UPPTEC STS13 034
Examensarbete 30 hp
Augusti 2013

UPPSALA UNIVERSITET

Raising environmental awareness and behavior in and by project management

An organizational culture and change management approach

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Abstract

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In an increasingly environmentally aware world, companies are influenced by sustainability thinking and there is much talk about certifications, reporting requirements, and environmental work. Meanwhile, projects have become a common way to conduct businesses, however, without significant environmental consideration in the project process. By using change management in corporate culture and organizational behavior, we examine how a process of implementation of new approaches and methods may look like and how the new work method affects its users.
This thesis deals with the subject where environmental and sustainability thinking is incorporated in project management. Our ambition is that the results will lead to greater understanding and awareness in companies and eventually be developed and fully utilized. The conclusions first present the changes needed to be done in the organization and its culture and then some concrete steps to take towards more eco-friendly project management methods together with proposals for reporting. Because the subject is in the development phase, this is a preliminary study and an introduction to a more sustainable project management. Finally the conclusions present suggestions for further studies to get deeper understanding in the field.

Handledare: Elin Swedlund
Ämnesgranskare: Marcus Lindahl
Examinator: Elisabet Andresdottir
ISSN: 1650-8319, UPTEC STS13 034

Populärvetenskaplig sammanfattning

Miljömedvetenheten och arbetet med att spara på våra resurser tar allt mer fart runt om i samhället. Uttryck som återvinning, energismarta lösningar, förnyelsebar elproduktion och hållbar avfallshantering får alltmer uppmärksamhet. Detta är högst välmotiverat då vårt nuvarande konsumtionssamhälle inte skulle finnas kvar länge till då vi förbrukar allt mer naturtillgångar, produkter och energi på daglig basis. Aldrig förr har väl uttrycket *ingen kan göra allt men alla kan göra något* känts så aktuellt som nu. Självklart gäller detta hushåll och privatpersoner men framför allt företag och större organisationer vilka ofta spenderar och förbrukar väldiga resurser. Dessutom är det oftast de som både har pengar och makt att verkligen påverka utgången av konsumerandet.

Något annat som blir allt vanligare bland företagens arbetsmetoder är att bedriva sin verksamhet i projektform. I vissa fall har själva företagsidén blivit att man nischat sig helt till att skapa och leda projekt åt andra företag, så kallade managementkonsulter.

Detta visar alltså flera åtskiljda växande intressen på frammarsch, men bedrivs de utan några samband? Företagens befintliga miljöarbete består mestadels i att sätta upp mål vilka förhoppningsvis kan leda till någon form av certifiering eller intyg på att en viss nivå har uppnåtts. Dessa miljömål har ofta bristfälliga uppföljningar samtidigt som det finns en uppsjö av olika rapporteringsmodeller och certifieringar vilket försvårar kontinuerlig uppdatering av aktuell status inom området.

Denna uppsats är gjord på uppdrag av företaget CGI Sweden vilket i vår uppstartsfas hette Logica. I och med namn- och ägarbytet är de numer ett av världens största IT-konsultbolag med många stora kunder över hela världen. De har identifierat ett behov av att på projektbasis kunna genomföra kontinuerliga uppföljningar av miljörapportering vilket skulle underlätta för företag att uppnå sina hållbarhetsvisioner. CGI Sweden miljörapporterar enligt GRI-standard vilket vi haft som utgångspunkt när arbetet startades. Uppsatsens huvudfokus behandlar potentiella vägar att gå när företag skall genomföra kultur- och organisationsförändringar samt börja med sitt miljöarbete på projektnivå. Tankar som genomsyrar studien är hur organisations- och kulturförändringar sker inom företag, om och i så fall hur företag beaktar miljöarbete inom projektledningen idag, hur stort intresset är att integrera hållbarhet i sin projektledning, hur man med hjälp av GRI kan utveckla en potentiell framtida metod och vad detta skulle innebära.

En stor del av uppsatsens empiriska material är insamlat från ett flertal intervjuer med insatta projektledare, chefer och miljöansvariga från företagsvärlden för att få en så tydlig bild som möjligt av rådande situation och branschernas framtida syn på våra tankar.

Utifrån en sammanställning och analys av intervjuerna, GRI-rapporteringar samt teorier om hur förändringsarbete går till har flertalet rekommendationer i form av förslag och tänkta lösningar till problemet framkommit och presenteras i resultatet. Detta mynnar ut i slutsatser vilka belyser några konkreta steg som är applicerbara. Vi har genom detta arbete även kommit fram till flera tänkvärda förslag till vidare studier.

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1 Introduction

This section will provide the reader with an introduction to the areas investigated in this thesis, namely project as a medium to achieve sustainability initiatives. Moreover a background to project management will equip the reader with the necessary definitions and concepts. This is followed by the purpose of the thesis and a demarcation framing the areas investigated.

1.1 Background

Organizations are constantly changing due to the competitive market in today's society. The competitors react differently by introducing new products and services, improving business processes, changing resources, expanding their business or discard outdated activities. Choosing the right changes and organize them in an efficient way is a success factor for many companies in their continuous success. Many of these changes are handled as projects, unique inputs that demand a mobilization of resources from different branches of science and organizational units during a limited amount of time.

The environmental work is something that recently got an increased attention for organizations and companies. During the 21st century sustainability reporting has developed in a quick pace and is present in the agenda of many organizations today. But the fact that companies are actively working with environmental issues is relatively new. The international environmental movement is believed to have its origin in the beginning of the 1950's when smog killed thousands of Londoners which lead to the creation of the Clean Air Act (Sabel & Sundli, 2004) (.docstoc, 2009). In 1962, Rachel Carson published her debated novel *Silent Spring* which describes how pesticides harm the environment, contributing to the start of the green wave. In the end of the 60's, the environmental concern had spread all over the Western world that had come to realize that the future welfare was threatened by the prevailing environmental destruction.

During the 1970's, the environmental work after a period of attention now reached the stage that the focus was now on the preservation of soil and water. The concept of *green accounting* became a hot topic which would reflect company´s actual environmental impact. But a later review made by scientists reviled that these were regarded as incomplete, and that there was no strong link between published corporate environmental information and its environmental performance.

1980's unnecessary use of resources and extravagance led to an increased awareness of the environment as a limited resource, and that further exploitation of this resource to meet our prosperity would not be sustainable. It was clear that environmental degradation has a negative impact on economic growth, and it was thought that environmental sustainability would follow only when poverty and underdevelopment in the world was given priority.

After the concept *sustainable development* has emerged, the 1990's was characterized by the search for an understanding of its meaning and significance. In 1992 a European action program entitled *towards sustainability* was created which was a strategy to enable the continued economic and social development without harming the environment.

In the same year the International Standard Organization (ISO) started a worldwide standardization work to develop common guidelines for environmental issues. ISO

14000 was introduced in 1996 which include standards for the organization's environmental performance in terms of procedures and working methods. In 1993 the EU created the Eco Management and Audit Scheme (EMAS). The regulation was designed to streamline and improve organizations environmental performance in addition to the requirements of the law. EMAS also includes guidelines how to review and approve an environmental statement and other forms of environmental communication in corporate marketing in order to be able to convey a credible message about the organization's environmental performance.

Today it is common that a company in Sweden is certified according to environmental standards as Global reporting initiative (GRI), EMAS and ISO 14001. In only the past five years, the use of the GRI has increased among Swedish companies from 533 to 2271 (see figure 8). Even the certification of ISO 14001 has doubled over the same period (Certifiering.nu) and the work with Corporate Social Responsibility (CSR) has received a significant role in various organizations. This shows that companies are becoming more environmentally aware and want to be able to show their ongoing work on environmental and sustainability issues, a response to an increasing customer demand, according to a manager at an energy company.

Pressure to integrate sustainability requirements may come from two different directions: from within the business itself or from outside the company (such as from government, business partners, non-governmental organizations and citizen groups). At the 22nd World Congress of the International Project Management Association (IPMA) in 2008, IPMA Vice-President Mary McKinlay stated in the opening keynote speech that "the further development of the project management profession requires project managers to take responsibility for sustainability". Her statement summarized the development of project management as a profession as she foresees it. In this vision, project managers need to take a broad view of their role and to evolve from "doing things right to doing the right things right". This implies taking responsibility for the results of their projects, including the sustainability aspects of such results.

Companies today runs projects in a high degree, often based on the project triangle with the corners budget, quality and time, but seldom take environmental consideration. The environmental considerations are often on an organizational level as in visions and policies complemented by occasional environmental audits.

Today the environmental requirements are mostly focused only on the final product instead of working with it *throughout the process* to the goal. With this being said, this opens up a future approach that takes care of the environment and sustainability initiatives among project managers who will be facing it on a daily basis within their project management methodology. Besides Mary McKinlay, there are several other people who spoke on the subject with the following expressed thoughts:

> "Fifty years from now, you are not going to be in business if you keep managing projects in the same way. It's not a matter of if you need to change your approach, it's when" (Project Management Institute, 2011)
>
> "If organizations put their money where their mouth is on sustainability, it is inevitable that sustainability criteria and indicators will find their way into project management methodologies and practices in the very near future" (van den Brink & Silvius, 2009)

"Project management provides companies with the tools they need to achieve their sustainability goals" (Project Management Institute, 2011)

"Sustainability is not about installing solar panels or using alternative energy. It's about connectivity, and thinking project plans through in terms of environmental impact, and the fundamental relationships between the decisions we make today so we are not compromising ourselves down the road" (Project Management Institute, 2011)

"The journey is as important as the destination" (Logica, 2011)

"Sustainability has become a component of business success, and project management is one of the ways to get there" (Project Management Institute, 2011)

"Project managers today need to be aware of the full impact of every project decision and what those decisions will mean to the business and the community" (Project Management Institute, 2011)

In a modern business environment where technology is constantly increasing tremendously and connections with the world via social media increases, companies will simply not want to fall behind environmentally. With increased interests in for example labeling requirements and environmental awareness together with the rapid spread of facts and rumors, the ways to work environmentally should also be developed to meet the future. Since project management is common at worksites, this is one approach to think of in the development of environmental management.

1.2 Problematization

Our client CGI Sweden (formerly Logica) feels that companies play an important key role in sustainable development. Therefore, they asked us to look into the possibilities of rising environmental and sustainability emphasis at a projects level. CGI Sweden is one of the largest IT consulting companies in the world with many major customers worldwide and conducts much of their business through projects. They manage their environmental reporting by GRI why this is used as an example in the thesis. CGI Sweden wants to illustrate how a project affects the environment and that project processes give more consideration to the environment and collect data to report its impact in the highest possible way. One problem, according to CGI Sweden, is that the topic of environment within projects is not communicated in an optimal way and that, despite its great importance often is put aside in favor of other prioritizations. There is also a problem of the absence of concrete facts, the need to be able to measure it to then be able to make comparisons and to spread the information. If it was decided to be done on a project basis, this could be a contributing factor to improve companies environmental performance. The cultural change CGI Sweden request is an increased awareness of the environmental impact of projects. With this, they would like to see that individuals take greater initiative and responsibility, for instance through increased questioning regarding sustainability issues. They experience problems with policies and environmental management to be ineffective or be viewed only as guidelines, and therefore request a more practical working process of environmental activities within project. Once policies, certifications and management systems (e.g. ISO 14001, 9001) has been incorporated there are tendencies that they lose their effect and are not being integrated and practiced in that extent they were made for. (Swedlund, 2012)

In order to study and analyze the problem, we have used theories in change management, organizational culture and project management to ease the implementation

of a new work method for organizations. This illustrates how to implement the process and culture changes, what the division of responsibility look like and where and by whom the implementation have to be made for the new way of working.

The organizational chart below illustrates three perspectives of an organization (De Wit & Meyer, 2010). Within the *organizational structure* members are divided into groups at different hierarchical levels. These clusters perform different tasks depending on which area they belong to. There are also various leadership and management positions visualized in an orderly manner. The *processes* show the flow of events and actions within the organization. Some processes take place throughout the entire organization, while others are just staying at individual levels. Thirdly the *organizational culture* is illustrated, which means behaviors and soft variables. This means the organization's way to understand, communicate and interact and even the feeling of the company together with its values and policies.

A company's environmental activities can also be interpreted using this illustration, both hierarchical how environmental sections and environmental managers are organized, but also based on the communication and the processes that members and business systems perform, and by the culture that the company and the individuals together creates.

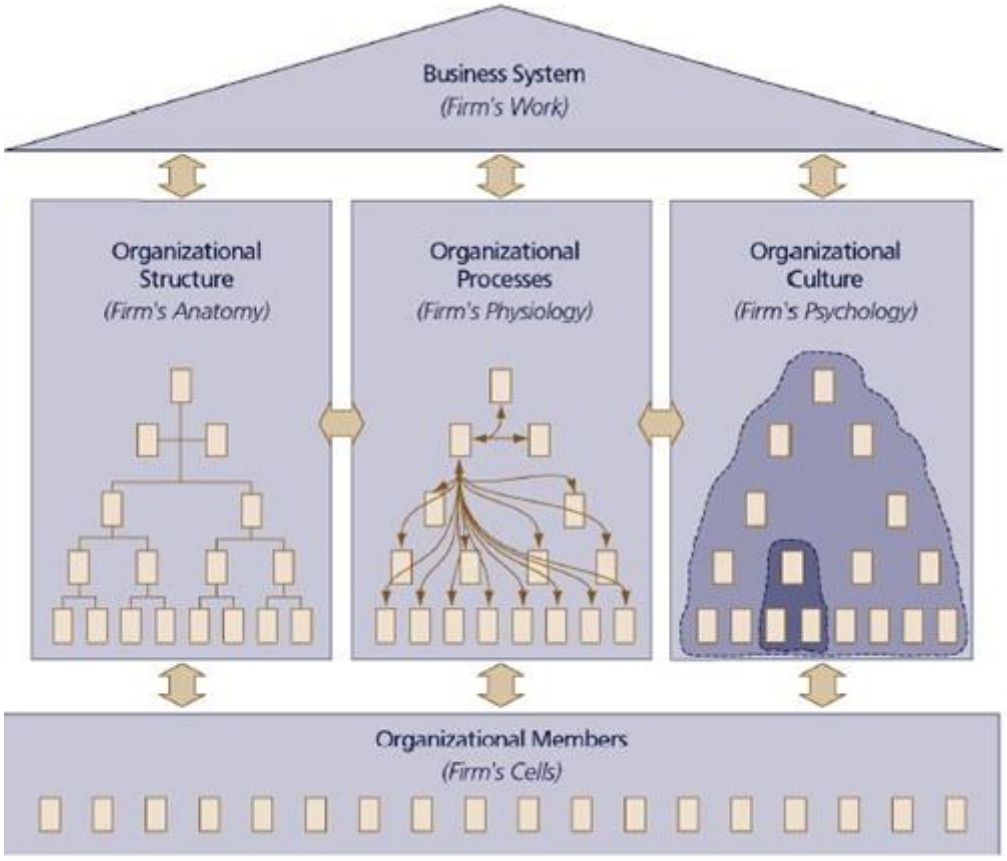

Figure 1: Organizational perspectives

Many use the word *culture* to explain the social and soft values. There is no general definition of it because most interpretations use different perspectives. One of the first attempts to define culture within organizations came from Jacques in 1952, who claimed that the organizational culture is the ordinary and traditional way of doing

things. This must also the new members learn and at least partially accept to be adopted and become part of the organization. (Indihar, Skerlavaj, Skrinjar, & Dimovski, 2006)

Abrahamsson & Andersen writes in 2005 that in order to incorporate a new culture documents should be consistent with the new values and that here the documents are more important than words (Åström, 2009). Need for common understanding, measurement and support from the organization and that top management acts as symbols are the most contributing factors in a culture change process (Ringkvist & Vighagen, 2012).

An organization's vision specifies in what direction they should strive and where to focus their energy. Work processes create habits, which in turn creates culture. Every company has its own culture. That, like a brand cannot be changed just by talking about it. There must be systematical changes in the organization to change the way people think and act. Creation and continuous development of working processes is important among organizations in modern society regardless of industry. To communicate the skills and concepts, generate incentives through inspiration and to invest in this is a waste of resources if there are no processes to enhance the purpose and principles. Randy Pennington (author of Results Rule!) claims that "if you want a culture consisting of discipline where results rule, you must start by creating measurable processes. Processes create habits and habits create culture" (Pennington, 2006, s. 111).

As written later in the theory is successful project management about executing a methodology of the corporate strategy, which transforms project management into cooperative culture and project result. Our hope is that this study's results may contribute to the development of such a method the theory speaks of, which will lead to working processes that meets the company's ambition.

1.3 Purpose

To increase the significance of sustainability in project management, CGI Sweden suggests a change in their work process by incorporating environmental consideration and reporting in its internal project management methodology. We want to study how companies conduct their environmental activities and how to increase the environmental awareness of the people involved in projects. We want to achieve a cultural change by designing a more environment included project management method. The research field is new, according to the interviews, and also important because it may bring economic benefits (cost-related, market reputation and advantages), social influence (with an increase in the spreading of knowledge) as well as a reduction of the negative environmental impact of the projects. Developing a method that would increase the collection of data can provide insight into one´s own environmental impact as well as giving a basis for further improvements. To increase the awareness, CGI Sweden wants to design a practical working method. The method should be general and applicable for different sectors. Since they do not have their own experience of this, we want to ask other companies what their experience is and how a possible method can be designed. To accomplish this we want to:

- collect arguments for and against a method,
- see if it is possible to develop such a method,
- if organizations currently uses, or if they are interesting in adopting, such a technique

- receive tips on how a potential method could be designed,
- and find out any practical experience.

The suggestions this study generate is primarily to advise CGI Sweden's internal project management processes. This could then later on affect the external actors that the company consults for, or by an increased customer interest.

The picture below shows how this study would contribute to further development in the direction the arrow is pointing. The *old* way of project management where you just affect your closest stakeholders and procedures, to the new upcoming way where you focus not only on the company but even the local and global society and the environment.

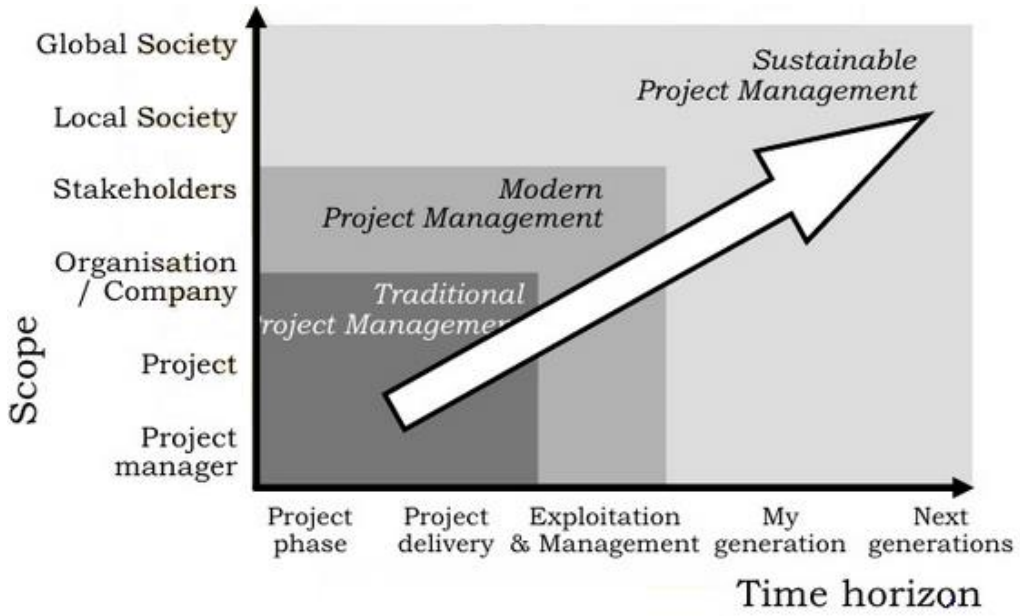

Figure 2: Sustainability in project management (Silvius, 2009)

Since Logica who requested this thesis merged with CGI Sweden, a company in constant change, we will primarily not conduct a case study of CGI Sweden today, but instead give a broad scientific contribution to the research field and give a general view of the situation that CGI Sweden and other organizations can use later on. With an interdisciplinary approach, we aim to raise the significance of sustainability in project management. Changing the mindset and behavior of those involved in projects. The study is hopefully both practical and inspiring.

To clarify we are not doing a change project; we want to change how to conduct projects with increased focus on sustainability. For example, through environmental report on a project level and thereby implementing a culture change in the way companies take advantage of sustainability.

1.4 Framing of questions

This thesis examines how to implement cultural changes through work processes, if it is possible to integrate sustainability in project management and how to further develop companies' environmental work. We will investigate this theoretically and then illustrate it with a practical application where the sustainability way of thinking is a fixed topic in a project. To investigate this in an easier way we have divided the main problem into smaller questions:

- Is it possible to reduce a projects negative environmental impact by using a project management method?
- How can a sustainability-cultural change be implemented in an organization?
- What could a method to achieve sustainability in project management look like?

1.5 Delimitations

In this study we delimit ourselves from examining the quantitative estimate of the potential benefits of including sustainability in project management. According to CGI Sweden, it is an impossible task to determine how large the environmental benefits could be by including the environment in project management. Since project management is an equally broad term as operations management and environment is an equally broad term economy. This work therefore acts as a preliminary study to further developments in the area. We also delimit ourselves from not studying the potentially increased workload.

1.6 Thesis outline

In order to get a good overview of the structure of the report, a short summary of the main chapters is presented below.

1 *Introduction.* The chapter orientates the reader in the study context by background, problematization, purpose, questions and limitations to give an overall picture of the area we intend to explore. The reader is here provided with the necessary awareness and basic knowledge of the subject in order to keep up with future reasoning.

2 *Research methodology.* Here it is described how the study's various parts are implemented, how they follow each other and why they look the way they do. Work processes associated with studied literature and interview series is described together with the selection of companies. It also explains the choices made and the approach practiced, and finally the impact this has had.

3 *Theoretical framework.* This chapter describes different theoretical statements and various forms of project management and models for them. Also the field of user-focused product development is presented to the examination and analysis of the collected empirical data.

4 *Empirical content.* This chapter presents the empirical material collected from the series of interviews made in the study, as well as facts about environmental reporting and project management.

5 *Analysis.* Here is the theory linked up with the empirical material that previously has been presented. The reasoning in the chapter implemented together with theoretical concepts invites to a broad knowledge base for conclusions.

6 *Conclusion and final discussions*. The chapter discusses and provides suggestions for what is possible and realistic to implement in terms of analysis and gathered facts which came to be relevant in this context. The analysis is coupled with the purpose and questions to reconnect to the starting position prior to the study. Proposed design of implementation is given which makes it easier for project managers in their decision making. The final discussion concludes the report by results from chapters five and six is set in a context of a number of conclusions. Together this gives a view of the difficulties and possibilities which should be held in mind. Finally, suggestions are given for further studies in the subject which we have experienced interesting through working on the study.

7 *References.* A complete list of processed literature and facts used in the thesis.

8 *Appendix.*

2 Research methodology

The goal with the methodology section is to provide the reader with the understanding and reasoning behind the choice of methods and approaches. This is followed by a description of how the data was collected, analyzed and reflected upon. The chapter is then concluded with an assessment of generalizability, validity and reliability of the composed information.

2.1 Approach

The purpose of this study was created in collaboration with CGI Sweden, who we worked closely with throughout the study and resulted in a series of interviews. To examine how companies can improve their environmental performance in their project management, we investigated what the respondents themselves thought. Their response has later on acted as a starting point for further studies and discussion. Selected theory says that in order to get an accurate and comprehensive answers from the interviews, it is good to anonymize respondents. As some companies are more advanced than others in their environmental work and some information was confidential, we chose to let the respondents individual feedbacks remain anonymous.

The approach of the division of labor has in the easiest possible way split equally between us. Both were present during the interviews and other activities like meetings, literature retrieval, analysis and writing. No part of this work has been conducted individually. The work was carried out on a daily basis from home when the task did not required that we had to be on site at our clients.

2.2 Collected information

Information was gathered from both interviews and written sources. Interviews were chosen over written sources to gain a better understanding of the situation out at various sites, we found it poorly documented how the reporting and communication really works in actuality. We formulated the questions and asked the respondents in an unconditionally manner and then objectively compiled their answers.

Research has been conducted through a quality descriptive case study methodology. We analyze individuals from a population with a strategy of making a representativeness of the population in concern.

The literature study in culture and change management was conducted by using a number of sources to consider for an optimal strategy when implementing a change.

2.2.1 Interviews

We have actively chosen to conduct our interviews by phone, both with the environment in mind and in order to try the concept of travel-free meetings and see how well it is working. We found that the telephone interviews went very well and the answers were as comprehensive as if they would have been face to face. When working with the design and execution of our study we followed the theories of customer-focused product development.

According to Brattström and Wennberg (2003) there are a number of conditions for this approach to be successful. A common way to find out what customers want is by visiting and interviewing the clients. However, the author believes that it is not enough

to just ask customers what they want, since the answers may be incomplete and misleading, which is because customers often are unaware of and do not express their real needs. Nor is it certain that customers suggest solutions or product features that really solve their problems or create the opportunities they desire.

Interviews give access to so-called explicit information, which are often the solutions to problems by asking simple questions. To get deeper into the customer's underlying needs, which the author calls the quiet and productive information, it should instead be open questions and supplementary questions that get the customer to give a more complete and inclusive answer. (Brattström & Wennberg, 2003) Significant for transfer of knowledge is that it is important to ask open-ended questions to get the customer's real needs. This in turn requires that the person asking the questions is an effective listener and ask questions at any ambiguity. (Nilsson & Waldemarson, 1990)

During our conversations, we experienced what Leonard-Barton (1995) calls the "not-invented-here syndrome". That is a resistance against changes that can be related to a general reluctance to make use of someone else's idea, and that the person interprets it as a criticism of how one usually does it. When people's self-esteem and well-being at work is based on the use of their skills in their work, they can therefore object to assimilate new knowledge that requires that they leave their old. To minimize this kind of situation we tried using a more diplomatic approach.

Mohr (2001) suggests that trust is important for more efficient sharing of information, the willingness to dedicate resources and the feeling that both parties benefits in the long run. Trust is characterized by that both parties are interested in the other's welfare and that neither one of the parties acting without thinking about how actions affect the other. Furthermore, the Mohr believes that only when both parties trust each other is it possible to share confidential information, to try to understand and help each other. With this in mind, we have offered to make the respondents anonymous, and share with them our results. Therefore we are even referring to them as *different companies in the industry* instead of mentioning their individual names. CGI on the other hand, we write references to in order to show that the information comes from our client.

The most important condition for successful cooperation is a win-win relationship. The relationship between developer and customers in product development can lead to that the developer gets feedback from the users and have an opportunity to change product in an optimal way, which can lead to a competitive advantage. Customers can be rewarded by finding a solution to their problem and that they receive an early access to new products (Brattström & Wennberg, 2003). Therefore has our partners been offered to take part of our result.

2.2.2 Selection criteria

The respondents consist of 20 companies of different size, industries and locations in Sweden. The interviews were conducted from 11th October to 31st January 2013. To maintain anonymity we do not present the individual professional roles or the names of the companies. But we have primarily talked to project managers, and supplemented these with environmental and CSR managers (for further information look at table 4 in the appendix).

The purpose of the interviews was to obtain a general and representative description of the present environmental work in Swedish industry, as well as its interest in further evolving it. With this in consideration, a number of criteria's have been selected:

- We interviewed twenty companies - with the purpose of getting a broad knowledge base, but also be able to get in-depth conversations within the studies timeframe.
- Since our client's closest contacts operate mainly in the Swedish market are all chosen companies active in Sweden.
- There are various environmental reporting standards. We have chosen GRI since CGI Sweden report according to the standard and several of their clients. The use of the standard is also a rising trend.
- Companies that currently report or have reported according to GRI. As they are expected to have an active interest in developing their environmental work. They have invested time and assets and have appointed an environmental manager. The company has an environmental policy, they measure and do follow-ups. Their experience with the GRI approach can lead to more easily incorporate our proposals
- Reporting according to GRI no later than 2011 ensuring they have a current and active interest in the environmental issue.
- Since we want to get a representative picture of the Swedish economy we have selected organizations with at least 100 employees.
- The organizations consider themselves to conduct projects in a high degree. Because we want to study project management and see how their accustomed project managers work and act in their line of business.
- Organizations from 15 sectors were selected. The criteria were selected to achieve a broad and representative result and to comply with theory stating that several groups of ordinary users should be involved.
- Respondents were chosen from different GRI reporting levels from C to A +. To get an extensiveness and also because we want to advice different companies, from those who already contemplating sustainability and are prominent in reporting, to those who have the motivation but still are in an early phase.

2.3 Credibility of results from the interviews

There are some aspects which need to be kept in mind in the light of the study's credibility. Increasing the number of companies who were interviewed could result in a more accurate picture or representation of the current situation in the field, and get more general conclusions about the company's views on GRI included project management.

By interviewing additional companies and even within more industries, reliability would increase and the image of the market could become more extensive. Consideration should also be given to the cooperativeness in the interviews and the knowledge base on the subject of those who responded.

2.4 Selection and use of theories

We have been studying theories in change management, corporate culture and organizational structure to get understanding of how to implement changes within companies and what to consider. Also are theories of project management used in order to investigate the possibilities to implement sustainability on a project basis. "Ratten" is

a project management model by CGI Sweden describing the process of work in projects. This model is examined to see where and how to implement changes in their work processes. GRI is an international way for environmental reporting which gives the thesis more generally usable milestones and methods to investigate. Finally, change management and project management theories will contribute to how the changes will be possible to implement and which areas in "Ratten" and in GRI that is practically and feasibly applicable.

There are several types of change; six of these are presented in the theoretical framework. Based on the purpose was the *change in culture* considered to be the most consistent. Since cultural models consider change as a "natural response to alterations in the human environment. (…) Change within an organization entails alteration of values, beliefs, myths and rituals". Based on this assumption, we reviewed a useful and popular theory, namely that of the psychologist Kurt Lewin. This *unfreeze-change-refreeze* theory has been criticized of been over simplified, and is therefore complemented by a further extended theory by John Kotter.

We have summarized the theories and presented the parts we used. Because we want to create a method that meets users expressed preferences, we have used the theories of *customer focused product development*. We use the theories primarily in two ways. Firstly to get an understanding of how an effective product development occurs, what is the process and what is important to keep in mind? Second, how can one conduct an effective information exchange with the potential users?

We followed the theory that states that one must collect potential users from various industries to determine if there is a problem, and then brainstorm the characteristics of a possible solution. Then go to the next phase, which evaluates all suggestions by certain criteria and retains only the viable. Here is also a prototype of the suggestion for the solution created, which users can evaluate.

3 Theoretical framework

This chapter provides an overall picture of the theoretical concepts relevant to the research question and thesis objective. The section begins with an examination of change management to get an idea of where and how to implement a change together with soft values. Then follows an introduction to the concept of projects and how they can be managed. This provides a definition and a description based on a method of how project management often is carried out, monitored and responsibility is distributed. Finally there is a description of product development presented to get an understanding of what to have in mind when producing a new product, or as in this case, in terms of a method.

3.1 Change management

"There is nothing more difficult to take in hand, more perilous to conduct, or more uncertain in its success than to take the lead in the introduction of a new order of things. Because the innovator has for enemies all those who have done well under the old conditions, and lukewarm defenders in those who may do well under the new." - Niccolo Machiavelli in 1532

3.1.1 Literature review

There are many different models used to describe changes within organizations. In *Explaining development and change in organizations* (Van de Ven & Poole, 1995) conducted an interdisciplinary literature review to identify alternative theories used to explain processes of change. The review was assisted by a computerized literature search across disciplines using change and development as keywords. To their surprise, more than one million articles had been published, not all these articles addressed theories of change or development. To cope with this prolific literature, they reviewed about 200,000 titles and perused about 2,000 abstracts, which led to carefully read about 200 articles that were useful in identifying about 20 different process theories of development or change.

They are important to understand in order to assess the impact a change would have on the different parts of the organization and to understand the various aspects of change. For example, they can show why the change is necessary, what the process is going to look like and what it would mean for business. Furthermore, all models represent a form of new approaches on how the organization will operate, both socially and practically. Consideration should be given to the choice of a method as it will affect the work multidisciplinary, which means throughout several different areas. In the report *Understanding and Facilitating Organizational Change in the 21st Century*, there are several theories and models that are criticized for being too simplistic, while others are criticized for being too advanced and detailed. (Kezar, 2001)

The following six theories and models are taken from page four in the report from Kezar. Each model has a distinct set of assumptions about why change occurs, how the process unfolds, when change occurs, how long it takes and the outcomes of change.

Evolutionary theories focus on change as a response to external circumstances, situational variables, and the environment faced by each organization. Social systems as

diversified, inter dependent, complex systems that evolve naturally over time because of external demands.

Teleological theories or planned change models assume that organizations are adaptive. Change occurs because leaders, change agents, and others see the necessity of change. The process for change is rational and linear, as in evolutionary models.

Life-cycle models evolved from studies of child development and focus on stages of growth, organizational maturity, and organizational decline. Change is conceptualized as a natural part of human or organizational development.

Dialectical models, also referred to as political models, characterize change as the result of clashing ideology or belief systems. Conflict is seen as an inherent attribute of human interaction. Change processes are considered to be predominantly bargaining, consciousness-raising, persuasion, influence and power, and social movements.

Social-cognition models describe change as being tied to learning and mental processes such as sense making and mental models. Change occurs because individuals see a need to grow, learn, and change their behavior.

In cultural models, change occurs naturally as a response to alterations in the human environment; cultures are always changing. The change process tends to be long-term and slow. Change within an organization entails alteration of values, beliefs, myths and rituals.

In an empirical study by Fevzi Okumus and Nigel Hemmington, they conclude that there are mainly two different characters of change; reactive and proactive. A reactive change occurs in response to any major external event and or serious internal operational and administrative problems. Proactive change is when you do not currently have any problems but the manager's sees a potential future need for change in order to improve its market position or be better equipped for the future. Generally, businesses changing reactively as they usually just by convenience reasons cannot be bothered to enforce unjustified changes. (Okumus & Hemmington, 1998)

In the report *Findings from an evaluation of 28 strategic management and change management projects,* the author John Mitchell investigates different organizations approach to change management. During the study, he found out that many project managers used Kotter's eight-step model or a modification of it for change. Kotter's books from 1996 and 1999 were the most popular sources to their applied theories in change management. But there are some limitations to his model as well, for example it assumes that every manager can be a change leader, something that often requires special trained change consultants. It is also criticized for having an old way of looking at managers and leaders. A leader is part of the changing organization while managers just thinking about control of planning and budgeting. (Mitchell, 2003)

3.1.2 Power, organization and individuals

The early approaches and theories to organizational change management suggested that organizations could not be effective or improve performance if they were constantly changing. It was argued that people need routines to be effective and able to improve performance. However, it is now argued that it is of vital importance to organizations that people are able to undergo continuous change. (Todnem, 2005)

According to Change Management Best Practices Guide (Queensland Government, 2009) change is an interesting and major step to take when you enter something new. During this period, there will be some uncertainty, which can have both positive and negative experiences depending on how you choose to deal with the new situations. Either the company can grow and develop themselves over previous state, or they can go as failures when the change did not meet the expectations or if something went wrong. However, change is inevitable if you always want to be in the forefront and be current in the market. There are both internal and external parties that may have an impact on change implementation. Even new technologies or new requirements regarding economics, politics and social issues can have an impact. The internal parties may consist of changing customer requirements from management, changes in costs or personnel and knowledge resources. Whether the idea is to make a small or large change, it always means, in the end that the part of the organization (or the whole) in any way will operate differently through new processes, approaches and methods. Irrespective of the way the change originates, change management is the process of taking a planned and structured approach to help align an organization with the change.

An organization consists of several different stakeholders who more or less are affected by the changes taking place in the company. If the change happens internally, it will also affect external stakeholders. (Lundin & Sadiq, 2012)

The statement "If you want to truly understand something, try to change it" by Kurt Lewis is "especially true when making changes within or related to an organization or its culture". According to Patterson and Sorrells (2001) it is "during periods of organizational change, most attention focuses on the organization in terms of structure, processes, tools, measurements, policies, and procedures. However, for the transition to be successful, people need to be persuaded and committed". Here the information processes is important which means how the company can convey communication between stakeholders and participants in the organization. This can for example be the decision of the company's management passed among participants in the organization and how the participants understand the change that the management wants to achieve. Patterson and Sorrells (2001) continuous by saying that "their individual interests, values, and competencies must be effectively aligned with the organization's vision, culture, and capabilities. Organizational leaders must determine the type of change necessary in order to adapt to the needs of its internal or external environment. Consequently, organizational change can affect people, systems, processes, culture, business units, or the entire organization". (Patterson & Sorrells, 2001) (Lundin & Sadiq, 2012)

In research studies are organizations often described as political systems. A network of different opinions and full of intrigues where coalitions are formed and power rule. It is a suitable way to describe organizations because it shows how people with power have the ability to influence, which does not necessarily need to comply with the classic hierarchical form of organization. Getting support for your thoughts and ideas is crucial if you want to get your way and enforce your wishes. This means that the change will not be implemented if it is not supported by a senior policymaking person or that it has broad support among others involved in the organization. (Cameron & Green, 2009)

In *User Behavior and Technology Development* (Verbeek & Slob, 2006) the authors are discussing the intriguing interactions between technology and behavior. By integrating knowledge from several disciplines such as psychology, sociology, philosophy of

technology, economics, science and technology studies they aim to investigate the complex interactions between technology and behavior. The complex interaction can be simplified and the relationship between users and artifacts can be seen as a two way interaction, meaning the both sides affect each other, either by one influencing the other, one at a time, or both parties affecting each other simultaneous.

3.1.3 Change in culture

The culture of an organization is composed of the values, beliefs, experiences, and behaviors of the people that create the organization, defining "the way that the organization does the work". The organizational culture is so important that anything which does not fit in that specific culture will be immediately rejected. (Şenyurt, 2010) "Individual change is at the heart of everything that is achieved in organizations". (Cameron & Green, 2009)

Alvesson and Kärreman describe how both structural and "mental" methods are used to control and influence behavior. Their conclusion after a completed case study is that they show that the bureaucratic and cultural governance have a complex relationship and that they can reinforce each other. They also explain how this close interaction between the two methods of control can be very effective in practice. (Alvesson & Kärreman, 2004)

Implementation of a new methodology is an example of change management and project management methodology implementation which is strongly affected by organizational culture. For example, employees may feel free to avoid following standard project processes and fail to do things in time without any fear to be punished. This illustrates that training project managers within organization is only one example of culture influence. Others may be process orientation, governance (how employees follow processes), roles and responsibilities of employees and company structure. Harold Kerzner (2004) even proposed an idea that "project management is a culture, not policies and procedures". Kerzner supports this opinion and defining that successful project management is not about creating paperwork, but about executing the methodology by the corporate culture, which transforms into cooperative culture in a company excellent in project management. Graham (1989) writes; success in implementation of organizational changes rests mostly on people's cost\benefit analysis: people accept changes easily in case they see some personal benefits and they reject it if they don't. This could lead us to a conclusion that organizational culture is the main factor influencing project management methodology implementation, especially considering another project definition that includes people. "A project is a set of people and other resources temporarily assembled to reach a specified objective, normally with a fixed budget and within a fixed time period". (Pereverzev, 2011)

In an awarded article on planned change and organizational development the author John Shook writes that "the way to change culture is not first to change how people think, but instead to start by changing how people behave. It is important to integrate quality, support and ownership for the job. When trying to change the organizations' culture one needs to focus on what behaviors you want people to exhibit, then design the work processes that are necessary to reinforce those behaviors. The culture will change as a result." (MITSloan Management Review, 2010)

As written in Change Management Best Practices Guide (2009) it is not optimal to implement changes through a comprehensive general method for all organizations. This

is because not all organizations look exactly the same in structure and culture, they do not have the same needs and that various changes affect them in different ways. Therefore the different characteristics of changes also matters when planning and implementation of changes are to be made.

Though each method for change management should be custom made for each organization there still are some general factors to focus on at in order to implement successful changes that can be applied to most organizations. With data gathered from 650 project leaders and change management practitioners representing organizations from over sixty countries, Prosci's 2012 edition of Best Practices in Change Management (Prosci) tries to uncover the six greatest contributors to the success of a change management program. These top contributors to success are:

1. Active and visible executive sponsorship.
2. Frequent and open communication about the change.
3. Structured change management approach.
4. Dedicated resources and funding for change management.
5. Employee engagement and participation.
6. Engagement with and support from middle management.

(Prosci)

3.1.4 Unfreeze – change – freeze

A common and simple way of explaining how to implement changes is through psychologist Kurt Lewin's (1890 – 1947) suggestions that change requires three steps: *unfreezing the organization, implementing the change, and refreezing the organization*. We have chosen this theory because it is a comprehensive and easily understandable explanation of what should be done throughout a change. It has also been shown to be prevalent in the world of research when the implementation of change is described. Accorded to Lewin is the first step of unfreezing involves convincing those that are affected by the change that the change is indeed necessary. Once the affected stakeholders have accepted the need for change, the next step in Lewin's model is to implement it. The last step after implementation of the change is to take actions to reinforce and stabilizing new methods so that the change becomes permanent and the new habits, rules, or procedures become the norm. (Tanner, 2011)

In today's modern workplace Lewin´s model alone is too simple to describe the working procedures. This is where Kotter's model can be used in combination with Lewin's model as an extension to get a more detailed understanding of what to do and when. As shown in the following chart inspired by Tanner, Kotter's eight steps for leading change are aligned with Lewin's model. (Tanner, 2011)

Table 1: Lewin´s and Kotter´s models next to each other (Tanner, 2011)

Kurt Lewin	**John Kotter**
Unfreeze	1. Establish a Sense of urgency 2. Create the Guiding Coalition 3. Develop a Vision and Strategy 4. Communicate the Change Vision

Change	5. Empower Broad-Based Action 6. Generate Short Term Wins 7. Consolidate Gains and Make More Change
Freeze	8. Anchor New Approaches in the Culture

As written by Kotter can these steps can be furthered described as:

1. Help others see the need for change and they will be convinced of the importance of acting immediately.
2. Assemble a group with enough power to lead the change effort, and encourage the group to work as a team.
3. Create a vision to help direct the change effort, and develop strategies for achieving that vision.
4. Make sure as many as possible understand and accept the vision and the strategy.
5. Remove obstacles to change, change systems or structures that seriously undermine the vision, and encourage risk-taking and nontraditional ideas, activities, and actions.
6. Plan for achievements that can easily be made visible, follow-through with those achievements and recognize and reward employees who were involved.
7. Use increased credibility to change systems, structures, and policies that don't fit the vision, also hire, promote, and develop employees who can implement the vision, and finally reinvigorate the process with new projects, themes, and change agents.
8. Articulate the connections between the new behaviors and organizational success, and develop the means to ensure leadership development and succession.

(Kotter International, 2012)

During 2002 several final reports regarding change management projects preferred Kotter's model, but with some customization. For example, Cooloola Sunshine Institute of TAFE found that "the key aspect of the Kotter model that was influential at CSIT was the establishing of a sense of urgency" and Central Gippsland Institute of TAFE placed a high priority on one aspect of Kotter's model; establishing a guiding coalition. (Mitchell, 2003)

In the following model, William Bridges analyzed a three-phase implementation process as Lewin previously did. Bridges model with three phases can be seen as changeable with Lewin´s, but adding how performance changes over time. As seen is a temporary decline in performance to expect the first time you introduce a new method before you see the improvement. (Cameron & Green, 2009)

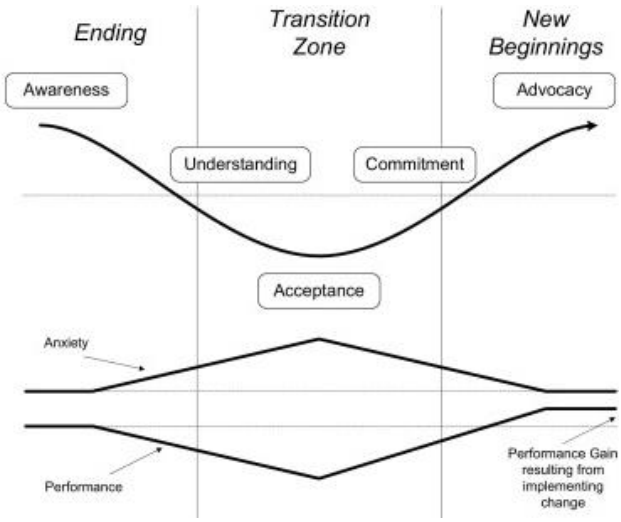

Figure 3: Bridges model of organizational change

3.1.5 Risks of organizational change

There are mixed opinions about whether organizations are malleable or not. It used to be many theories which showed that organizations can adapt when circumstances around it changed. More current theories challenged this with claims of structural inertia, which showed that inflexible organizations working in changes can be both difficult and dangerous for business. (Amburgey, Kelly, & Barne, 1993)

Many companies advocate a culture that continually works for constant improvement. While they do not like that the leadership is unchanged, you do not make a change *just because*, if there is a need for it, it is unnecessary to go in and change a winning formula. It is not uncommon to confuse words like change with development and activity with productivity. Every change is resource intensive, and therefore one should consider whether it is worth making the change or not, and be able to prioritize what is really important and most in need of change in order to get the best impact or return. This does not necessarily mean upgrading the physical hardware, but also applies to the company's core values and employee satisfaction in a process of change. (Taylor)

It also talks about how changing of routines can have a negative impact on businesses. Routines consist of repetitive activities and thereby define the knowledge the organization embodies. If you should change the stable work patterns, which acts as a secure and solid foundation in the work processes, this means an increased risk of uncertainty and for failure. Although the consequences would affect the business positively, you can encounter serious obstacles on the way, for example slow adaptation to project management techniques, political, cultural and social contradictions and lack of financial support. Lack of training of effective project management for project managers can lead to poor project results together with the lack of support from higher authorities because of fear of losing their control over the projects. Other possible adversities could be lack of teamwork, ineffective management of subcontractors and rigid vertical organizational structures. Most of the cited obstacles arise recurrent within the organizational culture. (McDeavitt, Wade, Smith, & Worsowicz, 2012)

3.2 Project

3.2.1 Project definition

Over recent decades projects has become common in most types of organizations and an established way of working. Significant for a project is that the task is of a creative nature, produces a particular good or service, is limited in time and cost and is the first and only time the task is carried out. Its results should succeed well enough the first try and, afterwards the temporary organization will dissolve. Project interacts with stakeholders outside the project and is carried out in an organization that exists both before and after the project. The execution is affected by both formal rules and models, and of informal norms in the project's parent organization. (Jansson & Ljung, 2004) (PMBOK Guide, 2004)

According to Office of Government Commerce (2009) a key challenge for organizations in today's world is to succeed in balancing two parallel, competing imperatives: "To maintain current business operations, including profitability, customer relationships, productivity, service quality, brand loyalty etc. Secondly to transform business operations in order to survive and compete in the future, looking forward and deciding how business change can be introduced to best suit the organization". Projects are the means by which we transforming business and introduce change.

3.2.2 Project management

Project management methodologies are the various step-by-step techniques in which projects are initiated, planned, and executed into completion. There are a number of different approaches to managing project activities, for different types of projects and different industries there are specific methodologies that can be applied. (Office of Government Commerce, 2009) Some of these standards used by our interviewees were either used in full or influenced by Pejl, PMBOK, PPS, PRINCE2, PROPS, Ratten, RUP and V-model.

Regardless of the methodology employed, careful consideration must be given to the overall project objectives, the timeline, and the cost, as well as the roles and responsibilities of all participants and stakeholders.

A project manager's role is to manage the project and monitor how well the project is progressing. Project management includes "planning, monitoring, delegating and controlling all aspects of a project in order to achieve the project objectives within the expected performance targets for time, quality, scope, cost, benefits and risks". (Office of Government Commerce, 2009)

Project managers can divide projects into phases to provide a more efficient management control with appropriate links to the operations in progress. Collectively, these phases are known as the project life cycle. Different industries have their own views of the number of phases in a project, especially of what they are called. But these processes typically include:

- Initiation.
- Planning and Design.
- Development.
- Test.

- Execution.
- Closing.

(Antvik & Sjöholm, 2012) (Nejad, 2012) (PMBOK Guide, 2004) (Swedlund, 2012)

Lundin och Söderholm (1995) describes the work done in projects with the following table, where one clearly can see the difference between the traditional line-based workflow and how the work is executed in projects.

Table 2: Unique and repetitive tasks (Lundin & Söderholm, 1995)

	Repetitive tasks	Unique tasks
Goals	Immediate, specified	Visionary, abstract
Experience	Own or codified by professions	Others' or none
Competence	In codes and tacit knowledge	Diverse or unknown, requires flexibility and creativity
Leadership/ owner of temporary org'n	Low or middle managers	Top management
Development process	Reversible	Irreversible
Evaluation	Result orientated	Utility orientated
Learning	Refinement	Renewal

The success of a project depends on a large number of dimensions, some of them formal, but most of them informal. An analytic framework for studying these is depicted in table 3. The formal processes include the dimensions structure and technology and infrastructure. The informal processes include the dimensions relational, culture and communication.

Table 3: Processes within projects (Hald, Johansen, & Ekambaram, 2012)

Formal process	Structure	Formalities Responsibilities Resources
	Technology and infrastructure	Project management Tools Support and maintenance
Informal Processes	Relational (How do we relate to each other?)	Friendship Competition / conflicts Power Trust
	Culture (What do we understand, think, mean?)	Shared Goals Learning Values Norms Habit
	Communication (How do we collaborate?)	Interaction Collaboration Knowledge transfer Leadership

3.2.3 Organizational structures and the influence of project managers

Each organization approaches the relationship between operations and projects differently. The PMBOK (2004) defines three main organizational structures that affect many aspects of a project which for example includes the project manager's authority, control of the project budget, the project manager and administrative staff roles and resource availability.

These organizational structures include:

- Weak matrix: “A project manager with only limited authority is assigned to oversee the cross- functional aspects of the project. The functional managers maintain control over their resources and project areas”.
- Balanced matrix: “A project manager is assigned to oversee the project. Power is shared equally between the project manager and the functional managers”.
- Strong matrix: “A project manager is primarily responsible for the project. Functional managers provide technical expertise and assign resources as needed”.

(Wikipedia, 2013)

3.2.4 Documentation

According to Janson and Ljung (2004) the need for documentation varies depending on what the project is about, who is involved and the organizational environment where the project takes place. Often the industry and the main organization has a tradition on what is documented, who does it, what the document looks like and what they are titled. There are some topics that are general and where the benefit of written documentation is particularly great, as they are crucial agreements or assessments with a major impact on how the project can be implemented.

One could say that there are some occasions in the project where the need for a common frame of reference is particularly great. It involves gates and general project documents. These have many names and come in many different varieties. We have chosen terms that are usual in practice. What is important is to understand the purpose of the documents and what they mainly contain:

- Project directive: a mission description.
- Project specification: a project description.
- Progress report: a status and action report.
- Final report: an experience report.

These four general documents are relevant to the key points that you find in all the projects that occur in an organization, no matter what the project is all about. (PMBOK Guide, 2004) (Logica, 2008)

For the project organization to learn, organizational members must create, share, and apply knowledge. Building the organization’s knowledge is one key to long-term survival of organizations. But stated by Sue Newell in Enhancing Cross-Project Learning (2004) the difficulties with cross-project learning has been recognized in both the academic and practitioner literature. “Even in project-based organizations, there is often a problem of capturing the learning from projects so that it is available for use by other projects. Instead, each project tends to start from scratch, often making the same mistakes as others have made before. This happens even though most organizations have now instituted project reviews, which ensure that project team members capture what they have done on a particular project, codify these lessons in a written document of some kind, which is then stored on a database that others can search at a later point in time.” (Newell, 2004)

3.2.5 Stakeholders

Project stakeholders are individuals and organizations that are actively involved in the project, or whose interests may be affected as a result of project execution or outcomes. The project management team must identify the stakeholders, determine their requirements and expectations and, to the extent possible, manage their influence in relation to the requirements to ensure a successful project.

Stakeholders have varying levels of responsibility and authority when participating on a project and these can change over the course of the project's life cycle. Key stakeholders on every project include: Users, portfolio managers, program managers and the project management office. (PMBOK Guide, 2004)

3.2.6 Project management criticism - Broadening the agenda

In this section previous research, critical to project management's normative approach and frequent neglect of political, social and ethical dimensions is presented.

In the journal article *The other side of projects: the case for critical project studies* (2008) authors Damian Hodgson and Svetlana Cicmil argue that practice and research into projects and project management remains heavily reliant on a functionalist, instrumental view of projects and organizations and where the function of project management is taken to be the accomplishment of some finite piece of work in a specified period of time, within a certain budget, and to agreed specifications. This position typically assumes rationality, universality, objectivity, and value-free decision making.

The first and most important argument to what is collectively referred as critical management studies "CMS" is that the majority of the work on project management largely neglects the political, social and ethical dimension in both theory and practice. Furthermore make a case for a greater recognition and integration of these concerns into mainstream project management. CMS take a stand against oppression and exploitation of, for example, employees, women, ethnic minorities and the environment. They are working for a broader agenda, and more importantly recognition of the social and ethical territory that project management already occupies but frequently fails to reflect upon. The authors refer to this occluded face of project management as "the other side" of the discipline, in terms of what is overlooked but also in terms of what is often actively ignored and obscured, including the sometimes dysfunctional consequences of project management practice – for the individual, for the environment and for society as a whole. A second important aspect of critical approaches to project management is to rethink definitions of project success over time, cost and quality performance to encompass work-life balance, societal impacts, health and safety, and ethical concerns more widely.
Thirdly, critical project management research would engage with (and serve) not merely project managers but practitioners at all levels of the project hierarchy, often with the aim of initiating some transformation in how actors perceive themselves, their voice, their broad responsibility and their influence in shaping their own social place. (Adler, Forbes, & Willmott, 2007) (About CMS, 2011)

3.3 Product development theory

As we aim to create a working method to strengthen the team members in their work, we here present theory of how and what to consider when developing a new product. By product we mean a working method that supports the team members in their sustainability efforts.

The product development process (figure 4) includes a number of phases to be carried out before a product is ready to be launched, but the definition of the various stages and the number of steps that the process includes varies between different theories. As a starting point for this paper we have chosen to use the process model developed by Lindberg & Stenmark (2004). The product development process includes several more phases, but due to the limitations of this study we focus only on the first two steps.

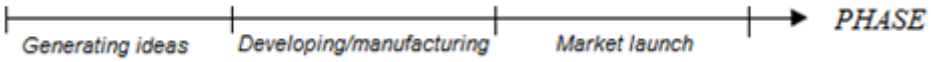

Figure 4: Illustration of phases in product development process.

The first phase regards companies looking for new ideas for future products. This can be accomplished by internally developing ideas or by analyzing the market and customers to get suggestions. For instance, this can be done by analyzing customer complaints or conduct competitive analysis. During this phase customer targets are defined and what properties the product ideas should possess. At the end of the phase a decision whether the idea should be pursued to production or not are to be made.

In the second phase the product concept is to be developed, namely that the product design and properties are planned more in detail. During this phase, it is important to gather users requests regarding the product and its properties. After the concept received approval the physical product, so-called prototypes is developed. During this phase the components and materials used in production are decided, and how this will be implemented. A manufactured product is then tested internally and externally to see if the required standards are met before large-scale production is started.

3.3.1 Phases and methods

There are several models and methods for how companies can communicate and involve customers in the product development process, but the best way to obtain valuable information about customers, according to Pitta and Franzak (1997), is to involve customers in the process from the beginning of an idea generation all the way through to the launch.

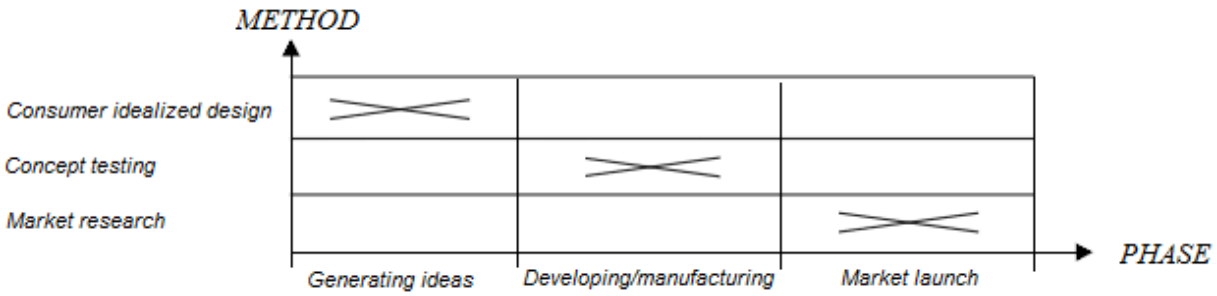

Figure 5: Illustration of phases and methods in product development process

Consumer idealized design is described as “a process for involving consumers in the actual design of new manufactured goods or services” (Ciccantelli & Magidson, 1993). The approach deals mainly with the conceptual design and requirement analysis phase of product development, and focuses on involving users in the early phases of the product design process. The process is conducted with a group of participants that must be carefully selected representatives of the target market. Several groups of ordinary consumers, composed of different market segments, are recommended for best results. The session begins with a blank sheet of paper and ends up with a list of articulated requirements, a design and a record of the underlying reasons for the design choices. The facilitator’s role during the session is to guide the participants towards their ideal and away from what they perceive as obstacles. The customer’s role is to identify basic requirements, and actively find new solutions to their own problems and requirements. (Kaulio, 2010)

Concept testing provides businesses input from the market at an early stage of product development. Before companies develop a product an evaluation of the market should be instigated. In this way, companies can eliminate unsound concepts prior to devoting resources to them if customers have no interest in the product.

The presentation of the concept should include realistic descriptions of the planned product and some type of model or prototype to describe what the product will look like. The goal of this model is to provide reactions to product characteristics and appearance. Customers evaluate ideas and tell you what they like and do not like about the proposed product so that it can be changed to meet the needs and demand. While testing the prototype in typical usage situations by asking a number of prospective customers what they think of the idea, the screeners should ask several questions. Will the customer in the target market benefit from the product? Is it technically feasible to manufacture the product? Is it profitable to use and produce it? (Kaulio, 2010)

4 Empirical content

This chapter presents the empirical material collected both from a series of interviews made in the study, as well as literature about environmental reporting and project management. Chapter begins with discussing why the purpose of this study is important. There is also a report of the information gathered during the interviews. Then there is a presentation of GRI, a possible tool for environmental reporting for future projects. Lastly is a presentation of CGI Sweden's currently used project method Ratten, a method that will serve as an example how to extend and integrate sustainability.

4.1 Incentives for sustainable emphasis

Companies can play a key role in sustainable development. But why should they? The answer could come from personal values as well as by creating economic benefits.

4.1.1 The environmental argument

From water pollution to global warming, environmental issues affect every person, animal, community, and nation on the planet. The reasons for environmental sustainability are many. But the top environmental issues consider many to be global warming. (Vancouver Sun, 2013) (West)

According to a new scientific report that was commissioned by the World Bank (Potsdam Institute, 2012) says the world is moving towards heating up by 4 degrees at the end of the century if the global community fails to act on climate change, triggering a cascade of cataclysmic changes that include extreme heat-waves, declining global food stocks and a sea-level rise affecting hundreds of millions of people.

The report states that the science is indisputable that humans are the cause of global warming, and major changes are already being observed. The global mean temperature has continued to increase and is now about 0.8°C above pre-industrial levels. While a global warming of 0.8°C may not seem large, the report notes that many climate change impacts have already started to emerge, and the shift from 0.8°C to 2.0°C warming or beyond will pose much larger challenges. But a global mean temperature increase of 4°C approaches the known historic level of change for the planet, which goes back to the last ice age when much of central Europe and the northern United States were covered with kilometers of ice and global mean temperatures were about 4.5°C to 7°C lower. And this contemporary human-induced climate change, the report notes, is occurring over a century, not millennia. (Worldbank, 2012)

4.1.2 Making the economic case

Sustainability, corporate social responsibility and related trends are part of the business agenda for an increasing number of companies worldwide. Understanding how to integrate these concepts into business planning can be an important part of a successful business.

4.1.2.1 The business case for sustainability performance – The theory

Typical arguments made for the cost reducing effects of improved sustainability performance include:

Cost-related advantages of sustainability

Typical arguments made for the cost reducing effects of improved sustainability performance includes:

- Clean technologies are usually more efficient thus reducing emissions and increasing productivity. Reducing raw materials use and increasing recycling and recovery can reduce production costs.
- Changes in legislation or changes in rules on liability for damage can imply significant costs, sometimes unanticipated for companies. Companies that can prepare for regulatory change will have a competitive advantage.

Market advantages

Companies that can demonstrate compliance with stringent environmental demands can generate market benefits of different types:

- Access to environmentally sensitive markets
- They are more likely to retain their existing markets as they become more sustainability sensitive.
- They may secure higher prices for their products.
- They may derive first mover advantages if they can capture environmentally sensitive markets ahead of their competitors.

Reputation advantages

Responsible business practice has a positive impact on the reputation and public perception of the company.

- Reducing risk of consumer and investor boycotts.
- Company's commitment to corporate social responsibility and overall reputation may be an important motivating factor for its current and prospective employees.
- There is also an insurance value associated with reputation. In the event of a problem, a company with a good reputation can induce more supportive responses from stakeholders. This is because once established, a company's reputation frames the way its key stakeholders detect and interpret events associated with it.

(Global Reporting Initiation) (Grieg-Gran, 2002) (Respect, 2012)

4.1.2.2 The business case for sustainability performance – The evidence

Based on a survey from of over 200 senior executives as well as ten in-depth interviews with corporate executives, academics and industry experts in the area of sustainability, Economist Intelligence Unit (2010) found that 87% of respondents agree that sustainability will become considerably more important over the next three years. Of these, 46% strongly agree and only 4% disagreed.

The sector for energy efficiency improvements and renewable energy are the future says Naturskyddsföreningen. Only in Germany has 450 000 new jobs been created, but even Swedish companies believe in climate related business. In November 2008, Veckans Affärer sent a survey to Sweden's 500 largest companies. The result shows that 420 of these see business opportunities in their climate work, and it's the customers who are pushing the trend. Sweden's 500 biggest companies are investing about 230 billion on the climate issue, which is equivalent to 4% of the total turnover. Eight out of 10 expect

to invest an even greater share of the turnover for the next three years. 84% of companies see an opportunity in their climate work, compared to 68% in 2007.

Everyone wins with green technology. When a large Swedish telecom company made its travel policy to a meeting policy and improved the use of office space, they saved 20 million and reduced its greenhouse gas emissions by nearly 50 percent between 2001 and 2006. But it is not only Swedish companies that earn on their climate actions. A quarter of current global emissions, according to consulting firm McKinsey can be cut away at no cost. Three global companies in the chemical, oil and IT together saved $ 3.45 billion on measures that decreased their carbon footprint. (Naturskyddsföreningen, 2012)

Swedish consumers

According to Klimatkoden (Cederberg Woodmar & Holmgren, 2009) the majority of Sweden's population is willing to pay more for a product or service if they know that the producer is working to limit the climate change. The fact that so many say they are prepared to support and pay more for goods or services from companies that take the lead in climate work should inspire other companies to become even better at promoting climate-friendly alternatives. 70 percent of women and 65 percent of men often or sometimes choose a product or article that they believe have less impact on the climate.

Sweden is one of the countries in the world that has the highest tax burden. Still, says more than 60 percent of the Swedish people that they think that taxes on gasoline, oil and air should be raised to reduce the carbon footprint.

The source also states that only 27 percent of men and 21 percent of women think that companies are good at reporting what they do to limit greenhouse gas emissions in their marketing, indicating that there is a need expressed to have a more concrete measurement and a clear way to convey environmental impact.

There are also global indices for sustainable enterprises. To end up on these may benefit businesses, for example through investment and marketing. Examples of indices of sustainable enterprises are the Dow Jones Sustainability, and Sustainable Global 100 Brands. Sustainability indices aims to identify corporate sustainability leaders based on procedures such as resource efficiency. (BusinessGreen, 2013) (Fortum, 2013)

4.1.3 Doing well by doing good?

Sustainability is sometimes defined as "doing well by doing good". But is there a link between corporate social performance and corporate financial performance?

According to a report conducted by The Economist Intelligence Unit (2010) the link between sustainability and profitability remains unclear. Only 24% of respondents agree that there is a strong link between financial performance and commitment to sustainability in the short term. However, 69% say they consider the link strong in the long term.

A 2008 Harvard Business School study by Joshua Margolis and Hillary Anger Elfenbein approached this question by analyzing 167 studies conducted over 35 years. The researchers found that while doing good does not appear to destroy shareholder value, there is only a small correlation between good corporate behavior and good financial results. They highlighted some findings: Corporate misdeeds are costly to

companies—if people find out. Doing good is unlikely to cost shareholders. Only 2% of the studies reviewed showed that managers who dedicate corporate resources to social contribution impose a direct cost to shareholders. Companies can do good and do well, even if they don't do well by doing good. Profitability should not be the primary rationale for corporate social responsibility. Companies should not expect to be handsomely rewarded for engaging in activities that generate social good. (The Economist Intelligence Unit, 2010)

Socially responsible behavior may not cost the firm financially, but if the goal is return on investment, there may be other ways to spend cash more effectively. One way the researchers interpret the weak link between corporate social performance and corporate financial performance is this: It pays to be good, but not too good. It may be that companies do best when they find a middle ground: doing enough to satisfy regulators and activists, but not doing so much that they risk the disapproval of analysts and investors.

4.1.4 Environmental management issues (Saha & Darnton, 2005)

"Having these standards does not mean that the company is *green*: it just means that they are committing to continuous improvement."

An environmental policy formally expresses to the public that the firm is making a commitment to environmental improvement. It establishes a course of action for the firm with regards to environmental matters with set parameters. It also communicates environmental promises to its stakeholders. However environmental policies may only reflect the concerns of the firm at the time they were created and may not provide the day-to-day environmental management over a period of time. Moreover, they may just be devised for marketing purposes or to "hide behind." The use of "get out" clauses such as "where practicable" alongside statements makes the policy meaningless as it allows firms to avoid accountability. Moreover, individual interpretation of the policy may be inconsistent. (Saha & Darnton, 2005, s. 123)

There are various national and international environmental standards and charters that a company may adopt. Two of the main standards are the European standard Eco-Management and Audit Scheme (EMAS) and the international standard ISO 14000. Both these standards are voluntary and market-driven approaches to improving environmental performance, although there are no specified levels. These standards only require companies to follow certain procedures and management changes. Environmental audits are part of this process. However, audits will simply ascertain a situation at a given point in time. They cannot provide assurance that a firm's performance will continue to meet legislative and policy requirements.

Because there is no statutory definition of what an environmental audit entails, environmental audits vary widely in both regularity and in scope. For example, an audit may involve merely looking at particular issues that face the company, or it may give a more comprehensive assessment of the company and its EMS, sites, processes, risks and liabilities, waste management, and other issues. Furthermore, because firms set their own objectives and targets, it allows them to make just small incremental environmental improvements.

Environmental reporting communicates to the public that decision makers of a company are taking green issues seriously. In reality, though, it may be quite different. Due to the

absence of environmental reporting standards, companies are free to publish whatever and as much or as little as they wish. Unlike financial reporting and pollution registers, which have mandatory responsibilities imposed, environmental reporting is an entirely voluntary method which means that companies do not have to disclose negative information unless they wish to do so. However, companies must disclose information, whether it is positive or negative, on the following: charitable donations, employment data, consultation with employees, employment of the disabled, contingent liabilities, provisions for health and safety, and environmental remediation. Environmental reporting also creates the opportunity for companies to exaggerate positive information and so enhance their corporate image. In addition, environmental reports that contain quantifiable data may not be accurate. Not many companies actually have environmental management systems that allow them to produce logical, honest, and quantifiable data. Even independent verifiers may rarely visit sites and check data directly. So it can be deduced that any form of written data has potential problems with reliability and validity. (Saha & Darnton, 2005, s. 124)

4.2 Empirical findings from interviews

The idea of sustainability has been embraced enthusiastically by some businesses and rejected by others. From stage 1, where the company feels no obligation beyond profits and ignores sustainability and actively fights against related regulations. To stage 5, company driven by passionate, value-based commitment to improving the well-being of the company, society, and the environment, the company helps build a better world because it is the right thing to do. (Williard, 2005)

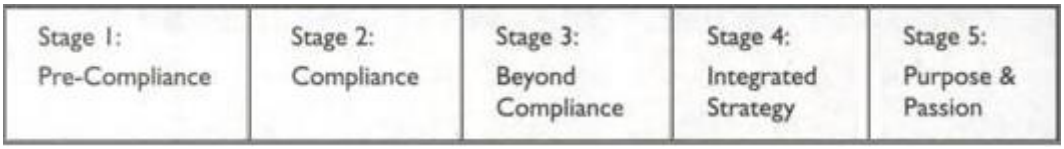

Figure 6: Five stages of sustainability

4.2.1 Telephone interviews

Among the people interviewed there were representatives from several different areas, with the common denominator that they work with projects in some way and have some sort of management position. How much they had already discussed and included the relationship between management and sustainability in the organization differs significantly between the respondents. From already being a part of their current standard procedure, to those with who were more questioning or have not even thought about the issue.

Most of those interviewed considered it to be new information to include environmental thinking in project management. And overall, they expressed a great interest and saw many possibilities. One respondent from a telecommunication company said that "we are discussing how to get sustainability issues into our processes in a natural way, but we haven't thought about integrating it into our own project model". The importance of including environmental aspects as a part of the project method expressed a project manager from a pharmaceutical company as: "otherwise they will easily be ignored, often by instead prioritizing other driving forces such as lower costs".

Of the twenty companies interviewed, three felt they designed and uses a methodology for a more sustainable project management. These methods were designed for each

company's internal work processes and where developed independently. The methods where confidential (a small segment of this checklist can be seen in appendix table 5) but includes a number of checklists and gates used during the project, for environmental analysis and to include environmental issues in the project process. There are different checklists through different phases in the process, from initial phases through to the final production phase. In some cases the entire checklists was to be checked off before the initiating of the next phase. This mire sustainable management method is to regularly provide and update the project performance to the project owner or before approving a new investment. Additional are references to current guidelines on how to execute some part or tasks in projects, for example guidelines for energy consumption and demands for transportation.

Two companies said that the purpose of investigating the possibility of sustainability in project management was not relevant or useful. One of these companies who works with creating product from paper and wood considered that the "issue felt strange". They work with all sorts of projects including investments, product development, acquisitions and divestitures, IT improvements and more. But did not consider that the project process and its management should take considerations or be driven by environmental concerns, but it is the goal of the project that is of interest. "It is the outcome of the investment we are looking at, not whether the project itself is driven environmentally". Also a real estate company expressed that the focus should be on creating an end goal that is environmentally friendly, since the management impact is small compared to the entire project.

Figure 7 illustrates a simplified flow of sustainability information between different parties within CGI Sweden. The Environmental manager collects data and compare with the environmental policy (business management) in order to draw conclusions. He may also make changes in the business management and keep it updated. The project manager has at some time taken part of the information but is often poorly versed in the content and rarely takes time to keep himself updated about what is in it. (Interview Elin Swedlund 13 May 2013)

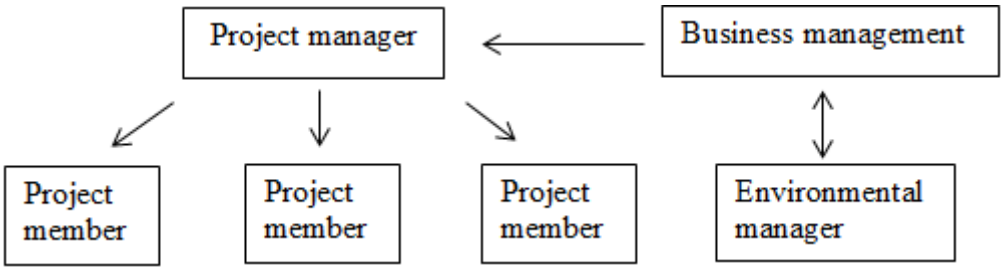

Figure 7: Sustainability communication in an organization

A clear pattern is that any of the major project management models is rarely used, but instead the companies worked out their own models based on what the company themselves think works well. This is not surprising because the projects can look very different depending on what you want to be achieved. However the width of different management models can lead to difficulties when working on standardization of report templates in the project. This means that it is not worthwhile to implement a general model but instead should be individualized for each company or possibly even projects. It would be desirable if everyone could report similarly.

When discussions began regarding the various steps to be taken in an implementation phase most respondents agreed that the decision on implementation will be decided by the highest instance where demands and thoughts passes through and then spread down to all employees in the company, not just environmental managers and project managers. So it should not only be on the project manager's desk to ensure that environmental management is followed. Thereafter, a general staff training should be done to primarily create awareness so that everyone can embrace the knowledge and know what can be done to both contribute in a better way and also to facilitate the reporting for the responsible ones. To facilitate even more each company should follow a template so that all parties report the same things the same way (taken from an interview with a healthcare company). Similarities can be drawn to the classic phrase "no one can do everything, but everyone can do something". So it should fall down to the individual level, where it is implemented in the daily work to get as strong impact as possible.

As the cost issue came up, there was disagreement on if the market is willing to pay more for better environmental reporting. Most say they are willing to pay more in order to display the selection of greener alternatives and therefore see it as a quality parameter and competitive marketing. Unfortunately price and skills is in this respect usually selected prior to considerations of the environment. Here one should also report the economic aspect in order to see the links between environment and economy. Environmental thinking is often linked directly to the cost issues instead of just thinking purely environmental. Everyone says that all the environmental work really needs a higher overall status. This means that companies should dare to invest more and allow that it may cost a little more for increased environmental efforts which eventually can result in changing mindsets to calculate different values of the company - not just purely economic. Here comes the problem up how to value these environmentally emphasized value-added.

Another topic that came up in several interviews was different suggestions how a possible method should be designed. It would be appreciated if it was concrete and clear in how the work is described, presented, reported and measured. To obtain a behavioral change the interviewees expressed the need for people to see in print how much the changes actually affect the environment in different directions, for example by GRI. "The more concrete goals the better understanding and greater impact the reporting gets when more people can absorb the information and the way to think". It is only then that you can compare results before and after the change. Not only should the information be structured in a clear manner, interviewees requested that the work should be kept to a minimum "to not overburden the managers".

The next step to making this possible is to facilitate the measurement of the various parameters that should be included in the report. For example, energy consumption broken down into different levels such as building, floor and offices or cooling, heating and ventilation to ultimately culminates to individual computers, printers and servers. The more measurable objectives are being developed, the easier to report improvements. Here you find great difficulties in finding and view these metrics. One respondent from a chemical company said that if Swedish laws and regulations should decide about this the development would certainly lead to more progress while it also would reduce and curb companies at first as it can take unnecessary energy and resources from the core business. Another respondent from a public agency mentioned that a first step in the right direction would be if there was some kind of pressure on the

responsible people in the companies which would lead to complications if reporting is not done.

If there were more general reports that was similarly structured and continuously reported, this would also lead to easier control of the environmental program throughout the process. If third parties should be able to check this afterwards it would lead to much better testing and monitoring of results. In the current situation is the certification process of various kinds a fairly simple procedure when companies only at an initial moment presents the current status and planned environmental projects. There are very few follow-ups on this because there are poorly continuous checks from the certification organizations.

In summary, the respondents consider that there is two main approaches for companies to further develop there environmental sustainability in project management. One is that management should take consideration to a numerous suggestions and incorporate these into project management, and the other method is by applying GRI reporting within projects.

To further analyze and develop the respondent's two suggested approaches and to inform the reader, next is a presentation of various suggestions expressed during the interviews. This is followed by a presentation of the GRI framework and an actual project management method.

4.3 Global Reporting Initiative

Here follows a presentation of what GRI is and what it includes. The information has mostly been gathered from the creators themselves. Although the information is extensive it does not require to be read in detail. The reporting standard will be applied in the later part of the study.

Global Reporting Initiative is a nonprofit organization that promotes economic, environmental and social sustainability. They provide a comprehensive framework regarding sustainability, often used among organizations around the world. They also set the rules for reporting establishing principles and indicators that organizations can use to report their economic, environmental and social performance. GRI seeks to make sustainability reporting as a routine for all organizations, comparable to financial reporting. Organizations usually report annually and for the organization as a hole. (Global Reporting Initiative)

Unlike environmental management system as ISO 14001 or Eco-Management and Audit Scheme (EMAS), the Global Reporting Initiative is not a code of conduct (explaining what a company should or should not do), a performance standard (providing measurements by which a company can judge how well it is performing), or a management system (mandating the necessary management processes and policies that should be in place to ensure compliance). What the GRI framework does do is provide the principles and content guidelines that allow an organization to prepare social and environmental sustainability reports in a competent, consistent way. (Neef, 2004)

The target group of the reports is according to GRI: consumers, employees, investors, researchers, and other interested individuals. The reports issued should be used to:

- Assess sustainability performance with respect to laws, norms, performance standards, and voluntary initiatives.
- Create a continuous platform for dialogue about expectations for responsibility and performance.
- Understand the impacts (positive and negative) that organizations can have on sustainable development.
- Compare performance within an organization and between different organizations over time.

(Strandesen, Brunn Poulsen, Erdal, & Schmidt, 2008)

4.3.1 **Aspects** (Global report Initiative, 2011)

The environmental dimension of GRI in sustainability concerns the organization's impact on the living and non-living natural system, including ecosystems, land, air and water. Environmental indicators cover performance related to operations such as materials, energy and water and outputs like emissions, waste water and waste. In addition, the indicators also include results related to biodiversity, environmental compliance and other relevant information such as environmental costs and impacts of products and services.

Material:

- Materials used by weight or volume.
- Recycled materials as a percentage of material use.

Products and services:

- Actions to reduce the environmental impact of products and services.
- Percentage of sold products and their packaging materials that are reclaimed.

Emissions to air and water and waste:

- Total direct and indirect greenhouse gas emissions by weight.
- Initiatives to reduce greenhouse gas emissions and reductions achieved.
- Total water discharge by quality.
- Total weight of waste by type and disposal method.

There are also performance indicators in economics, employment and working conditions, human rights, social issues and product responsibility. For the complete information see the appendix 8.1.

4.3.2 Number of GRI users

Since the first company reported back in 1999, the GRI framework has now become the most widely used standardized sustainability reporting framework in the world, "more than 4,000 organizations from 60 countries use the guidelines to produce their sustainability reports. GRI guidelines apply to corporate businesses, public agencies, smaller enterprises, NGOs, industry groups and others". (Wikipedia, 2013)

The number of GRI reporting over time for the Swedish business community and the world is seen in figure 8 and figure 9. (Global Reporting Initiative, 2013) In the pictures, we have chosen not to disclose the numbers of reports in 2012, as these are not yet with certainty presented in the GRI database. However, the graphs show that the use has increased over time. Even for the state-owned companies has the usage been great,

and back in 2008 the Swedish government decided that they should sustainability reporting according to Global Reporting Initiative guidelines. (GRI har inte förbättrat de statliga bolagens hållbarhetsarbete, 2010)

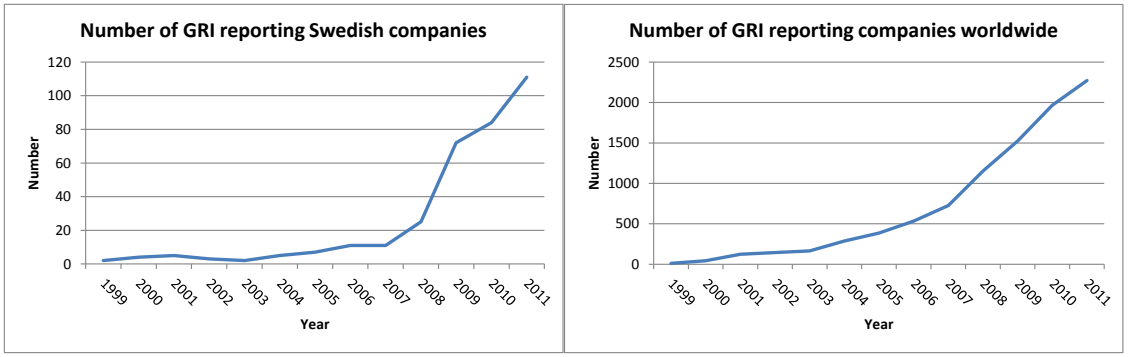

Figure 8 and 9: Number of GRI reporting companies in Sweden and worldwide a specific year (Global Reporting Initiative, 2013)

4.3.3 Criticism

Here follows a number of expressed eventual disadvantages with GRI reporting.

The reports do not give an opinion on the sustainability performance of the reporting organization or on the quality of the report. The purpose with application levels aim is to only reflect the degree of transparency against the GRI guidelines in reporting.

Statskontoret, who evaluated the effects of the government's requirement that public companies must report according to GRI, expresses a number of concerns. There is a risk that reporting will be an isolated activity, without further integration of sustainability efforts in the work done by the authorities. The evaluation also emphasizes the difficulty of finding the right indicators, as not all GRI indicators always are relevant for all companies. Another negative conclusion drawn is that good reporting work does not automatically lead to good sustainability work. It is about managing the business according to the conclusions of the GRI report.

Statskontorets overall assessment is that current reporting should not be replaced by the GRI model, because the added value would not outweigh the significant costs and information loss that would occur for the individual authorities and for the civil service as a whole. If the government were to introduce GRI model as an additional requirement on top of the existing statements from authorities, Statskontoret assesses that the costs of civil service would amount to at least SEK 100 million SEK a year. They also considered that work to adapt GRI requirements to Swedish authorities' activities would be extensive and costly. (Statskontoret, 2009)

"Requires considerable effort to complete. The data for many of the elements are not available and too many indicators and many are not meaningful." (Poltorzycki & Wirdak, 2004)

Among the most problematic aspects of GRI's reporting model is its focus on "internal organizational performance." The potential dangers of this non-holistic approach have been repeatedly highlighted by several scholars and can be summarized as that sustainability reporting needs "to have a detailed and complex analysis of the

organization's interactions with ecological systems, resources, habitats, and societies, and interpret this in the light of all other organizations' past and present impacts on those same systems." (Fonseca, 2010)

"The first major difficulty that arises when considering how companies could compare their environmental performance at a general level (not sector specific) is of course the fact that they produce different products. It is not rational to compare one companies consumption of energy per produced unit of plastic bags with another companies energy consumption per produced unit of computers, simply because it is not possible to produce a computer with the same amount of energy required to produce a plastic bag. Neither is it fair to compare amount or type of for instance chemicals used in the production since the composition of products differ significantly and thus have different requirements in terms of content of chemical substances." (Strandesen, Brunn Poulsen, Erdal, & Schmidt, 2008)

4.3.4 The three application levels (Global Reporting Initiative, 2011)

To meet the needs of new beginners, advanced reporters, and those somewhere in between, there are three levels in the system. They are titled C, B, and A, The reporting criteria found in each level reflects an increasing application or coverage of the GRI reporting framework. An organization can self-declare a "plus" (+) at each level (ex., C+, B+, A+) if they have utilized external assurance. Declaring an application level results in a clear communication about which elements of the GRI Reporting Framework have been applied in the preparation of a report.

The levels aim to provide:

- Report readers with a measure of the extent to which the GRI Guidelines and other Reporting Framework elements have been applied in the preparation of a report.
- Report makers with a vision or path for incrementally expanding application of the GRI Reporting Framework over time.
- Declaring an application level clearly communicates which elements of the GRI reporting framework have been applied in the preparation of a report.
- Incentives for beginners: The Levels provide a starting point for first-time report makers, and also reinforce the importance and value of an incremental approach to reporting which expands over time.
- Recognizing advanced reporters: A growing number of organizations have developed sophisticated reporting systems based on the GRI framework that include assurance, and are looking to communicate this to readers in a quick and easy-to-understand way.

Application Level Criteria

Reports intended to qualify for level C, C+, B, B+, A or A+ must contain each of the criteria that are presented in the column for the relevant Level.

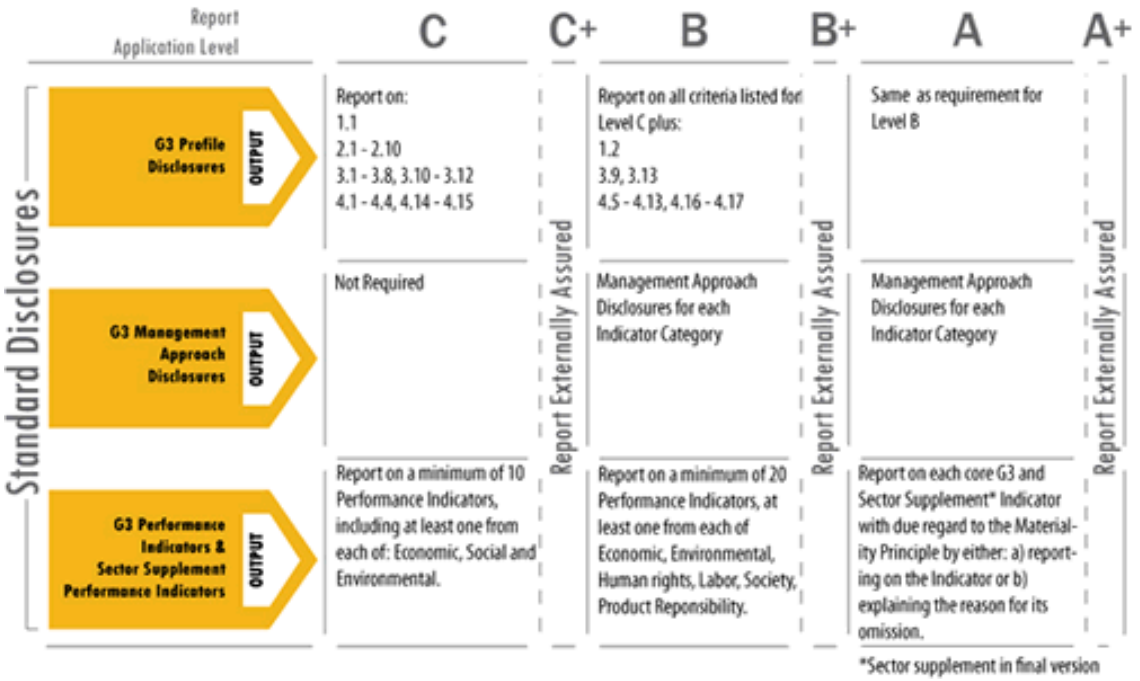

Figure 10: Standard disclosures and application levels

The guidelines identify information that is relevant and material to most organizations and of interest to most stakeholders for reporting the three types of standard disclosures:

- Strategy and Profile: Disclosures that set the overall context for understanding organizational performance such as its strategy, profile, and governance.
- Management Approach: Disclosures that cover how an organization addresses a given set of topics in order to provide context for understanding performance in a specific area.
- Performance indicators: Indicators that elicit comparable information on the economic, environmental, and social performance of the organization.

4.3.5 GRI application levels in brief (2011)

In order to make the reader more familiar here follows a presentation of what is included for the various criteria (seen in figure 10). For full details see Sustainability reporting guidelines.

To achieve application level C an organization need's to report the following

1.1 Statement from the most senior decision maker of the organization about the relevance of sustainability to the organization and its strategy.

2.1 - 2.10 Includes among others: Name of the organization. Primary brands, products, and/or services. Location of organization's headquarters. Nature of ownership and legal form. Number of employee.

3.1 – 3.8 and **3.10 – 3.12** Includes: Reporting period (e.g. calendar year). Date of most recent previous report. Reporting cycle (annual, biennial, etc.). And significant changes from previous reporting periods in the scope, boundary, or measurement methods applied in the report.

4.1 – 4.4 Governance structure of the organization, including and whether the Chair of the highest governance body is also an executive officer. Statement regarding mechanisms for shareholders and employees to provide recommendations or direction to the highest governance body.

4.14 – 4.15 List of stakeholder groups engaged by the organization. And basis for identification and selection of stakeholders with whom to engage.

Performance

Report on a minimum of 10 performance indicators. The indicators are chosen among the EN1 to EN30, found in appendix's 8.1.

Application level B

Report on all criteria listed for Level C plus:

1.2 Description of key impacts, risks, and opportunities.

3.9 Data measurement techniques and the bases of calculations, including assumptions and techniques underlying estimations applied to the compilation of the Indicators and other information in the report. Explain any decisions not to apply, or to substantially diverge from, the GRI Indicator Protocols.

3.13 Policy and current practice with regard to seeking external assurance for the report.

4.5 Linkage between compensation for members of the highest governance body, senior managers, and executives (including departure arrangements), and the organization's performance (including social and environmental performance).

4.6 Processes in place for the highest governance body to ensure conflicts of interest are avoided.

4.7 Process for determining the composition, qualifications, and expertise of the members of the highest governance body and its committees, including any consideration of gender and other indicators of diversity.

4.8 Internally developed statements of mission or values, codes of conduct, and principles relevant to economic, environmental, and social performance and the status of their implementation.

4.9 Procedures of the highest governance body for overseeing the organization's identification and management of economic, environmental, and social performance, including relevant risks and opportunities, and adherence or compliance with internationally agreed standards, codes of conduct, and principles.

4.10 Processes for evaluating the highest governance body's own performance, particularly with respect to economic, environmental, and social performance.

4.11 Explanation of whether and how the precautionary approach or principle is addressed by the organization.

4.12 Externally developed economic, environmental, and social charters, principles, or other initiatives to which the organization subscribes or endorses.

4.13 Memberships in associations (such as industry associations) and/or national/international advocacy organizations.

4.16 Approaches to stakeholder engagement, including frequency of engagement by type and by stakeholder group. This could include surveys, focus groups, community panels e.g. The organization should indicate whether any of the engagement was undertaken specifically as part of the report preparation process.

4.17 Key topics and concerns that have been raised through stakeholder engagement, and how the organization has responded to those key topics and concerns, including through its reporting.

Performance

Report on a minimum of 20 performance indicators.

Application level A

Same as requirement for Level B plus the following under performance:

Performance

Report on each core G3 and Sector Supplement Indicator with due regard to the Materiality Principle by either: a) reporting on the indicator or b) explaining the reason for its omission.

4.3.6 Choosing performance indicators (Global Reporting Initiative)

Organizations may choose which performance indicators to include in their report. The indicators are classified as *core* or *additional*, and those designated as core are generally applicable Indicators and are assumed to be of interest to most organizations. An organization should report on these unless they are deemed not material on the basis of the Reporting Principles (see Sustainability reporting guidelines). The additional indicators are viewed as one or more of the following: 1) leading practice in economic, environmental, or social measurement, though currently used by few reporters; 2) providing information of interest to stakeholders who are particularly important to the reporting entity; and 3) deemed worthy of further testing for possible consideration as future core indicator.

To address the need for capturing the unique set of sustainability issues faced by different projects and industry sectors GRI has developed a set of sector supplements. These issues may not be covered in the original Reporting Guidelines. For example the difference between the environmental impact of project management for the service industry (e.g. finance and IT) is different from, for example, the construction and real estate industry. The real estate sector activities are associated with constructing, managing, occupying and demolishing buildings and infrastructure also deplete natural resources and lead to many kinds of pollutants in land, air and water.

While the service sector (with office operations) has a smaller variation of the impact, and unique to financial services sector supplement includes only emissions, effluents and waste performance indicators. Comparing to the construction and real estate sector guidance 16 effected Indicators including materials, energy, water, biodiversity, emissions, effluents and waste.

Sector Supplements are available for the airport operators, construction and real estate, electric utilities, event organizers, financial services, food processing, mining and metals, NGO, oil and gas and media sectors.

4.4 CGI Sweden's project model Ratten (Logica, 2008)

One of the studies main questions was how a project management method with an additional environmental significance could be designed. This will later be illustrated based on Ratten which is here presented.

CGI Sweden has more than one developed project models, including Pilen for smaller projects and Ratten for the larger ones. The methodology was designed to ensure that CGI Sweden works with a shared understanding of how the project will be operated and controlled.

The methodology, *Ratten,* is an uncomplicated standard project management methodology, where its approach and documentation focus on "targets for delivery time and economic goals." Additional to the method is a manual that provides practical advice and tips on how the project work should be managed and implemented. There are also a number of templates with example texts. These provide project advice and support on how to manage projects.

4.4.1 Project phases and documentation

According to Ratten, a project life cycle includes four phases:

- *Project initiation.* The customer appoints in consultation with the supplier a control group which in turn submits the project to a project manager.
- *Project startup.* The project manager prepares and starts the project.
- *Project execution.* Project production progress.
- *Project closure.* Project completed and the project team reports to the control group.

A new phase does not begin until the previous is completed, but there is often a return to earlier stages to make changes and additions in an iterative process. Here is a more detailed description of the phases, job descriptions and necessary documentation.

Project initiation

In this phase the project charter is created, a mission statement which aims to put an agreement and other documentation with the customer which can be accepted by the control group and the project manager.

The project directive should provide clear guidelines for project goals and boundaries. Some of the key points to clarify are:

- *Mission statement* - purpose and priorities.
- *Results* - the produced product scope, content and quality.
- *Scope* - what the project will do.
- *Limitation* - what the project should not do, clarifying any ambiguities.
- *Schedule* - timing, delivery times and so on.
- *Project organization* - how the project will be staffed and managed. How and when to communicate and so on.

- *Stakeholders* - Groups or individuals affected by the project, but not included in the project organization. An analysis of potential stakeholders should be done. For each stakeholder indicated: linkage, requirements and role in the project
- *Exit criteria* - product requirements, delivery of the product.
- *Delivery approval* - how this will be done: who, when, how and what.

Project startup

During the phase the project manager is planning the project. This means that he or she is putting the project charter to a project specification, also known as the project plan, and write other project documents.

The project plan describes *what* will be done, *who* does what within the project and *how* it should be done so that all team members know what role they and others have as well as the responsibilities and duties of each role in the project. The project plan covers all stages from project initiation to project termination.

Based on the project charter the project manager develops a project specification. Project specification is a description of the project and it will be in addition to the directive points also including the following:

- *Risk analysis* - If the project is estimated to have a risk exposure a risk analysis should be conducted. The result of the analysis is a proposal for preventions.
- *Products* – A description of the products, hardware, etc. to be procured and how these are to be quality assured. Procurement of products can be made by the manager within the budget approved by the steering committee.
- *Services* - Description of the services to be procured and how these are quality assured. What requirements are to be placed on selected sub-contractors and or sub-consultants?
- *Information process* - How information about the project will be spread within the project, within the organization, external and so on.
- *Reports and meetings* - What types of reports to be produced within the project should be indicated. For each type of report should referred to how, to whom and in what form this should be done.

Project execution

Project execution is the phase when the production of the service or product is ongoing. The main document of the phase is the progress report which is a status and action report.

Based on gathered data on worked time and project members' assessment of the remaining work, the project leader should summarize the project status in a progress report. This report is the basis for decisions on possible revision of the project, start of new activities, expansion of resources, and so on.

Current situation shall be continuously reported during the project aim to summarize and compile information on commercial effectiveness (time and cost) and technical achievement (product functionality), conducted the inspection, quality assurance and management measures, organizational and staffing changes and other changes and needs.

The report consists of a quantitative and a qualitative part. The quantitative part describing the trend and forecast for time and cost. The qualitative part is a summary of the project situation of completed and upcoming activities, supplies and any problems or changes.

Project closure

The phase is divided into delivery of project deliverables and a formal decision of completion. Compiled in a *Final report: an experience report*, the template includes the following headings:

- Background and references.
- Description of the delivered product.
- Change List.
- The handing over of the product.

But also a description of the experiences and future recommendations under the following headings:

- Project description.
- Goal achievement.
- Working method.

A summarization of Ratten's processes

The different phases and its corresponding documentation can be summarized in the following figure. Between each phase there is a gate.

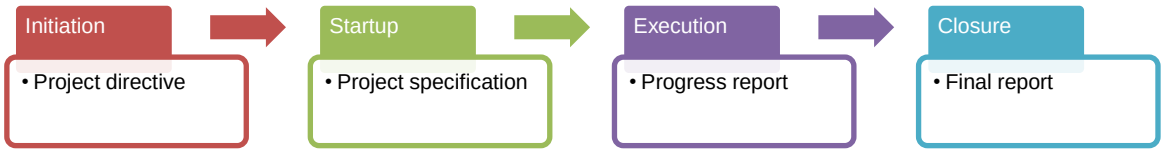

Figure 11: Summarized picture of Ratten's phases and main documentation

5 Analysis

Here the collected empirical data is analyzed with the help of selected theories to serve as the basis for conclusions to be made later on. The analysis consists of two main parts; the first one is more theoretical (including the prerequisites of a project management method) and the second with focus on its content.

5.1 Culture change and increased sustainability in and by changed work method

In dialog with the respondents about the possibilities of introducing a new work procedure there was no comment about the concept of culture. But previously mentioned theories states that project and organizations is composed of cultural values, beliefs, experiences, and behaviors. The cultural aspect is crucial to reflect when introducing something new or implementing a change, is expressed as *anything which does not fit in that specific culture will be immediately rejected*.

CGI Sweden requests a cultural change on an individual level, regarding both how the project members reflect and in the processes they conduct their work by. They want to achieve this cultural change by a changed working method, but is this possible?

As stated by Kerzner (2004), project management is a culture and not just policies and procedures. And as illustrated in figure 1 an organization's structure, processes and its culture all interacts. According to Alvesson and Kärreman (2004) a change in the work processes can change a culture and the other way around. This relationship is also discussed by author John Shook (Shook, 2010) who writes that the way to change culture is not first to change how people think, but instead to start by changing how people behave. For those trying to change the organizations culture need to focus on what behaviors you want people to exhibit, then design the work processes that are necessary to reinforce those behaviors. The culture will change as a result. That culture is both bound in work processes but also the tools used as discussed in *User Behavior and Technology Development* (Verbeek & Slob, 2006), where the authors are discussing the intriguing interactions between users and artifacts.

Based on these theories CGI Sweden's problem could thus be seen as the company has expressed a vision, but are missing the work processes that are necessary to reinforce those behaviors. Although the project managers and members often are certified in different environment standards they are missing the behavior CGI Sweden requests, because of the current working methods do not achieve these cultural properties. CGI Sweden could therefore consider designing the work processes necessary to reinforce the requested behavior.

According to Kerzner (2004) is successful project management about executing a methodology of the corporate strategy, which transforms project management into cooperative culture and project result. Corporate strategy is therefore crucial, but should serve as a guide to design the project management method after, and thereby shape the culture of a project.

Applying these perspectives indicates that the using of sustainable project management leads to that information change individuals, as written by Verbeek & Slob (2006). They are becoming more environmentally aware and increase their understanding of the benefits of environmental management. The environmentally aware individuals can then

themselves reflect and formulate questions and requirements. These suggestions for improvement can then be realized and implemented in a further development of the framework, and these proposals can be implemented and then affect users. Resulting in a process and interaction of recurring improvements created between man and sustainable project management.

How is a cultural change in sustainability implemented in an organization? Previously presented theories state that there are several factors to take into consideration when managing a process of change. During periods of organizational change, most attention focuses on the organization in terms of "structure, processes, tools, measurements, policies, and procedures". However, for the transition to be successful, people need to "buy in" and be committed. Their individual "interests, values, and competencies must be effectively aligned with the organization's vision, culture, and capabilities" (Patterson & Sorrells, 2001), issues that can be managed using Lewin's and Kotter's strategy.

To lead a change you need according to Lewin *unfreeze* the organization. The first step of unfreezing involves convincing those that are affected by the change that the change is indeed necessary. As seen in the empirical content CGI Sweden and several other interviewees considers the environmental issue to be important and current, and also finds it to be a problem that project management rarely includes sustainability. They also stressed the potential economic benefits that might be generated. But not everyone was positive regarding this studies purpose. During some interviews, we encounter resistance in the form of a state of mind that a change in how to conduct a project would be a mistake and it was argued that the environmental focus should be on the end product. Meaning all effort on creating an environmentally friendly end product, and not at all on the process of achieving the project goals, as the negative environmental impact of the process is only a small part of the total. When *make sure as many as possible understand and accept the vision and the strategy* is it important to discuss with this opposition. For example, by focusing and communicating the incentives for sustainability, presented in the empirical content chapter.

Since the majority of the people already are aware of the problem and are themselves arguing for it to receive more attention and be further investigated, and thinking about a possible solution and its benefits, one could assume that the phase s*ense of urgency* has been achieved.

Kotter also emphasizes the importance of assembling a group with enough power to lead the change effort. In the case of CGI Sweden we see a request to change how projects are conducted by both project leaders as well as their superiors, which implies that a guiding coalition might be fulfilled according to Kotter's four demands: *Positioning power and leadership*: with enough key players and proven leaders to be on board to be able to drive the change process. *Credibility*: A group with enough credibility to be seen and taken seriously by other employees. *Expertise*: With enough experience so informed intelligent decisions can be made. (Kotter International, 2012) Even respondents in other organizations have expressed similar views and when we talked to people with less influence they stressed the importance of getting the decision makers positive to the change.

Another way to look at how the power is distribution is based on how the organization is structures. Depending on how a project and its main organizational are organized the

division of responsibilities and the possibilities for the project members is shaped. For example, the organizational form strong matrix increases the abilities of the manager to introduce a change in work process. The decisions taken i a weak matrix need to be executed or approved higher up in the hierarchy. Limiting the possibility of the decisions expected to be taken by the project members.

Theory in project management argues that the property of a project makes it ideally for transforming business and to introduce change. Since a project consists of a minor group, with clear responsibilities, it is only a few team members and project managers that may be necessary to persuaded to change. In comparison to an entire organization and for the change to influences the whole intricate and widely separated work that is carries out. One respondent stated that it is appropriate to consider a change first at a project level (and not at an all-inclusive organizational level), and choosing the first time project whose alteration results in a greater positive change.

For the phase *develop a vision and strategy* every one of the interviewed companies all thought their organization had an expressed policy regarding environmental sustainability. But CGI Sweden and several interviewees consider their company strategy how to achieve these goals to be unknown. Later in this study we intend to exemplify two possible approaches for companies to develop a strategy after.

Once the affected stakeholders have accepted the need for change, the next step in Lewin's model is to implement it. This is the phase where we believe the interviewed organizations currently are, ready to include sustainability in their everyday work processes. Here it is particular essential (according to Kotter and Top contributors to success) to:

- Remove obstacles to change or structures that undermine the vision.
- Encourage nontraditional ideas, activities, and actions.
- Plan for achievements that can easily be made visible
- Promote and develop employees who can implement the vision
- And finally reinvigorate the process with new projects
  (Kotter International, 2012)

Finally the refreeze phase, where you take actions to reinforce and stabilizing the new method so that the change becomes permanent and the new habits, rules, or procedures become the norm, achieved by implementing the new method into other new projects.

Both respondents and the theory emphasize the importance of articulating *the connections between the new behaviors and organizational success, and developing the means to ensure leadership development and succession*.

Theory claims that change management can be a major change for the organization and on an individual level - *change can be a time of exciting opportunity for some and a time of loss, disruption or threat for others*. As seen in Bridges *model of organizational change* is a temporary increase of anxiety and a decrease in the efficiency of the project to expect when introducing a new work method. To ease the transition an incremental strategy of the speed of the change could be adopted (unlike a step change where change occurs rapidly). An approach which is described as an "ongoing piecemeal of change which takes place as part of an organization's evolution and development" and tends to more inclusive and may minimize unintended outcomes (Armenakis &

Bedeian, 1999). Both regarding how one gradually introduces a new work process in a project, but can also be seen addressing the appropriateness of starting an organizational change in a smaller part, such as a project.

According to author Bridges (Making sense of change management, 2009) the first time carrying out a project with an altered project management method, the efficiency may be low. But with repeated usage one learns the method and performance may increase. The initial goal with a method is to fulfill a vision, abstract ideas. But over time to go from carrying out a *unique task* into a specified *repetitive task.* From project members lacking experience to experience obtained by those involved or in their professional role. As the method is written down it reduces the need for creativity. Knowledge goes from being individual to collective to the organization or group.

The theory says that the decision and responsibility to introduce a change is initially taken by top management, but after that the process become a common working method, leadership transitions over to low or middle managers.

As written in *The other side of projects* are project rarely assessed by parameters outside the explicit project objective, as its possible negative impact on society and the environment. But as the number of uses increases and the method becomes a repetitive task the theory says that the evaluation will be based on its result, its total impact and not only if the project meets its goals based the project triangle.

A repeated use and an iteratively improved design could provide a more optimal method. The work steps (for example, measuring and documenting a particular environmental parameter) can have a steep learning curve the first time it is performed but is a learning process. But to transfer knowledge collected in one project to another is difficult. ”Even in project-based organizations, there is often a problem of capturing the learning from projects so that it is available for use by other projects”. So the possibilities of creating a self-learning project management method are limited.

Although the purpose of the study is to advice the internal strategy at CGI Sweden, theory claims that an internal change also affects external stakeholders.

5.2 Development of a method

Here is an analyze of the content and design of a possible method.

Earlier, we have studied how to achieve a culture change and increased environmental awareness. Concluded was that changed working practices can alter a user’s consciousness. Two possible approaches to achieve this alteration and the thesis objectives are:

- Reporting a projects environmental impact using GRI, both *during* and also as usually *after* its execution.
- Suggestions from interviewees that primarily ensure a *proactive* sustainability work. This includes ideas for management to consider on how environmental considerations can be taken and possible choices which may be contemplated.

Summarizing the user-focused product development theory a user should of course benefit from the final result. It is also to be technically feasible and profitable to manufacture and use the product. Respondents would like to see the method as:

- Concrete.
- Clearly.
- Measurable.
- Easily understandable.
- Concise, with low workload.

The following information has been analyzed by, and complies with, the set of theoretical requirements as well as the interviewee's wishes.

5.2.1 GRI

The interviews, presented in the empirical chapter, expressed a request for a study on the possibilities of GRI reporting for projects. In empirical content the GRI framework was presented, and in this section we analyze how this could be materialized based on both user-focused product development theory and respondents expressed wishes. All points in the original GRI framework are not suitable to conduct at project level. But the following points might be a good start to work by. First is the application level and criteria presented (found in the empirical chapter), then a bulleted list (with our thought and according to the theoretical guidelines) why this is applicable for project reporting.

5.2.1.1 To achieve application level C an organization need to report the following

1.1 Refer to statement from the most senior decision maker of the organization about the relevance of sustainability to the organization and its strategy. Regarding from project affected aspects (e.g. materials, energy waste).

- Action ensures that the company's environmental policy has been read, and reflection upon how the project affects the environment has been made.
- Identifies and requesting a more complete statement from the most senior decision maker, in the case where statement of some aspect is missing.

2.1 - 2.10

- Information already shown in other project documents.

3.1 - 4.4

- Not applicable for projects.

4.14 – 4.15 List of stakeholder groups engaged by the project, and basis for identification and selection of stakeholders with whom to engage.

- Engaging the right people in the right way in your project, can make a difference to the project's success.
- Could also inform the reasons why environmental consideration is important.

Performance

Report on a minimum of 3 performance indicators. The Indicators are chosen among the EN1 to EN30, found in appendix 8.1.

- At least three optional performance indicators are considered to be practical for this level.

5.2.1.2 Application level B

1.2 and 4.17 Description of key impacts, risks, and opportunities. Including concerns raised by stakeholder engagement.

- The reporting organization should provide a concise narrative section on key impacts, risks, and opportunities.

3.9 Data measurement techniques and the bases of calculations, including assumptions and techniques underlying estimations applied to the compilation of the Indicators and other information in the report. Explain any decisions not to apply, or to substantially diverge from, the GRI indicator protocols.

- Comment on how the organization chose to conduct the measurement should be a requirement for the level. Also enable a future examination and comparison of the report.

4.5-4.16

- Not applicable on project level.

Management

Management Approach Disclosure for each Indicator category.

- Not applicable since reporting on only environmental sustainability.

Performance

Report qualitative on a minimum of 3 performance indicators.

5.2.1.3 Application level A

Same as requirement for Level B

Performance

Report on each core G3 and Sector Supplement Indicator with due regard to the Materiality Principle by either: a) reporting on the Indicator or b) explaining the reason for its omission.

5.2.1.4 External assurance

Practice with regard to seeking external assurance for the report

- Optional to have an outside firm that reviews the projects records, but such a review would provide a plus level (e.g. C+, B+, A+).

5.2.2 Suggestions from the respondents

GRI is one possible solution to increase the significance of sustainability in projects. The studies second strategy, presented in this section, deals with the respondents other practical suggestions and wishes to be included in project management.

During the interviews we were given several practical suggestions on what respondents wanted to ensure that their company did. According to the product development theory one should be an "effective listener" and understand the meaning of what the respondent communicates and find users underlying needs. This is because respondents often do not know their real needs.

For example, it is difficult to implement the proposed "use energy efficient buildings" at the project level. Implying that, a company would be forced to build a new, separate office to run projects in. Here, aspects such as area, energy and materials must be considered and in this manner have a greater impact at the project level. The meaning can also be seen as an attempt to examine and reduce energy consumption in the offices where the project is carried out, in every possible way.

Several of the points is not practical applicable at the project level. But all the points indicate a more general and fruitful inquiry. Here we have tried to interpret the underlying meaning and summarized them.

Following the course of action by product development theory we first categorized all of the respondent's concrete proposals, and interpreted their main needs. Then, we have created a general example of how a checklist could be formulated to achieve these aspirations. We present this in the following way:

Theme

- Proposals from the respondents.
  - Our interpretation of the user's needs.
    - Suggestion for a summarized formulation.

Energy

- Increase the use of green IT, for example thin clients on corporate sites and implementation of policies how to work with computers, automatic switch-offs and so on.
- Use energy efficient buildings.
- Economic climate compensation.
  - Expresses the need for a review of the current energy consumption and climate neutral projects.
    - Acquired "green" energy.
    - Energy saving equipment is used where possible.
    - Minimizing energy consumption is one of the parameters in the design of the project process and deliverables.

Supplier

- Make demands in the selection of suppliers, packaging, mailing, hardware etc.
- Make purchases from as few locations of the world as possible.
  - Choice of supplier shall be selected based to generating less waste and transport (type of transportation and distance).
    - Suppliers for the project are based on:
    - The generated (packaging) waste.
    - Location for minimizing transport and type of transportation.

Procurement and choice of materials

- Just buy reusable materials and generate less waste.
- Always upgrade to more efficient solutions.
    - Selection of procurement and choice of materials should be based on: energy efficiency, reduce waste and transport.
        - Procurement for the project is selected based on:
        - The waste they cause in and for the project.
        - Their reuse capabilities and value.
        - Its energy efficiency.

Communication

- Start communities on environmental activities for increased communication.
- Increased communication between the different stakeholders (customers, leaders, managers, environmental managers and so on).
- Develop a system that requires that you cannot progress until everything is completed where there are fixed gates that must be passed, which culminates in a project document where continuous checks are made during the project. This currently reports the current status.
        - A transparent system where everyone sees what factors influence the environment and to what degree. Ensuring that the environment is treated before the next phase can be initiated.

Measurement

- Monitoring and/or estimate office's energy consumption of energy timer.
- Putting energy meters on all new appliances.
- Make it a goal to try to start to measure environmental parameters.
    - A need to measure a projects environmental impact.
        - Project objective and its process shall be designed so to enable the measurement of its included parts.

Project goals and performance

- Remote- versus on-site support, instead of sending technicians, simply for the customers and just use hardware that you plug in and run.
        - The project (progress and deliverables) shall be designed with sustainability in consideration.

Travel and transport

- Require not to travel through the projects, despite if something special occurs, then it must be approved by the manager.
- Strategic placed kick-off based on travelled distance for all who is involved.
- Move the smallest amount of people around, important with a good first meeting but afterwards minimize travelling.
    - Reduce traveling.

- The project process and deliverables are designed to minimize traveling.

Waste

- Paperless office which requires advanced digital solutions.
- No bottled water or disposable cutlery at business lunches.
    - The project process and deliverables are designed to minimize waste.

Water

- Reduce water consumption.
    - Minimizing water consumption and pollution is one of the parameters in the design of the project and delivery processes.

5.2.3 GRI Included in Ratten

GRI reporting can be seen as an independent work step with a different documentation than the regular project management. To make it easier to ensure that the GRI is used and monitored in a project, it should be anchored to the project management method. Here are suggestions on how earlier mentioned ideas and GRI reporting can be included in the Ratten, which parts can be covered in different phases and what questions that could possibly be needed to think of as a first step to introduce sustainability on project basis.

5.2.3.1 Project initiation

First, it is determined that the project will be monitored and reviewed according to the GRI standards before the selection of performance indicators and reporting level is made. Then the distribution of work is decided and who is taking responsibility for each different area and run the reporting correctly and how the communication will take part between all relevant project members.

The stakeholders can be sorted by the ones who will be environmentally involved and therefore will be mentioned in the GRI report while the non-environmental stakeholders just will be documented as in the regular case documentation.

The exit criteria can be formed in a certain way, just to fit the standards of reporting and then be decided if it will go public, to an external examiner and so on.

5.2.3.2 Project startup

When the required risk analysis is carried out, this can be extended with environmental parameters or possibly carry out a separate risk assessment of sustainability. Suggestions for risk analysis, results and proposals for preventive measures are exemplified in the appendix.

When purchasing products and services it would facilitate future GRI reporting if the buyer requires environmental data for each product and service.

The meetings and reports might be treated separately together with the information process. Maybe it will be necessary to have separate meetings, just focusing on GRI.

5.2.3.3 Project execution

Here it is important that GRI continuously is monitored and documented in the progress report. To succeed with this the project members need to have the right qualifications for it and know where to find support. Even the sharing of information within and outside the project should be controlled so the right person gets the right information.

5.2.3.4 Project closure

Finally, it has to be examined if all the planned activities have been implemented according to the project plan. When the final report is being made, it should include all the experiences from the work with GRI before it is being hand over. Even the performance indicators should be chosen.

5.2.4 Ratten with the respondents' expressed requests

Here we want to explore how the theoretical framework can connect the respondents' thoughts with Ratten. Besides the standard points already presented, here is an extension of the answers from the interviews.

5.2.4.1 Project initiation

Instead of starting from the project objectives such as time and economy, the respondents would prefer that in addition to the project triangle also think of the environmental sustainability. The progress should be formed with sustainability in mind, for example:

- Just choose green energy.
- Energy saving equipment is used where it is possible
- Having minimizing energy consumption as one of the parameters in the design of the project progress and deliverables.
- The project process and deliverables are designed to minimize traveling and waste
- Minimizing water consumption and pollution is one of the parameters in the design of the project and delivery processes.
- The project objective and process should be designed so components can be measured.

5.2.4.2 Project startup

Environmental factors should be included and receive higher focus when an analysis of the potential risks is implemented. Environmental activities should also get their own milestones and to simplify the measurement all new appliances should get energy meters. Procurement for the project should be selected based on:

- The waste they cause in and for the project.
- Their reuse capabilities and value.
- Its energy efficiency.

Suppliers for the project are based on location for minimizing transport, type of transportation and on the generated waste, packaging and so on.

The respondents also want information processes where everyone can, in an easily understandable system, monitor what affects the environment, how and how much it

affects. This will make it much easier to report the project's environmental impact. The respondents were not sure about the necessity to have meetings just for sustainability questions.

5.2.4.3 Project execution

Besides time and cost, the environment should get attention and be monitored, both in a quantitative and a qualitative way. Even the respondents proclaimed the significance that the project members should have the support, knowledge and competence.

5.2.4.4 Project closure

Be sure to evaluate the new working methods and benefit from the experience to the next project.

6 Conclusion

Since one of the purposes of the study was to investigate what an implementation of culture change through working processes may look like, the results is here presented in different sections; first one part with changes in culture containing soft values, followed by a practical part with concrete proposals for action with sustainability and environmental awareness in mind, and finally, chapters dealing with other useful facts, thoughts and discussions. This contributes to an increased knowledge and work with environmental improvement. Our results are not definitive, since a large part is about soft values and how and where changes should be implemented. We do not provide a fully developed and definite method or solution, but instead have a strive for wider debate about the issue and its procedure.

6.1 The cultural change

CGI Sweden and other highly environmental ambitious companies considers themselves, even-though having an expressed visions among project managers and members, often certified in different environment standards, that they still are missing the behavior CGI Sweden requests. Based on previously presented theories, CGI Sweden's current situation could be explained by that the present work processes do not achieve the requested behavior. The company could therefore consider designing work processes necessary to reinforce this. Stated by theory, successful project management is about executing a method of the corporate strategy, which transforms project management into cooperative culture and project result. For a successful organizational change attention should focus on the organization in terms of structure, processes, tools, measurements, policies, and procedures, but also on people and the need for them to be committed. Their individual interests, values, and competencies must be effectively aligned with the organization's vision, culture, and capabilities. To start using a new method and an overall approach in project management with greater environmental perspective, there is a need for a cultural change within the organization. First, this have to take place on an individual level, but may at a later stage spread through the organization to other partners like suppliers, customers and subcontractors. Corporate strategy is therefore crucial, but should serve as a guide to design the project management method after, and thereby shape the culture of a project. Our ambition is that the result from this study can contribute to the development processes that meet the company's ambition. Organization's structural processes and its culture all interacts. The way to change a culture is not first by changing how people think, but instead to start changing how people behave. When trying to change an organizations culture, they need to focus on what behaviors they want people to exhibit, then design the work processes that are necessary to reinforce those behaviors. The culture will then change as a result.

All of the interviewed companies thought that their organization had an expressed policy regarding environmental sustainability. But CGI Sweden and several interviewees consider the company strategy how to achieve these goals to be unknown. First the top management (the ones with highest authority) needs to *unfreeze* the old way of doing things and here open the minds on the people working in the organization. The first step involves convincing those that are affected by the change that the change is indeed necessary, create a vision and make sure that as many as possible understand, see the need and accept the vision and the strategy. When the words are spread and all employees are aware of the obstacles, problems and positive to the changes that are

about to be done, one can consider that the first step is satisfied. Our investigation shows that the majority of people meet these needs and one can therefore assume that this phase has been achieved.

Once the affected stakeholders have accepted the need for change, the next step is to implement it, the *change phase,* in this case include sustainability in their daily working routines. Some useful suggestions is to remove obstacles to change or structures that undermine the vision, encourage nontraditional ideas, activities, and actions, plan for achievements that can easily be made visible, promote and improve employees who can implement the vision.

Finally, in the *refreeze phase*, actions are taken to reinforce and stabilizing the new method so that the made changes becomes permanent and the new habits, rules, or procedures become the norm by reinvigorate the process with new projects. It is of great importance to articulate the connections between the new behaviors and organizational success, and developing the means to ensure leadership development and succession.

As seen in this part, behaviors and cultural changes can be achieved through work processes and be implemented in an organization.

6.2 Content of a possible strategy

Though most of the interviewees considered the environmental issue as high priority, they saw problems in that project management rarely includes sustainability. Here follows the most applicable protocol where all parameters weigh in. As we have seen in the analysis, it is a lot to consider in order to process the parameters from GRI and the interviews and including them into Ratten.

What could a method to further achieve sustainability in project management look like, how would it be structured and what should it include? Here is one way of taking the next step in the right direction. We have also come across a few examples where companies have taken the step to try to develop their own methods. The companies themselves considered that their approach gave an improvement of environmental effects. Some models and lists can be found in appendix.

Project initiation

During this phase it is important that the different stakeholders are sorted out so that everybody knows who to talk and report to. Then there should be a selection of performance indicators and reporting level suitable for the project. Even the communication and responsibilities have to be reviewed carefully. The sustainability planning should get as much attention as the time and economic objectives.

Project startup

A good way of monitoring the energy consumption is to put energy meters on all new appliances or office sections and, as far as possible, the purchasing of products and services should contain environmental data to simplify future GRI reporting. Even consideration of the procurements should be done. Good startup suggestions could for example be based on the waste they cause in and for the project, their reuse capabilities and its energy efficiency as. The suppliers for the project should be based on their location for minimizing transport, type of transportation and on the generated waste, packaging and so on.

On every meeting and report there should be a fixed point on the agenda treating the sustainability work and progress. Even at the startup phase is communication important, it should be easy to improve environmental work and communicate it right with the right people.

Project execution

The key words for this phase are monitoring, careful documentation, information sharing and support. All involved should know what to report and to whom, what the others are doing and be sure to have the right competence for the task or at least now were to get support. If it is not possible to monitor the progress in a quantitative way, it should at least be able to get monitored in a qualitative way.

Project closure

In this final phase, the report should be examined to see if all the planned activities have been implemented according to the project plan, or if they have not then why, and what can be improved to the next project? Some special evaluation regarding the work with GRI should be done, especially in the first completed projects before this new way of doing things is standard. Both actual measured values and different experiences contain a good ground for evaluation. Be sure to evaluate the new working methods and benefit from the experience in the next project.

6.2.1 GRI as a method

We have concluded that the GRI is one possible way to increase awareness among project staff. But the traditional GRI reporting, which is an annual balance for the entire organization needs to be adapted. The project requires only a few points taken into consideration, and GRI reporting for the project goes from being reported afterwards, to also be taken into account during the project. Some of the positive things with this is: that it will make it easier to put together organizations' annual reports, GRI as environmental standards become more and more commonly used and requested by corporate stakeholders, how companies may see an added value to contract consultants engaged in projects according to GRI, it is easy to constantly get better (shift to different levels) and go from the ambition to measure and follow up with numbers to actually see improvements.

Here is a suggested structure for GRI reporting with the points indicated to perform the project.

Level C

- Refer to statement from the most senior decision maker regarding affected aspects.
- List of stakeholder groups engaged by the project.
- Report on a minimum of three performance indicators.

Level B

Same as requirement for Level C and:

- Description of key impacts, risks, and opportunities. Including concerns raised by stakeholder engagement.

- Include data measurement techniques and the bases of calculations.
- Report quantitative on a minimum of three performance indicators

Level A

Same as requirement for Level B and:

Report on each core and sector supplement indicator with due regard to the materiality principle by either: a) reporting on the indicator or b) explaining the reason for its omission.

6.2.2 Proposals for project management to consider

To get sustainability applied in an organization by starting to use and implement it at a project level is a good way to start, for example because there are fewer members to influence at one time than in a large organization. There is easier to just only get a few people along and it also goes faster to evaluate and provide feedback. Generally, project managers should start working more actively with the environmental issues and report it.

For example, the following points should be included at the beginning of the planning of sustainable projects:

- Choose green energy
- The project objective and process should be designed so components can be measured
- Reduced travelling, for instance through travel-free meetings
- Reduced paper usage by embracing modern digital solutions instead
- Use energy saving equipment where it is possible
- Having minimizing pollution, energy and water consumption as one big parameter in the design of the project progress and deliverables

When the required risk analysis is carried out, this can be extended with environmental parameters or possibly carry out a separate risk assessment for sustainability. Environmental factors should be included and get more focus when an analysis of the potential risks is implemented. Suggestions for risk analysis, results and proposals for preventive measures and environmental improvements are exemplified in the appendix.

The division of responsibilities should be more distributed, we believe that it is easier to deal with questions and problems if the project members got the authority to take own decisions and do not need to contact top management, in other words shorter line of decision making.

With these statements, there are definitely great possibilities to achieve environmental improvements by integrating new methods in project management.

6.3 Additional guidance

Following is some information that was generated in addition to the answers of the study main question.

The literature review shows that there are mixed opinions about whether organizations are malleable or not. Some theories argue that organizations can adapt when

circumstances around it changed. While other challenging this with claims of structural inertia, arguing that organizations are inflexible and working with changes can be both difficult and dangerous for business.

Before changing a concept one should consider several issues, for example that it is unnecessary to go in and change a winning formula. It is also not uncommon to confuse words like change with development and activity with productivity. Every change is resource intensive, and therefore one should consider whether it is worth making the change or not. If changing a stable work pattern, which acts as a secure and solid foundation in the work processes, this could mean an increased risk of uncertainty and for failure. It is not optimal to implement changes through a comprehensive general method for all organizations. This is because not all organizations look exactly the same in structure and culture, they do not have the same needs and that various changes affect them in different ways.

But of course many projects have achieved a positive change. Some by guidance of Kotter's and Lewin's unfreeze method. When using this do add extra focus on Kotter's phase's *sense of urgency* and *establish a guiding coalition*, as previous experiences (see page 20) considered to be of great importance.

The first time carrying out a project with an altered project management method, the efficiency may be low. But with repeated usage individuals learn the method and performance may increase. Over time project members are assumed to obtain experience and method will become a routine. To ease the transition an incremental strategy of the speed of the change is suggested. This tends to be more inclusive and may minimize unintended outcomes. But studies have shown the even in project-based organizations, there is often a problem of capturing the experience from projects so that it is available for use by other projects.

Theory says that the decision and responsibility is initially executed by top management, but after that the process become a common working method, leadership transitions over to low or middle managers. We believe that questioning and decision making should be taken continuously throughout the projects. These choices can affect the environment in greater or lesser ways, and the best insight into these eventualities may project members have. Effective decision making in environmental work should primarily be made by project members, not by first communicate this up the hierarchy, then wait while this level get informed of the situation and makes a decision and then finally communicate the conclusions back as in the case projects organized by weak matrix.

By using our results, both we and our client think that the following desired communications medium will be made possible. Figure 12 describes the scenario where the environmental and sustainability aspects are communicated between all parties. For example, the first case where the information given by the project manager to the members do not have to be the best option for the environmental according to the project members. Then this could be communicated back to the project manager who should conduct a communication directly with the Environmental manager and perhaps have the business management (governing documents as guidelines and policies) updated. Moreover, the project manager is constantly keeping up to date with what is stated in these documents and spread the information about changes to the rest of the team.

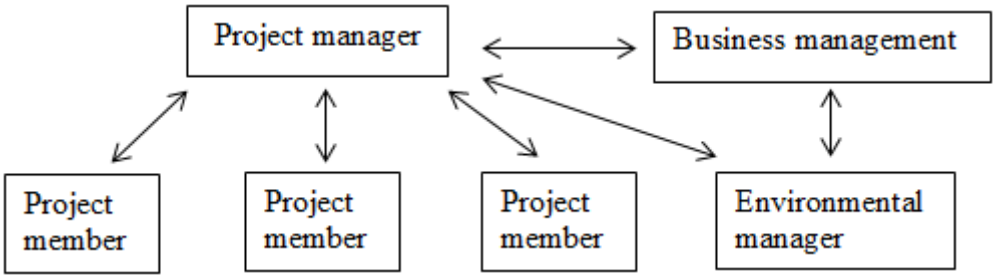

Figure 12: Cooperation and communication within projects (Interview Elin Swedlund 13 May 2013)

In the framing of questions chapter we wanted to examine the possibilities to include environmental considerations in project management. Mainly because we saw that the environmental focus just was on the end product, not in the process of achieving the project objectives. The process would include the practical work done by project members, but not the strategic choices made, in order to achieve the final product or during its lifecycle.

Since it is difficult to draw a line for what is included just in the management of a project, and what belongs to the end result, this makes the issue problematic and impractical. For example, do the management affect environment only by computers, printouts, traveling and so on, or does this include the choice of developing an electric car instead of a car driven by gasoline? Should the end product's environmental impact and the recycling be included in the management?

6.4 Final thoughts

The purpose of the study has been criticized as it was considered that the impact of management is only a minor part of the total. All focus should instead be to get the end product as environmentally friendly as possible, and not at all on the process of creating the project objectives.

We as writers agree that the final product usually accounts for the majority of the project's environmental impact, depending on the project and sector. But as the management impact the environment, we believe this to be of interest to study and include. We also believe that there is not a conflict of focusing how to go about, with what to produce. And we do not think organizations should reduce its current end product environmental efforts. Our inclusive approach should only be complementary. But we do see pros and cons of using a more sustainable project management method.

As written in the chapter about sustainable emphasis and by (Project Management Institute, 2011) do environmental efforts have both ethical and economic advantages, the environment benefits by a possible reduction of a project's negative environmental impacts. Business benefits includes among others; lower costs, greater efficiencies, improved stakeholder and customer satisfaction, and greater competitive advantage. By making sustainability a required and measured part of that process, companies can deliver environmental, social and financial benefits to the organization.

Theory states that projects are the means by which we transforming business and introduce change. And companies are already accustomed to managing projects based on a structured project management approach.

Not all organizations use the same project management methodology, or even on at all. This makes it up to the individual project manager's personal preferences and experiences to decide what to do. We believe it can be an advantage and a risk reduction if one or several organizations work according to the same process.

GRI as environmental standards become more and more used (both in Sweden and globally), and in demand by corporate stakeholders. This also may assist in the compilation of organizations' annual reports. We believe that reporting with GRI within projects is a natural development and an improvement of organizational environmental performance. The three levels make it possible to be used, and to be of value, by both novice companies to those more environmentally advanced.

But the studies result is less appropriate for certain environmental aspects. Many factors at an organizational level are impractical or difficult to include in a project. For example deciding that a certain project have to be run in an environmentally friendly building, or one have to use thin clients, or implementing waste separation and so on. Another issue is the difficulties in measuring how a project affects the environment.

So what happens if organizations choose not to include this studies environmental thinking into the project management? Well the company would continue their current unsustainable operations and thereby risk the incentives shown.

6.5 Suggestions for further studies

Since our study in sustainable project management and project reporting with the GRI is in a new field of research, we have a number of suggestions for further studies. These are:

- How can companies further develop the idea in terms of business model, sales arguments and marketing?
- What is the time required? Cost to introduce? The profit from this type of reporting. Are GRI an effective tool for managing projects environmental costs and risks?
- What will the change in workload be and how fast will the users adapt to the new procedure?
- Do managers need to be educated to adopt certain aspects of this studies result?
- Can social and economic sustainability also be included in the projects GRI reporting?

7 References

PMBOK Guide. (2004). Pennsylvania, USA: Project Management Institute.

.*docstoc*. (2009, August 11). Retrieved May 10, 2013, from Time line of 50 years of protecting Europes environment: http://www.docstoc.com/docs/9683970/Time-line-of-50-years-of-protecting-Europes-environment

.*docstoc*. (2010, September 12). Retrieved May 30, 2013, from Change Management: http://www.docstoc.com/docs/65912022/Change-Management-at-Nestle---PowerPoint

GRI har inte förbättrat de statliga bolagens hållbarhetsarbete. (2010, September 16). Retrieved February 18, 2013, from GRI har inte förbättrat de statliga bolagens hållbarhetsarbete: http://miljoaktuellt.idg.se/

MITSloan Management Review. (2010, January 1). Retrieved May 22, 2013, from How to Change a Culture: Lessons From NUMMI: http://sloanreview.mit.edu/article/how-to-change-a-culture-lessons-from-nummi/

About CMS. (2011, November 21). Retrieved February 20, 2013, from Citical Management: http://www.criticalmanagement.org/

Kotter International. (2012). Retrieved from STEP 2: Creating the Guiding Coalition: http://www.kotterinternational.com/our-principles/changesteps/step-2

Wikipedia. (2013, February 15). Retrieved February 21, 2013, from Global Reporting Initiative: http://en.wikipedia.org

Wikipedia. (2013, February 15). Retrieved February 21, 2013, from Global Reporting Initiative: http://en.wikipedia.org

Adler, P. S., Forbes, K. C., & Willmott, H. (2007). *Critical Management Studies.* Taylor & Francis Group.

Alvesson, M., & Kärreman, D. (2004). Cages in Tandem: Management Control, Social Identity, and Identification in a Knowledge-Intensive Firm.

Amburgey, T., Kelly, D., & Barne, W. (1993). Resetting the Clock: The Dynamics of Organizational Change and Failure. *Administrative Science Quarterly*.

Antvik, S., & Sjöholm, H. (2012). *Project management and methods.* Lund: Studentlitteratur.

Armenakis, A. A., & Bedeian, A. G. (1999, May-June). Organizational change: a review of theory and research in the 1990s. *Journal of Management*, p. 312.

AtTask Project Management. (n.d.). *Project Management Methodologies*. Retrieved 01 23, 2013, from Project Management Methodologies: http://www.attask.com/topics/project-management-methodologies

Brattström, E., & Wennberg, A. (2003). *Customer involved product development -how companies get access to customers´ knowledge.* Linköping: Linköpings universitet.

BusinessGreen. (2013, February 26). *New Dow Jones sustainability index targets emerging markets*. Retrieved March 17, 2013, from GreenBiz.com: http://www.greenbiz.com/news/2013/02/26/new-dow-jones-sustainability-index-targets-emerging-markets

Cameron, E., & Green, M. (2009). *Making sense of change management.* Kogan Page.

Carroll, R. (n.d.). *Boxtheorygold*. Retrieved April 2013, from Business Processes Determine Culture, Culture Determines Success: http://www.boxtheorygold.com/blog/bid/25056/Business-Processes-Determine-Culture-Culture-Determines-Success

Cederberg Woodmar, J., & Holmgren, P. (2009). *Klimatkoden.* Medströms Bokförlag.

Certifiering.nu. (n.d.). *Certifiering.nu*. Retrieved May 9, 2013, from Statistik: http://www.certifiering.nu/ecomedia/stat/basic.aspx?lang=sv-SE

Ciccantelli, S., & Magidson, J. (1993). Product Innovation Management. *Consumer Idealized Design: Involving Consumers in The Product Development Process*, 341-347.

Davenport, T., & Prusak, L. (1998). *Working Knowledge: How Organizations Manage What They Know*. Boston Massachusetts: Harvard Buisness School Press.

De Wit, B., & Meyer, R. (2010). In *Strategy. Process, Content, Context an international perspecitve* (p. 169). CheritonHouse, North Way, Andover. United Kingdom: engage Learning EMEA.

Fonseca, A. (2010). *Barriers to Strengthening the Global Reporting Initiative Framework.* University of Waterloo: Faculty of Environment.

Fortum. (2013, Januari 22). *Sustainability indexes*. Retrieved March 17, 2013, from Fortum: http://www.fortum.com/en/sustainability/sustainable-growth/sustanability-indexes/pages/default.aspx

Franzak, F., & Pitta, D. (1997). Boundary spanning product development in consumer makets. *Journal of Product and Brand Management, Vol.6 NO. 4*, 235-249.

Global report Initiative. (2011). *Sustainability reporting guidlines.*

Global Reporting Initiation. (n.d.). *Globalreporting*. Retrieved February 27, 2013, from Why do we need disclosure?: https://www.globalreporting.org

Global Reporting Initiative. (2011). *GRI application levels.*

Global Reporting Initiative. (2013). *GRI REPORTS LIST*. Global Reporting Initiative.

Global Reporting Initiative. (n.d.). *Global Reporting Initiative*. Retrieved february 18, 2013, from Global Reporting Initiative: https://www.globalreporting.org/

Global Reporting Initiative. (n.d.). *Sector guidance*. Retrieved March 4, 2013, from Global Reporting Initiative: https://www.globalreporting.org/reporting/sector-guidance/Pages/default.aspx

Grieg-Gran, M. (2002). *Financial Incentives for Improved Sustainability Performance.* International Institute for Environment and Development.

Hald, L., Johansen, A., & Ekambaram, A. (2012). Knowledge Creation in Collaborative Research Projects: Project management as Enabler, Hinderance or Just a Simple Tool? *Proceedings of the 13th European Conference on Knowledge Management*, 433-439.

Hodgson, D., & Cicmil, S. (2008). The other side of projects: the case for critical project. *International Journal of Managing Projects in Buisness, Vol 1*, 142-152.

Indihar, M., Skerlavaj, M., Skrinjar, R., & Dimovski, V. (2006). Organizational learning culture—the missing link between business process change and organizational performance. *ScienceDirect*.

Jansson, T., & Ljung, L. (2004). *Projektledningsmetodik.* Lund: Studentlitteratur.

Karlberg, L. A. (2012, December 10). *Finfina datorer skrotas i onödan*. Retrieved Mars 15, 2013, from NyTeknik: http://www.nyteknik.se/nyheter/it_telekom/datorer/article3596055.ece

Kaulio, M. A. (2010). Customer, consumer and user involvement in product development. *Total Quality Management & Business Excellence* .

Kerzner, H. (2004). *Advanced Project Management: Best Practices on Implementation.* New Jersey: John Wiley & Sons Inc.

Kezar, A. J. (2001). *Understanding and Facilitating Organizational Change in the 21st Century*. New York: John Wiley & Sons, Inc.

Kotter International. (2012). *Kotter International*. Retrieved from The 8-Step Process for Leading Change: http://www.kotterinternational.com/our-principles/changesteps/changesteps

Leonard-Barton, D. (1995). *Wellsprings of knowledge: building and sustaining the sources of innovation.* Boston: Harvard Buisness School Press.

Lindberg, M., & Stenmark, J. (2004). *Produktutveckling. En kvalitativ studie av kundinvolvering.* Luleå: Luleå tekniska universitet.

Logica. (2008). *Ratten 3.1*. Logica.

Logica. (2011). *Corporate Responsibility Report 2011*.

Lundin, A., & Sadiq, Z. (2012). *Integration av de anställda i den strategiska utvecklingsprocessen.* Umeå Universitet.

Lundin, R. A., & Söderholm, A. (1995). *A theory of the temporary organization.* Great Britain: Elsevier Science Ltd.

McDeavitt, J., Wade, K., Smith, R., & Worsowicz, G. (2012, Februari). *Science Direct*. Retrieved from Understanding Change Management: http://www.sciencedirect.com.ezproxy.its.uu.se/science/article/pii/S1934148211014249

Mitchell, J. (2003). *Strategy-making in Turbulent Times.* Melbourne: ANTA Reframing the Future.

Mohr, J. (2001). *Marketing of High-Technology Products and Innovations.* New Jersey: Prentice Hall.

Naturskyddsföreningen. (2012, April 26). *Naturskyddsföreningen*. Retrieved February 28, 2013, from Det är lönsmat att vara klimatsmart: http://www2.naturskyddsforeningen.se/natur-och-miljo/klimat/Klimat/lonsamt-klimatarbete/

Neef, D. (2004). *The supply chain imperative: how to ensure ethical behavior in your global suppliers.* New York: AMACOM.

Nejad, B. S. (2012, November 23). Senior project manager. (P. Hedberg, & P. Jonsson, Interviewers)

Newell, S. (2004, March). Enchancing Cross-Project Learning. *Engineering Management Journal Vol 16 No. 1*, pp. 12-20.

Nilsson, B., & Waldemarson, A.-K. (1990). *Kommunikation Samspel mellan människor*. Lund: Studentlitteratur.

Office of Government Commerce. (2009). *Managing Successful Projects with PRINCE2.* Norwich: Stationery Office Books.

Okumus, F., & Hemmington, N. (1998). Management of the change process in hotel companies: An investigation at unit level. *International Journal of Hospitality Management*.

OwlPoint. (n.d.). *GREEN IT*. Retrieved Mars 15, 2013, from OwlPoint: http://www.owlpoint.com/Brochures/OwlPoint%20Green%20IT.pdf

Patterson, S., & Sorrells, S. (n.d.). *westbrook stevens*. Retrieved from Types of change: http://www.westbrookstevens.com/Types_of_Change.htm

Pennington, R. (2006). *Results Rule!: Build a Culture That Blows the Competition Away*.

Pereverzev, M. (2011, Januari). *Articles base*. Retrieved from How does organizational culture affect project management methodology implementation?: http://www.articlesbase.com/project-management-articles/how-does-organizational-culture-affect-project-management-methodology-implementation-3991428.html

Poltorzycki, S., & Wirdak, C. (2004). *Sustainable Development Reporting.* GEMI Benchmarking.

Potsdam Institute. (2012). *Turn down the heat.* Washington DC: World Bank.

Project Management Institute. (2011). *The Bottom Line on Sustainability.*

Prosci. (n.d.). *Change management*. Retrieved May 15, 2013, from Change Management Learning Center: http://www.change-management.com

Queensland Government. (2009). *Change Management Best Practices Guide.* Queensland, Australia: The Queensland Department of Public Works.

Respect. (2012, june 21). *Frukostseminarium: Att kommunicera hållbarhet – hur och varför?* Retrieved February 27, 2013, from respect: http://www.respect.se

Ringkvist, M., & Vighagen, P. (2012). *"Walk the talk": Kvalitativ intervjustudie i hur en organisationskultur kan förändras.* Skövde: Högskolan i Skövde.

Sabel, N., & Sundli, M. (2004). *Hållbarhetsredovisning. En historisk utveckling.* Linköping: Linköpings universitet.

Saha, M., & Darnton, G. (2005). *Green Companies or Green Con-panies: Are Companies Really Grenn, or Are They Pretending to Be?* Oxford, UK: Blackwell Publishing.

Şenyurt, H. (2010). *Effect of Organizational Culture on Creating Project Management Offices.* Ankara.

Shook, J. (2010, January 1). *MITSloan Management Review*. Retrieved May 22, 2013, from How to Change a Culture: Lessons From NUMMI: http://sloanreview.mit.edu/article/how-to-change-a-culture-lessons-from-nummi/

Silvius, G. (2009, November 27). *slideshare*. Retrieved Mars 15, 2013, from Sustainability in Project Management: http://www.slideshare.net/GilbertSilvius/sustainability-in-project-management

Statskontoret. (2009). *Ska myndigheter göra hållbarhetsredovisningar?* Stockholm: Statskontoret.

Strandesen, M., Brunn Poulsen, P., Erdal, T., & Schmidt, A. (2008). *Comparable environmental indicators for companies.* The Consumer Council at the Austrian Standards Institute.

Swedlund, E. (2012, November 9). Sustainability Consultant, Business Consulting. (P. Hedberg, & P. Jonsson, Interviewers)

Tanner, R. (2011). *Management Is A Journey*. Retrieved from Unfreeze, Change, Refreeze: Is This a Child's Game?: http://managementisajourney.com/2011/08/unfreeze-change-refreeze-is-this-a-childs-game/

Taylor, E. (n.d.). *Small Business*. Retrieved Maj 2013, from The Disadvantages of Change in an Organization: http://smallbusiness.chron.com/disadvantages-change-organization-20419.html

The Economist Intelligence Unit. (2010). *Managing for sustainability.*

Todnem, R. (2005). Organizational Change Management: A Critical Review. *Journal of change management*.

Van de Ven, A. H., & Poole, S. M. (1995, Juli). Explaining development and change in organizations. *The Academy of Management Review. Vol 20, No. 3*, pp. 510-540.

van den Brink, J., & Silvius, G. A. (2009). Views on Sustainable Project Management. *Human Side of Projects in Moder Business*.

Vancouver Sun. (2013, February 1). *The Vanouver Sun*. Retrieved February 19, 2013, from Global warming named as top environmental issue among older people: http://www.vancouversun.com/life/Global+warming+named+environmental+issue+among+older+people/7907290/story.html

Verbeek, P.-P., & Slob, A. (2006). *User Behavior and Technolohy Development - Shaping Sustainable Relations Between Consumers and Technol.* Springer.

West, L. (n.d.). *About.com Enviromanetal Issues*. Retrieved February 19, 2013, from Readers Respond: What Will Be the Top Environmental Issues in the 21st Century?: http://environment.about.com/u/ua/environmentalevents/top-environmental-issues-of-the-21st-century.htm

Wikipedia. (2011, october 7). *Förändringsledning*. Retrieved March 17, 2013, from Wikipedia: http://sv.wikipedia.org/wiki/F%C3%B6r%C3%A4ndringsledning

Wikipedia. (2013, May 15). *Wikipedia*. Retrieved May 16, 2013, from Organizational structure: http://en.wikipedia.org/wiki/Organizational_structure#Matrix_structure

Williard, B. (2005). *The NEXT Sustainability Wave.* Gabriola Island: New Society Publishers.

Worldbank. (2012, November 18). *Worldbank*. Retrieved February 19, 2013, from New Report Examines Risks of 4 Degree Hotter World by End of Century: http://www.worldbank.org/en/news/2012/11/18/new-report-examines-risks-of-degree-hotter-world-by-end-of-century

Åström, Å. (2009). *Omorganisation och kulturförändring.* Luleå: Luleå Tekniska Universitet.

8 Appendix

Table 4: Interviews

Sector	Interview date	Number of employees
Chemicals	2 January 2012	2700
Real Estate	15 January 2012	260
Food and Beverage Products	28 January 2012	1100
Energy Utilities	11 October 2012	35 000
Commercial Services	16 December 2012	71 000
Healthcare Products	17 December 2012	2700
Equipment	18 December 2012	173 000
Energy	18 December 2012	400
Equipment	20 December 2012	30 000
Aviation	4 January 2013	2500
Tobacco	4 January 2013	3900
Public Agency	7 January 2013	300
Healthcare Products	7 January 2013	6700
Real Estate	9 January 2013	400
Tourism/Leisure	9 January 2013	29 000
Telecommunications	9 January 2013	28 000
Retail	10 January 2013	600
Public Agency	15 January 2013	3200
Forest and Paper Products	23 January 2013	44 000
Forest and Paper Products	31 January 2013	3000

Table 5: Simple protocol used by a company

Emission to air	**Yes**	**No**	**Comment/action**
Will this project/activity result in emission to air?			
Emission to water			
Will project result in waste disposal?			
Waste and rest products			
Will project affect waste management?			
Energy consumption			
Will project/activity affect energy consumption?			
Hygiene			
Do project have to inform the supervisory authority?			

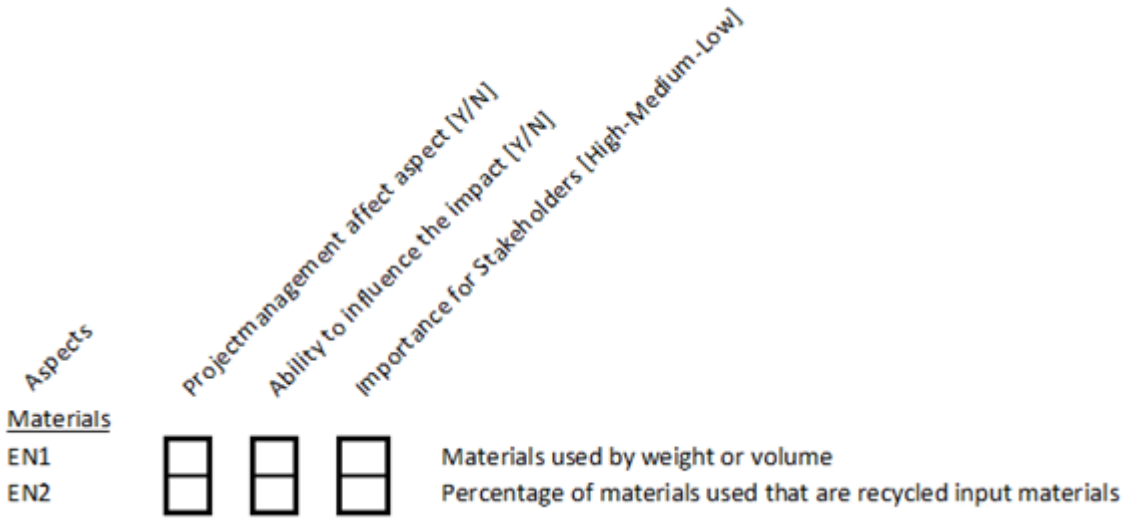

Figure 83: Choice of GRI performance indicators

8.1 GRI aspects and performance indicators (Global Reporting Initiative, 2011)

Aspect: Materials

EN1 Materials used by weight or volume.

EN2 Percentage of materials used that are recycled input materials.

Aspect: Energy

EN3 Direct energy consumption by primary energy source.

EN4 Indirect energy consumption by primary source.

EN5 Energy saved due to conservation and efficiency improvements.

EN6 Initiatives to provide energy-efficient or renewable energy-based products and services, and reductions in energy requirements as a result of these initiatives.

EN7 Initiatives to reduce indirect energy consumption and reductions achieved.

Aspect: Water

EN8 Total water withdrawal by source.

EN9 Water sources significantly affected by withdrawal of water.

EN10 Percentage and total volume of water recycled and reused.

Aspect: Biodiversity

EN11 Location and size of land owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas.

EN12 Description of significant impacts of activities, products, and services on biodiversity in protected areas and areas of high biodiversity value outside protected areas.

EN13 Habitats protected or restored.

EN14 Strategies, current actions, and future plans for managing impacts on biodiversity.

EN15 Number of IUCN Red List species and national conservation list species with habitats in areas affected by operations, by level of extinction risk.

Aspect: Emissions, Effluents, and Waste

EN16 Total direct and indirect greenhouse gas emissions by weight.

EN17 Other relevant indirect greenhouse gas emissions by weight.

EN18 Initiatives to reduce greenhouse gas emissions and reductions achieved.

EN19 Emissions of ozone-depleting substances by weight.
EN20 NOx, SOx, and other significant air emissions by type and weight.
EN21 Total water discharge by quality and destination.
EN22 Total weight of waste by type and disposal method.
EN23 Total number and volume of significant spills.
EN24 Weight of transported, imported, exported, or treated waste deemed hazardous under the terms of the Basel Convention Annex I, II, III, and VIII, and percentage of transported waste shipped internationally.
EN25 Identity, size, protected status, and biodiversity value of water bodies and related habitats significantly affected by the reporting organization's discharges of water and runoff.

Aspect: Products and Services

EN26 Initiatives to mitigate environmental impacts of products and services, and extent of impact mitigation.
EN27 Percentage of products sold and their packaging materials that are reclaimed by category.

Aspect: Compliance

EN28 Monetary value of significant fines and total number of non-monetary sanctions for noncompliance with environmental laws and regulations.

Aspect: Transport

EN29 Significant environmental impacts of transporting products and other goods and materials used for the organization's operations, and transporting members of the workforce.

Aspect: Overall

EN30 Total environmental protection expenditures and investments by type.

8.2 Suggestions that emerged during the interviews

- Start communities on environmental activities for increased communication.
- Putting energy meters on all new appliances.
- Always upgrade to more efficient solutions.
- Increased communication between the different stakeholders (customers, leaders, managers, environmental managers and so on).
- Just buy reusable materials and generate less waste.
- Do not buy software, apparel, products, etc. from different parts of the world.
- Require not to travel through the projects, despite if something special occurs, then it must be approved by the manager / leader.
- Remote- versus on-site support, instead of sending technicians, simply for the customers and just use hardware that you plug in and run.
- Develop a system that requires that you can't progress until everything is completed where there are fixed gates that must be passed, which culminates in a project document where continuous checks are made during the project. This currently reports the current status.
- Implement policies on how to work with computers, automatic switch-off for instance.
- Use energy efficient buildings.
- Use thin clients on corporate sites.
- Reduce water consumption.
- Move the smallest amount of people around, important with a good first meeting but afterwards minimize travelling.
- Strategic placed kick-off based on travelled distance for all who is involved.
- Make it a goal to try to *start* to measure environmental parameters.

- Make demands in the selection of suppliers, packaging, mailing, hardware and so on.
- Economic climate compensation.
- Paperless office which requires advanced digital solutions.
- Monitoring office’s energy consumption of energy timer.