to the estimation of 2020. While the GHG emissions increased by the factor 2.9 from 2002 until 2009, to about 245 Mt CO₂, the amount of emissions will be stable at 245 Mt CO₂ as the estimations for the year 2020 show.

The following figure 6.4, presented below further explains the development of energy consumption in the different types of mobile networks. The graph is taken as an example from the Ericsson Networks KG. The graph shows that the new generation of mobile networks (3rd and 4th generation) use less energy per subscriber per year although more data traffic is sent through the network. The energy consumption is expressed in CO₂ emissions.

Figure 6.4: Annual CO₂ emissions per subscriber per year in Ericsson Networks KG



In the first years of mobile communication, mobile networks emitted about 180 kg of CO₂ per subscriber per year. With the start of the second generation of mobile network technology (2G) the emissions decreased to 90 kg and further to 20 kg. This further reduces can be explained with a higher energy efficiency and new energy saving technologies. With the introduction of the third generation of mobile networks, the CO₂ emissions will further decrease, although the chart shows that the emissions of the 3G network was in 2008 25 kg. This is a contradiction in comparison to the graph showing the total GHG emissions of the mobile industry, but in defence it has to be stated that more data can be sent through the 3G network as it would be possible with the 2G network. Based on the increased data traffic the overall CO₂ emissions will stay stable or decrease. A further reduction can be expected when the expansion of the LTE network type (4th generation, 4G) is promoted.

6.2: The European mobile communications market

After the international mobile network market has been described, this section will elaborate briefly on the European mobile network market. The European mobile network industry has, according to GSMA¹⁸, about 2 billion mobile subscriptions in 2010. The market as it already has been explained is close to being saturated. The growth rate for the European market was 1.6 % in 2010¹⁹. The total revenue of the six biggest companies in the market (Deutsche

¹⁸ GSMA & The Climate Group: Mobiles green Manifesto, 2009

¹⁹ ITU: The World in 2010: ICT Facts and figures, 2010

Telekom, KPN, Vodafone, France Telecom-Orange, British Telecom, Telefonica), which also have been identified as the main competitors of Deutsche Telekom was about 200 billion € in 2011. According to the European Telecommunication Network Operators' association (ETNO), the total revenue of the European mobile network industry was 225 billion € in 2011, from which about 47 % were derived from mobile services²⁰. The ETNO as the European industry association represents the mobile network operators in Europe adding up to 41 operators in 35 countries²¹. The ETNO association was founded in 1992 and published in 2009 for the first time an annual report in which the trends and developments of the European mobile network industry are compiled.

After the international and European mobile network industry and market has been briefly elaborated upon, the following section will present and describe the CSR and sustainability initiatives and programs developed by the above mentioned industry associations. The description of the CSR activities will follow the structure from the adaption of the LCA stages presented in chapter three.

6.3: Activities by the international industry associations

6.3.1: ITU

The first international industry organization, which has been presented before is the ITU. The ITU has no special program or activities in regard to sustainability. Therefore, the ITU will be left out of the detailed analysis of the sustainability and CSR activities. The only goal that the ITU pursues, which can be linked to CSR is that fair prices shall be established and that especially people in third world countries can access mobile communication at fair prices. The ITU has no further supply chain or environmental program.

6.3.2: GSMA

The GSMA has put the focus of their work in the field of CSR and sustainability on health and environmental issues. The programs, including the scope, content and goals will be presented according to the four stages of the adapted LCA approach.

In regard to sources, which include raw materials and the first material processing, GSMA has no special program or focus. In regard to the second stage infrastructure and consumer products, which includes the manufacturing and assembling of the infrastructure needed for operating the network and the associated products such as mobile phones, GSMA has participated and initiated several projects. Probably, the most important project has been developed with the European Commission, the launch of the 'universal mobile phone charger' which has been introduced in 2010 by the European Union²². The main focus of the work of GSMA is on the last two stages, 'service and service user' and 'recycling and disposal'. In regard to the service, which is operating a mobile network, the focus is on energy

²⁰ ETNO: <http://www.etno.be/Default.aspx?tabid=1077>

²¹ ETNO: <http://www.etno.be/Default.aspx?tabid=1077>

²² European Commission: http://ec.europa.eu/unitedkingdom/press/press_releases/2010/pr10134_en.htm

consumption as energy is the most important environmental impact released from the service. According to GSMA, about 80 % of the entire energy consumption of a mobile network operator is needed for operating the network²³. Hence, the programs focus on reducing the energy consumption of the networks. One example of the work of the GSMA is the plan of the mobile industry to lower its GHG emissions. For this project, GSMA worked together with a NGO, namely The Climate Group. Both actors developed a ‘green manifesto’ for the mobile industry, in which the plans for reducing the total GHG emissions per connection by 40 % until 2020 compared to 2009 is presented²⁴. As the sole focus is on energy reductions, the additional initiatives presented and promoted focus on switching from fossil energy sources to renewable energy sources. The GSMA presents four initiatives that are currently implemented in the industry. The first initiative focuses on the design of low energy consuming base station sites. These base station sites are a part of the mobile network technology, and as already explained above; consume 80 % of the entire energy demand of the mobile network operators. Therefore, a low energy design of these stations can contribute significantly to the goal of reducing the GHG emissions until the year 2020. The second initiative which also focuses on the base stations proposes that only renewable energy shall be used to power these stations. For this topic, GSMA also launched a single program, the ‘GSMA green power for mobile programme’ which has the aim of accelerating the switch to renewable energy in the mobile network industry²⁵. The programme has the goal that by 2012 118.000 base stations in developing countries are powered by renewable energy. The third initiative has the aim of advancing infrastructure optimisation, meaning that old high energy consuming base stations and further infrastructure equipment is exchanged for new low energy consuming stations and equipment. The fourth initiative aims at reducing the GHG emissions through the life cycle of mobile devices. One example is the above presented universal charger, by which energy consumption and waste is reduced. The last stage ‘recycling and disposal’ is also taken serious by GSMA. Therefore, several initiatives encourage the recycling or re-use of mobile devices and equipment. GSMA states that up to 70 % of mobile equipment such as handsets can be re-used²⁶. In regard to recycling and disposal of mobile devices, GSMA promotes the collection and recycling of mobile devices because about 80 % of a mobile device can be recycled or used for energy recovery²⁷.

6.3.3: ETNO

The first mentioned European mobile network association is ETNO. ETNO has developed a sustainability charter for its members. This charter is signed by 90 % of its members²⁸. The charter is a commitment to sustainability and CSR. The signatories declare that they comply with the charter, which is presented in the Appendix, and that they continually improve the compliance with the charter. The sustainability charter of ETNO does not specify any goals or

²³ GSMA & The Climate Group: Mobiles green Manifesto, 2009

²⁴ GSMA & The Climate Group: Mobiles green Manifesto, 2009

²⁵ GSMA & The Climate Group: Mobiles green Manifesto, 2009

²⁶ GSMA: <http://www.gsma.com/publicpolicy/mobile-and-the-environment/collection-and-reuse/>

²⁷ GSMA: <http://www.gsma.com/publicpolicy/mobile-and-the-environment/recycling-and-disposal-2/>

²⁸ ETNO, Sustainability Report, 2009

targets that should be achieved in the field of sustainability; only a commitment to specific topic areas such as procurement, including sustainable supply chains, transparency and accountability, reducing waste and reducing energy consumption is given.

The sustainability report of the year 2009, presents three specific topics of sustainability about which the report presents programs, initiatives and data. The first special topic is part of the first two stages of the adapted LCA approach, namely sustainable supply chains. ETNO and its members commit themselves to improve the sustainable supply chain management, especially in China. This means that only suppliers are accepted that comply with certain environmental and social standards. The second topic focuses on energy reductions of the mobile network industry, which is a part of the third stage. As already presented above in the section on GSMA, the reduction goals and possibilities of the mobile network industry are presented and explained. However, no specific target or goal is presented. The third specific topic is waste and recycling. ETNO also encourages its members to promote and expand the collection and recycling of mobile devices. The sustainability report presents the improvements over the past year that the members of ETNO have achieved.

6.3.4: GeSI

The second and last sustainability initiative by the European ICT industry is the GeSI initiative. GeSI is an industry association founded by many members of the ICT industry. The goal of this association is to “create an open and global forum for the improvement and promotion of products, services and access to ICT for the benefit of human development and sustainable development” (GeSI, n.d.). GeSI, a non-profit organization was initiated in 2001 with support of the UNEP²⁹. The vision of GeSI is to promote sustainability in the ICT industry and to stimulate multi-stakeholder cooperation in the ICT industry³⁰. In 2008, GeSI published a report in which ten key sustainability issues for the ICT industry have been identified. These ten issues are listed below:

- Climate change
- Waste and materials use
- Access to ICT
- Freedom of expression
- Privacy and security
- Employee relationships
- Customer relationships
- Supply chain
- Product use issues
- Economic development

GeSI prioritized three out of this ten key sustainability issues. The first prioritized key issue is ‘supply chain’. In this field GeSI developed a guideline and tool to assess and manage the sustainability of the supply chains. GeSI put a special focus on the beginning of the supply chain, or as it is used in LCA terms, the raw materials. GeSI informs its members about

²⁹ GeSI: www.gesi.org/Membership/Goverance/tabid/125/Default.aspx

³⁰ GeSI: www.gesi.org/SustainableICT/tabid/79/default.aspx

minerals used in the ICT industry that are mined in conflict areas. Furthermore, GeSI promotes NGO campaigns such as ‘MakeITFair’ and ‘Enough’ and their work on identifying and validating conflict free minerals, ores and noble earths such as gold or coltan³¹. ‘MakeITfair’ focuses on raising awareness among young people in Europe on the labour abuses and environmental problems that occur during the extraction of the minerals needed for electronic products³². The second NGO project that GeSI promotes is ‘Enough’, a project that focuses on stopping genocide and crimes against humanity especially in Africa³³. Besides the support for the NGO projects, GeSI and its partners work on establishing a better traceability of minerals from conflict areas with the goal that minerals from these areas can be avoided.

The second key issue for GeSI is climate change, which includes energy reductions and less CO₂ emissions. GeSI developed a report named ‘Smart 2020’ in which the climate change mitigation and reduction of CO₂ emissions potential of the ICT industry is explained. The potential CO₂ reduction through better ICT, according to GeSI, is 15 % of predicted total CO₂ emissions³⁴.

The third prioritized key issue ‘e-waste’ is connected to the last stage ‘recycling and disposal’. GeSI promotes the recycling of mobile devices. Furthermore, GeSI promotes the view that electronic waste is not seen as waste but as a valuable resource³⁵.

After the sustainability and CSR initiatives and programs of the European mobile network operator associations have been presented, the following section presents the approaches, activities and programs that the most important European ICT companies pursue in regard to sustainability.

6.4: Activities by the main market actors

6.4.1: Deutsche Telekom

Deutsche Telekom is one of the world’s leading telecommunication companies. Deutsche Telekom does not only operate a mobile network in more than ten countries but is also an important information technology service provider. The main market for Deutsche Telekom is Germany and Europe for historical reasons. Additionally to that, Deutsche Telekom operates a mobile network in the United States. Whereas, the mobile networks and the division Telekom Deutschland mainly focus on private customers with supplying them with mobile, landline and internet solutions, the division T-Systems focuses on corporate customers and supplies them with data centers and network solutions. This division of Deutsche Telekom is the only division operating globally. Deutsche Telekom, including all three divisions, is present in more than 50 countries worldwide and has about 235.000 employees. These employees assist more than 129 million mobile customers, 36 million fixed network customers and 16 million broadband customers. In the year 2011, Deutsche Telekom had a revenue of 58,7 billion €. Having all this numbers and information in mind, Deutsche

³¹GeSI: <http://gesi.org/Initiatives/SupplyChain/tabid/75/Default.aspx>

³² MakeITfair: <http://makeitfair.org/en/about-us>

³³Enough project: <http://www.enoughproject.org/about>

³⁴ GeSI: <http://gesi.org/Initiatives/ClimateChange/tabid/71/Default.aspx>

³⁵ GeSI: <http://gesi.org/Initiatives/eWaste/tabid/73/Default.aspx>

Telekom can be labelled without doubting a global player in the business world and hence also has a global responsibility. This responsibility towards the environment and the society plays an important role for Deutsche Telekom as the principle of sustainability is embedded in all their business activities. In the company profile on the homepage it is stated that “We believe that economic, social and ecological perspectives can be reconciled. Sustainability underpins all of our business activities” (Deutsche Telekom, n.d.). Based on the sustainability principle was the CR report slogan of the year 2011 created: ‘We take responsibility’. Next to this slogan, Deutsche Telekom developed a CR vision. This vision was created in March 2010 with the goal of going beyond short-term goals and focusing on long-term goals such as development and sustainability.

“Deutsche Telekom is a driving force internationally for sustainable conduct, it sets the standard for connected life and work, it sets an example in the integration of people in the information society, and it is a leader on the way to a climate-friendly society”

(Deutsche Telekom, Our CR Vision, 2010)

Deutsche Telekom pursues the goal of becoming the leading company in regard to CSR and sustainability in the telecommunications industry. The main goal is expressed as following “in the long term, Telekom is pursuing a clear vision: our goal is to be one of the leading forces driving the sustainable development of environment, society and economy” (Deutsche Telekom, n.d.). Hence, the CR strategy of Deutsche Telekom can be best described as becoming a leader in CR by implementing it in all their day-to-day business activities.

The responsibility of sustainable supply chains for Deutsche Telekom starts with the extraction of the raw materials. Therefore, in regard to the first stage of the life cycle ‘Sources’ Deutsche Telekom pursues several programs and activities. The first activity is that Deutsche Telekom is aware of the labour abuses and environmental problems that occur in the extraction of minerals and noble earths. In order to reduce the usage of such conflict minerals, Deutsche Telekom raises awareness about this issue at its suppliers and promotes and encourages them to use only minerals and noble earths that have been extracted under the compliance with basic human rights and environmental and labour standards. Furthermore, the suppliers are required to have a conflict mineral policy which addresses the problems in the mining industry and how the suppliers plan on improving the situation in the mining sector. Furthermore, the suppliers are encouraged to use environmental friendly materials and save natural resources³⁶. The measures that are taken by Deutsche Telekom are expressed in their ‘Coltan Statement’ and the ‘Statement on Extractives’, which are presented in the Appendix.

The second activity that Deutsche Telekom pursues in regard to the first stage ‘Sources’ is that not only first tier suppliers are audited, but also second and third tier suppliers. This means that the suppliers of the suppliers are also audited for social, environmental and labour standards in their production facilities³⁷. The goal for the year 2012 is to complete 200 social audits at suppliers³⁸. The goals and programs of the sustainable supply chain department are not only a part of the first stage of the life cycle but also play an important role in the second stage ‘Infrastructure and consumer devices’. The first program

³⁶ Deutsche Telekom: Statement on extractives of the Deutsche Telekom Group, 2009

³⁷ Interview with Mr. Antonio Luz-Veloso, sustainable supply chain manager at Deutsche Telekom

³⁸ Deutsche Telekom: <http://www.cr-report.telekom.com/site12/suppliers/social-audits#atn-1403-2358>

that Deutsche Telekom pursues in order to increase the sustainability of the supply chains is the JAC (Joint Audit Cooperation), a program that was initiated with France Telecom and Telecom Italia³⁹. The JAC program, which can be described as a joint audit program, aims at increasing environmental and social standards in the supply chains. This means that the suppliers such as mobile devices producers are audited for their social and environmental standards. The JAC was initiated in 2010, until June 2012, five other European ICT companies joined this audit program and 40 on-site social audits at suppliers have been carried out⁴⁰. In regard to the success of the sustainable supply chain programs it can be stated that in the year 2010, 55 % of the total procurement volume were audited and were conform to the established social and environmental standards. The percentage rose from 36 % in 2009 to 55 % in 2010⁴¹. In order to increase this percentage and to promote sustainability ideas and goals at suppliers, each year a stakeholder dialogue day is held. In 2010, this event took place in China because many suppliers of Deutsche Telekom are based in China. The idea behind these events is to raise the awareness of sustainability issues at suppliers and to promote and ensure that the sustainable supply chain code and principles are implemented. The result is that more suppliers can be audited against the internal CSR supply chain audit scheme and their conformity can be determined⁴². The last aspect that belongs to the stage 'Infrastructure and consumer devices' is that Deutsche Telekom regularly offers trainings and workshops on social and environmental standards at their suppliers. In 2011 four workshops on sustainability topics were executed at suppliers⁴³.

The third stage of the life cycle 'Service and service user' focuses on several aspects. The first aspect is to decrease the energy consumption of the network infrastructure and consequently also the CO₂ emissions. In order to achieve this goal, which is measured by two KPIs namely 'energy consumption' and 'emissions', Deutsche Telekom expands and equips their network with new low energy consuming infrastructure devices and additionally pursues the transition from the second generation network type to the third and fourth generation type which can manage more data at a lower energy consumption rate⁴⁴. The task of switching to a less energy consuming network is supported by the 'Power off task force' a project that aims at shutting down unnecessary and high energy consuming network infrastructure equipment. The result of this project for the year 2011 is that the energy savings equals 16.564 tons of CO₂ emissions⁴⁵. The first KPI 'energy consumption' measures the total energy consumption within the entire group. The energy consumption rose by 7 points from 2009 to 2010 because of a higher energy consumption and a lower sales volume of the group. The energy consumption KPI is expressed in 'monetary power efficiency' that consists of two factors,

³⁹ Deutsche Telekom: <http://www.telekom.com/corporate-responsibility/cr-strategy-and-management/supply-chain-and-sustainability/99526>

⁴⁰ Deutsche Telekom: <http://www.telekom.com/corporate-responsibility/cr-strategy-and-management/supply-chain-and-sustainability/99526>

⁴¹ CR KPI 'sustainable procurement'

⁴² Interview with Antonio Luz-Veloso, sustainable supply chain manager at Deutsche Telekom, February 2012

⁴³ Deutsche Telekom: <http://www.cr-report.telekom.com/site12/suppliers/supply-chain-management#atn-1402-3744>

⁴⁴ Deutsche Telekom: <http://www.cr-report.telekom.com/site12/networks/environmentally-friendly-network-infrastructure/network-upgrading#atn-1353-2435,atn-1353-2442>

⁴⁵ Deutsche Telekom: <http://www.cr-report.telekom.com/site12/networks/environmentally-friendly-network-infrastructure/network-upgrading#atn-1353-2442>

electricity in Mwh and net revenue in million €. Deutsche Telekom pursues the goals of reducing the energy consumption and to increase the proportion of regenerative energies. Although the energy consumption rose, Telekom Germany and Telekom Netherlands are role models for a climate friendly and efficient energy consumption. In both countries 100 % of the energy consumption is provided by renewable energy sources. Additionally, the German Telekom subsidiary PASM (Power and Air Condition Solution Management), which is responsible for delivering energy to Deutsche Telekom, got certified as an energy efficient company according to the German renewable energy sources act (EEG) in 2010. Closely connected to the KPI 'energy consumption' is 'emissions'. The KPI 'emissions' measures the CO₂ emissions. The target for this KPI has been reviewed in 2010 with the result that CO₂ emissions shall be reduced by 40% until the year 2020 based on the year 1995. The 2011 CR report states that for Germany the CO₂ emissions (scope 1+2) have been reduced from 885.070 t in 2007 to 313.825 t in 2010 and 300.582 t in 2011⁴⁶. The next program that focuses on the third stage of the life cycle is that Deutsche Telekom has the goal of having a sustainable product portfolio. Until now, the focus has been put on landline phones and internet routers and modems as these products are specially manufactured for Deutsche Telekom. Several of these new devices include an 'eco-mode' in which less energy is consumed or the device switches automatically into standby mode after it has not been used for a certain time. Currently, Deutsche Telekom is developing an eighth CR KPI, which focuses on sustainable products. The KPI should measure the sustainability of the product portfolio. At the moment, employees of the CR department are working on the criteria-set for this KPI⁴⁷. A further program of Deutsche Telekom focuses on sustainable consumption. For this program a special internet-homepage (nachhaltig-handeln.telekom.com) has been created which explains to consumers and encourages them of how to reduce their environmental impact. One aspect is that Deutsche Telekom encourages their customers to sign-up for paperless billing.

The programs and objectives of Deutsche Telekom that relate to the fourth stage 'Recycling and disposal' focus on the recycling of mobile phones and other electronic devices and an effective waste management. In order to measure the number and effectiveness of the mobile devices recycling program Deutsche Telekom introduced the KPI 'take back mobile devices' in 2009. In the first year less than 100.000 mobile phones were recycled. In 2010, more than 250.000 cell phones were returned and the numbers increased to 752.000 in 2011⁴⁸. In January 2010, a large cell phone return program was initiated in the Netherlands. In 2011, a large mobile phone return campaign was initiated in cooperation with a charity organisation. The campaign was launched in October 2011 and ended in December. During this ten weeks more than 500.000 cell phones have been returned and Deutsche Telekom donated 2 € per returned cell phone to this charity organisation⁴⁹. The second aspect related to 'recycling and disposal' is that Deutsche Telekom has a waste management system and works on increasing

⁴⁶ Deutsche Telekom: CR Report 2011, <http://www.cr-report.telekom.com/site12/home>

⁴⁷ Interview with Karsten Zimmermann, responsible for sustainable products within the CR department, February 2012

⁴⁸ Deutsche Telekom: <http://www.cr-report.telekom.com/site12/customers/phone-cell-phone-recycling#atn-1360-2250,atn-1360-2249>

⁴⁹ http://www.feelgreen.de/telekom-gewinnt-deutschlandwette-mit-gottschalk/id_50505336/index

the recycling quota. Therefore, a new waste strategy has been introduced in December 2011⁵⁰. The goals of the new strategy are presented below:

- Preventing and reducing waste
- Recycling devices and technical equipment
- Recycling valuable materials such as metal and rare earth metals
- Other measures such as using waste to generate heat
- Environmentally-friendly disposal of remaining waste
- Reducing disposal costs and optimizing revenue

In order to execute the strategy and to monitor its effectiveness new KPIs focusing on waste and recycling shall be developed.

6.4.2: France Telecom-Orange

France Telecom appears since a few years under the name France Telecom-Orange because Orange is the main brand of France Telecom and is in the majority of the operated countries present. Orange is the most important brand of France Telecom because it offers the full package of modern communication ranging from internet to mobile communication. For reasons of simplicity, the company will be referred to as Orange in this thesis. Orange has a long commitment to sustainability. Already in 1996 the ETNO Environmental Charter was signed and then in 2004 the Sustainability Charter⁵¹. In July 2010, 'Conquest 2015' the new group strategy of Orange was presented. The new strategy emphasizes the importance of society as a stakeholder and includes sustainability as one of their core elements. The strategies and objectives related to sustainability are explained in the following sections.

Orange pursues in regard to the first stage 'sources' of the life cycle similar strategies and programs as Deutsche Telekom. Orange is also as Deutsche Telekom a member of GeSI and promotes the usage of conflict free minerals and noble earths. Orange also encourages its suppliers to use conflict free minerals. Therefore, also an individual Coltan Statement has been developed. Next to being a member of GeSI, Orange is one of the founding companies of the JAC, which audits suppliers against environmental, social and labour standards⁵². The JAC program belongs to the first but also to the second stage of the life cycle. Besides the JAC program, Orange pursues other strategies related to the second stage. One example is that Orange executes not only first tier audits but also second and third tier audits at its suppliers. The focus of these audits is on the Asian market as Orange has many suppliers that are based and manufacture their products in Asia. Next to the social audits, the suppliers are also audited against the SA 8000 standard, which focuses on labour practices⁵³. One last important aspect to be mentioned related to the sustainable supply chain topic is that Orange has a clear focus on stakeholder dialogues. On the one hand, stakeholder dialogues are held at group and national entity levels, meaning that the best way of implementing the CSR strategy is discussed with stakeholders. On the other hand stakeholder dialogues are organised at country levels with the goal of getting the local stakeholders involved and hence contributing to the

⁵⁰ Deutsche Telekom: <http://www.cr-report.telekom.com/site12/climate-environment/waste-management-disposal#atn-1409-1500,atn-1409-1499>

⁵¹ Orange CR Report 2011, p. 5

⁵² Orange: CR report 2011, p. 45

⁵³ Orange: CR report 2011, p. 44

development of the local society. These dialogues are important because Orange is present in several developing countries on the African continent.

Next to efforts of improving sustainable supply chains, Orange engages with its suppliers of mobile devices and network infrastructure in order to develop eco-designed products⁵⁴. One example is that several products designed for the French and Spanish market have been analysed for environmental impacts based on the LCA tool⁵⁵. The results of the LCA have been used in order to improve the products. The 2011 CR report states as an example that the improved product has 26 % less energy consumption and 19 % less CO₂ emissions during its life cycle compared to the old version of the product. Besides eco-friendly products also the packaging of products has been addressed by Orange. The products that are exclusively produced for Orange are delivered in an eco-friendly packaging. This means that less packaging is encouraged and used in fact.

In regard to the third stage of the life cycle Orange has the goal of reducing their CO₂ emissions by 20 % until the year 2020. This shall be achieved through two objectives. Firstly, new less energy consuming network infrastructure shall be installed. Secondly, more consumed energy shall be produced by renewable energy sources. In regard to the new less energy consuming technologies one example is that the data processing centres of Orange shall be optimised in regard to their energy consumption. The goal is that the energy consumption of these centres is reduced by 15 % by the year 2020⁵⁶. A second goal of Orange in regard to less energy consumption and a higher usage of renewable energy sources is that all new installed network infrastructure in Africa and Middle-East Asia shall be powered by at least 25 % renewable energy sources, in this case solar energy⁵⁷. Furthermore in 2010, Orange introduced Life-Cycle Assessments of the services that Orange offers, such as video conferencing or 3G mobile network (3rd generation mobile network). Orange identified the service user as a special aspect of their CSR strategy. Therefore, Orange provides its customers with detailed information on radio waves, the responsible usage of the products and sustainable consumption⁵⁸.

The recycling of mobile devices and the related re-usage of materials for reducing resource depletion is the main goal of Orange in regard to the fourth stage of the life cycle. Orange has in all countries operating, a mobile phone recycling system. In some countries, such as France or Spain, customers are encouraged to recycle their old mobile phones with the help of financial incentives⁵⁹. Worldwide, Orange collects about 1.2 tons of old equipment every month⁶⁰. As Orange is present in many countries on the African continent, where recycling and the correct treatment of waste is not guaranteed, workshops and trainings in regard to waste collection and recycling are held and waste management education centres are supported⁶¹. Furthermore, Orange established a detailed waste management policy, in which guidelines on waste collection and recycling have been developed. Additionally, the waste

⁵⁴ Interview with Therese Arnaut, CR manager at Orange, April 2012

⁵⁵ Orange CR report 2011, p. 91

⁵⁶ Interview with Therese Arnaut, CR manager at Orange, April 2012

⁵⁷ Orange CR Report 2010, p. 81

⁵⁸ Orange: CR Report 2011, p. 40

⁵⁹ Interview with Therese Arnaut, CR manager at Orange, April 2012

⁶⁰ Orange: CR Report 2011, p. 88

⁶¹ Orange: CR Report 2011, p. 89

streams have been mapped and analysed and optimised with regard to the reduction of the environmental impacts⁶².

6.4.3: Telefonica

In 2010 for the first time, Telefonica expanded the focus of the CR report to sustainability and CR. This means that a stronger focus was put on sustainability and the underlying principles. At Telefonica, the focus is on Corporate Responsibility and sustainability. This is a difference to the competitors, which distinguish between these two concepts. For Telefonica, these concepts are closely connected and complement each other. The first CR report of Telefonica was published in the year 2000⁶³. Since then a report has been published each year. Next to the adding of the concept of sustainability to the CR report, sustainability has also been linked to the CR strategy. The CR strategy has been updated and extended with the issue of sustainability based on the 'Corporate Sustainability' definition of the Dow Jones Sustainability Index. This definition has also been embedded into the CR and sustainability vision of Telefonica, which states that

"here at Telefonica we regard sustainable management as the best way of achieving our vision of transforming possibilities into reality so as to create value for our employees, customers and shareholders globally and society in general" (Telefonica, n.d.).

For Telefonica the responsibility towards supply chains starts at the raw materials, which corresponds to the first stage of the life cycle. Telefonica published a statement on the metals obtained from conflict regions⁶⁴. Telefonica encourages its suppliers that metals and minerals from conflict areas such as the Republic of the Congo shall not be used. Additionally, Telefonica is a member of GeSI and supports the implementation of their principles. Besides the statement of conflict metals and minerals, Telefonica actively pursues the policy of avoiding such metals and minerals in products that are exclusively produced for Telefonica⁶⁵. In regard to social audits of suppliers, Telefonica only conducts first tier supplier audits. Therefore, the programs and objectives in regard to a sustainable supply chain management are presented in the following section which focuses on the second stage of the life cycle.

With regard to the second stage of the life cycle, Telefonica pursues a stringent sustainable supply chain policy. In 2010 about 150 audits at suppliers have been conducted⁶⁶. In total more than 1000 audits were performed by Telefonica at suppliers until the year 2010⁶⁷. Furthermore, Telefonica offered workshops and trainings on the topic of sustainability and strengthening the Corporate Responsibility culture at their suppliers, especially at risk-suppliers in Asian or Latin-American countries for example. Until the year 2010, more than 100 suppliers participated in these workshops⁶⁸. Besides the focus on the supply chains, Telefonica promotes the expansion of the newest generation of mobile network types (3G and

⁶² Interview with Therese Arnaut, CR manager at Orange, April 2012

⁶³ Telefonica, CR Report 2010

⁶⁴ Telefonica: CR Report 2010, p.19

⁶⁵ Telefonica: CR Report 2010, p.19

⁶⁶ Telefonica: CR Report 2010, p.20

⁶⁷ Telefonica: CR Report 2010, p.66

⁶⁸ Telefonica: CR Report 2010, p.66

4G) as these network types consume less energy than the older network types. With reference to consumer devices, Telefonica developed eco-friendly handsets and other handheld equipment together with their suppliers. One example is the cooperation between Nokia and Movistar Espana, which introduced and launched two handsets with modern environmental and energy efficient features⁶⁹.

With regard to the third stage of the life cycle, the strategies pursued by Telefonica are presented by the figure 6.5 below:

Figure 6.5: Telefonica: Green Mobile Service



In regard to the service user, Telefonica has the objective of offering the consumer a portfolio of eco-friendly products. Furthermore, consumers will be informed about a responsible use of these devices via so-called 'green-apps'. Additionally, Telefonica offers paperless billing as one example of green services. Related to the green devices are the green offers for consumers about new green products and accessories. The last aspect 'eco-responsibility' will be explained in the section on the fourth stage of the life cycle. Next to the green customer experience, Telefonica wants to offer smart and energy efficiency services, which presents the only element that is missing in their 'Green Mobile Service' approach. One example of this goal is that the expansion of the energy efficient 3G network is promoted, especially in Latin-American countries. Related to this goal is the reduction of GHG emissions. Although no specific reduction target has been stated, the 2010 CR report states that through the use of energy efficient technology of 44 energy efficiency projects about 245.238 tons of CO₂ emissions have been avoided⁷⁰.

The fourth stage of the life cycle deals with recycling and disposal. Related to this topic Telefonica chose as their focus the recycling of mobile devices. Telefonica offers its

⁶⁹ Telefonica: CR Report 2010, p. 41

⁷⁰ Telefonica: CR Report 2010, p.36

customers the collection and recycling of mobile devices. This strategy is pursued with special attention in Latin-American countries⁷¹. Unfortunately, no further information on this topic could be obtained from Telefonica.

6.4.4: Vodafone

For Vodafone and its national subsidiaries sustainability and Corporate Responsibility are important aspects on their managerial agenda. Vodafone pursues since many years a sustainability strategy. The first sustainability report was published in the year 2001. Since that year, Vodafone has reported about their sustainability performance every year. The corporate responsibility (CR) department of Vodafone was founded in the year 2000 (CR Report, 2005). In the beginning the focus was on reducing environmental impacts and establishing partnerships for assisting development programs. The focus of the CR department and the strategy stated by the executive management has changed over time due to new issues arising centred around the topic of corporate responsibility. In the current sustainability report of the year 2011, the sustainability mission of Vodafone is described as following:

“Our mission is to be admired as a diverse ethical company, operating responsibly and providing services that enable a more sustainable society for our customers by being the leading communications company” (Vodafone, Sustainability Report 2011, p. 1)

Referring to the first stage of the life cycle, Vodafone promotes the usage of conflict free minerals and noble earths as Vodafone is a member of the GeSI initiative. However, Vodafone does not have a special statement on the use of coltan or other conflict minerals. Furthermore, in regard to ‘sources’ Vodafone conducts supply chain audits at their suppliers and demands that these suppliers also demand environmental and social standards from their suppliers. However, Vodafone does not audit these second and third tier suppliers by themselves.

The strategy and activities related to sustainable supply chains also are a part of the second stage of the life cycle. In regard to the suppliers of network infrastructure and consumer devices Vodafone developed CO₂ emission targets and reduction strategies that cover 50 % of the total procurement of Vodafone⁷². In this regard Vodafone has the target of minimising their carbon footprint which includes also their suppliers GHG emissions. In regard to consumer devices Vodafone introduced in more than eight countries a solar charger for mobile devices⁷³. Additionally, Vodafone established environmental principles related to accessories and equipment products⁷⁴. The goal is that all suppliers of such products apply these principles and produce only eco-friendly accessories. However, not only environmental principles have been introduced at Vodafone, also packaging for Vodafone branded products

⁷¹ Telefonica: CR Report 2010, p.38

⁷² Vodafone: CR Report 2011, p. 11

⁷³ Vodafone: CR Report 2011, p. 16

⁷⁴ Vodafone: CR Report 2011, p. 16

has been redesigned in an eco-friendly matter, meaning that the amount of packaging has been reduced and eco-friendly materials have been used⁷⁵.

The third stage of the life cycle with the focus on service and service user means for Vodafone that, mainly energy efficiency and emission reductions are intended. Vodafone has set the target that until the year 2020, CO₂ emissions shall be reduced by 50 % compared to 2006⁷⁶. Furthermore, the carbon footprint of Vodafone shall be reduced. This goal is closely related to the CO₂ emission reduction target. Furthermore, Vodafone offers its customers several eco-friendly services such as paperless billing and energy efficient mobile connections. In order to achieve energy efficient mobile connections Vodafone deploys energy efficient network infrastructure and optimises the energy efficiency of its data centres. Related to that is that Vodafone pursues the expansion of the lower energy consuming 3G and 4G network generation.

In regard to the fourth stage of the life cycle, Vodafone offers its customers the possibility of returning their old mobile devices for recycling. Furthermore, Vodafone promotes the recycling of mobile devices and other electronic devices especially in emerging markets, such as developing countries. In mature markets, Vodafone analysed the waste and recycling streams and optimised the processes and chose on these criteria the best recycling contractor⁷⁷. Vodafone identified that electronic waste management is a problem in developing countries. In order to solve this problem, Vodafone pursues the goal of an active contribution to the capacity building in regard to the management of electronic waste. One example of this project is that workshops and training are offered to suppliers and contractors in developing countries on how to recycle and treat waste in a sustainable manner⁷⁸.

6.4.5: KPN

In the beginning of 2011, at the annual meeting of the shareholders the new CEO of KPN, Mr. Eelco Blok got appointed. With him a shift in the strategy of KPN took place. The new general strategy of KPN focuses on the pillars⁷⁹:

1. Strengthen
2. Simplify
3. Grow

The description of these three fields of activity of the new strategy implies that the focus of sustainability has shifted, in a form of no new targets or objectives. At least it can be stated that, based on the targets and objectives of the new strategy, a clear commitment to sustainability is not included in these three pillars. However, KPN still pursues sustainability targets. With regard to new sustainability and CR strategies, the year 2009 is important because several new policies and targets have been introduced and approved, which will be explained in the following paragraphs.

⁷⁵ Vodafone: CR Report 2011, p. 16

⁷⁶ Vodafone: CR Report 2011, p. 14

⁷⁷ Vodafone: CR Report 2011, p.6

⁷⁸ Vodafone: CR Report 2011, p.6

⁷⁹ KPN, Sustainability Report 2011

With regard to the first stage of the life cycle, KPN pursues the strategy of increasing the percentage of their supply chain being sustainable. Furthermore, KPN is a member of GeSI and hence is aware of the problem of minerals and noble earths extracted from conflict regions. However, KPN does not specify this topic and does not publish any further details on how the company deals with this topic and whether it demands further actions coping with the topic from its suppliers. As KPN does not pursue further strategies related to the first stage of the life cycle, the topic of sustainable supply chains will be fully covered in the next paragraph discussing the activities of KPN related to the second stage of the life cycle.

KPN has an extensive sustainable supply chain program. The importance of managing their supply chains in a sustainable way got strengthened when KPN joined the JAC program, which was founded by Deutsche Telekom among others, in November 2011⁸⁰. Furthermore, KPN pursues the goal of continuously auditing their suppliers and especially their high risk suppliers. In the year 2011, KPN conducted on-site audits at suppliers which add up to 35 % of their high risk suppliers⁸¹. Related to this number is the goal of KPN to have 90 % of their high risk suppliers audited on-site by 2016. Another strategy related to improving the supply chains is that by 2013 95 % of their high and medium risk suppliers have to have signed and implemented the KPN supplier's code, which since the membership in the JAC initiative partly equals the standards defined by the JAC⁸². A further strategy of KPN of increasing and raising the awareness about the topic of sustainability in supply chains is that KPN holds regular stakeholder meetings, including the suppliers and offers trainings and workshops on the topic of sustainability. Related to the infrastructure, KPN follows the goal of increasing the energy efficiency of their network and the required technologies.

The third stage of the life cycle covers the service offered by KPN and the service users. This stage is of special importance for KPN as a high percentage of their CSR activities are focused on this area. A first field of activity of the CSR department focuses on innovative solutions of a connected life and work. The goal is to allow employees as well as customers to do work from wherever they want, via remote access for example. This goal also relates to the goal of efficient energy consumption. One example is that business journeys and the related CO₂ emissions have been reduced through video conferences, which is one example of the strategy behind this first field of activity. The second field of activity 'responsible energy use' can be subdivided into further fields of activity ranging from energy savings to environmental issues and sustainable procurement. The strategy of energy efficiency is monitored by the CR KPI 'energy efficiency'. The focus on energy savings and using 100 % regenerative energy is part of the environmental strategy of KPN. Further environmental objectives focus on the recycling of ICT equipment and mobile phones. KPN has a close cooperation with the WWF and supports them financially⁸³.

In regard to the last stage of the life cycle, KPN only published details about their mobile phone recycling program. In the Netherlands more than 37.000 old phones have been collected and recycled in 2011⁸⁴. No further information on waste recycling or other programs

⁸⁰ CSREurope: http://www.csreurope.org/news.php?type=&action=show_news&news_id=4459

⁸¹ KPN, Sustainability Report 2011, p.60

⁸² KPN, Sustainability Report 2011, p.60

⁸³ KPN: <http://www.kpn.com/corporate/aboutkpn/corporate-responsibility.htm>

⁸⁴ KPN, Sustainability Report 2011, p.45

related to waste management could be found on their homepage or in the sustainability reports.

6.4.6: British Telecom (BT)

Since the beginning of the 1990s, sustainability plays an important role for BT. In 1991 BT implemented their first environmental management system and published their first sustainability report in 2001⁸⁵. Furthermore, BT has been one of the first companies that introduced CO₂ reduction targets. The first reduction target has been introduced in 1992 and has been adjusted and further strengthened every few years. The newest item on the sustainability agenda of BT is that a new procurement policy has been introduced in 2011. This new procurement policy will be explained further in the paragraph covering the first and second stage of the life cycle.

In regard to the first stage of the life cycle BT, as a member of GeSI, has signed their extractives statement and follows their approach on avoiding conflict minerals. However, BT does not have an own extractives statement. As already mentioned above, BT introduced a new procurement policy in 2011. This new procurement policy includes now specific carbon reduction targets for suppliers and encourages them to switch to low carbon consuming production technologies and further also encourages the development of environmental-friendly and low energy consuming products.⁸⁶ A third goal of this new strategy is to promote sustainable innovations among their suppliers. The promotion of sustainable innovations is especially directed at the suppliers of network infrastructure and mobile devices, which represents the second stage of the life cycle. Besides the focus on carbon reduction targets at suppliers, BT also cooperated with their suppliers in order to improve their environmental performance. In 2011, BT has cooperated with 270 suppliers and trained them on how to reduce their environmental impact.⁸⁷ In regard to the procurement of network infrastructure and mobile devices, BT has the goal that “every replacement product or service will have a lower environmental impact than its predecessor and this is having an impact on our product range” (BT, 2011, p.10). One example is that an improved broadband hub by BT uses 25 % less plastics in its manufacturing process.

In regard to the third stage of the life cycle, BT has the aim of decreasing their carbon footprint by 80 % by 2020 compared to 1997. This reduction target has been introduced in 2009, after the previous reductions targets have been met. The carbon reduction balance for the year 2011 shows that the carbon emissions are 59 % lower than the baseline of 1997.⁸⁸ The carbon reduction strategy of BT is based on three aspects.⁸⁹ First, the energy efficiency of the network infrastructure and further operational devices shall be increased. Secondly, more energy from renewable energy sources shall be purchased and renewable energies shall be generated and finally, low carbon energy, if energy from renewable energy sources is not possible, shall be purchased. The carbon footprint shall be further reduced as well as the

⁸⁵ BT: Sustainability Report 2011, p.2

⁸⁶ BT: Sustainability Report 2011, p.8

⁸⁷ BT: Sustainability Report 2011, p.10

⁸⁸ BT: Sustainability Report 2011, p8

⁸⁹ BT: Sustainability Report 2011, p.10

sustainability awareness of employees strengthened. Therefore, BT offers its employees sustainability trainings of how to include sustainability practices into their work and life. Furthermore, BT supplies companies with broadband equipment for video-conferences for example, that business travels can be avoided and carbon emissions resulting from business travels can be reduced.

The topic of waste and recycling as representing the last stage of the life cycle plays a more important role for BT since 2010 because in that year, BT changed their waste and recycling policy. Instead of having only one general waste contractor, BT signed contracts with several companies specialised in recycling in order to increase their recycling quotas and hence reducing the impact of resource depletion.⁹⁰ This new approach in handling waste led to a high reduction of waste sent to landfills. In 2011, 59% less waste has been sent to landfills as compared to in 2010. This is a high increase in the recycling quota because the result of the same comparison from 2010 to 2009 only showed an increase of 15%.⁹¹

6.5: Comparison and evaluation

Based on the descriptions of the programs and strategies of Deutsche Telekom and its five main competitors it can be summarised that all companies joined the GeSI initiative and therefore related to the first stage of the life cycle focus on raw materials such as minerals or noble earths. However, not all companies published a separate statement on how they deal with the topic of conflict minerals. Only Deutsche Telekom has published their statements online and explicitly addresses its suppliers and encourages them to contribute to an improvement of the situation in the mining industry and to implement sustainable consumption patterns in regard to minerals and lower resource depletion. In regard to the aspect of sustainable supply chains, only Deutsche Telekom, Orange, KPN and Vodafone joined the JAC initiative. However, all companies focus on improving the sustainability of their supply chains with executing on-site audits at their suppliers, but not all companies focus on the full supply chain, only Deutsche Telekom, Orange and Vodafone conduct second and third tier audits at their suppliers. The other companies only conduct first tier audits and do not audit the suppliers of their suppliers.

In regard to the second stage of the life cycle, all companies manage their supply chains in a sustainable way as it has been described above. Further topics in this field range from the design of eco-friendly products to reducing packaging and cooperation with suppliers on the creation of eco-friendly devices and equipment. Deutsche Telekom offers a wide range of eco-friendly products, whereas the competitors mostly focus on eco-friendly accessories and equipment. Orange pursues the goal of performing life-cycle assessments of their products and services. Furthermore, all companies promote the expansion of the newest generation of mobile network types in order to reduce their energy consumption and related GHG emissions.

The third stage of the life cycle covers mostly energy efficiency and reducing GHG emissions. All companies have the goal of reducing their energy consumption and GHG

⁹⁰ BT: Sustainability Report 2011, p.8

⁹¹ BT: Sustainability Report 2011, p.8

emissions. All companies except for Telefonica state specific targets for this reduction. The leader is BT with a reduction target of 80 % followed by Vodafone with a reduction target of 50 % and Deutsche Telekom with 40 % until the year 2020. Most companies nowadays offer the customers eco-friendly services such as paperless billings and inform their customers about responsible consumption and responsible usage of the devices. Deutsche Telekom takes the lead in this aspect with their project and homepage on 'sustainable actions' (nachhaltig handeln). In contrast, Telefonica wants to develop apps that inform customers about responsible consumption.

The last stage of the life cycle covers the topics 'waste and disposal'. All companies offer and promote the recycling of mobile devices. Some companies such as Orange offer its customers financial benefits for returning old devices. Furthermore, all companies have a waste management and try to recycle as much as possible of their waste. Several companies such as Vodafone, Orange or Telefonica which operate in developing countries offer trainings in regard to waste treatment and recycling in these countries in order to promote sustainable recycling and disposal techniques and activities.

As an evaluation it can be stated that all companies have a similar focus on sustainability aspects in the four stages of the life cycle. However, not all companies pursue their goals and strategies with the same high effort. Therefore, small differences in the implementation and execution of the strategies can be detected. A second aspect is that not all companies publish sufficient information about their sustainability programs and strategies on their homepages or in their CR or sustainability reports. Based on the comparison, Deutsche Telekom is doing more than its competitors in regard to sustainability issues, as the topic of waste or conflict minerals is addressed in more detail and also in a more transparent way than the competitors. In regard to energy reduction targets and energy efficiency Deutsche Telekom also takes a leading role because as in Germany or the Netherlands 100% of the energy consumption is generated by renewable energy sources for example. Furthermore, the CO₂ emission reduction target of 40% by the year 2020 compared to the baseline of 1995 is in absolute terms higher than the reduction target of Vodafone or British Telecom. Another unique aspect, which only Deutsche Telekom pursues, is that on the Internet advices on sustainable product usage and sustainable consumption patterns are presented and that the avoided CO₂ emissions are listed on the webpage. Although Deutsche Telekom does not support and promotes recycling and waste management practices in developing countries, this cannot be seen as a disadvantage for them because Deutsche Telekom is not operating in emerging countries. However, via GeSI topic related projects in these countries are supported. However, Deutsche Telekom can adopt some practices and strategies that their competitors pursue in order to improve their sustainability performance. One example is that Life Cycle Assessments of products and services can be conducted in order to improve the energy efficiency and reduce the environmental impacts of the product or service during the life cycle. This activity is partly performed by a team of the CR department that focuses on the creation of a criteria set for a sustainable product portfolio⁹². One last aspect to be evaluated is that not all of the analysed companies present and publish sufficient information about their strategies and programs they pursue related to sustainability. Deutsche Telekom has an extensive and detailed CR report and much further information such as the coltan statement

⁹² Interview with Karsten Zimmermann, CR manager at Deutsche Telekom, April 2012

for example can be found on their homepage. Orange has a very detailed CR report and was willing to give further information on the topics via an interview. In contrast to that KPN and BT did not answer the interview requests and only refer to their short CR reports which are not as extensive and detailed as the reports of the competitors. Therefore the sections on these companies are shorter than the others.

The question whether Deutsche Telekom can be described as the leader in regard to sustainability topics in the ICT industry will be answered in the conclusion and further recommendations for topics to be covered will be presented.

Chapter 7: Corporate Social Responsibility standards

After the CSR approaches of Deutsche Telekom and its competitors have been presented and explained, this chapter presents and compares the seven CSR standards. The first section of this chapter presents the results of the survey about which of the chosen standards are implemented at Deutsche Telekom and its main competitors. The second section of this chapter presents the seven standards and describes the requirements and structure of the standards based on the theoretical framework, developed in chapter two. The third section of the chapter compares the seven standards and clarifies the differences between them. Based on the comparison a short evaluation will be given of which standard is the most effective one to achieve sustainability, including a short comparison of the most effective standard with the description of the optimal standard described in chapter four.

7.1: Standards used in the European telecommunications industry

After the CSR programs and the activities in the four defined aspects of the Life-Cycle Assessment approach of Deutsche Telekom and its main competitors has been explained in the previous chapter, this section presents the results of the survey, which has been sent to all companies, in order to find out which of the main sustainability standards and other related standards are implemented at these companies. The result is visualised in table 7.1:

Table 7.1: Standards used in the European telecommunications industry

Company/ Standard	Deutsche Telekom	KPN	France Telecom	British Telecom	Telefonica	Vodafone
ISO 26000	No (in combination with SR 10)	No	Yes	No	Yes	No
SR 10	Planned for the future	No	No	No	No	No
DS 49001	No	No	No	No	No	No
UN Global Compact	Yes	Yes	Yes	Yes	Yes	Yes
SA 8000	No	No	No	No	Yes	No
AA 1000	Yes	No	Yes	Yes	Yes	Yes
GRI	Yes	Yes	Yes	Yes	Yes	Yes
German Sustainability Code	Planned for the future	No	No	No	No	No
ISO 14001	Yes	Yes	Yes	Yes	Yes	Yes
BS OHSAS 18001	Yes	Yes	Yes	Yes	Yes	yes

Based on the results of the survey the following conclusions can be made. First, not all chosen standards are known at the CR departments of the main companies of the European ICT sector. In regard to the knowledge and publicity of the standards it has to be mentioned that two of the chosen standards (German Sustainability Code, DS 49001) are national approaches to the topic and hence have a strong focus on the national market, with the small exception of the Danish DS 49001 standard which has been translated to German and is available for the German market. Due to the national focus, it is understandable that these two standards are

not known yet and do not play a major role in the CR departments of the European ICT companies and hence are not considered to be implemented in the near future. The second conclusion based on the results of the survey is that only four standards are implemented at all six companies, namely the UN Global Compact, the ISO 14001 environmental management system, GRI and the BS OHSAS 18001 health & safety management system. The third conclusion is that only three companies have implemented or have the plan of implementing the ISO 26000 standard in the future. Deutsche Telekom plans on implementing the SR 10 standard, which is based on the ISO 26000 standard. Telefonica and Orange stated that they have implemented the ISO 26000. This answer has to be regarded with caution because officially it is not possible to get certified for the ISO 26000 standard. In regard to Orange it means that the core subjects and the related requirements have been included in the principles of the GRI and hence can be regarded as implemented⁹³. Telefonica refers in their sustainability report to the adoption of the ISO 26000 principles without stating any further reference on how it is implemented.

The fourth conclusion is that the new SR 10 standard is not yet known at the main European ICT companies. Currently only Deutsche Telekom has the plan to get certified for it. The SA 8000 standard with its focus on social and labour conditions is only implemented at Telefonica because Telefonica demands from its Chinese suppliers that they adopt this standard⁹⁴. In regard to the SA 8000 standard it has to be mentioned that this standard has been developed in the United States and is therefore lesser known and demanded in Europe. The next conclusion is that the AA 1000 standard is next to the GRI principles the only standard that has a high publicity in Europe and is, except for KPN, adopted in all analysed companies. The only standard of the seven analysed, which is adopted in all six companies is the GRI standard. The GRI principles are in all companies implemented because all companies publish a sustainability or CR report according to these principles. The final, overall conclusion is that not all standards are known at the companies and that not all companies see the demand for getting certified for their CR or sustainability management according to the ISO 26000, or SR 10 standard for example.

The following section presents the seven chosen standards and describes their specifications and requirements according to the assessment framework.

7.2: CSR standards

7.2.1: ISO 26000

The ISO 26000 standard has been developed in a long process under the lead of the International Organisation for Standardisation (ISO). The standard was published in November 2010. The ISO 26000 has been developed by a multi-stakeholder approach. The development process will be explained later in this section. The ISO 26000 can be seen as the first standard that covers all aspects of sustainability ranging from economic, although in a limited way, to social and environmental topics. According to Kleinfeld (2011), the development process for the ISO 26000 standard was started in 2001 and from 2005 until

⁹³ Interview with Therese Arnaut, CR Manager at Orange, May 2012

⁹⁴ Telefonica: Sustainability Report 2010, p. 66

2010 more than 650 participants from six relevant stakeholder groups from 99 countries contributed to the development of the ISO 26000 standard. The drafting process included 8 meetings of the international task force that developed the standard. In September, the 77 members with voting rights of the ISO organisation voted upon the standard. The standard was accepted with 66 votes in favour, 6 abstentions and 5 votes against the standard⁹⁵.

7.2.1.1: Content

In regard to the content, the ISO 26000 standard includes 327 detailed requirements clustered in the following seven core subjects:

- Organisational governance
- Human rights
- Labour issues
- The environment
- Fair operating practices
- Consumer issues
- Community development and involvement

The requirements of the ISO 26000 standard are not expressed in a strict language because the standard has not been designed for certification. Instead it has been developed as a guideline which gives the company recommendation on which aspects and topics can be covered and adopted by the company. Therefore, many requirements contain expressions such as ‘if possible’ or ‘if applicable’. The standard gives companies some freedom and it further does not state specific goals or targets. The ISO 26000 standard includes a list of reference to 30 related standards also developed by the ISO organisation⁹⁶. Reference to other standards is made in order to present further topic specific standards with stricter demands. The list of references covers standards on the topic of quality management, different standards on environmental management or IT security management. This list of reference does not only promote the adoption of further standards but also partly uses them as sources for this standard. One example is that the core subject ‘the environment’ is based on the ISO 14001 environmental management system. In regard to the elements of implementation, the ISO 26000 is also one of the first standards that covers several elements, ranging from the mission statement to guidelines to reporting principles. The only requirement which the ISO 26000 misses is the demand for a social responsibility policy.

7.2.1.2: Quality of the control mechanisms

The second criterion of the theoretical framework ‘quality of the control mechanisms’ is dealt with only partly by the ISO 26000 standard because it has not been designed for certification. The adoption of the ISO 26000 is purely voluntary, although audits can be conducted. However, no time period for the measurement of the performance and conformity with the standard is given in the standard.

⁹⁵ Kleinfeld, Vertrauen in Vergleichbarkeit, 2011, p. 7

⁹⁶ ISO: ISO 26000, 2011, p. 13

A further weak aspect of the ISO 26000 is that it allows companies to opt-out of any requirements if they wish and can state reasons why this requirement is not relevant for the organisation. The section 7.3.2.1 of the standard describes the procedure by which the relevance of each requirement can be determined. In regard to the last secondary aspect B4, only the possibility of internal control is mentioned in the ISO 26000.

7.2.1.3: Legitimacy

In the beginning of the description of the ISO 26000, a few details about the development process have been presented. In total 443 experts and 214 observers and 42 liaison organisations such as the OECD, UN Global Compact or ILO belonged to the working group WG SR (Working Group Social Responsibility)⁹⁷. In the working group experts and observers from 99 countries (69 developing countries) were present⁹⁸. The more than 650 participants represent the three stakeholder groups ranging from industry, governments and labour unions to consumers, NGOs and academic scholars and researchers. The ISO 26000 was developed under the lead of the countries Brazil and Sweden⁹⁹. As the ISO 26000 is not a certifiable standard and is universally applicable no legal obligations can be derived from it. The ISO 26000 standard is not publicly available; it has to be bought from the ISO organisation. Furthermore, no guidance documents on how to implement the standard are available directly from the ISO organisation and also drafters notes and summaries of the stakeholder participation process are not available. In regard to C4, it can be stated that the revision of the ISO 26000 standard will be transparent because all members and liaison organisations have the possibility to state their opinion on the standard and can influence the outcome. Furthermore, the standard and all revisions have to be voted upon by the members of the ISO organisation.

7.2.2: SR10

The SR 10 standard was developed as a response to the ISO 26000 standard by the global industry association (IQNet) of the certification companies. After the ISO 26000 standard has been introduced companies demanded a certification for it. However, as the ISO 26000 has not been designed for certification, but rather as a guideline, IQNet developed under the lead of the German certification company DQS the SR 10 standard on the basis of the ISO 26000 and the RS 10, the Spanish social responsibility management system developed by the Spanish norms and certification association AENOR (Asociación Española de Normalización y Certificación)¹⁰⁰.

⁹⁷ Eickhoff, Gesellschaftliche Verantwortung, Zertifizierung eines CSR- Managementsystems, 2011, p.16

⁹⁸ Kleinfeld, Vertrauen in Vergleichbarkeit, 2011, p. 8

⁹⁹ Eickhoff, Gesellschaftliche Verantwortung, Zertifizierung eines CSR- Managementsystems, 2011, p.16

¹⁰⁰ IQNet: <http://www.iqnet-ltd.com/index.php?liv1=9&liv2=67&liv3=1>

7.2.2.1: Content

The SR 10 standard has been introduced in December 2011 and includes 141 requirements of all three topics of sustainable development. In regard to the content related to sustainability, the SR 10 only refers to the ISO 26000 standard and uses the standard as the basis and source. Therefore, the SR 10 standard covers the same core subjects and topics as the ISO 26000. In order to show which topics are covered, section seven of the standard describes shortly the core subjects and clusters the requirements of the ISO 26000. In the SR 10 standard, the requirements of each core subject of the ISO 26000 are presented in form of a summary. The strictness of the demands is of importance for the SR 10 standard. The SR 10 standard does not include in contrast to the ISO 26000 expressions such as ‘if possible or if applicable’ in its requirements. Therefore, the strictness of the demands is higher than the strictness of the demands in the ISO 26000 standard. As it already has been explained above, the SR 10 standard is based on the ISO 26000 standard and includes further references to management systems of topics such as environment, quality, occupational health & safety. Examples of references to other related standards are SA 8000, ISO 14001, ISO 9001 or BS OHSAS 18001¹⁰¹. In regard to the elements of implementation, the SR 10 covers all elements ranging from the mission statement, the policy, to the guidelines, audit requirements and reporting principles.

7.2.2.2: Quality of the control mechanisms

The second criteria ‘quality of the control mechanisms’ is vital for the SR 10 standard because the SR 10 has been designed as a certifiable management system. Therefore the type of control is a regular external audit. However, in regard to the regularity of the control no specific time period is given. The standard only states that “the organization shall conduct internal audits at planned intervals” (SR 10, 2011, p. 37). This requirement further shows that the SR 10 standard has been designed for internal and external control. Companies shall perform regular internal audits and in order to re-gain the certificate. Further regular external audits are demanded as well. However, as in regard to the internal audits no special time period is given. Hence, it can be concluded that it is up to the organisation to decide how often internal and external audits of the management system should be performed.

In contrast to the ISO 26000, the SR 10 directly states that all aspects and all requirements in regard to the management system have to be implemented. This means that no loop-holes are allowed by the SR 10 standard.

7.2.2.3: Legitimacy

During the development process of the SR 10 standard only businesses, especially the members of the IQNET organisations were involved because content-wise the ISO 26000 standard has been used as a source and only the requirements needed to place the content of the ISO 26000 into a management system has been added. Therefore, no stakeholder

¹⁰¹ IQNet, SR 10 Management system, 2011, p. 12

consultation process was necessary because IQNet had no intention of changing the content of the ISO 26000 or adding topics to or removing topics from the standard¹⁰². Although the SR 10 is a management system no legal obligations can be derived from it. The only obligations that exist are related to the conformity with the standard and in case of non-conformity the certificate can be revoked from the organisation.

Furthermore, the SR 10 standard is publicly available on the homepage of the IQNet industry association. However, no further guidelines for implementing the standard are provided because the national certification companies offer this as one of their services and hence want to earn money with supporting the implementation process of the standard at organisations. The last secondary aspect C4 has to be classified as low because only companies that got certified for this standard are allowed to express their opinions and critics on the standard, which then might be used for the revision of the standard.

7.2.3: DS 49001

The DS 49001 standard was developed as a response to the ISO 26000 standard by the Danish organisation for standardisation Dansk Standard. After the ISO 26000 standard has been introduced companies demanded a certification for it. However, as the ISO 26000 has not been designed for certification, but rather as a guideline, the Dansk Standard organisation developed the DS 49001 standard on the basis of the ISO 26000 standard. The German version of the DS 49001 standard has been introduced in September 2011 and includes 135 requirements of all three topics of Sustainable Development. The German version has been translated from Danish to German with the help of the German consultancy company, Rühl Consulting based in Nürnberg¹⁰³.

7.2.3.1: Content

In regard to the content, the DS 49001 standard only uses the ISO 2600 standard as the basis and source, comparable to the SR 10 standard. Therefore, the DS 49001 standard covers the same core subjects and topics as the ISO 26000. In order to show which topics are covered, the topics of the seven core subjects of the ISO 26000 are summarised in the DS 49001 standard. The strictness of the demands is comparable to the one of the SR 10 standard as it has been explained in the section on the SR 10 standard. As it already has been explained above, the DS 49001 standard is based on the ISO 26000 standard and on other related more topic specific standards such as the ISO 9001 or ISO 14001. In regard to the elements of implementation, the DS 49001 covers all elements ranging from the mission statement, the policy, to the guidelines, audit requirements and reporting principles.

¹⁰² Drechsel, IQNet SR 10 presentation, February 2012

¹⁰³ Forum nachhaltig wirtschaften: http://www.nachhaltigwirtschaften.net/scripts/basics/ecoworld/wirtschaft/basics.prg?session=42f942124fb3d9d4_526553&a_no=5674&r_index=3.1.1

7.2.3.2: Quality of the control mechanisms

The second criteria ‘quality of the control mechanisms’ is vital for the DS 49001 standard because it has been designed as a certifiable management system. Therefore the type of control is a regular external audit. However, in regard to the regularity of the control no specific time period is stated. Hence, it can be concluded that it is up to the organisation to decide how often internal and external audits of the management system should be performed. In contrast to the ISO 26000, the DS 49001 directly states that all aspects and all requirements in regard to the management system have to be implemented. This means that no loop-holes are allowed by the DS 49001 standard. This means if not all requirements are fulfilled, no certificate for compliance can be handed out.

7.2.3.3: Legitimacy

During the development process of the DS 49001 standard only businesses, such as consultancy firms and certification firms were involved because content-wise the ISO 26000 standard has been used as a source and only the requirements needed to place the content of the ISO 26000 into a management system has been added. Therefore, no stakeholder consultation process was necessary. Although the DS 49001 is a management system no legal obligations can be derived from it. In regard to the original Danish version it has to be stated that there references to Danish laws are made however, without stating explicit legal obligations. These obligations have been removed for the German version of the standard¹⁰⁴. The only obligations that exist are related to the conformity with the standard and in case of non-conformity the certificate can be revoked from the organisation.

Furthermore, the DS 49001 standard is not publicly available and has to be bought from the Dansk Standard organisation. The last secondary aspect C4 has to be classified as low because no information on the revision process and which stakeholders allowed to participate could be obtained.

7.2.4: GRI principles

The Global Reporting Initiative (GRI) was developed by the two US based non-profit organisations Ceres and Tellus Institute in cooperation with the UNEP in 1997¹⁰⁵. The mission of the GRI principles is to create “a sustainable global economy where organizations manage their economic, environmental, social and governance performance and impacts responsibly and report transparently.” (GRIa, n.d.). The GRI sustainability reporting framework can be best described as “principles for defining report content and ensuring the quality of reported information“ (GRI, 2006, p. 3).

¹⁰⁴ Dansk Standard: DS 49001, 2011, p. 14

¹⁰⁵ Global Reporting Initiative: <https://www.globalreporting.org/information/about-gri/what-is-gri/Pages/default.aspx>

7.2.4.1: Content

The GRI principles consist of 144 requirements of all three topic areas related to Sustainable Development including the following topics:

- Governance, commitments and engagement
- Economic performance
- Market presence
- Indirect economic impacts
- Materials
- Energy
- Water
- Biodiversity
- Emissions effluents and waste
- Products and services
- Compliance
- Transport
- Employment
- Labor/management relations
- Occupational health & safety
- Training and education
- Diversity and equal opportunity
- Investment and procurement practices
- Non-discrimination
- Freedom of association and collective bargaining
- Child labour
- Forced and compulsory labor
- Security practices
- Indigenous rights
- Community
- Public Policy
- Corruption
- Anti-competitive behaviour
- Customer health and safety
- Product and service labelling
- Marketing communications
- Customer privacy

As it already has been mentioned above, the GRI is a framework laying down principles and rules for developing sustainability reports. The focus is on ensuring a relevant content and consistent data quality of the reported content. The requirements of the GRI principles are presented in a strict and binding language. The definition, scope and boundaries are explained for all requirements in order to assure a high quality of the data used for the sustainability report. In regard to other related standards, no reference or no sources or basis for the standard is stated in the GRI principles. The GRI framework establishes principles for the reporting on the above mentioned sustainability topics. Therefore, in regard to A6, the GRI only covers the aspect of reporting.

7.2.4.2: Quality of the control mechanisms

The GRI framework establishes rules and principles for sustainability reporting of companies. In regard to the type of control, the GRI offers companies several levels of compliance with the principles. Companies have the option to get their sustainability reports certified in regard to the GRI principles. This certification is not based on an audit, as only the report is certified and therefore, only the content and data quality is reviewed. As each report has to be checked by the GRI organisation or certification and auditing companies, a time period for the regularity is not stated in the GRI principles. In regard to loop-holes, the GRI allows them because companies can choose if they want to get their sustainability reports certified according to the GRI principles or not. Additionally, different levels of compliance exist. The GRI distinguishes between three levels of compliance ranging from C to A+, whereas A+ presents the highest level of compliance¹⁰⁶. In this regard it has to be stated that companies choose the level of compliance and then decide whether they want to get certified according to that level or not. The last aspect of internal or external control is of minor importance for the GRI principles, as only external control of the sustainability report is possible as companies request it. The GRI does not include internal audits and compliance checks.

7.2.4.3: Legitimacy

The GRI principles have been developed by a multi-stakeholder process. Stakeholders from all three main stakeholder groups were included. For the society, the two main non-profit organisations that founded the GRI initiative were included as well as Amnesty International and the WWF. In regard to governments and multinational bodies, the UNEP and experts from the United Kingdom department for Environment, Food and Rural Affairs (DEFRA) and the Netherlands Ministry of Foreign Affairs were included¹⁰⁷. In regard to market actors, companies such as BP, Ford, or Shell as well as consultancy companies were included¹⁰⁸. Furthermore, in regard to the development process it has to be mentioned that each of the requirements for the main topic areas were developed by a separate advisory group with experts on the topic. Additionally, in the GRI report it is stated that for the revision of the GRI principles in the year 2006, more than 270 submissions such as public comments have been received and contributed to the revision of the principles¹⁰⁹. The GRI, as it is only a reporting framework does include legal obligations. Furthermore, the standard is publicly available; it can be downloaded for free from the homepage of the Global Reporting Initiative. However, no further guidelines or implementation support is given. The development and revision of the GRI principles show that the process is transparent because all stakeholder groups are encouraged to participate in the review process and can send their comments and critics on the principles. Furthermore, the standard is regularly updated with the last update taking place in 2006.

¹⁰⁶ GRI: GRI principles, 2006, p. AL 2

¹⁰⁷ GRI: GRI principles, 2006, p. 41

¹⁰⁸ GRI: GRI principles, 2006, p. 41

¹⁰⁹ GRI: GRI principles, 2006, p. 43

7.2.5: AA 1000

The AA 1000 standard, developed by the non-profit organisation AccountAbility, consists of three standards. First and most important, the AA 1000 principles, which defines the requirements which companies have to fulfil. The second standard, the AA 1000 Assurance standard uses the AA 1000 Principles standard as a basis and was developed “to assure the credibility and quality of sustainability performance and reporting” (AccountAbility a, n.d.) The third standard is also based on the AA 1000 Principles standard and focuses in more details on stakeholder engagement processes. Both, the Assurance and the Stakeholder engagement standards can be seen as additional standards to the original AA 1000 Principles standard. For the analysis of this master thesis only the Principles and the Assurance standards are analysed because these two standards establish the rules for companies on how to approach the topic of sustainability and assuring conformity to the principles. The goal of the AA 1000 Principles standard is described as “the AA1000 AccountAbility Principles are primarily intended for use by organisations developing an accountable and strategic approach to sustainability”; furthermore, “they will help such an organisation understand, manage and improve its sustainability performance.” (AA 1000 Principles, 2008, p.8). In contrast to that the goal of the Assurance standard is to “provide a platform to align the non-financial aspects of sustainability with financial reporting and assurance.” (AA 1000 Assurance, 2008, p.6). In regard to the content related to sustainability, the AA 1000 Principles standard will be analysed and for the criterion ‘quality of the control mechanisms’, the AA 1000 Assurance standard. For the analysis of the third criterion ‘legitimacy’, both standards and their development processes will be explained.

7.2.5.1: Content

The AA 1000 Principles standard consists of 46 requirements. The standard does not follow the same approach as all other six standards because the term sustainability and the related topics to be covered are not defined or explained. The AA 1000 standard only defines three main principles ‘inclusivity, materiality and responsiveness’, which contain further sub-criteria.

The first principle ‘inclusivity’ refers to taking an accountable and strategic approach to sustainability by including stakeholders in its development process. This means that companies define the impacts and develop a sustainability strategy in cooperation with the concerned stakeholders. The second principle ‘materiality’ determines “the relevance and significance of an issue to an organisation and its stakeholders” (AA 1000 Principles, 2008, p.12). This means that the sustainability impacts are defined and their significance is determined in cooperation with stakeholders. The third principle ‘responsiveness’ establishes rules for how a company responds to stakeholders and the sustainability issues that affect the performance of a company. The responsiveness can include a management system, a policy or further strategies related to sustainability.

In regard to the topics covered, the AA 1000 Principles standard does not provide specific requirements. It only states that companies shall define in cooperation with stakeholders the relevant sustainability aspects and topics. Therefore, only the three main

aspects of sustainability are covered but no further detail requirements, which are displayed in the section on the comparison and evaluation of the seven standards. This ‘flexible’ approach is also visible in regard to the strictness, the AA 1000 principles does not include strict demands, except for the three guiding principles. The idea is that companies develop everything for themselves in cooperation with the concerned stakeholders.

The AA 1000 Principles standard does neither include a reference to other standards, nor states that it is based on other related standards. This is due to the reason that the topics to be covered by sustainability are not defined. In regard to the ‘elements to implementation’, the AA 1000 Assurance standard will be used as a source because in this standard specific requirements for implementation, measurement, audits and reporting such as guidelines are stated.

7.2.5.2: Quality of the control mechanisms

For the analysis of the second primary aspect (B), the AA 1000 Assurance standard will be used. In regard to the first secondary aspect B1, the standard is established as a certifiable management system. The Assurance standard further explains the rules of how assurance providers, such as auditing companies, shall evaluate the conformity to the three principles. However, no specific requirement for the regularity of the control is stated in the standard. In regard to the loop-holes, the standard allows to levels of assurance. The first level represents a high level of conformity to the three principles. The second level only assures a moderate level of conformity to the principles. This assurance statement of high or moderate assurance has to be checked and confirmed through an external audit.

7.2.5.3: Legitimacy

The three AA 1000 standards have been developed following the same procedure. The development and revision process is based on multi-stakeholder process. During those processes stakeholders of all three groups, government, society and market from developed and developing countries were involved. The AA 1000 standards have an independent governance structure, which consists of the Interim Standards Board and two technical committees¹¹⁰. The task of the Interim Standards Board is “to provide oversight and guidance on the strategy and development of the Standards while AccountAbility serves as the Secretariat and Steward of AA1000 with responsibility for financial and business matters” (AccountAbility b, n.d). The technical committees assist the Interim Standards Board and provide recommendation and guidance on the content of the standards¹¹¹. The process of drafting and revision consists of three 60-90 days public review processes using Wiki-software¹¹². Furthermore, interviews with experts from 20 countries were conducted in order to get further insights on the expectations of stakeholders in regard to the content of the standards. In regard to C4, the AccountAbility organisation pursues the goal of full

¹¹⁰ AccountAbility: <http://www.accountability.org/standards/aa1000-governance/index.html>

¹¹¹ AccountAbility: <http://www.accountability.org/standards/aa1000-governance/index.html>

¹¹² AA 1000 Principles: 2008, p. 5

transparency. This means that the standards can be downloaded for free from the AccountAbility homepage, that the governance structure is explained in detail and minutes of the important meetings can be downloaded. Furthermore, the online consultation process using the Wiki software shows as well the commitment to transparency. The first Principles standard was developed in 1999 and was first revised in 2003 and for the second time in 2008¹¹³. The Assurance standard was first developed in 2003 and then for the first time reviewed in 2008¹¹⁴. This shows that the standards are revised on a regular basis using a multi stakeholder participation process.

7.2.6: German Sustainability Code

The German Sustainability Code (GSC) is a sustainability standard based on the principles of the GRI. The GSC was developed in 2010 and was officially introduced in January 2012. The standard was developed under the lead of the German Council for Sustainable Development, an initiative with the goal of promoting sustainability in the German economy. The council consists of 15 members of the public life in Germany. Each of the members of the council has an affiliation for the topic of Sustainable Development and is an expert in this field. The members gained their knowledge through their job or academic education. The members of the council come from governmental organisations, businesses, labour unions and universities¹¹⁵.

The council was established in 2010 and the development of the code was decided upon in October 2011. The process of developing the code included several conferences in which stakeholders could express their concerns, ideas and opinions about the code¹¹⁶.

7.2.6.1: Content

The GSC consists of 20 requirements. In regard to the inclusiveness of the topic areas, the GSC covers all three aspects of Sustainable Development and in detail focuses on the following topics:

- Stakeholder engagement
- Incentive schemes
- Innovation and product management
- Usage of natural resources
- Climate change
- Employee rights and diversity
- Human rights
- Corporate citizenship

¹¹³ AccountAbility: AA 1000 Principles standard, 2008, p.4

¹¹⁴ AccountAbility: AA 1000 Assurance standard, 2008, p.5

¹¹⁵ Council for sustainable development: <http://www.nachhaltigkeitsrat.de/de/der-rat/fact-sheet/?size=1%200%200%20%20blstr%3D0-1%20union%20select%200%2C1%2C2%2C3%2C4%2C5%2C6%2C7->

¹¹⁶ Council for sustainable development: <http://www.nachhaltigkeitsrat.de/projekte/eigene-projekte/deutscher-nachhaltigkeitskodex/?blstr=0>

- Political influence
- Corruption

In regard to the strictness of the demands, the GSC uses an unambiguous language and states precisely what the requirements are. Furthermore, the demands are strict in a way as no expressions are used which may weaken the requirements. The GSC includes several specific references to other standards, namely the ISO 26000 guidelines, the UN Global Compact and the OECD Guidelines for Multinational Enterprises. The GSC refers to them as related standards, which has been used as an input for the development of the GSC¹¹⁷.

The GSC is based on the GRI principles and uses the requirements of the GRI principles as the detailed description of the content of the standard. For each of the above presented topic areas, the requirements of the GRI are stated. In regard to the elements to implementation covered, the GSC demands a mission statement and includes specific guidelines and requirements for implementation and measurement as well as reporting requirements.

7.2.6.2: Quality of the control mechanisms

The second criterion of analysis (B) is not covered in detail in the standard because the GSC is voluntary and not auditable and externally certifiable¹¹⁸. As the GSC is not auditable and not certifiable no further requirements in regard to regularity of the control and internal or external control are stated. In regard to the possibilities of loop-holes the GSC does not allow companies to opt-out of requirements but in turn “companies can make meaningful additions” (GSC, 2012, p.22) to the standard and expand the scope and topics to be covered for example.

7.2.6.3: Legitimacy

The third criterion of the theoretical framework analyses the development and transparency of the standard. The GSC was developed under the lead of the German Council for Sustainable Development with the support of many stakeholders from society, businesses, universities and governmental organisations. During the development of the standard, three main events took place. First, a three month long consultation period from December 2010 until February 2011, followed by a stakeholder dialogue workshop in March 2011 and an expert workshop in May 2011¹¹⁹. In total 75 stakeholders participated in the consultation phase and the following dialogue workshop¹²⁰.

With regard to C2, no obligations can be derived from the GSC because it is purely voluntary and companies just sign a conformity statement if they want to participate and adopt the GSC. In regard to the secondary aspect C3, it has to be stated that the GSC as well as further documentation on the development can be downloaded for free from the homepage of the Council for Sustainable Development. The last detailed aspect C4 is important for the

¹¹⁷ German sustainability code, 2012, p. 17

¹¹⁸ German sustainability code, 2012, p. 21

¹¹⁹ Bassen, Deutscher Nachhaltigkeitskodex, Konzeption und erste Ergebnisse der Dialogphase, 2011, p.7

¹²⁰ Bassen, Deutscher Nachhaltigkeitskodex, Konzeption und erste Ergebnisse der Dialogphase, 2011, p. 10

GSC as the development process shows. Furthermore, according to Bassen, 2011, the GSC allows for further revision and encourages its stakeholders to actively participate in the revision processes. One example is that the stakeholders had the opportunity to develop alternatives to central points of discussion. One example of an aspect of the standard and an alternative proposed by several stakeholders is the conformity declaration whether it should stay voluntary or if limited or reasonable assurance shall be introduced¹²¹. However, a first date for the revision process is not yet given because the standard was first introduced in January 2012.

7.2.7: SA 8000

The SA 8000 standard has been developed by the Social Accountability International (SAI) organisation. The first version of the standard has been published in 1997. The first revision took place in 2001 and the second one in 2008¹²². The current version is the revised version from 2008. The SA 8000 has been originally designed for the American market because the SAI organisation is an NGO based in New York.

7.2.7.1: Content

The SA 8000 standard contains 49 requirements related to the topic of human rights and labour practices. In detail, the following topics are covered by the SA 8000 standard:

- Child labour
- Forced and compulsory labour
- Health and safety
- Freedom of association & Right to collective bargaining
- Discrimination
- Disciplinary practices
- Working hours
- Remuneration
- Control of Suppliers

The SA 8000 standard as it can be concluded from the list of topics covers only the social aspects of Sustainable Development and in detail employee relations and human rights. The reason for this coverage is that the SA 8000 standard has been designed as a management system specifically related to this topic. The SA 8000 standard can be regarded as one of the standards with the strictest demands because specific targets and goals related to working hours for example are stated. In regard to working hours the limitation of 48 hours is stated¹²³. In regard to A4 and whether the SA 8000 standard is based on other standards reference to the numerous ILO conventions is given as well as to the Declaration of Human Rights and further UN conventions. However, these other standards are only reference documents and are not the basis for the SA 8000 standard. In regard to A6, the SA 8000 standards requires a policy and documentation control of audit plans, the performance of the implementation and specific guidelines on how the standard shall be implemented.

¹²¹ Bassen, Deutscher Nachhaltigkeitskodex, Konzeption und erste Ergebnisse der Dialogphase, 2011, p. 20

¹²² SAI: SA 8000 Drafters notes, 2008, p.1

¹²³ SAI: SA 8000:2008, 2008, p. 7

7.2.7.2: Quality of the control mechanisms

The SA 8000 standard has been designed as certifiable management system, this means that regular control both internal and external audits are required by the standard. However, no specific time period is stated, only the word ‘periodically’ is used. Furthermore, the SA 8000 standard does not allow companies to opt out of requirements. This means that no loop-holes are possible.

7.2.7.3: Legitimacy

The SA 8000 standard has been developed and revised “after a multistakeholder, consensus-based drafting process” (SAI, Drafters notes, 2008, p1). However, the exact number of involved stakeholders and where they are from is not stated by official documents of the SAI organisation. Although, the SA 8000 has the strictest demands no legal obligations can be derived from them. Further, in regard to the accessibility to the standard, the SA 8000 standard performs well because the standard as well as drafter’s notes and guidance documents can be downloaded for free from the homepage of the SAI organisation.

In regard to the transparency of the SA 8000 standard it has to be mentioned that the SAI organisation regularly updates the standard in order to correct mistakes and to further improve the standard. The revision of the standard is performed with a multi-stakeholder approach. All companies or organisations are allowed and encouraged to state their opinion and critics on the standard and by this contribute to the improvement of the standard. The standard itself describes the rules for the revision as following:

“SA8000 is revised periodically as conditions change, and to incorporate corrections and improvements received from interested parties. Many interested parties have contributed to this version. It is hoped that both the standard and its Guidance Document will continue to improve, with the help of a wide variety of people and organisations. SAI welcomes your suggestions as well. To comment on SA8000, the associated SA8000 Guidance Document, or the framework for certification, please send written remarks to SAI at the address indicated below.” (SAI, SA 8000:2008, p.1).

This shows in detail that the topic of transparency related to the revision of the standard is of special importance for the SAI organisation.

7.3: Comparison and evaluation of the standards

After the seven standards have been presented and their specifications in regard to the criteria of the assessment framework have been described, the following section compares the seven standards according to the secondary aspects of the assessment framework and presents the results of this comparison.

7.3.1: Content

The first table by which the standards are compared presents the number of demands. The ISO 26000 standard is the standard with the highest number of demands followed by the GRI principles. These two standards cover nearly the same topics with the only difference that the ISO 26000 standard is more detailed and inclusive. This in turn means that the ISO 26000 standard is the standard with the most detailed requirements.

Table 7.2: Number of demands

Number of demands / Standard	Number of demands
ISO 26000	327
SR 10	141
DS 49001	135
SA 8000	49
AA 1000	46
GRI	144
German Sustainability Code	20

The second criterion, which is presented in form of a table, is the coverage of topics by the standards. First, the general overview is given and it is presented whether the standards cover all three related aspect of Sustainable Development, namely economic, social and environment. The three tables 7.4, 7.5, 7.6 below table 7.3 present in detail which aspects of the three main topics are covered by the standards. The comparison of the seven standards in regard to the three topics of sustainable development shows that all standards except for the SA 8000 standard cover all three topic areas. The SA 8000 is an exception because it is labour and social issues specific and therefore does not cover environmental or economic aspects. The ISO 2600 and the GRI standard cover all detailed aspects of the three main topic areas. In the section on the GRI an extensive list of topics covered is stated. This list is the same as for the ISO 26000, although in that section it is not stated as detailed as in the GRI section because the structure of the GRI clusters the topics in a better and easy to understand way.

Table 7.3: Sustainability aspects

Sustainability aspects covered/ Standard	Economic (profit)	Social (people)	Environment (planet)
ISO 26000	Yes (limited)	Yes	Yes
SR 10	Yes (limited)	Yes	Yes
DS 49001	Yes	Yes	Yes
SA 8000	No	Yes	No
AA 1000	Yes	Yes	Yes
GRI	Yes	Yes	Yes
German Sustainability Code	Yes	Yes	Yes

The next table 7.4 presents the detailed aspects of the ‘economic’ coverage in the standards. Five out of the seven analysed standards cover all four economic sub-aspects, only the SA 8000 standard and the AA 1000 standard do not cover these sub aspects. The reason for the SA 8000 standard is that this standard is a specific standard with the focus on labour and social issues. In regard to the AA 1000 standard the reasoning is complicated because

although the general topic coverage of ‘economic’ is affirmed, no coverage related to the four specific aspects is stated. As it has been explained in the paragraph on the AA 1000 standard, only the three general topics of sustainable development are covered without making further reference to which aspects are included and should be covered.

Table 7.4: Economic CSR topics

Coverage Economic CSR topics/ Standard	Financial Development	Economic development	Consumer issues	Corruption
ISO 26000	Yes	Yes	Yes	Yes
SR 10	Yes	Yes	Yes	Yes
DS 49001	Yes	Yes	Yes	Yes
SA 8000	No	No	No	No
AA 1000	No	No	No	No
GRI	Yes	Yes	Yes	Yes
German Sustainability Code	Yes	Yes	Yes	Yes

The table 7.5 presents the results of the comparison of the sub-aspects of the ‘social’ topic. In regard to these sub-aspects, the ISO 26000, SR 10, DS 49001, GRI and GSC standards cover all six sub-aspects. The SA 8000 standard includes only the sub-aspects ‘employee relations’, ‘supply chain actors’ and ‘human rights’. The reason for this coverage has already been explained above. The AA 1000 standard as in contrast to the non-coverage of the detailed sub-aspects of the ‘economic’ topic includes in this topic field specific requirements related to ‘human rights’ and ‘stakeholder engagement’. The topic of human rights is explicitly expressed in the standard and the topic of ‘stakeholder engagement’ is covered by the sub-standard of the AA 1000 standard, the AA 1000 stakeholder engagement standard.

Table 7.5: Social CSR topics

Coverage Social CSR topics/ Standard	Employee relations	Consumer (health & safety)	Human Rights	Community development	Supply chain actors	Stakeholder engagement
ISO 26000	Yes	Yes	Yes	Yes	Yes	Yes
SR 10	Yes	Yes	Yes	Yes	Yes	Yes
DS 49001	Yes	Yes	Yes	Yes	Yes	Yes
SA 8000	Yes	No	Yes	No	Yes	No
AA 1000	No	No	Yes	No	No	Yes
GRI	Yes	Yes	Yes	Yes	Yes	Yes
German Sustainability Code	Yes	Yes	Yes	Yes	Yes	Yes

The third table 7.6 shows the detailed coverage of requirements of the topic ‘environment’. The results are similar to the ones of the first topic ‘economic’. All standards except for the SA 8000, GSC and the AA 1000 standard include detailed requirements related to the protection of the ecosystem earth as the concept of planetary boundaries describes it. The GSC covers the topics of climate change, energy, waste and resources, the topics of air and water and biodiversity are not covered for unknown reasons.

Table 7.6: Environmental CSR topics

Coverage Environmental CSR topics/ Standard	Biodiversity	Energy (sustainable use)	Climate change	Air and water quality	Waste	Resource depletion
ISO 26000	Yes	Yes	Yes	Yes	Yes	Yes
SR 10	Yes	Yes	Yes	Yes	Yes	Yes
DS 49001	Yes	Yes	Yes	Yes	Yes	Yes
SA 8000	No	No	No	No	No	No
AA 1000	No	No	No	No	No	No
GRI	Yes	Yes	Yes	Yes	Yes	Yes
German Sustainability Code	No	Yes	Yes	No	Yes	Yes

The first criterion to be presented in form of a text is A3. The analysis of the standards shows that all standards use an unambiguous and clear language for describing the requirements. All standards except for the ISO 26000 standard demand strict targets, goals and present their requirements in a way that companies can identify easily what and how has to be implemented if compliance with the standards shall be achieved. Only the ISO 26000 standard includes expressions that weaken the strictness of the demands. Examples for these expressions for weakening the strictness are ‘if applicable’, ‘if possible’ and others. In regard to the strictness, the criterion of possibilities of loop-holes is related which is presented later in this section.

The criteria A4 and A5 can be presented in one section. The result of the analysis is that the SR 10 and DS 49001 standard are based on another standard, the ISO 26000 standard. Furthermore, both standards relate to standards such as ISO 14001, ISO 9001 or BS OHSAS 18001. The German Sustainability Code is based on the GRI principles. The SA 8000 and the AA 1000 standards do not state any specific reference to related standards or on which standards they are based. The ISO 26000 standard further uses many other ISO standards as sources and also refers to them in order to recommend further actions and requirements presented in these topic specific standards.

The table 7.7 displays the elements to implementation that are covered by the seven standards. In regard to the requirement of the mission statement all standards except for the SA 8000, AA 1000 and the GRI standard require a specific mission statement of the company. In regard to the requirement of having a policy, only the ISO 26000, SR 10, SA 8000 and DS 49001 standards require such a document. In regard to ‘guidelines’, all seven standards include such a section. The following requirement of specifying details on implementation and measurement is included in all standards except for the GRI standard. The GRI standard is next to the GSC standard, the two that do not include a section on evaluation audit requirements. In regard to reporting requirements only the SA 8000 standard does not include such a section. The GSC includes all aspects except for the policy and the evaluation and audit requirements.

Table 7.7: Elements to implementation

Elements to implementation/ Standard	Mission statement	Policy	Guide-lines	Implementation and measurement	Evaluation and audit	Reporting
ISO 26000	Yes	Yes	Yes	Yes	Yes	Yes
SR 10	Yes	Yes	Yes	Yes	Yes	Yes
DS 49001	Yes	Yes	Yes	Yes	Yes	Yes
SA 8000	No	Yes	Yes	Yes	Yes	No
AA 1000	No	No	Yes	Yes	Yes	Yes
GRI	No	No	Yes	No	No	Yes
German Sustainability Code	Yes	No	Yes	Yes	No	Yes

7.3.2: Quality of the control mechanisms

The following table 7.8 presents the results of the comparison of the criterion ‘type of control’. All standards except for the GSC are auditable. In regard to the certification of the standards, only the ISO 26000 and the GSC standards are not designed for certification. It is explicitly stated in both standards that it is not possible to get certified for them.

Table 7.8: Type of control

Type of control/ Standard	Auditable (internal control)	Externally certifiable (external control)
ISO 26000	Yes	No
SR 10	Yes	Yes
DS 49001	Yes	Yes
SA 8000	Yes	Yes
AA 1000	Yes	Yes
GRI	Yes	Yes
German Sustainability Code	No	No

The next criterion that has to be presented is B2. Based on the information obtained from the standards, the result is that none of the seven standards states a recommendation for a time period of how often the performance and conformity should be checked. The SR 10 standard states that the performance shall be checked through internal audits at planned intervals. From this it can be concluded that companies can decide how often the performance is checked. This conclusion can also be related to the SA 8000 standard because there it is stated that the performance shall be reviewed periodically

The table 7.9 shows which standard allows companies to opt-out of certain requirements. Only the ISO 26000 and the GRI standard include such an option. The ISO 26000 standard explicitly states that companies have to define the relevance and scope of the implementation of the ISO 26000 standard. The GRI standard allows companies to publish their CSR reports according to their standards, however, without certifying them for their compliance with the standard. This means that companies can choose whether they want to get certified or not for their GRI based CR report.

Table 7.9: Possibility for loop-holes

Possibility for loop-holes / Standard	Possibility for loop-holes
ISO 26000	Yes
SR 10	No
DS 49001	No
SA 8000	No
AA 1000	No
GRI	Yes
German Sustainability Code	No

7.3.3: Legitimacy

The primary aspect ‘legitimacy’ is presented in the tables 7.10 and 7.11. The first table 7.10 displays the nature of the organisation that developed the standards, the accessibility of the standard and the engagement of stakeholders in the revision process. In regard to the nature of the organisation, all standards except for the SR 10, German Sustainability Code and the DS 49001 have been developed by NGOs that are also non-profit organisations. The DS 49001 and the SR 10 standards have been developed by organisations that belong to the actor type ‘market’. Both organisations are businesses that strive for profits and want to sell their products such as these standards. The German Sustainability Code has been developed by the German Council for Sustainable Development an initiative founded by the German government and parliament. Related to the before mentioned criterion, is the accessibility of the standards. The DS 49001 and the ISO 26000 standard are the only two standards which are not publicly available. Both standards have to be purchased from the organisations that developed them. Surprisingly, the SR 10 standard although developed by a business is publicly available and can be downloaded from their homepage. All other standards are also available online and can be downloaded at the respective internet homepage of the organisation. In regard to the inclusion of stakeholders in the revision process it can be concluded that all standards except for the DS 49001 standard allow all stakeholders to participate in the revision process and encourage them to present their opinion and critics on the standards. One slight exception is the SR 10 standard which only allows businesses that have implemented the standard to state their opinion in the review process.

Table 7.10: Legitimacy

Legitimacy/ Standard	Non-profit Organisation	NGO	Free access to the standard	Stakeholder engagement in revision
ISO 26000	Yes	Yes	No	Yes
SR 10	No	No	Yes	Yes (only businesses)
DS 49001	No	No	No	No
SA 8000	Yes	Yes	Yes	Yes
AA 1000	Yes	Yes	Yes	Yes
GRI	Yes	Yes	Yes	Yes
German Sustainability Code	Yes	No	Yes	Yes

The table 7.11 displays the types of stakeholders that participated in the development of the standards. The result is that all standards except for the SR 10 and DS 49001 standards have been developed with the support and participation of stakeholders of all three sectors, the government or multilateral bodies, businesses or industry associations and NGOs. Only the SR 10 and DS 49001 standard allowed businesses and industry associations to participate in the development process of the standard.

Table 7.11: Stakeholder involvement

Stakeholders involved/ Standard	Government /Multilateral bodies	Businesses / Industry associations	NGOs
ISO 26000	Yes	Yes	Yes
SR 10	No	Yes	No
DS 49001	No	Yes	No
SA 8000	Yes	Yes	Yes
AA 1000	Yes	Yes	Yes
GRI	Yes	Yes	Yes
German Sustainability Code	Yes	Yes	Yes

7.4: Evaluation

After the seven standards have been compared, the following section evaluates the comparison and presents the standard which can be labelled as the most effective system to achieve sustainability. As a result of this comparison it can be concluded that the SR 10 standard in combination with the ISO 26000 standard is the most effective system to achieve sustainability. The most effective system in regard to quality of the control mechanisms is the SR 10 standard because it has the strictest requirements in regard to the quality of the control mechanisms and covers through the reference to the ISO 26000 standard all topic areas of Sustainable Development. Furthermore, the SR 10 standard is publicly available. However, the weakness of the standard is that it only businesses were consulted in the creation process of the standard and also for the revision of the standard only businesses can participate.

In regard to the aspects of ‘content’ and ‘legitimacy’, the ISO 26000 standard is the most effective system to achieve sustainability. The first reason for this conclusion is that the ISO 26000 standard covers more topics and detailed aspects related to sustainable development than the other standards. Furthermore, the ISO 26000 standard includes all elements to implementation ranging from the mission statement to the guidelines and the reporting requirements. Besides that, the ISO 26000 has the highest number of demands and is the most inclusive and detailed one. In regard to the development process, the ISO 26000 standard fulfils the requirements of the description of the optimal standard, except for the fact that the standard is not publicly available and has to be bought, but it has been developed with a high number of stakeholders of all three groups, governments, businesses and NGOs. Furthermore, many stakeholders from developing countries were involved in the development process of this standard.

The result of the analysis of the standards is that the SR10 standard in combination with the ISO 26000 guidelines is the most sustainable standard. This means by implementing

this standard, a company achieves a higher contribution to Sustainable Development as compared to the six other standards. The question of how these two standards can be implemented at Deutsche Telekom will be answered in the next chapter, in which the results of the gap analysis of both standards at Deutsche Telekom are presented.

Chapter 9: Conclusion

In this master thesis, different standards on the topic of sustainability and corporate social responsibility have been analysed and compared. Furthermore, the environmental and social impacts of the telecommunications industry have been described and the activities and strategies of the companies in the ICT sector and the related inter-brand associations have been analysed in order to answer the following main research question:

‘Which third party Corporate Social Responsibility/Sustainability governance system could be used in the ICT industry, what is the scientific basis for the quality of these systems and how can they be implemented at a company from the ICT sector’.

Next to this main research question further sub research questions with the focus on which of the analysed standards is the most effective system to contribute to sustainable development and how it can be implemented at Deutsche Telekom, if they want to be the leading company in regard to sustainability issues in the telecommunications industry, have been explained in this thesis.

9.1: Summary

In order to answer the main research question, several steps have been taken. First, the optimal, most effective system with the highest contribution to sustainable development has been described and explained. The most effective system can be summarised as following; it should cover all aspects and topics of Sustainable Development ranging from economic to social and environmental aspects. Furthermore, strict requirements about developing a policy, reporting standards and a vision shall be included. Furthermore, the most effective system shall be based on a certifiable management system which is regularly reviewed and improved. Finally, the most effective system shall be developed with the input from many stakeholders from all parts of society, governments and markets and shall be regularly updated and improved itself.

The second step explains the major environmental and social impacts that occur in the ICT industry, specifically by operating a mobile network. The main impacts are CO₂ and CO₂-equivalents emissions mainly from the production of electricity, resource depletion of the raw materials such as minerals, ores, metals and noble earths used in the network infrastructure equipment and the mobile devices and the recycling and disposal of the used mobile devices and mobile infrastructure. Additionally, emissions to water and soil such as heavy-metal expulsions (zinc, arsenic, aluminium) occur. These impacts are only minor ones, but affect next to human health the entire ecosystem of the world.

For the third step, the activities and strategies of the telecommunications industry, both at company level and inter-branch association level have been analysed and compared. The results are that the ICT sector mainly focuses on energy efficiency, including CO₂ reduction targets and the managing of the entire supply chains in a sustainable matter. Several companies have issued a statement on the extraction of minerals from conflict areas and encourage their suppliers to avoid these conflict minerals. The last major focus of the ICT

sector is on establishing efficient mobile phone collection and recycling practices. Several companies also offer assistance and trainings on recycling in developing countries.

The fourth and fifth step are the main analysis of this master thesis, the presentation and comparison of the seven CSR/sustainability standards. The result of this analysis and comparison is that the SR 10 management system in combination with the ISO 26000 guidelines is the most effective system in regard to contributing to sustainable development because on the one hand it combines the elements of a strict management system and on the other hand, it covers all topic areas and elements to implementation that the optimal standard should address. Based on this result the last step has been executed, the gap analysis of the two standards at Deutsche Telekom. The result is that the ISO 26000 is, except for 18 out of the 327 aspects, fully implemented at Deutsche Telekom. In regard to the SR 10 management system Deutsche Telekom still has to implement 28 of the 96 requirements in order to be able to get certified.

9.2: Answer to the research question

The answer to the main research question is that all seven analysed CSR standards can be applied to and implemented in a company of the ICT sector. However, the SR10 standard in combination with the ISO 26000 guidelines is the most effective one for the following reasons. First, the SR 10 standard includes all the important strict elements of a standardised management system such as the development of policy, a vision and specific, measurable targets and objectives, continuous improvement of the system and regular external control through auditing companies. Second, the SR 10 standard includes all topic areas that are related to Sustainable Development. Furthermore, the SR 10 standard is based on the ISO 26000 standard and its 327 single detailed requirements. This leads to the third reason that the ISO 26000 is the first universally applicable standard that includes all topic areas of sustainable development in a full perspective and hence proposes many specific requirements on all seven core issues ranging from the environment to labour issues, community development and human rights.

With regard to the quality of both standards it has to be mentioned that both do not fully live up to the expectations and requirements of the optimal standard because the ISO 26000 standard for example allows companies to opt-out of several requirements if they can reason why this specific requirement is not relevant for them. In comparison, the optimal standard does not allow a company to opt-out of requirements because the full supply chain should be covered and through this full supply chain responsibility global responsibilities exist. One example is that companies can opt-out of the responsibility for indigenous people or development aid if they are not operating in developing countries. However, through supply chains in this case the extraction of raw materials in Africa or Asia responsibility exists and should be adhered to.

This leads to the sub research question whether Deutsche Telekom is the leading company in regard to sustainability issues in the European telecommunications sector and if this leading position can also be backed up from a scientific point of view. The comparison of the approaches and strategies of Deutsche Telekom and its main competitors reveals that Deutsche Telekom is pursuing an effective and extensive sustainability strategy. Deutsche

Telekom aims at enhancing sustainability in the entire supply chain beginning with the extraction of the raw materials. In this regard Deutsche Telekom published two statements on the extraction of minerals and encourages its suppliers to use only conflict free extracted minerals and to address and improve the labour and environmental situations and standards in the mining industry. This strategy is not pursued by all competitors. Some of the competitors do not focus on the entire supply chain and just follow the inter-branch association approaches and activities. Furthermore, not all companies, except for Deutsche Telekom and Orange, do conduct second and third tier audits at their suppliers and their suppliers and contractors. The leading position of Deutsche Telekom can further be explained by the topic of CO₂ reduction targets. Deutsche Telekom has in comparison to its competitors the highest reduction target with 40 % by 2020 compared to the baseline of 1995. In this regard it also has to be mentioned that Deutsche Telekom, in contrast to its competitors, uses only renewable energy sources for its electricity consumption in several countries such as Germany or the Netherlands. Additionally, also in regard to waste management and the collection and recycling system of used mobile devices Deutsche Telekom is performing better than its competitors because Deutsche Telekom has installed an effective mobile device collection and recycling system. The numbers of collected and recycled mobile devices are the highest among the competitors with more than 700.000 collected mobile phones only in Germany in 2011.

However, some of the competitors are pursuing strategies which Deutsche Telekom also may consider if they want to keep their leading position in sustainability issues in the European ICT industry. One example is that Orange conducts life cycle assessments of its services and products and uses the results for improving the energy efficiency and reducing the environmental impacts of their products. This could also be implemented at Deutsche Telekom, at least for the products that are exclusively designed and manufactured for Deutsche Telekom such as landline phones, internet routers and other devices. A second example is that Vodafone established energy efficiency and CO₂ reduction targets and strategies for and with its suppliers. The idea behind this strategy is to reduce the carbon footprint of the entire life cycle of all products and services offered by Vodafone. This example may also be implemented at Deutsche Telekom as the energy efficiency and related CO₂ emissions (scope 3 emissions) of the suppliers can also be included in the balance sheet for the total CO₂ emissions and hence reductions could be achieved there as well.

By taking a market perspective, Deutsche Telekom is the leading company in regard to sustainability issues and topics in the European ICT industry. However, from a scientific point of view, the sustainability performance can and has to be improved. From a scientific perspective, the responsibility for enhancing sustainability in the entire supply chain is not effectively pursued for the following reasons. First, the statements on extractives are not binding and do not establish strict demands, only the term ‘encourages’ is used. Secondly, Deutsche Telekom should take responsibility and even expand it for biodiversity and human rights abuses, as well as bad labour conditions in developing countries. Therefore, no requirement of the ISO 26000 standard should be labelled as not relevant. If a company wants to be the leading company in sustainability issues, it should take responsibility for the entire supply chain and pose strict environmental and social demands on its suppliers. In case of non-conformity the supplier has to start an improvement program, or in an extreme case the

supplier should be avoided and be replaced by one who complies with the strict sustainability demands. One example of taking such responsibility over the entire supply chain is that mobile devices that are produced under poor labour conditions and low environmental standards should not be sold anymore.

However, as a conclusion to the two views on the performance of Deutsche Telekom in regard to sustainability topics, it has to be mentioned that the full control over the supply chain and full responsibility cannot be reached. Furthermore, Deutsche Telekom is a private market company and has to create value for its shareholders and create jobs for the local community. Therefore, compromises have to be made. This aspect is also one of the major critics on the ISO 26000 standard because the economic perspective, which is a vital part of sustainable development, is under represented and nearly missing in the standard and shall always be kept in mind when evaluating the sustainability performance of any organisation.

9.3: Recommendations for Deutsche Telekom

The second part of this conclusion presents and evaluates the recommendations for Deutsche Telekom based on the results of the gap analyses of the ISO 26000 and the SR 10 standards. In regard to the ISO 26000 standard, the main recommendation is that more information about sustainability features of the products, sustainable consumption and energy efficiency in using the products have to be developed and communicated to the customers. The second main recommendation is that an effective stakeholder management system has to be established and implemented. In this regard it has to be mentioned that this problem has now been addressed with getting certified for the AA 1000 standard in the beginning of 2012 which requires stakeholder dialogue and management processes. When the gap analysis was performed, the stakeholder management processes were still developed and therefore could not be labelled as fully implemented.

In regard to the results of the gap analysis of the SR 10 standard the following two main recommendations can be drawn.

First, a social responsibility (SR) manual and policy has to be developed. For this task the environmental, health & safety handbook can be used as a basis and can be expanded with the SR objectives and targets. Secondly, more and new SR indicators have to be developed and a consistent methodology of measuring their performance has to be developed. Next to the SR indicators also all SR impacts that occur have to be defined. As a basis for these recommendations the CR KPIs and the results of life cycle assessments and the materiality analysis can be used.

In general it can be concluded that the implementation of the SR 10 standard is possible in the near future, although much work is still required. In regard to the guidelines of the ISO 26000 standards, the gaps have been recognized and solutions for filling these gaps are developed. One example is that members of the CR department are working on creating criteria for a sustainable product portfolio.

9.4: Discussion of the methodology

After the results and the recommendations for Deutsche Telekom have been presented, the strengths and weaknesses of the applied methodology will be explained. The developed assessment framework has proven to be a reliable tool for analysing and comparing the seven chosen standards. Especially, the secondary aspects A1, A2, A6, B1, B3, and C1 helped to get the necessary insights for drawing the conclusion of which standard has the highest contribution to sustainable development. However, the assessment framework did not only have strengths but also one weakness. The secondary aspects A3 and C2 were difficult to apply to the standards and in the end did not add much to the results of the comparison. It has been difficult to objectively classify and compare the strictness of the demands. In regard to the legal obligations, all standards do not include specific references from which legal obligations can be derived. One exception is the reference to the ILO conventions of the SA 8000 standard. However, the problem with the ILO conventions is that not all countries have ratified them.

The chosen theoretical background with the theories and tools of LCA, sustainable development indicators, the Policy Cycle and Good Governance have proven to be a coherent and easy applicable background for this master thesis. The strengths of the chosen theories and tools are that all on the one hand relate to the topic of sustainable development and on the other hand, also relate to CSR and sustainability standards. The LCA tool and the associated impacts in combination with the sustainable development indicators of Rockstrom and Kates & Parris have been used for the primary criterion A. The Policy Cycle relates to the control mechanisms of the standards and the concept of Good Governance has been applied to the legitimacy of the standards. A further strength of using the LCA and especially the S-LCA tool is that the impacts that the UNEP report defines clearly relate to and are similar to the aspects and topics that companies associate with the topic of sustainability and CSR. This is expressed by the topics and areas covered in the standards, especially in the ISO 26000 standard. Additionally, it has to be mentioned that the different views on sustainability from the scientific and business perspective can also be explained by the S-LCA tool. It can be concluded that the business view of sustainability does not only cover the sustainable development indicators as Rockstrom and Kates & Parris describe them but also many aspects that are included as social impacts in the S-LCA tool.

The used theories and tools also have weaknesses. The first weakness is that a clear reference to regular external control and audits is missing in the concepts of the Policy Cycle. This aspect is also missing in the ISEAL Code of Good Practice. A second weakness is that the S-LCA tool is quite new and that not much literature on social impacts of the ICT industry is available. Therefore, nearly no social impacts have been described and explained in this thesis. Furthermore, due to the inclusiveness and high quantity of impacts identified in the S-LCA tool, a complete analysis of the entire life cycle of a product such as a mobile phone is difficult and requires a lot of time and can probably not be executed easily by companies or researchers.

The method used for conducting the sector analysis also has several strengths and weaknesses. The first strength of using mostly information that is publicly available such as the CSR reports and further information on the homepages of the companies is that the aspect

of transparency is guarded in this comparison. This means that it is important that companies publish their efforts in regard to sustainability and make these approaches and strategies available for any stakeholder. This in turn also has the weakness that, if not all strategies and approaches are made public, a company may be ranked lower in regard to sustainability compared to other companies although they may have the same approach or follow the same strategies. In order to avoid this shortcoming, all CR departments of the companies have been contacted and interview requests have been sent. However, not all companies replied and allowed interviews. This leads to the point of how transparent companies are in regard to sustainability topics and how important a stakeholder dialogue is for them.

As a final conclusion and outlook for further research it can be stated that in regard to life cycle assessments of mobile devices and mobile network infrastructure a knowledge gap exists. Further research on this topic is required in order to show all environmental and social impacts that occur during the entire life cycle. The existing literature is limited and leaves out important environmental and nearly all social impacts. Further research should be done on the topic of performing a S-LCA following the cradle-to-cradle approach. Furthermore, research on the different standards and their effectiveness should be conducted in order to show the full effect that these standards have on sustainability. By this research the weaknesses of these systems can be detected and better and more effective systems and standards can be created.

References

- AccountAbility. (2008). AA1000 (2008) AA 1000 Standard. AccountAbility–Institute of Social and Ethical Accountability: London
- AccountAbility (n.d.). *AA 1000 Standard*. Retrieved from:
<http://www.accountability.org/standards/aa1000-governance/index.html>
- Bassen, A. (2011). Deutscher Nachhaltigkeitskodex Ergebnisse der Praxisphase und Anpassung des DNK. Presentation given, 26.9.2011 in Frankfurt, Germany
- Buhr, H. & Grafström, M. (2007). 'The Making of Meaning in the Media', in F. den Hond, F. de Bakker and P. Neergaard (eds.), *Managing Corporate Social Responsibility in Action. Talking, Doing and Measuring*. Aldershot: Ashgate Publishing
- British Telecom (2011). *BT Sustainability Review 2011*
- Carroll, A. (1991). The Pyramid of Corporate Social Responsibility: Toward the Moral Management of Organizational Stakeholders. *Business Horizons* 34(4), 39–48.
- Carroll, A. (1999). 'Corporate Social Responsibility: Evolution of a Definitional Construct'. *Business & Society* 38, 268–295
- Castka, P. & Balzarova, M. *et al.* (2004). How can SMEs effectively implement the CSR agenda—a UK case study perspective. *Corporate Social Responsibility and Environmental Management* 11, 140
- Castka, P. *et al.* (2004). Integrating Corporate Social Responsibility (CSR) into ISO management systems—in search for a feasible CSR management system framework. *The TQM Magazine* 16 (3), 216–224
- Castka, P. & Balzarova, M. (2008a). Social responsibility standardization: Guidance or reinforcement through certification? *Human Systems Management*. 27, 231 – 242
- Castka, P & Balzarova, M. (2008b). The impact of ISO 9000 and ISO 14000 on standardization of social responsibility – an inside perspective. *International Journal of Production Economics* 113(1) (2008), 74–87
- CNN (2012). *Apple manufacturing plant workers complain of long hours, militant culture*. Retrieved from <http://edition.cnn.com/2012/02/06/world/asia/china-apple-foxconn-worker/index.html>
- Council for Sustainable Development (n.d.). *Der Rat: Fact sheet*. Retrieved from:
<http://www.nachhaltigkeitsrat.de/de/der-rat/fact-sheet/?size=1%2000%2000%20%200blstr%3D0-1%20union%20select%2000%2C1%2C2%2C3%2C4%2C5%2C6%2C7-->

- Council for Sustainable Development (n.d.). *Deutscher Nachhaltigkeitskodex*. Retrieved from: <http://www.nachhaltigkeitsrat.de/projekte/eigene-projekte/deutscher-nachhaltigkeitskodex/?blstr=0>
- Cramer, J *et al.* (2004). Making Sense of Corporate Social Responsibility. *Journal of Business Ethics* 55, 215–222
- Crul, M. & Diehl, J. (2009). *Design for Sustainability a Step-by-step approach*. Deft: TU Delft and UNEP
- CSR Europe (n.d.). *News*. Retrieved from: http://www.csreurope.org/news.php?type=&action=show_news&news_id=4459
- Dahlsrud A. 2008. How corporate social responsibility is defined: An analysis of 37 definitions. *Corporate Social Responsibility and Environmental Management* 15: 1–13
- Dansk Standard, (2011). *DS 49001 Social Responsibility Management System*. Dansk Standard: Copenhagen
- Davis, K. (1960). "Can Business Afford to Ignore its Social Responsibilities?" *California Management Review*, 2, 3: 70-76.
- De Hoo, S. (2011). *In pursuit of Corporate Sustainability and Responsibility : Past cracking Perceptions and Creating Codes*. Sheffield: Greenleaf Publishing
- Deutsche Telekom AG (2005). *Statement on Coltan by Deutsche Telekom Goup* (12-14-05).
- Deutsche Telekom AG (2009). *Statement on Extractives by Deutsche Group* (June 2009)
- Deutsche Telekom AG (2010). *CR Report 2010-2011*.
- Deutsche Telekom AG (2011). *CR Report 2011 (May 2012)*
- Deutsche Telekom (n.d). *Our CR Vision*. Retrieved from: <http://www.cr-report.telekom.com/site11/en/strategie-und-management/cr-strategie/index.php#ff,43315>
- Dow Jones Sustainability Index (n.d.). *Corporate Sustainability*. Retrieved from: <http://www.sustainability-index.com/sustainability-assessment/corporate-sustainability.jsp>
- Drechsel, M. (2012). *IQNet SR 10*. Presentation given 24. February 2012 in Frankfurt, Germany
- Duque-Antón, M. (2002). *Mobilfunknetze—Grundlagen, Dienste und Protokolle*. Braunschweig/Wiesbaden: Vieweg
- Eickhoff, G. (2012). *Gesellschaftliche Verantwortung Zertifizierung des CSR-Managementsystems*. Presentation given 24. February 2012 in Frankfurt, Germany
- Enough (n.d.). *About us*. Retrieved from: <http://www.enoughproject.org/about>

- European Commission (2003). *Mapping Instruments for Corporate Social Responsibility*. Brussels: European Commission
- European Commission (2010). *New EU standards for a common mobile phone charger welcomed*. Retrieved from: http://ec.europa.eu/unitedkingdom/press/press_releases/2010/pr10134_en.htm
- ETNO (2010). *Sustainability Report 2009*
- ETNO (n.d.). *Facts & Figures*. Retrieved from: <http://www.etno.be/Default.aspx?tabid=1077>
- Faist-Emmenegger M, *et al.* (2006): Life cycle assessment of the mobile communication system UMTS: Towards eco-efficient systems. *International Journal of Life Cycle Assessment*: 11 (4) 265–276
- Feelgreen (n.d.). *Telekom gewinnt Gottschalk-wette*. Retrieved from: http://www.feelgreen.de/telekom-gewinnt-deutschlandwette-mit-gottschalk/id_50505336/index
- Forum nachhaltig wirtschaften (n.d.). *Nachhaltiges Wirtschaften*. Retrieved from: http://www.nachhaltigwirtschaften.net/scripts/basics/eco-world/wirtschaft/basics.prg?session=42f942124fb3d9d4_526553&a_no=5674&r_index=3.1.1
- France Telecom-Orange. (2011). *Orange CR Report 2011*
- Gao, S. & Zhang, J. (2006). Stakeholder engagement, social auditing and corporate sustainability. *Business Process Management Journal* 12, 6, pp. 722-740
- German Council for Sustainable Development, (2012). *German Sustainability Code*
- GeSI (n.d.). *Supply Chain Initiatives*. Retrieved from: <http://gesi.org/Initiatives/SupplyChain/tabid/75/Default.aspx>
- GeSI (n.d.). *Membership*. Retrieved from: www.gesi.org/Membership/Goverance/tabid/125/Default.aspx
- Grayson, D. & Hodges, A. (2004). *Forget responsibility think opportunities*. Retrieved from <http://www.guardian.co.uk/business/2004/jul/04/ethicalbusiness.ethicalmoney>
- Greenpeace (2012). *How clean is your cloud*. Greenpeace International: Amsterdam
- GRI (2006), *Sustainability Reporting Guidelines*, Global Reporting Initiative, Boston, MA
- GRI (n.d.). *About GRI*. Retrieved from: <https://www.globalreporting.org/information/about-gri/what-is-GRI/Pages/default.aspx>
- GSMA (n.d.). *About GSMA*. Retrieved from: www.gsm.org/aboutus/
- GSMA (n.d.). *Mobile and the environment*. Retrieved from: <http://www.gsma.com/publicpolicy/mobile-and-the-environment/collection-and-reuse/>

- GSMA (n.d.). *Mobile and the environment*. Retrieved from:
<http://www.gsma.com/publicpolicy/mobile-and-the-environment/recycling-and-disposal-2/>
- Hart, S. (1995). "A natural resource-based view of the firm". *Academy of Management Review*. Vol. 20, pp. 986-1014.
- Hester, J. (1973). Social Responsibility of Organisations in a Free Society. in R. Nader and M. J. Green (eds.), *Corporate Power in America*. New York: Grossman
- IQNet, (2011). *Social Responsibility 10 Management System*
- IQNet, (n.d.). IQNet Sr 10. Retrieved from: <http://www.iqnet-ltd.com/index.php?liv1=9&liv2=67&liv3=10>
- ISEAL Alliance (2010). *Code of Good Practice*. London: ISEAL Alliance
- ISO (1997): ISO 14040: Ökobilanz – Prinzipien und allgemeine Anforderungen. International Organisation for Standardisation, Brussels
- ISO, (2010). Guidance on Social Responsibility (ISO 26000). Beuth: Berlin
- ITU (2010). *The world in 2010: ICT facts and figures*
- ITU (2011). *The world in 2011: ICT facts and figures*
- ITU (n.d.). *About ITU History*. Retrieved from: www.itu.int/en/about/Pages/history.aspx
- ITU (n.d.). *About ITU Overview*. Retrieved from: www.itu.int/en/about/Pages/overview.aspx
- Joliet O, *et al.* (2003): IMPACT2002+: A new life cycle impact assessment methodology. *International Journal of Life Cycle Assessment* 8 (6) 324–330
- Joliet, O. *et al* (2004). The LCIA Midpoint-damage Framework of the UNEP/SETAC Life Cycle Initiative. *International Journal of LCA* 9, 6, 394 – 404
- Kates, R. & Parris, T. (2003). Characterizing a sustainability transition: Goals, targets, trends, and driving forces. *Proc. Natl. Acad. Sci. USA* 100, 8062–8067.
- Kerr, M. *et al.* (2009). *Corporate Social Responsibility: A legal analysis*. Ontario: LexisNexis Canada
- Kleinfeld, A. (2011). *Vertrauen in Vergleichbarkeit*. Presentation held 9.July 2011 in Tutzingen, Germany
- KPN (2012). *Sustainability Report 2011*
- KPN (n.d.). *Corporate Responsibility*. Retrieved from
<http://www.kpn.com/corporate/aboutkpn/corporate-responsibility.htm>
- Leipziger, D. (2003). *The Corporate Responsibility Code Book*. Oxford: Greenleaf Publishing

- Lineberry, R. (1977). *American Public Policy*. New York: Harper & Row, 1977.
- Lockett, A., Moon, J., Visser, W. (2006). Corporate social responsibility in management research: Focus, nature, salience and sources of influence. *Journal of Management Studies* 43, 115–136.
- McIntosh, M. (2004). *Raising a Ladder to the Moon. The Complexities of Corporate Social and Environmental Responsibilities*. New York: Palgrave Macmillan
- MakeITFair (n.d.). *About us*. Retrieved from: <http://makeitfair.org/en/about-us>
- Marrewijk Van, M. (2003). Concepts and Definitions of CSR and Corporate Sustainability: Between Agency and Communion. *Journal of Business Ethics* 44: 95–105, 2003.
- Meadowcroft, J. (2007). Who's in charge here? Governance for sustainable development in a Complex world. In *Governance for Sustainable Development*. Edited by Jens Newig, Jan-Peter Voß and Jochen Monstadt. London: Routledge
- OECD. (2011). *OECD Guidelines for Multinational Enterprises*, OECD Publishing.
Retrieved from: <http://dx.doi.org/10.1787/9789264115415-en>
- Pentland, B. (200) Will auditors take over the world? Program, technique and the verification of everything, *Accounting, Organizations and Society*. 25 (2000), 307–312.
- Rockstrom, J. *et al.* (2009). Planetary boundaries: exploring the safe operating space for humanity. *Ecology and Society* 14(2): 32
- Social Accountability International (2008a). *SA 8000:2008*. New York: SAI
- Social Accountability International (2008b). *SA 8000 Drafters' Notes*. New York: SAI
- Social Accountability International (2008c). *SA 8000 Abridged Guidance*. New York: SAI
- Scharnhorst W (2005a): *Life-Cycle Assessment of Mobile Telephone Networks, with Focus on the Environmental Relevance of the End-of- Life Phase*. PhD thesis, Swiss Federal Institute of Technology, Lausanne
- Scharnhorst W. *et al.* (2005b) End of life treatment of second generation mobile phone networks: strategies to reduce the environmental impact. *Environmental Impact Assessment Review* 2005 ;25(5):540–566
- Scharnhorst, W. *et al.* (2006a): Environmental assessment of End-of-Life treatment options for an GSM 900 antenna rack. *International Journal of Life Cycle Assessment* 11 (6) 425–436
- Scharnhorst, W. *et al.* (2006b): Life Cycle Assessment of Second Generation (2G) and Third Generation (3G) Mobile Phone Networks. *Environment International* 32 (5) 656–675

- Scherer, A. *et al.* (2006) 'Global Rules and Private Actors: Towards a New Role of the TNC <transnational corporations> in Global Governance'. *Business Ethics Quarterly*, Vol. 16, pp. 505-532
- Scharnhorst W (2008) Life cycle assessment in the telecommunication industry: a review. *International Journal of LCA*. 13(1):75–86
- Stoker, G. (1998). *Governance as theory: five propositions*. Oxford: Blackwell Publishers
- Tan, K. (2005): *Life Cycle Assessment of a Mobile Phone*. Bachelor, University of Southern Queensland, Toowoomba
- Telefonica SA (2010). *Sustainability Report 2010*
- Telefonica SA (n.d.). *Value creation*. Retrieved from http://www.crandsustainability.telefonica.com/en/sustainability_telefonica/value.php
- Tengblad, S. & Olsson, C. (2010). The framing of Corporate Social Responsibility and the Globalization of National Business Systems: A Longitudinal Case Study. *Journal of Business Ethics* (2010) 93:653–669
- The Climate Group and Global e-Sustainability Initiative (2008). *SMART 2020: Enabling the low-carbon economy in the information age*. London: The Climate Group
- Theodoulou, S. & Kofinis, C. (2004). *The Art of the Game: Understanding American Public Policy Making*. Belmont: Wadsworth
- United Nations (1972). *Declaration of the United Nations Conference on the Human Environment*. Stockholm, Sweden 1972. Retrieved from: <http://www.unep.org/Documents.Multilingual/Default.asp?documentid=97&articleid=1503>
- United Nations (1987). *Our Common Future*. 'Brundtland Report'.
- United Nations Environment Programme (UNEP) 2009. *Guidelines for Social Life Cycle Assessment of Products*.
- United Nations Economic and Social Commission for Asia and the Pacific (.n.d.). *Good Governance*. Retrieved from: <http://www.unescap.org/pdd/prs/ProjectActivities/Ongoing/gg/governance.asp>
- Vermeulen, W.J.V. & Seuring, S. (2009). Sustainability through the market – the impacts of sustainable supply chain management: Introduction. In *Sustainable Development*. 2009 Vol. 17, pp. 269 – 273
- Vodafone Group. (2005). *CR Report 2005*
- Vodafone Group (2011). *Sustainability Report for the year ending 31 March 2011*

- Waddock, S. (2001), “Integrity and mindfulness: foundations of corporate citizenship”, in Andriof, J. and McIntosh, M. (Eds), *Perspectives on Corporate Citizenship*. Sheffield: Greenleaf Publishing, pp. 25-38.
- Waddock, S. & Bodwell, C. (2004). Managing responsibility: What can be learned from the quality movement? *California Management Review* 47, 25.
- Whitehouse, L. (2003). ‘Corporate Social Responsibility, Corporate Citizenship and the Global Compact: A New Approach to Regulating Corporate Social Power?’. *Global Social Policy* 3(3), 299–318.
- Whitehouse, L. (2006). Corporate Social Responsibility: Views from the Frontline. *Journal of Business Ethics*. 63: 279 – 296
- Widmer, R. *et al.* (2005). Global perspectives on e-waste. *Environmental Impact Assessment Review*. 25, 436 – 458
- Williams, E. *et al.* (2002). The 1.7 kilogram microchip: energy and material use in the production of semiconductor devices. *Environmental Science & Technology* 36, 5504–5510
- Wood, D. (1991). Corporate social performance revisited. *Academy of Management Review*, 16, 691-718
- WBCSD, (2002). *Corporate Social Responsibility: The WBCSD’s Journey*. World Business Council for Sustainable Development, Geneva
- Yu, J. *et al.* (2010). Analysis of material and energy consumption of mobile phones in China. *Energy Policy*. 38, 4135–4141

List of Interviews

Arnaut, Therese. CR Manager at France Telecom-Orange, May 2012

Burfeind, Holger. Auditor at DQS GmbH. May 2012

Fabinger, Anais. Stakeholder Engagement Manager at Deutsche Telekom AG, May 2012

Ferguson, Liz. CR Manager at Vodafone, April 2012

Harmes, Nadine. SR Managementsystem Coordinator at DQS GmbH, February 2012

Kröhling, Andreas. Waste Management Coordinator at Deutsche Telekom AG, February 2012

Luz-Veloso, Antonio. Sustainable Supply Chain Manager at Deutsche Telekom AG, February 2012

Pärsch, Matthias. Manager at DQS GmbH, May 2012

Sinnigsohn, Reiner. HSE Managementsystem Coordinator at Deutsche Telekom AG, April, May 2012

Zimmermann, Karsten. CR Manager at Deutsche Telekom AG, April 2012

List of figures

Figure 2.1: Representation of the Product Life Cycle. From: Solidworks Cooperation. Retrieved from: <http://www.solidworks.com/sustainability/docs/LCA>

Figure 2.2: Environmental Impacts. From: Crul & Diehl. 2009. Design for Sustainability, p. 44

Figure 2.3: Social Impacts. From: Crul & Diehl. 2009. Design for Sustainability, p. 44

Figure 2.4: Environmental Impacts (Midpoint categories). From: Joliet, O. *et al.* 2004. The LCIA Midpoint Framework of the UNEP/SETAC Life Cycle Initiative, p. 395

Figure 2.5: S-LCA social categories. From: Benoit-Norris, *et al.* 2011. Introducing the UNEP/SETAC methodological sheets for SLCA, p. 685

Figure 2.6: The Policy Cycle. Own creation

Figure 2.7: Assessment Framework. Own creation

Figure 3.1: Adapted Life Cycle. Own creation

Figure 3.2: Assessment Framework. Own creation

Figure 5.1: Structure of a typical mobile phone network. From: Scharnhorst *et al.* 2005. The end of life treatment of mobile phone networks, p.8

Figure 5.2: Direct emissions of the mobile industry. From: GSMA & The Climate Group. 2009. Mobiles green manifesto, p.10

Figure 6.1: Mobile communications growth rate. From: ITU World Telecommunication/ ICT indicator database

Figure 6.2: Mobile connections per region. From: GSMA & The Climate Group. 2009. Mobiles green manifesto, p.9

Figure 6.3: GHG emissions from Mobile industry. From: GSMA & The Climate Group. 2009. Mobiles green manifesto, p.11

Figure 6.4: Annual CO2 emissions per subscriber per year in Ericsson Networks KG. From: GSMA & The Climate Group. 2009. Mobiles green manifesto, p.12

Figure 6.5: Telefonica: Green Mobile Service. From: Telefonica SA. CR Report 2010, p.39

Figure 8.1: ISO 26000 gap analysis. Own creation

Figure 8.2: SR 10 gap analysis. Own creation

Appendices

Appendix 1: Statement on Coltan by Deutsche Telekom Group

Statement on coltan by the Deutsche Telekom Group

What is the problem with coltan?

Deutsche Telekom became aware – like other ICT companies – that rebel groups in the Democratic Republic of the Congo, which is affected by civil war, are financed among other things by illegal mining of coltan ore, causing irreversible and unacceptable damage to people and nature in this region in the process.

How does this affect Deutsche Telekom and what measures has the company implemented?

Deutsche Telekom buys neither coltan nor the metal – tantalum – that is derived from it as a raw material. However, as many of the products we sell or use contain tantalum, Deutsche Telekom intends to use whatever means it has to minimize and, in the long term prevent entirely, all damage caused to people and the environment in obtaining it.

The following measures have been taken to achieve this:

- a) ***We establish supplier relationships in such a way as to ensure that our suppliers actively confront the coltan problem.***

We will obtain information from our relevant top suppliers about the policy they operate on coltan. If no such policy is in place, Deutsche Telekom will implement suitable development measures to ensure that this is given suitable consideration by top suppliers.

- b) ***We encourage our suppliers to use alternatives***

Use of environmentally friendly materials is a core feature of Deutsche Telekom's procurement policy. In this context, we encourage our suppliers to seek alternatives to tantalum as well and contribute to minimizing the coltan problem in doing so.

- c) ***As a member, we support the Global e-Sustainability Initiative (GeSI) "Flora & Fauna International" with investigations***

The huge political, social and environmental relevance of the coltan problem means that strategies are necessary that call for a common course of action for our entire sector of industry.

Deutsche Telekom is therefore endeavoring to contribute to a lasting solution together with other global network operators and manufacturers. As co-founders of the Global e-Sustainability Initiative, which operates under the auspices of the United Nations Environment Programme (UNEP), Deutsche Telekom supports suitable Flora & Fauna International projects.

Reports are published regularly on this subject on the GeSI homepage (www.gesi.org).

What is tantalum/coltan and what is it used for?

Tantalum is obtained in South America, the Democratic Republic of the Congo and mainly in Australia.

Coltan is the name of an ore in Africa made up of columbium and tantalum.

The metal tantalum is required to manufacture corrosion-resistant and high temperature resistant materials.

Materials containing tantalite are used, for example, in consumer electronics such as cameras, video recorders, computers and cell phones.

Appendix 2: Statement on Extractives by Deutsche Telekom Group

Statement on extractives by the Deutsche Telekom Group

What is the problem with extractives?

The global demand for metals has risen sharply during the last years. The consumer electronics sector has been a major driving force behind the growth. Electronic products like mobile phones, laptop computers and mp3 players contain a substantial amount of numerous metals. Amongst those within the ICT industry, the most important ones are cobalt, tantalum (which is a metal won out of coltan ore), tin, gold and platinum.

Metals are extracted all over the world, but mostly in developing and high-risk countries. Mining operations are mostly owned by foreign enterprises. Beside that in some areas as e.g. in the Democratic Republic of Congo you also find small scale mining. The richness of mineral could in theory bring jobs and income and foster the development, but in practice it brings several downturns like environmental degradation, child labour, unacceptable working conditions and human rights violations. In some countries, these activities also finance military bodies and contribute to ongoing tensions and conflicts.

Electronic companies subscribe to ethical guidelines and initiatives for the industry and most have adopted individual codes of conduct. Additionally these initiatives have developed and deployed a consistent set of tools and processes to measure, monitor and improve supply chain corporate responsibility performance across the Information and Communications Technology sector. However, most companies which produce consumer electronics, only focus on addressing problems related to the top tier of the supply chain. They are not integrating the mining of metals in their social or environmental responsibility efforts, and fail to implement respective control mechanisms.

How does this affect Deutsche Telekom and what measures do we have implemented?

Deutsche Telekom as a service provider does not directly buy any metals like tantalum and/or other minerals. Despite that, many of the products we sell or use contain metals. Deutsche Telekom declares its commitment to pro-actively contribute in reducing the negative social and environmental impacts caused by mining activities.

The following measures have been taken to achieve this:

- a) ***We expect our suppliers to be aware of the minerals problem and therefore DT will***
 - engage towards more responsible metal sourcing throughout the supply chain by requesting from its relevant suppliers a concept and/or policy on how they deal, source and operate with metals including their plans to improve the situation in the mining sector.
 - if such policies and/or procedures are not in place insist on the development and implementation of respective measures to ensure that suppliers support our engagement to minimize the potential risks from mining activities.
 - in case of missing commitment to address the minerals issue, contractual penalties may have to be considered including the termination of business relation depending on the degree of misconduct.
- b) ***We encourage our suppliers to use environmentally friendly materials***

The use of environmentally friendly materials is an essential part of our Procurement Policy and also addressed in our product design and development standards. As part of our supplier development programme, we are regularly conducting supplier workshops. In this way we encourage our suppliers to reduce the use of raw materials and to seek for new advantageous alternatives with respect to social and ecological consequences.
- c) ***We encourage our customers to save natural resources***

The reuse of metals can also contribute a lot to save natural resources. Therefore we have implanted several programs to encourage our customers to bring back their old cell phones. Additionally we promote the longer use of cell phones by offering attractive conditions for customers who decide to waive the right of a new cell phone at the end of the contract period.
- d) ***Deutsche Telekom Commitments***

DT's Social Charter commitments reflect our Corporate values and responsibility to foster the sustainable development of the global society. We want the principles of our social charter to apply for our entire supply chain. By participating in over 50 national and international initiatives we are progressing sustainability issues in the telecommunication industry, recognizing our huge responsibility. As a co-founder of GeSI we play an active role in our industry to contribute in the improvement of the situation in the mining industry with respect to respective human rights, improving labour and working conditions and reducing the negative social and ecological consequences. We support initiatives to build-up of a worldwide system to track the origin of minerals as helpful step to improve the transparency of our supply chain.

Appendix 3: ISO 26000 gap analysis

See attached CD-Rom.

Appendix 4: SR 10 gap analysis

See attached CD-Rom.

Appendix 5: List of documents used for the gap analysis of ISO 26000 and SR 10

1. Deutsche Telekom: Code of Conduct, 2011
2. Deutsche Telekom: Kundendatensicherheitspolitik. Vorgaben zum Schutz von Kundendaten, Version: 2009-03de, Date: 24.03.2009
3. Deutsche Telekom: CR-Strategie, 2008. Date: 25.08.2008
4. Deutsche Telekom: CR- Report 2011
5. Deutsche Telekom: Konzept Daten- und Infoschutz, Version: 1.0, Date: 22.09.2005
6. Deutsche Telekom: Diversity Richtlinie. Date: April 2005
7. Deutsche Telekom: DT Audit CSR parameters, 2011
8. Deutsche Telekom: Nachhaltiges Beschaffungs- und Lieferantenmanagement. Date: August 2011
9. Deutsche Telekom: Fix-Transform-Innovate: Company presentation. Date: 16. May 2011
10. Deutsche Telekom: Konzernrichtlinie zu Employee Relations. Version: 1.0, Date: 15.02.2011
11. Deutsche Telekom: Ethikkodex für Senior Financial Officers. Date: March 2006
12. Deutsche Telekom: Fraud Richtlinie. Date: 7. February 2006
13. Deutsche Telekom: Global Compensation Guidelines für Executives im Konzern Deutsche Telekom. Date 01.01.2009
14. Deutsche Telekom: Global Procurement Policy. Version: 2.0, Date: 09.11.2010
15. Deutsche Telekom: Grundsätze für Zuwendungen im politischen Raum. Date: July 2005
16. Deutsche Telekom: Handbuch Integriertes Managementsystem. Version: 2.0, Date: 15.03.2011
17. Deutsche Telekom: Interne Beschaffung in Deutschland. Date: 31. July, 2010
18. Deutsche Telekom: Handbuch zum Datenschutz Deutschen Telekom Gruppe. Version: 1.3, Date: 20.10.2009
19. Deutsche Telekom: Konzernrichtlinie Corporate Responsibility. Version: 3.0, Date: 08.10.2010
20. Deutsche Telekom: Sozialcharta.
21. Deutsche Telekom: Strategie zur Umsetzung der Nachhaltigkeit im Einkauf im Konzern Deutsche Telekom. Date: 24. May, 2011
22. Deutsche Telekom: Guideline for the Cooperation with Employee Representatives within the Deutsche Telekom Group
23. Deutsche Telekom: Konzernrichtlinie Einsatz- und Pendlerentschädigung. Version: 2010 1.0 Date: 01.08.2010
24. Deutsche Telekom: Konzernrichtlinie Informationssicherheit und Datenschutz Deutsche Telekom AG. Version: 1.0, Date: 01.06.2010
25. Deutsche Telekom: Personalbericht 2010-2011
26. Deutsche Telekom: Deutsche Telekom Integriertes Managementsystem Verfahrensanweisung Health & Safety Aspekte. Version: 1.0, Date: 06.09.2010
27. Deutsche Telekom: Deutsche Telekom Integriertes Managementsystem Verfahrensanweisung Umwelt Aspekte. Version: 1.0, Date: 30.08.2010

28. Deutsche Telekom: Unsere Telekom Story 2010. Date 17 March 2010
29. Deutsche Telekom: Kriterienset nachhaltiges Produktportfolio. Date: 22.07.2011
30. Deutsche Telekom: Konzern-Reiserichtlinie. Version: 2011. 1.0, Date: 01.01.2011
31. Deutsche Telekom: Leitlinie (Code of Conduct) zum Schutz der Persönlichkeitsrechte im Umgang mit personenbezogenen Daten in der Deutschen Telekom Gruppe.
32. Deutsche Telekom: Richtlinie Medienkooperation. Version: 1.1, Date 25.07.2006

Appendix 6: ETNO Sustainability Charter

1. AWARENESS

To acknowledge all the relevant environmental, social and economic impacts of our products and services: whether positive or negative. In particular we will build CSR aspects into company communications and training programmes.

2. REGULATORY COMPLIANCE

To achieve full compliance with all relevant legal requirements and, where appropriate, to exceed them.

3. RESEARCH AND DEVELOPMENT

To support research and development into the contributions that new telecommunication products and services can make to sustainable development.

4. PROCUREMENT

To implement efficient management of resources; energy use, waste, emissions reductions, environmentally friendly process and product requirements; eliminating use of hazardous materials; observation of human rights and labour conditions.

5. ACCOUNTABILITY

To make available to all stakeholders' material data, case-study examples and information about our environmental, social and economic performance, as accountability and transparency are key elements of CSR. To maintain an inclusive approach to stakeholder relationships, in order to reflect their aspirations and needs in our business activities.

6. COOPERATION

To co-operate constructively with governments, customers, industry partners, civil society and international organisations when investigating, developing and promoting the benefits that information and communications technologies generate for sustainable development.

7. MANAGEMENT SYSTEMS

To offer a statement of business principles, an environmental policy, the appointment of a management board member with specific CSR responsibilities, and a manager(s) with designated responsibility for co-ordinating programmes of continuous sustainability improvement.

Finally, to implement management systems that support development of appropriate and well-structured programmes on environmental protection, labour conditions, occupational health and safety and social accountability.

8. EMPLOYEE RELATIONS

To create work environments that promote the work-life balance, professional development, diversity and health and safety, maintaining a highly motivated and productive workforce.