

# CHALMERS



## Environmental Sustainability: Drivers for Change and the Role of Projects

*Master of Science Thesis in the Master's Programme International Project  
Management*

SEAN PICKERING

Department of Civil and Environmental Engineering  
*Division of Construction Management*

CHALMERS UNIVERSITY OF TECHNOLOGY  
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Master's Thesis 2013:125



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## ABSTRACT

**Objective:** the objective of this research is to determine what drives companies to be more sustainable, what role projects have in this change and the importance for companies to report these changes.

**Methods:** the existing literature on sustainability and its implementation was reviewed and then compared with information provided by a real life situation (a case study) in a “systematic combining” way to draw results and conclusions.

**Results:** The literature suggests that businesses are increasingly driven by stakeholders to align their process with the principles of sustainability. This can be tough and costly, but it can also generate profit. The drivers, stakeholders and areas of focus change with time. A company can turn these drivers into benefits by reporting efficiently and thus gain the trust of the stakeholders. The literature also indicates that projects and project management can be used to efficiently implement and direct the necessary changes. The information from the case study highly supports the theory and adds new points that facilitate this implementation: being a privately owned company and of having a sustainability department.

**Conclusions:** This research covered many aspects of the literature about projects and sustainability. The case study was able to uncover two gaps in the literature that reveal features that can aid companies in their transition towards the integration of sustainability in their business principles.

**Key words:** Sustainable Project Management; Change Management; Industry; Stakeholders; Drivers; Sustainability Reporting.

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## Preface

This research was performed for the conclusion of my dual Master degree that consists of a MSc in Project Management at the faculty of engineering and environment of Northumbria University and a Master degree in International Project Management in the civil and environmental engineering department of Chalmers University of Technology.

In a world where consumers, academics and businesses are becoming more aware and interested in global issues such as sustainability, it is important to understand what human activity does to impact the earth and the people and how it is possible to reduce the negative effects or increase the positive effects. Companies are at the heart of the change towards sustainability as they have an enormous impact on society and can be the engine powering these changes. This research looks into possible ways of reducing their environmental impact and the role of projects and project management in this change.

I would like to thank Dr Martine Buser, my supervisor from Chalmers and Dr Alex Hope, my supervisor from Northumbria for their help during this project. Their time, professional insight and expertise on the subject were of great help for me during the whole process and their guidance and feedback through the writing process gave me valuable aid.

I would also like to thank everybody that I was in contact with inside the company that helped me with this study, not only the people that I met in person and that I interviewed, but also the people with whom I communicated before conducting these interviews that helped me find the correct people to interview for my project.

And everybody else that helped me through the process of writing this thesis.

Thank you all for your time and kindness.

Göteborg September 2013

Sean Pickering

# Notations

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## List of Abbreviations:

APM = Association for Project Management

FSC = Forest Stewardship Council

NGO = Non Governmental Organisation

PMI = Project Management Institute

PRINCE2 = PRojects IN Controlled Environments

SMART = Specific, Measurable, Attainable, Relevant and Time-bound

USP = Unique Selling Point



# **1 Chapter One: Introduction**

## **1.1 Project background**

Sustainability has become a very important issue in the modern world as organisations, individuals and governments have become more aware and concerned about it. A first broad definition of sustainability was given by the United Nations (1987, p. 37) as “Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs”. Nevertheless, recent literature considers the so called “triple bottom line” of sustainability: balancing the social, environmental and economical interests. Since many of the earth's exploitable resources are limited in quantity, companies such as Interface, in.gredients, Unilever and Walmart started working towards being more sustainable and have made it a major USP of their company (Anderson, 2010; Document E, 2009; in.gredients, 2012; Polman, 2011; Walmart, 2013).

This study gathers literature from various sources and backgrounds together in one document that looks into the implementation of sustainability in companies and into the potential role of projects and project management towards such change. The literature will then be compared to a real life situation to see if they act as the literature describes and to identify any gaps.

## **1.2 Research goals**

The purpose of this research is to try to identify possible drivers behind the organisational change towards environmental sustainability inside companies and to understand what role projects play in the implementation of this change. Therefore considering the following research questions:

What are the possible drivers for businesses to act more sustainably? How and why do they change with time?

How to use these drivers to change to a more sustainable business? What is the role of projects and project management in this change?

How can businesses that implement such change extract the most benefits from it? What are the limits and drawbacks to working sustainably?

## **1.3 Overview of project**

These questions will be addressed by first reviewing relevant literature. The situation today will be explained by reviewing the history of sustainability and sustainable thinking focusing more on the Swedish situation to relate to the case study. Then the concept behind the triple bottom line of sustainability will be developed to explain why this research focuses mainly on environmental sustainability.

The literature review will also look into the areas where companies have an environmental impact and why it is important for them to change. It will identify the drivers that lead companies towards a more sustainable way of working and then look into the specifics on how a company's project management division can influence the whole company to change and what sort of projects are required. This chapter ends by looking into how companies can benefit from being more sustainable.

A description of the methodology for the case study will follow the literature review, explaining and justifying the methods of data collection.

The following chapter is the case study of one organisation that has been working with environmental sustainability for a relatively long time and is quite mature compared to many others. It will describe what they do as an organisation, how they work with sustainability, how they have achieved their current status and what the project management division does to influence this. It will also look at their drivers to change and how these have evolved over the years.

The report will end in a discussion about the differences and similarities between the literature and the case study, followed by the conclusions.

## **1.4 Ethical considerations**

This study uses human subjects for the data collection so ethical considerations were important in the way to approach the research. All respondents were made aware of the scope and purpose of the research, of their own rights when answering the questions and what the information collected would be used for. They were informed that they could refuse to answer any question that they did not want to answer or felt uncomfortable answering and that they could stop the research at any point if they wanted to. They all signed a form of consent that stated that they had been briefed about the project and its purpose; that they agree to participate and be recorded and it defined the confidentiality terms of the information that they provided.

For ethical reasons, the company that was used for the case study will remain anonymous, and will be referred to as "company XYZ" or simply "XYZ" throughout the report. Any data referring to it will be referenced anonymously.

The three employees interviewed will be referred to as letters, and the Table 1.1 below describes the position that these people occupy inside the company XYZ. Keeping the names of the employees anonymous will protect them by ensuring that the information they provided cannot be used against them and create any conflict.

The employee A works in the environmental department of the company and employees B and C work in the research and development department.

The information provided in the research will be as accurate as possible and no false information shall be intentionally published.

Table 1.1 Respondents positions inside the company XYZ.

<b>Respondent</b>	<b>Position inside company XYZ</b>
Employee A	Environment Specialist
Employee B	Programme Manager
Employee C	Director, Technology Strategy and Planning

The interviews were recorded in electronic format and transcribed in to a word document, this information was securely stored during the time of the research on a protected online server, and the only person to have access to this was the researcher. No information about the company, its employees or any sensitive information was leaked during the research.

## 1.5 Limitations of the study

This case study relied on limited input from people inside the company XYZ as only three people were interviewed, all with responsibilities related to environmental sustainability. If other employees had been interviewed the results could have been different.

Even though the primary data was collected by selecting strategic people inside XYZ and doing the interviews in person, it is only a limited view on how the company works. To reduce the subjectivity of the information provided, the second interview was conducted with two people. The information collected during the interviews is what the person interviewed decided to share, it was not always possible to prove the accuracy of this information, and the interviewee can decide to change the facts or not present the totality of the truth because they are representing their company. The confidentiality clause intends to limit this but the risk is always present. The secondary information is mainly from communications from the company XYZ, some of it is verifiable from external reports and sources, but as it is a large organisation that has influence, the information that it communicates could be neglecting some facts that would be interesting and important but would reflect badly on the company.

As the case study is based on an example located in Sweden, the results could be limited as Sweden is a country with a tradition of being more sustainable than many other countries. If the case study had been performed in another country the results could have been very different.

## 1.6 Layout of the report

The referencing was created with the software EndNote and the format is APA 6<sup>th</sup> edition. The main text uses the font Times New Roman in size 12 with a spacing of 1 and a full justification. The titles are written in the font Times New Roman and the size varies between 18 and 14 for the different levels. The illustration references use the font Times New Roman in size 12 and in Italic. The whole layout was selected to fulfil the Chalmers requirements.

## **2 Chapter Two: Literature review**

### **2.1 What is sustainability**

Sustainability is hard to define, there are many definitions and people can understand it differently. Research from Labuschagne and Brent (2005) found over 100 different definitions, but most agreed that the concept of sustainability aims at satisfying the so called triple bottom line of sustainability: the social, economical and environmental goals.

To understand how sustainability has become so important, this section will review the literature on sustainability and sustainable thinking, first by looking briefly into the history of sustainability. Then by looking a bit deeper in the triple bottom line of sustainability: economical, social and environmental – to explain why this topic is interesting to look into and to understand the problem. There will also be a section about a selection of areas of doing business that have a large environmental impact and the drivers that encourage companies to change towards more sustainability. The next section will discuss the role of project management in the process of changing and the impact of projects on the environment. The final part of the literature review will go into how organisations can change to be more sustainable and use this as a selling point.

#### **2.1.1 History**

Sustainability has been discussed for a long time now, with references dating hundreds of years back (Lumly and Armstrong, 2004), but it was never taken as seriously as it is today. One of the events at the origin of acknowledging the importance of sustainability is the United Nations Conference on the Human Environment (also known as the Stockholm Conference) that took place in 1972 in Stockholm. Its purpose was to discuss the state of global environment and attempt to forge a basic common outlook on how to address the challenge of preserving and enhancing the human environment (Handl, 2013). The preparations for this conference started long before its start and part of the preparations included the creation of various environmental positions inside ministries around the world.

The next large step was a follow up to this conference in the form of a report called “Our Common Future”. It was written to be “a global agenda for change” and is also known as the Brundland Report (United Nations, 1987). This report is often considered as the origin of the modern environmental thinking and awareness and also the start of the widespread use of the term “sustainable development”. This document is also at the origin of definition of sustainability referred to in the Section 1.1.1. This report included many suggestions on how to be more sustainable, but it was not realistic to implement them all. Although the main impact was not the desired one, it did manage to make enough people aware and it could be the reason why sustainability is taken so seriously by some organisations today. The alarming information that it pointed out led to another wave of creation of government positions about sustainability, including in Sweden in 1987.

One of the next steps was the 1992 Earth Summit – the United Nations Conference on Environment and Development – in Rio de Janeiro (also known as the Rio Summit or Rio Conference). 178 nations were represented at the conference, including 108 of their leaders, making this a much more important event than the previous Stockholm conference. The document “Agenda 21” is the result of this summit; it is an official global consensus on development and environmental cooperation, and it is the first document of its sort (United Nations, 2012). This is the start of a global organisation and agreements between the different governments that is continuously getting stronger.

In 1994, Elkington (1994) was one of the first to talk about the triple bottom line of sustainability which involves the integration of environmental thinking into every aspect of social, political, and economic activity. Today many of the articles and texts about sustainability take into consideration this concept.

Another major event was the Kyoto Protocol to the United Nations Framework Convention on Climate Change, this is a treaty that was signed in 1997 and entered into force in 2005. It sets limits for developed countries by setting binding emission reduction targets and was signed by 192 nations (United Nations, 1998).

In 1999, Sweden published its first environmental code. This is a major step in Sweden as it concentrates every environmental related law into one framework creating a more rationalised group of laws (Regeringskansliet, 1999) that was updated in 2005 (Regeringskansliet, 2006).

There have been many more events since then, and different legislation and agreements have been signed that cover smaller areas such as countries or even communities. The trend globally is towards a more organised way of working and collaboration between many different organisations and governments for the good of every party involved. Targets are set to try and improve and the people have to adapt and find solutions to achieve these targets.

### **2.1.2 Economical and social sustainability**

Economical sustainability, trying to use the available resources to one’s best advantage, has been the basic focus of most businesses. Most industrial organisations exist to make a profit, so if such organisations do not have a healthy economy, they are not economically sustainable and have no reason to remain in business.

Social sustainability has been a lot less represented and debated than the two other dimensions of sustainable development (Badiru, 2010; Brent and Labuschagne, 2007; Kira and van Eijnatten, 2008). A socially sustainable work organisation promotes the functional capabilities of its employees, its business partners and societal stakeholders (Kira and van Eijnatten, 2008). Socially sustainable organisations look out for the wellbeing of their employees, in developed countries the basic safety at work is almost guaranteed, but in other parts of the world this is far from the case; child labour, no minimum wages and unsafe work conditions can make it dangerous to work. The example of the Rana Plaza factory that collapsed in Bangladesh in April 2013 is one example, the focus of the company was to make a profit and the working

conditions were bad, the result was the death of over 1100 people (The Economist, 2013). An example of good social environmental acting is a company that implemented subsidies for the employees that went to work by public transport or by bike (Brown, 2008). Socially sustainable organisations also try to avoid any actions that damage the community where they are implemented, companies have been blamed for problems occurring during the production of their clothing such as contaminations of the local environment (Seuring and Müller, 2008). The results of an organisation being socially sustainable is a reduced staff turnover and the organisation is better accepted within the community where it is implemented (Brown, 2008; Kira and van Eijnatten, 2008).

### **2.1.3 Environmental sustainability**

Being sustainable is currently a growing trend, more and more organisations are looking into being more sustainable and selling so called “green” products. The main focus currently in the western world is the environmental side of sustainability, the social and economical are not under the projectors as much. Taylor (2010, p. 42) describes some of the negative features that organisations are looking to minimise as the following: conserve energy or avoiding to waste energy in processing and manufacturing; conserve natural resources in natural formats; conserve materials by not over-selecting or over-layering or over-specifying; avoiding toxicity to humans and to nature in manufacturing; incorporate recycled content; maximise recycling opportunities for disassemblies and recyclability. Some of these features are easy to understand for any organisation wanting to start working more sustainably such as avoiding to waste energy, but others are more complex and can have a huge impact such as avoiding over-specifying that can lead to increased costs with no benefits (Taylor, 2010, p. 42).

This research looks into the environmental side of sustainability.

## **2.2 What areas of business have a large influence on organisations’ environmental sustainability?**

Companies are an important part of the way that our world works, Labuschagne and Brent (2005) even define it as a major pillar of the society. Research from Elkington (1994) states that business is going to have to have a central role in achieving the goals of sustainable development strategies. Other authors describe a more extreme view that business is now the only institution powerful enough to foster the changes necessary for sustainability (Gladwin, Kennelly, and Krause, 1995, p. 25; Hawken, 1992; Labuschagne, 2005). Research generally agrees that organisations have to change towards becoming more sustainable.

It has been estimated that industries contribute between 70% and 95% of environmental impacts worldwide. As the impact is so high, it is imperative that industries understand that good environmental performances and compliance of the entire supply chain must be ensured. (Brent and Premraj, 2007)

The many different sectors of business will all have different impacts and concerns when it comes to environmental sustainability and even inside the same industry the impact will be different. Some examples of sustainable priorities are described in Table 2.1 below. Some of the points of concern are similar to any industry and are fairly evident, such as reducing the amount of waste, using renewable materials and energies, reducing business related travelling and reducing the carbon impact of the activities. Other environmental concerns that are not as evident are: taking more time than required for activities; maintenance and downtime; and testing equipment. These activities have a bad environmental impact as each industry has an “overhead” environmental impact, it consumes resources such as energy permanently, and when it is not producing, the resources are used with no added value (Taylor, 2010).

*Table 2.1 Major sustainability concerns by sector, based on Taylor (2010, p. 63) and Lichtfouse et al. (2009).*

<b>Sector</b>	<b>Major sustainability areas of concern</b>
Transport industry	Efficient logistics; efficient fleet; bio-fuels; full loads; traffic; disposal of the fleet after their end life.
Building industry	Energy efficient buildings; renewable material; on time constructions; adapted buildings for their use.
Manufacturing industry	Sustainable processes; sustainable supply chain; sustainable products; efficient buildings; making useful products; life-cycle view for products; disposal of products.
Energy Creation	Renewable energy sources, recycling waste; new technologies; efficient production, transport and storage
Waste Industry	Reduction of landfill; using waste for power generation; recycling; extracting toxic goods safely
Agriculture	Reducing pesticide use; organic farming; avoiding genetically modified crops; selection of crops
Pharmaceutical	Disposal of un-used medicine; creation of un-harmful medicine

As the case study is of a manufacturing business, this research will be more focused on the manufacturing industry and all of the relevant related activities throughout the supply chain. The following areas of concern will be discussed in more detail: pollution and waste; consumption of energy and resources; the transportation used during the whole supply chain of the production; and the products that the company produces.

### **2.2.1 Pollution and waste**

Industries are one of the largest contributors to pollution and waste in the western economy. Most of the waste they produce is from the manufacturing process, but other waste is created by other activities such as transport, sales activities, supplying activities and administrative activities (United States Environmental Protection Agency, 2012). This makes the industrial sector and its related activities one of the largest contributors to carbon dioxide emissions in the United States. It is a similar situation in most of the developed world.

Kane (2009) defines the real cost of waste to be between 5 and 20 times its disposal because of the cost of raw materials; the cost of auxiliary materials; the cost of labour; the cost of energy; the opportunity cost of not selling wasted product and the cost of disposal. His research also suggests a so called “waste hierarchy”, a tool that sets out waste management options in order of preference: avoid; reduce; reuse; recycle; energy from waste; and landfill. Organisations should therefore try to create less waste by following that order and could benefit financially from it. Further research found that organisations should improve the way they work to incorporate compulsory recycling of recyclable materials, better disposal methods and heightened environmental sensitivity (Anderson and Burnham, 1992; Finnveden et al., 2013).

There are many limits to this, such as the fact that recycling is often different in different geographical areas. This can make it difficult to plan the recyclability of the final product if the organisation’s market is global and the product is to be recycled in the country of consumption. Anderson and Burnham (1992) argue that industries should be responsible for creating a market for recycled materials, evaluating the environmental impact of products and processes, support community efforts through funding and information and form alliances with similar corporations.

### **2.2.2 Consumption of energy and resources**

The consumption of energy and resources is a major impact of industries. Van der Zee (2008, p. 30) states that nearly 20 percent of all global greenhouse gases result from industrial energy use. Kane (2009) says that energy efficiency gains are relatively easy to identify and address. Energy usage includes gas, oil, electricity and compressed air; they all have different prices and carbon impact.

The consumption of resources is another huge part of the impact of industries. Many current industries are producing huge amounts of products with processes that are not always efficient and that create waste. For a complex production line, it is possible to have quality problems at each step of the production leading to waste. The production process should therefore be optimised to create quality products using as little material as possible and creating as little waste as possible. One solution to reduce the carbon emissions is to undertake carbon offsetting activities. This consists in paying others to engage in emission reduction activities as a substitute for reductions at the source (Ervine, 2012).

The next step is with the selection of supplies and suppliers. Selecting renewable or recyclable material has a huge positive impact on the environmental impact of the product and – scaled up to the quantities of mass production – of the organisation (Kane, 2009, p. 94). This can be a tough task as each product has a specific function, and this function might not be possible to achieve with the limited choice of renewable material. Making sure that the material used is recyclable is good if the following conditions are fulfilled: the material is easy to recycle; the process is in place for the consumer to recycle the product; and the consumer is aware on how to recycle it and does recycle it. Another point of focus is the way that the supplier works, this is also part of the environmental impact of the final product, and research from various articles indicate that organisations are increasingly being held responsible for poor sustainability actions of their supply networks, thus this is another important point to focus on (Kane, 2009; Labuschagne and Brent, 2005; Roberts, 2003).

### **2.2.3 Transport activities**

Moving people and goods uses about one quarter of all of the energy consumed in the UK (Kane, 2009) and on a different scale it is responsible for almost one third of the carbon dioxide emissions in the USA (United States Environmental Protection Agency, 2012).

Transport was an early focus in the current sustainability mindset, it is an easy indicator to measure and small changes are easy and cheap to implement. There are different areas where transport is used by industries such as the transport of goods, the transport of employees between their home and their work and the transport of employees for business purposes. Each of these areas has different systems and different points of improvement: for the transport of goods the focus would be the vehicle emissions and energy consumption, the distance travelled, the load percentage, avoiding congestion and the means of transport. For the transport of employees to and from work the focus would be on the safety, access and time. Finally for the business related travel the focus will be on the distance, the time required and on the means of transport (Kane, 2009; Richardson, 2005).

### **2.2.4 Products**

The products produced are one of the largest environmental areas of impact for industries of mass production. The manufacturing process is where the resources are used, the waste is created and it is for the products that the whole industry exists, so the “fixed environmental cost” of the organisation should count towards the products. Therefore all of the other areas of concern discussed previously will improve the environmental impact of the products, but there is also a lot more work that can be done on the product itself. The purpose of the product is to fulfil a function; the product should be changed but retain its function. This can be achieved by changing the design or the size of the product, not over specifying the quality requirements of the product and not over-engineering it, reducing the product to only include functions that add value, including marketing value (Taylor, 2010). Improving the engineering

and the process of manufacturing the product can also have an impact on direct consumptions and on the design of the final product. If the final product will use energy or resources during its life-time, these should be reduced as much as possible since they will often have a higher impact than the production process.

## 2.3 Why this trend towards more sustainable organisations?

As demonstrated above, organisations have a huge impact on the environment, and they are increasingly being driven to be more sustainable in the way they work by many stakeholders. Labuschagne and Brent (2005) have suggested four different types of drivers for the incorporation of sustainability that are described in the Figure 2.1 below.

These four types of drivers will be discussed below according to the articles previously cited and other sources. Some drivers can fit several of these types, and the drivers will change with time and between different organisations. The content of the figure of the drivers will therefore be very case specific.

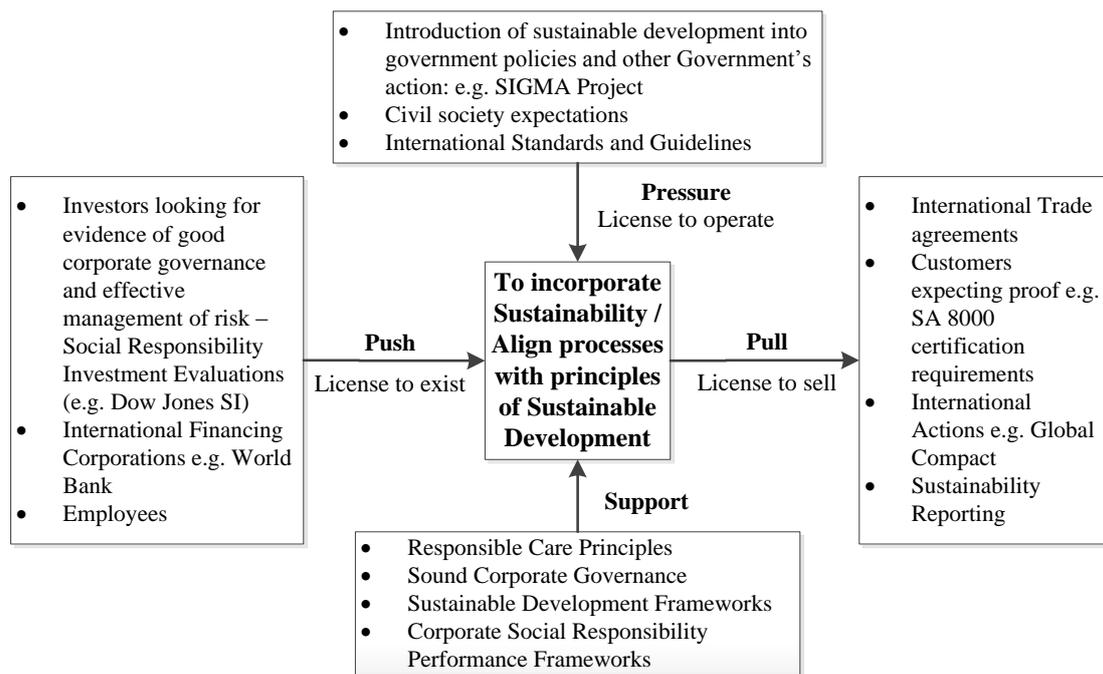


Figure 2.1 Drivers for the incorporation of sustainable development in business practices (Labuschagne and Brent, 2005).

### 2.3.1 Push drivers

The model (Figure 2.1) describes the push drivers as the licence to exist; some investors require a certain level of sustainability against their investment. Organisations like the World Bank have a preference for funding sustainable projects

and solutions, the employees of the organisation can also have a personal desire to be more sustainable. Research from Ernst & Young (2012) indicates that the employees are the second most important driver.

Finding is a way for organisations to get money, and some investors could refuse to fund unsustainable organisations making this a threat to them. The employees could be a threat because if the organisation acts unsustainably they could stop working for the organisation or go on strike. These drivers are not always negative, when used correctly they can benefit the company: if the organisation works sustainably it could secure financing easier from some sources and it could attract potential employees. If these stakeholders are not dealt with correctly, it could be a serious threat for the organisation and it could lose its means to exist and work.

Employee engagement is also a very important driver, if an organisation manages to successfully get its employees motivated to change and work more sustainability, give them the means to do it and have higher management to support them, then the benefits could be easier to achieve (Ramus, 2001).

### **2.3.2 Pressure drivers**

Pressure drivers are drivers that force a change onto the organisation, either by laws that ban some work processes or substances, societal pressure and expectations that could lead to a boycott of the organisation or damage to its reputation, or the respect of various international standards and guidelines. If an organisation does not respect these drivers it can lose its license to operate and close down.

The origin of the sustainability debate is a pressure for organisations: the world is limited in resources and it can only take a limited amount of waste and pollution to sustain the current ecosystems. Most – if not all – of the other environmental sustainability drivers derive from this. For some industries this is important on the short term, with the decrease of the quantities of resources, organisations will be forced to find alternatives. The oil industry and related activities are particularly concerned by this. Organisations with leaders that are personally concerned about these issues will use this as their main driver, and this was the case with some early adopters such as Interface (Anderson, 2010).

One driver that can be very powerful is the effect of activist non-governmental organisations against actions that they consider sustainably incorrect. Nestlé encountered this problem with Greenpeace accusing them of using unsustainable sources of palm oil for their Kit Kat product, the campaign against them went viral and Nestlé had to react very fast and change their way of working together with their suppliers (Ionescu-Somers and Enders, 2012). These organisations normally target very large corporations to create publicity so this driver should not influence smaller organisations. These actions can lead to reputation loss and a reduction in market shares if not dealt with correctly (Seuring and Müller, 2008).

Laws and legislation are generally location specific (e.g. country, state or group of states) so this driver can be hard to standardise for a global company. This can be a

very strong driver if a company's situation does not meet the requirements of a new legislation that is implemented (Seuring and Müller, 2008).

### **2.3.3 Pull drivers**

The pull drivers are drivers that companies can use to show and sell the company's good sustainable actions. They are used by companies to prove to the outside world what they do in the area of sustainability and can help create or maintain their reputation. They are also used as support to prove to their customers what they do in the area of sustainability. Some customers will only work with environmentally certified organisations, others will appreciate it (Labuschagne, 2005; Seuring and Müller, 2008). From the examples of the model (Figure 2.1), international trade agreements can allow organisations to enter new markets, environmental certification or the adoption of the United Nations Global Compact can reassure customers to purchase the products and sustainability reporting can create awareness to the customer about the actions undertaken. Pull drivers can also help with the marketing of the new solutions implemented (Labuschagne and Brent, 2005).

So called "green consumers" are good drivers for industries, they can make the choice to buy a product for its green credentials, some groups will prefer such products, and other groups will refuse to buy products that are not environmentally sustainable (Elkington, 1994). To be able to benefit from this driver, it is preferable to communicate clearly about the environmental benefits of the product that is sold as consumers lack in trust towards products that claim to be sustainable (Gleim et al., 2013). Some research declares that the market for such products has been increasing fast (Durif, Roy, and Boivin, 2012; Olson, 2009). Producing sustainable products can therefore be considered as a competitive advantage and could lead to increased market share and profits (Seuring and Müller, 2008).

If an organisation loses its reputation and if it does not take these drivers into consideration, it could lose its ability to sell the products or services that it offers (Seuring and Müller, 2008).

### **2.3.4 Support drivers**

Support drivers will support the organisation to achieve its goals, such as the framework that the organisation chooses to use for the path towards to sustainable goals. Corporate social responsibility is one example of a framework that organisations can undertake to support their goals in incorporating sustainability.

Technological evolution can be a driver to support the change, many organisations are having projects to improve their environmental sustainability, and some of the results can be used in other organisations. To use this as a driver, it is necessary to know what is happening outside of the organisation by going to conferences, using external consultants or even working with competitors (Elkington, 1994; Finnveden et al., 2013; Kanie et al., 2012; Taylor, 2010).

Customers and governments can also support sustainable initiatives; they can offer financial incentives, pay extra or simply have a preference to buy sustainable products from sustainable suppliers over similar non sustainable alternatives (Seuring and Müller, 2008).

These support drivers are normally positive drivers, if the organisation does not use them, it is not threatened, but if it does use them it can achieve competitive advantage.

Overall, integrating these four types of drivers and taking into consideration the barriers, incentives and pressures can either further or hinder the development of sustainability in an organisation (Seuring and Müller, 2008).

### **2.3.5 The limits and drawbacks of being sustainable**

There are many possible drivers that can influence businesses into integrating sustainability into their way of working, but there are also limits and drawbacks. On one hand it can be possible to save money when implementing some sustainable projects, but it can also cost a lot. The results of projects can be unexpected, which is sometimes good, but sometimes this will create a gap with the expected results making the project unviable financially (Seuring and Müller, 2008).

Many sustainability projects will be long term oriented whereas business as usual is very often short term oriented, especially firms listed on the stock market. Thus, even when incorporating the many existing drivers, it can be difficult to justify taking on projects with little or no financial benefit, especially in large corporations that have to pay out dividends to shareholders and increase their profit every financial term (Seuring and Müller, 2008; Silvius and Brink, 2011).

Research has also pointed some of the limits in the area of using green products to increase the market share. Consumers are reluctant to purchase green products because of the price, quality, their lack of knowledge and the trust towards the producer (Gleim et al., 2013). Research from Durif et al. (2012) agrees and adds that the claims lack credibility and there is a gap between pro-environmental attitudes and green purchase behaviour. These are some of the reasons why the transition is slow; to counter this, organisations that are trying to enter the market of sustainable products should put a lot of effort into the communication and certification of their products to create trust and awareness in the consumer. The whole process of production, certification and communication should be done in an environmentally friendly way without excess cost to the consumer.

The United Nations Global Compact, a platform that aims to ask companies to embrace universal principles in sustainability can be considered limited as its principles are too compact to offer any real guidance, there is a lack of accountability and it can be misused as a marketing tool (Deva, 2006; Nolan, 2005).

The impact of one company on the global carbon emissions is almost insignificant, this could make some companies wonder why they should even try and spend their money on being more sustainable (Taylor, 2010, p. 12).

Another limit is the viability of carbon offsetting activities. The principle behind this is that they can release carbon emissions but purchase green energy elsewhere in the world to compensate then advertising that their business is carbon neutral. An article from *The Economist* (2006) describes it quite well:

The sale of indulgences by the Catholic Church in the early 16th century, whereby people could, in effect, purchase forgiveness of past sins by handing over enough money, was condemned by Martin Luther and other reformers. Today, some environmentalists are denouncing the “offsetting” of carbon emissions in similar terms.

It is considered as a solution but it does not exactly solve the problem of emitting carbon emissions.

To summarise, companies are driven from four directions to change and work in a more sustainable way. The drivers can push, pressure, pull or support the environmental change inside the organisation. The drivers will be different for every company and can change with time, and they will vary in importance. To understand this it could be interesting to understand the stakeholders when it comes to sustainability and do a thorough analysis. There are also limits and drawbacks to these changes that should be considered before acting.

## **2.4 Sustainability and project management**

As companies are driven by many stakeholders to change, they need to decide on how they want to change. Some companies can decide to start fast, immediately implementing small steps and small improvements, while other companies will set long term strategic goals. Projects to change the way that companies work are often used to find solutions and implement these changes.

Projects compose a large budget of many organisations, the research from Turner et al. (2010) estimates that up to 20% of the worldwide GDP is spent on projects. Maylor (2010, p. 53) states that projects are about change and they can either create revenue or organisational change by setting a goal and defining the process to achieve it. Taylor (2010, p. 10) adds that this can be a change in behaviour – and that it certainly applies to the environmental aspects of projects. Given the importance of projects and their role in organisational change and the change in society, they are the main tool to use for the transition towards a more sustainable organisation that is required by the various drivers seen in the previous sections (Shen et al., 2010).

The change to be more sustainable should include the whole supply chain of the organisation and its projects, thus having a complete life-cycle view of the product – in the case of a production organisation – from the suppliers to the final product and waste. It should also use environmental criteria in the process of selecting projects (Seuring and Müller, 2008). The project manager is in the ideal position to lead these changes (APM, 2012; Silvius and Brink, 2011).

The environmental impact of projects will now be split into three distinct categories: the inputs, the process and the outputs (Silvius and Brink, 2011; Taylor, 2010). The

following sections will explain the impact of each category and suggestions on how to improve it, and another section will introduce some current standards in project management and their suggestions on sustainability.

### **2.4.1 Inputs**

The inputs of projects include everything that is used during the project such as material, energy and other resources. There are two main points of focus – the supplies and the suppliers – that have been briefly discussed previously. Measuring or defining the sustainability of the supplies should be the easiest: renewable material and energy or recycled material for example. For the suppliers it is not as evident though, this is important because the supplier could be supplying renewable material, but it could be sourced unsustainably. One easy example is for wood and wood products that are considered sustainable, yet Saul and Stephens (2013) define illegal logging as being amongst the most serious and yet most poorly regulated of global environment problems as it leads to the degradation of forest ecosystems, it reduces plant and animal biodiversity and it makes a significant contribution towards climate change. In some countries a very high percentage of the timber exports are illegal, such as Cambodia with 90%, Bolivia with 80% or Gabon with 70% (WorldBank, 2012). As wood is considered a renewable material, this poses a dilemma: the product is renewable in theory, but the sourcing makes the product non-renewable and non-sustainable. This has an impact on the sustainability of the products that use this wood.

To overcome this, suppliers can be audited by the organisation or the customer could have explicit preferences for suppliers that are certified, for example with ISO 14.001 which is an environmental certification. It could also be a solution to work with the suppliers so that they achieve this certification, this could be especially good for long-term relationships between the two parts as the client encourages the supplier to achieve a more sustainable way of working in exchange of a guarantee to buy the products for them. Another way to push this is to offer a premium to the suppliers that are certified and prioritise these suppliers over the others.

Research and development projects have an extra advantage of developing something new, this can be seized as an opportunity to switch suppliers or try using different material for the new developments (Kane, 2009).

Thus for the inputs to be sustainable it is important to have sustainable material, that is sourced sustainably and with a supplier that works sustainably.

### **2.4.2 Process**

The process of working during the projects can be divided into two distinct things: the everyday work in the organisation and the process of following the project standards to realise the project (Taylor, 2010, p. 17).

The process of working on projects in an organisation is similar to any worker inside the organisation and any attempt to change this would have to be done for the whole organisation. One aspect that is project specific is the need to travel. To reduce this need organisations' can turn to the use of teleconferencing and videoconferencing. This can allow the organisation to reduce its environmental impact whilst saving time and money on the travels (Kane, 2009).

Project managing can also be done keeping sustainability in mind, for this it is better to have a project management process or project management standards that integrate sustainability. This part will be discussed in the Section 2.4.4.

### **2.4.3 Deliverables**

Each project aims to deliver a particular product, service or result (Maylor, 2010), but there are many different types of deliverables with very different sustainability implications such as: a new way of working (example: project management procedures), a mass produced product with a short life time (example: packaging), a mass produced product with a long life time (example: cars) or a one-off produced product with a long life time (example: a space rocket).

All of these types of deliverables will have different requirements when it comes to sustainability and the drivers will not be the same. For a space rocket environmental sustainability is a long way down the list of priorities, its safety has to tend towards 100%, and if this means increasing its environmental impact, then they will not hesitate to do it.

Creating environmentally sustainable deliverables could be the area where organisations will have the greatest impact when trying to improve their global sustainability (Taylor, 2010).

### **2.4.4 Standards**

Project management standards are common use today, standards like the APM Body of Knowledge, the PMI Body of Knowledge and the PRINCE2 methodology are used by project manager practitioners around the world (APM, 2012; Office of Government Commerce, 2005; PMI, 2013b). The PMI states that it has over 700.000 members and the APM 20.000 individual and 500 corporate members, meaning that the reach of these standards is huge (APM, 2013; PMI, 2013a). These standards are updated every few years to adapt to the new ways of working. The APM published the first edition of its body of knowledge in 1992 and has published its 6<sup>th</sup> edition in 2012 (APM, 2012). The PMI published the first edition of its project Management Body of Knowledge in 1996 and has published the 5<sup>th</sup> edition in 2013 (PMI, 2013b). The PMI guide has not integrated anything in the area of sustainability and does not even touch the topic even though the latest edition was released recently. On the other hand the APM Body of Knowledge has integrated one section of about 2 pages in its latest edition. This section describes briefly why being sustainable is an essential part of doing business, but the small amount of text that they dedicate for this section

seems to oppose their words (APM, 2006, 2012). These standards that reach so many people and organisations are therefore not currently a strong driver for organisations to integrate sustainability. This could be the reason that few companies currently consider sustainability in their projects or project management (Eskerod and Huemann, 2013), another reason could be that standards include measurable targets, but that sustainability is often hard to measure (Elkington, 1994).

Standards and guidelines do exist to incorporate sustainability in the project management process, for example the book “Sustainability Interventions - for managers of projects and programmes” (Taylor, 2010) can be used as a guide to incorporate sustainability in each phase of a project, but the distribution of such a book does not have the reach of the standards discussed previously.

Following standard processes in the area of sustainability is maybe not the solution, but they should be used as useful reference points (Keeble, Topiol, and Berkeley, 2003). A sustainable project management process should be developed by the company to fit its needs to be more efficient and relevant.

Companies can therefore improve their project management on three points, the inputs, the process and the deliverables, and to do this they can implement standards. Each of these points will have different effects, but they are all three complementary to achieve real sustainable project management.

## **2.5 How can organisations be more sustainable and benefit from it?**

For each of the areas of impact described previously (pollution and waste, consumption of energy and resources, transport activities and products) an indicative list of SMART (Specific, Measurable, Attainable, Relevant and Time Bound) indicators to measure the environmental performance of the organisation is found in the Table 2.2.

Using such indicators can be a powerful tool in addressing the sustainability of a business both at a corporate wide level and at a project level (Keeble et al., 2003). These indicators are areas of the business that have an environmental impact that could be improved, and the indicator describes the final goal. An example of such an indicator is “reducing the water consumption by 5% in one year”. It has a specific target, it is measurable, it could be attainable, it is relevant for the environmental goal and it is time bound. Table 2.2 suggests possible indicators for organisations to follow; they will be represented in the following form “Reducing water consumption by X amount by X date” to get an idea on possible goals to set.

Table 2.2 Possible sustainability indicators that organisations can use as targets, based on Section 2.2.

Area of Impact	Possible targets for indicators
Pollution and waste	Implementing systematic recycling or reprocessing of the waste inside the organisation by X date
	Developing preventive methods to reduce the waste by X amount by X date
	Implementing a systematic training of the employees about recycling by X date
Consumption of energy and resources	Reducing the organisation's energy consumption by X% by X date
	Reducing the production waste by X% by X date
	Only purchasing from suppliers with environmental certification by X date
Transport activities	Reducing the energy costs of the transport of goods by X% by X date
	Implementing a system to plan the road transports at times where there are no restrictions and less congestion by X date
	Reducing business related travel by X% by X date
Products	Reducing the consumption of material by X% per final product by X date
	Reducing the energy consumption of the production line by X% by X date
	Reducing the overhead staff and office space required by X date

Defining the correct indicators for an organisation should be part of the process of change. The indicators must reflect the business realities, values and culture of the organisation so they should be very company specific. The process of defining and selecting them can lead to heated debate or even conflict that has to be dealt with, but this is required for the learning process and to understand the results. Measuring specific environmental performance can also be hard because many organisations have a complex organisational structure, with different business streams, functions and projects. Organisations should aim at selecting a good, balanced and small set of relevant indicators. (Keeble et al., 2003)

Some of the indicators suggested could be used, but the set of indicators will be different for each situation. Each company must understand the drivers that are behind

the request for change to be able to satisfy them and use projects to change the way of working, thus hand picking the indicators that are adapted.

### **2.5.1 What can organisations do to change?**

Labuschagne and Brent (2005) have defined three levels within an organisation that can be subject to change namely, the strategic level, process or methodological level and the operational level. The three are required for sustainability to manifest within an organisation. They have found that the majority of emphasis had been on the operational level, by doing this organisations can report to the world how they work sustainably. There was also some evidence of integration on the strategic level with mentions of sustainability in the strategic goals and objectives. The methodological level was far less integrated; this means that organisations lack in standards and methodologies to continuously adapt and work sustainably.

Top managers are often responsible in formulating the strategy, but they may involve others in the process like in-house strategy planners or analysts, other managers and employees or external strategy consultants (Johnson, Whittington, and Scholes, 2011). The new strategy will be the guideline for the changes on the other two levels.

Changes on the operational level will result of change projects like a project to implement a new production line or the change process to get an environmental certification. Changes on the methodological level can also result from projects, such as a project to develop and implement sustainability constraints and indicators in the project management process.

Integrating sustainability within an organisation by using top–down (from the strategy to the operational level) or bottom–up approaches have not seemed to be effective to a large extent in the past examples (Labuschagne and Brent, 2005). Practical tools – like sustainable project management processes – which systematically include sustainability within the evaluation processes, are needed to align business methodologies with the principles of sustainable development (Labuschagne and Brent, 2005). Many of the changes will therefore require projects. The next section will look at the role of projects and project management.

### **2.5.2 What is the role of projects and project management?**

The use projects and project management is required to improve the three areas of projects mentioned: input, process and output; and also to change the process on the operational and the methodological levels. The effects will greatly impact the whole organisation; examples of some of the possible impacts are described in the Table 2.3 below.

Table 2.3 Examples of sustainable improvements during projects, based on Taylor (2010, p. 17).

Part of Project	Area of Improvement	Effects
Input	Sustainable Material and suppliers in research and development projects	Sustainable material for the products developed
	Creating awareness to the project managers and team about the possibilities of alternative materials that could be more sustainable	Possible to develop alternative solutions, find other suppliers and materials. This could involve extra costs in research
Process	A sustainable work place and environment	Working sustainably in the everyday work
	Selecting sustainable projects	Having a mix of projects and have a percentage that are sustainable
Deliverables	More sustainable product	Using less resources during the production, using more sustainable resources, product more efficient during its life
	New work conditions	Working more sustainably throughout the organisation

The deliverables is the point where most organisations will be able to have the largest impact as they can change much of the way that the organisation works, including the products it delivers. Projects to change the operational and methodological levels of the organisation are included here (Labuschagne and Brent, 2005).

Once the organisation has selected the areas or impact that it would like to improve, and set indicators for the targets it would like to achieve, it needs to define the projects that are suitable to achieve the goals. As the indicators are listed as SMART indicators, they are measurable; this leads to a problem that many of the possible projects will not have measureable goals, but estimated goals, it could be good to use consultants or previous examples of projects to get a better idea on the possible impacts (Griffiths, 2007).

Projects are not always done inside the organisation, some projects can be collaborations with external organisations, for example suppliers, clients, consumers, environmental organisations, general public or even competition (Elkington, 1994; Kanie et al., 2012; Shen et al., 2010). Vertical integration (integrating the whole supply chain in the project) and horizontal integration (integrating competitors) in the research for new sustainable initiatives could be good for reducing costs, making the most of the knowledge of each part involved and could benefit society as a whole. If

different competitors work together and implement similar solutions, then the products will be more sustainable and the world will benefit. Taking on such projects does have limits, such as the repartition of the funding, defining who has the rights of the solutions found and who should be in charge of the project process and making the decisions (Elkington, 1994; Kanie et al., 2012).

Undertaking a project – or a program with multiple projects – to create a tailored sustainable project management process is a necessity for any organisation that does many projects and is trying to incorporate environmental sustainability in its way of working. This could be in the form of a checklist with different points of focus throughout the process for example. As it is made by the people that will be using it, it will be easier to understand and the users will lose less time trying to select what points are relevant for such project, it also means that they feel a sense of ownership towards their achievement and will be less reluctant to use it. By achieving this, organisations could have more sustainable project management practices in the inputs, process and outputs, and this could set an example for the acceptance of the changes to become more sustainable that the future projects would try and implement on the operational level. The creation of this methodology could be a good place to initiate the change (Labuschagne and Brent, 2005; Taylor, 2010).

Incorporating a sustainability champion into PM process can further help the process to actually follow the planned path without losing focus on the environmental goals through when other things start going wrong` (Taylor, 2010, p. 29).

### **2.5.3 How do organisations benefit from this change externally?**

Because the drivers come from many different stakeholders, it is important that these stakeholders know what has been tried and achieved by the organisation. Reporting the sustainable improvements to the customers, consumers, government, employees and any other stakeholders is an essential point to be sure to profit from the drivers as much as possible. Being more sustainable can be profitable without communicating about it, but the impact can be much higher with the correct marketing (Eskerod and Huemann, 2013; Seuring and Müller, 2008).

Reporting the results can be done in many ways like with certifications, sustainability reports or advertising. Any reporting must be accompanied by hard facts that prove that the communication is not just a publicity stunt with no real action behind it because of the lack of trust from the consumers. If this is done correctly, it can increase the brand reputation and possibly its competitive advantage (Durif et al., 2012; Gleim et al., 2013).

Communicating the changes and plans to the external stakeholders can allow them to feedback to the organisation in case of potential issues with the actions (Silvius and Brink, 2011).

## 2.6 Conclusions of literature review

The literature review revealed that there are many areas of business that have an influence on a company's environmental impact. Many stakeholders drive companies to change and work more sustainably. These drivers are unique for every case and moment in time. Projects and project management are important in the implementation of these changes. To benefit from these changes as much as possible, it is necessary to communicate to the internal and external stakeholders about the achievements, limits and future plans of the organisation.

This review highlighted important parts of the history of sustainable thinking to set a clear background for the more focused part about the environmental impact of businesses. This research has described some areas of company's activities that have a large impact on the environment that can be changed. There are many possible drivers that can influence companies to be more or less sustainable, understanding these drivers is an important step for a company to know why they need to change and what areas do their stakeholders want them to improve related to sustainability. The review also shows the impacts of projects and project management towards sustainability and how the project management process, inputs and deliverables are related to other processes inside businesses, explains why projects are at the heart of the change process for any company that wants to integrate sustainability into the way it works. Finally the last section of this literature review looks at how it is possible to benefit from these changes, before starting, during the process and once the results have started to deliver.

This research is the base for the case study that will follow, it defines the current global situation towards sustainability and why companies would want to change to be more sustainable. The case study will look into one specific company and then the discussion will look into the similarities between the literature and the case study.

## **3 Chapter Three: Research method**

This chapter will highlight and justify the methods used to collect the data for the case study. It will go through the reason why this specific company was selected for the case study and how the information was collected. The data obtained was combined with data provided by the literature according to what is called a “systematic combining” to generate a model (Dubois and Gadde, 2002).

### **3.1 Selection of the company**

Company XYZ was selected because of its credentials in sustainability. It has been an early player in sustainability and has been communicating a lot around it. The sector in which it operates is also interesting: it is a sector that consumes a lot of resources and where the possibilities to reduce the environmental impact have been numerous and with great impacts on the society. It is also a project intensive company, doing many research and development projects, often with a focus on sustainability. They are pioneers in their area of business and often launch new products that are more sustainable than the previous ones.

The first encounter with the company XYZ was with a person from the sustainability department. During the discussion the representative of the company was interested in this research as this person was not aware of the term “sustainable project management” and was not sure if the company XYZ was doing anything in that area. Then people were selected from the company XYZ that were knowledgeable about the subjects of environmental sustainability and project management and that could maybe use any ideas developed in this report.

### **3.2 Data collection**

The case study is about how the company XYZ has been working with environmental sustainability, how it is related to the project management activities and how they communicate about what they do. To find the relevant information both primary data and secondary data was collected.

#### **3.2.1 Secondary data collection**

Secondary data was collected from various sources that were supplied by the company XYZ, but also their website and articles about the company and its activities in other sources.

The most complete information is found in the sustainability reports that the company publishes, they mainly focus on the situation at the date that it was published, the improvements that they implemented during the year that preceded it and the next steps. These reports will be used to see the evolution of the company’s areas of

interest and the way that they communicate. The reports used for this analysis are from the years 2000, 2009 and the 2011. The reason behind this selection was that the company provided the editions from 2000 and 2009, and the edition from 2011 is the only one currently available on XYZ's webpage as it is the last one published. The edition from the year 2000 is the first edition that the company published.

More information was found on three presentations that people from the company presented outside the company (Document A, 2011; Document B, 2011; Document C, 2011). These presentations date from 2011 and contain similar information with some slides being identical. The presentations described the areas where the company has improved its sustainability in the past and that it was working on at the time, it describes the reasons that it has been changing and the company's plans for the future.

Other documents were used, such as a pamphlet published by the company (Document I, 2013), official reports (Document J, 2013; Document K, 2003; Document M, 2013; Document N, 2011), other documents from the company (Document G, 2010; Document L, 2010; Document M, 2013), the company's website (XYZ's Website, 2013) and external sources. As most of the documents were directly published by the organisation, the information that is available is limited to what the company desires to communicate about, and it is possible that some important information was missed out because it was not available.

This information was used as a basis to structure the interviews for the primary data collection.

### **3.2.2 Primary data collection**

The primary data was collected by in depth interviews with representatives of the company XYZ. The interviews were conducted with specifically selected people that have been working in the company for many years because they know about the evolution of the company. These people also have strategic roles in the company towards environmental sustainability and the project management process.

Based on the information about the company collected before the interviews took place, the literature about the theory and the position of the person interviewed, specific questions were drafted for each interviewee. The questions were directed at discovering the history of how these employees have been working in the company related to environmental sustainability, how their positions have evolved to include sustainability issues and what the situation is like today. The interviews were all done in person in the company XYZ, two interviews were conducted. The first one was with a senior manager from the environmental department that had been working in the company for over 20 years. The second interview was conducted with two people, one programme manager and one technology, strategy and planning manager. Both of them had been working in the company for around 20 years. All three of the people have had experience working on projects and have jobs that are highly focused on environmental sustainability.

The interviews were conducted in the form of open questionnaires that were sent to the participants in advance that were aimed at leading a discussion on the topics

addressed in a similar way to that described by Dubois and Gadde (2002). The reason behind having two people assisting the second interview was to generate discussion between the participants to try and generate more ideas and get a better idea on how people work inside the company, this allowed direction and redirection of the main focus (Dubois and Gadde, 2002). This also allowed them to discuss between them to dispute any disagreements. All three employees work together frequently and know what each other does. The audio from the interviews was recorded to ease the analysis of the results.

The interviews were all semi-structured as this allowed a discussion that could be directed by the interviewees in the way that they wanted to. They could elaborate on the points that they deemed important to understand the answer and were free to alter the subject to another topic.

As only three people were interviewed and all three work for the company XYZ, the results can show a biased view on the actions of the company and the results could only show what the company wants to show.

## 4 Chapter Four: Results and data analysis

The following chapter presents a case study of the company XYZ related to environmental sustainability. It will look into its historical background and achievements, the current situation, the drivers that they have encountered over the years and how they have integrated projects into their process to achieve their strategic goals towards sustainability.

### 4.1 Background of the company XYZ

The company XYZ is a manufacturing company. The following information will be to help understand the background of the company and why it is an interesting company to work with in such a project. This section will not give exact information to respect the anonymity, but enough information will be given to get an understanding of the situation.

The company XYZ was created over 60 years ago and has grown to become a company that sells its products in more than 170 countries around the world, produces its products in over 40 locations around the world and has marketing units in just under 40 locations in the world. It currently employs over 23.000 people. Its turnover for the year 2012 was over €11 billion (Document M, 2013).

The company XYZ is a privately owned company and the owners are personally interested in the environmental impact of the company and environmental issues. This is a good driver towards the integration of sustainability (Interview with employees B and C, 2013).

Company XYZ develops, produces and sells two types of products:

- Category A products have a very short life-time, are mainly composed of paper and plastic and are produced in very high production volumes. They are sold to the customers who use them for their product and then sell them together to the consumers. These products represented over 88% of the company's turnover in 2012. Most of the information in this case study relates to these products as they are the main focus on the company XYZ, and the people that were interviewed work with these products.
- Category B products have a very long life-time as they are machines and are produced in moderate volumes. They are sold to the customers that use them in their production lines. These products represent under 12% of the company's turnover.

This research was performed in the Swedish division of the company and the research and interviews were done in English, as most of the environmental decisions happen at this location, the views collected are considered as being fairly representative of those of the organisation globally.

## 4.2 The history of sustainability inside the company XYZ

This first section about the company will discuss the early reasons behind this desire for company XYZ to work sustainably. It will look into the history of the company related to sustainability, and when it first started integrating sustainable ideas into the way that it works.

The company XYZ claims that it started working with environmental issues all the way back in the 1970's, they started looking at actions that would make their production more environmentally friendly to save money. The first steps that they implemented were to change to waste efficient processes and to use their waste to recover energy. In the 1980's the company started working on the life cycle assessment of their products, thinking about transport efficiency and the factory emissions. In the 1990's, the focus shifted towards recycling, designing for the environment and environmental reporting. This corresponds to a shift in the drivers: the changes are no longer only happening to save money. With the environment reporting they include the customer and they take into consideration the civil society expectations. In the 2000's, they set their first climate goal, they partnered up with an environmental organisation and they committed to reduce their carbon dioxide emissions. They also set the goal to get all of their manufacturing sites certified ISO 14.001 and set targets for their life-cycle assessments. (Document A, 2011; Document B, 2011; Document C, 2011)

The interviews conducted add an in depth view of the experience of the people interviewed and added the following information (Interview with employee A, 2013; Interview with employees B and C, 2013). Company XYZ started recruiting people to fill in environmental positions from the 1990's, when employee A was recruited. There were already 2 or 3 other people whose job was related to environmental sustainability. As the start this person's job changed because the company was not sure where it was going yet, this person started by having a job as an energy specialist focused on incineration with energy recovery from waste. Then recycling activities increased and became more important, the focus shifted and this person worked on this. Finally the focus shifted towards the integration of the environment into the development activities, where this person started working and from here the situation stabilised. At this time the rare environmental focused projects were driven by some of the employees which had a strong desire of doing a sustainable project. The company estimates that it was lucky to have very good personalities that were pushing for sustainability (in an unstructured way); this allowed them to achieve a good level of sustainability from very early on. Around 7 years ago, the company created an environmental department to centralise all of the people that were working with the environment. They wanted to create a centralised, highly knowledgeable, organised and efficient pole inside the organisation that would be in charge of most of the environmental related decisions inside the organisation.

Employee A (Interview with employee A, 2013) also feels that the discussion about sustainability has not always received the same attention; it has been more or less important through time. Recently the discussion about the environment has become a top prioritised subject.

## **4.3 The company XYZ in specific areas of sustainability**

The next sections will look into the specific areas that are discussed in the sections under 2.2. It will look at what the company XYZ does or has done in the areas of improving their pollution and waste, consumption of energy and resources, transport and products. It will also look at the environmental targets that the company has set in the past, the role of the sustainability department that the company has created and finally it will look at other achievements that the company has realised in the past.

### **4.3.1 Goals with environmental targets**

The company XYZ has set diverse goals related to the environment over the years, this section will look into some of these goals and if they met their targets or not. It will start with the strategic goals and then look into other smaller goals.

Company XYZ has set multiple goals when it comes to sustainability over the years, the first time that they actually integrated it into the strategic goal was in 2002. Their first environmental target was to reduce their energy consumption by 15% between 2002 and 2005, the information that this target existed comes from the company's webpage (XYZ's Website, 2013) and is absent from the reports analysed that were published after 2005. There is no evidence of its success in any of the documents provided, moreover their global carbon dioxide emissions grew almost 10% in this time interval so they maybe did not meet the target although there could be a reason behind this (Document G, 2010). After this they set a new environmental goal in 2005, they aimed to achieve a 10% reduction in the company's carbon emissions by 2010. In 2011 the company XYZ announced that it had achieved this environmental goal with a 13% reduction of its carbon emissions between 2005 and 2010 whilst growing 23% (Document F, 2011). Following this success, the company XYZ is now working on a new strategy: their 2020 environmental strategy where aim to cap their greenhouse emissions across the value chain to 2010 levels despite growth, to increase the amount of their category A products that are recycled to 40% and to get 100% of their paperboard supply from FSC certified sources. (Document F, 2011; Interview with employee A, 2013; XYZ's Website, 2013)

Company XYZ has also set smaller environmental targets such as in their environmental report from 2009 (Document E, 2009) they said that they would start reporting more comprehensively their water consumption figures in the next report to be published. In the report that was published in 2011, they declare that they are developing a methodology to measure their water footprint and that they will have a water policy in place by the end of 2011 (Document F, 2011), thus not reaching their 2009 target.

In 2002, the company set a recycling target: they wanted to have 25% of their category A products recycled by 2008. They only achieved 18% and they later acknowledged that they did not meet their desired target (Document E, 2009; Document K, 2003).

In the environmental report from 2011, they set the goal to have 50% of their wood supplied from FSC sources by 2012, their latest figure on their webpage published in

2013 shows that they have only achieved 38% (Document F, 2011; XYZ's Website, 2013).

The company XYZ has therefore set multiple targets over the time, some of them were successes and others did not meet their targets. The targets are often ambitious and aim to have a strong impact, even if these targets are not met. They allowed the company to be aware of the issues and engage the employees towards changing and improving. When the targets are met, they often have a huge impact on the whole organisation as they are so ambitious. A key to meeting these targets has been to engage with the external stakeholders that play a key role in their targets. (Document E, 2009; Document F, 2011; XYZ's Website, 2013)

Most of the figures reported are measured directly by the company XYZ, some of them are measured by external organisations. The figures are sometimes contradictory between documents, thus their trustworthiness could be limited.

The next sections will look into the specific areas that the company XYZ has been working on.

### **4.3.2 Pollution and waste**

In the areas of pollution and waste the company focuses on different points. Pollution is considered in their strategic goal and the company has had a high focus on limiting its waste since the 1970's.

The strategic goals to reduce the company's carbon impact are in fact reducing its emissions and therefore the amount it pollutes. The Section 4.3.3 will look into the energy consumption and carbon emissions more in detail.

This section will look deeper into the waste, and from early on they have had activities to try to valorise the waste with energy recuperation activities and then to reduce the waste. As they started this early on, the results are now clear and the amount of waste has been greatly reduced. Now the company tries to further reduce the waste with new processes and by developing new machines that create less waste (Document E, 2009). They also have a great focus on post-consumer waste: the rate at which the consumers recycle XYZ's products. They work towards training the consumer to recycle their products to reduce the impact of their products with the whole supply chain view. All three environmental reports analysed discuss the topic of waste and waste management, and between 2000 and 2011 they all have a similar focus on it, indicating that this is something that they are used to working with and no major changes have happened recently (Document D, 2000; Document E, 2009; Document F, 2011).

There are still limits for XYZ on these specific points, for example the recycling of its category A products is a specific process, which is not available everywhere. XYZ sells products in a large part of the world making this is a hard thing to integrate to all of the products on all of their markets. The UK had nowhere to recycle these products between 2006 when a recycling plant for these products closed and 2013 when a new one is expected to open (Document J, 2013; Resource Media, 2012). During these

times the products could still be recycled if they were disposed of in a specific way and the recycling happened in Sweden. As the company XYZ is dependent on the consumers of their products for the recycling, it has been tough for them to improve the recycling, and as the products are not systematically recycled, their carbon footprint could be higher than the one given by company XYZ. Increasing recycling depends on consumer action, industry capability and governments enabling recycling through regulatory frameworks. The company faces various challenges for building up a recycling stream for their products and as they do not control the recycling, they can only facilitate it by working with other partners in each country. In many cases the challenge is to find a viable end market for the recycled material, as it can be recycled into various products and different countries have different needs. The company XYZ therefore need to know about the background of the country to increase their recycling rates. In some cases landfill is the best way to dispose of the products, such as in remote areas where the impact of transporting the waste over long distances to a recycling plant would offset the benefit of recovery (Document D, 2000; Document E, 2009).

### **4.3.3 Consumption of energy and resources**

Company XYZ has a high focus on the consumption of energy and resources, the fact that they have integrated a limit to their strategic goal has helped them reduce dramatically their energy consumption and related carbon emissions.

The company's environmental policy for the period 2005-2010 was to reduce their carbon emissions by 10%. To achieve this target the company did many projects to reduce their energy consumption and to switch to renewable energy sources. When not possible it participates in carbon offsetting activities. The success of this policy was a great step inside the company and gave them great ambition for the future (Document P, 2009).

When looking at the materials used for the company XYZ's main product, their category A product, it is created from up to 74% renewable contents currently and they are trying to increase this figure to 100%.

One of the main concerns for the company XYZ recently has been where they supply their wood. Wood is considered a renewable material, but in reality it depends on the way that it is sourced, the company XYZ has therefore decided to start trusting the FSC organisation and supply its wood from FSC certified forests, with an aim to get 100% of its wood supplied from FSC certified sources by 2020. They communicate a lot about this, especially in their environmental report from 2009. In the environmental report from 2000, there was a small focus on certified wood sources, but they had not yet committed to the FSC certification. They could not switch over to such sources faster because the amount of certified forests is very limited. (Document D, 2000; Document E, 2009)

The company XYZ does also face limits when trying to supply their materials and energy sustainably. For example XYZ has a high focus on recycling their products, yet their products do not contain recycled materials, this can send a contradictory message to the consumers. The reason behind this is that the recycled materials would

not have the required quality and would be needed in higher quantity to deliver the same product (Document E, 2009).

#### **4.3.4 Transport activities**

XYZ claims that they started looking into transport efficiency in 1980's (Document A, 2011; Document B, 2011; Document C, 2011). There is a train stop directly inside the production facilities to transport the products and material for example (Interview with employees B and C, 2013).

The company XYZ has had travel policies in place to avoid some of the business related travel, but they remain aware that it will always be necessary to travel on some projects. The employees of XYZ are encouraged to use alternatives to travelling as much as possible, such as teleconferencing or videoconferencing, this saves them time, money and carbon emissions. The increased cost of business related travel has also been a huge factor in this policy (Interview with employees B and C, 2013).

The environmental reports show a clear evolution of the focus on transport, in the first report there is a whole section about travel, but in the reports from 2009 and 2011 the topic is only briefly discussed. Not much has changed and the process is now standardised (Document D, 2000; Document E, 2009; Document F, 2011).

#### **4.3.5 Products**

One great focus of the company XYZ to reaching their environmental goals is to improve their products. They develop products that have the smallest environmental impact possible. To do this they focus on various areas of the products, for category A products, which is a mass produced product, they have a very high focus on reducing the quantity of material used, increasing the share of renewable contents and only using material that can be easily recycled. For category B products that have a high life time, the main focus is on reducing its consumption during the life-time of the product (Document L, 2010; Interview with employee A, 2013; Interview with employees B and C, 2013).

Over the years they seem to have improved their products significantly. This is the area where XYZ focuses a lot of its efforts as one successful project to develop a new product that is more sustainable has a huge impact when scaled up to production quantities like their category A products. The company claims that the improvements of their newly released category B products can reduce waste by 80%, consume 30% less energy and cut product losses by 30% - greatly reducing running costs and environmental impact (Document B, 2011; Document C, 2011; Document F, 2011).

For the future, the company is aiming for its category A products to be fully sustainable: composed of 100% renewable materials, leaving a minimal environmental footprint and creating zero waste. They are searching for solutions to reduce the amount of material used per product and to change the contents to renewable contents by developing new materials such as bio-polymers to replace the

fossil-fuel based plastics currently used (Document B, 2011). They have found one possible replacement, but the bio-polymer comes from sugar cane, and they do not want to use any food source, this is a good example of the balance between pure environmental thinking and considering the civil society expectations. While they are still looking into other sources, they have started producing some products with these bio-polymers (Document F, 2011; Interview with employees B and C, 2013).

Company XYZ is also facing some limits in the area of product specification. To be more sustainable their category A products should use as little material as possible. But if there is not enough quantity of a certain components, the recycling process will not be economically viable and the product will not be recycled. The company therefore needs to find a good balance between the quantity of material used, the quality of the product and the value of the product when recycled (Document D, 2000).

#### **4.3.6 Sustainability department**

Just under 10 years ago, company XYZ created a specific, highly qualified and specified division inside the company: the environmental division. This is currently composed of about 25 people that have a permanent focus on the environmental issues. Most of these people are based in the same geographical area, but a few are based in other strategic geographical areas. This department now controls almost every sustainability-orientated action in the company, they assist the projects or other departments that require advice on environmental issues, they are responsible for defining the environmental strategies and they support the supply chain department of the company. Although they act in all of these areas, the main role of this department is to support the research and development activities, the marketing activities and the product management activities (Interview with employee A, 2013).

The environmental department deals with all of the environmentally related politics inside the company. They have successfully organised the whole of the company's environmental actions and decision making around a pole of a limited amount of people. This has been a good tool for the company to integrate environmental sustainability into the project management process and inside the activities of the whole company.

#### **4.3.7 Other achievements by XYZ**

The company XYZ has successfully implemented many solutions to be more sustainable over the time and this section will look at some interesting ones.

The company XYZ has teamed up with competitors to create an alliance, the role of this alliance is to benchmark their activities, communicate about the sustainability of their products and to contribute expertise to the EU policy, legislation and standard setting (ACE, 2013). It has also created partnerships with NGO's such as the WWF for their forest exploitation and wood sourcing and it participates in the United

Nations Global Compact, agreeing to respect a set of principles that include environmental principles (Document E, 2009).

Company XYZ has implemented small changes that seem to be well accepted and welcomed by the employees. For example to encourage people to cycle to work they offer a locked space to park their bike and they offer free repairs to the bikes. Every employee is welcome to contribute with ideas and suggestions on where the company can still improve. The office space is organised in a way that prevents useless printing, the employees have little personal storage space and they have laptops instead (Interview with employees B and C, 2013).

The company XYZ has many other areas that lead the employees to work more sustainably, and the company seems to be in permanent evolution to always try and be better, but there are always limits, financial, technological or others that slow down this process (Interview with employees B and C, 2013).

#### 4.4 Organisation of company XYZ

The following section will look at the organisation of company XYZ and how the communication and decision making related to environmental issues is dealt with inside the organisation.

The Figure 4.1 below illustrates a simplified version of the organisational chart. It includes the main communication flows in the area of sustainability decision making and communication.

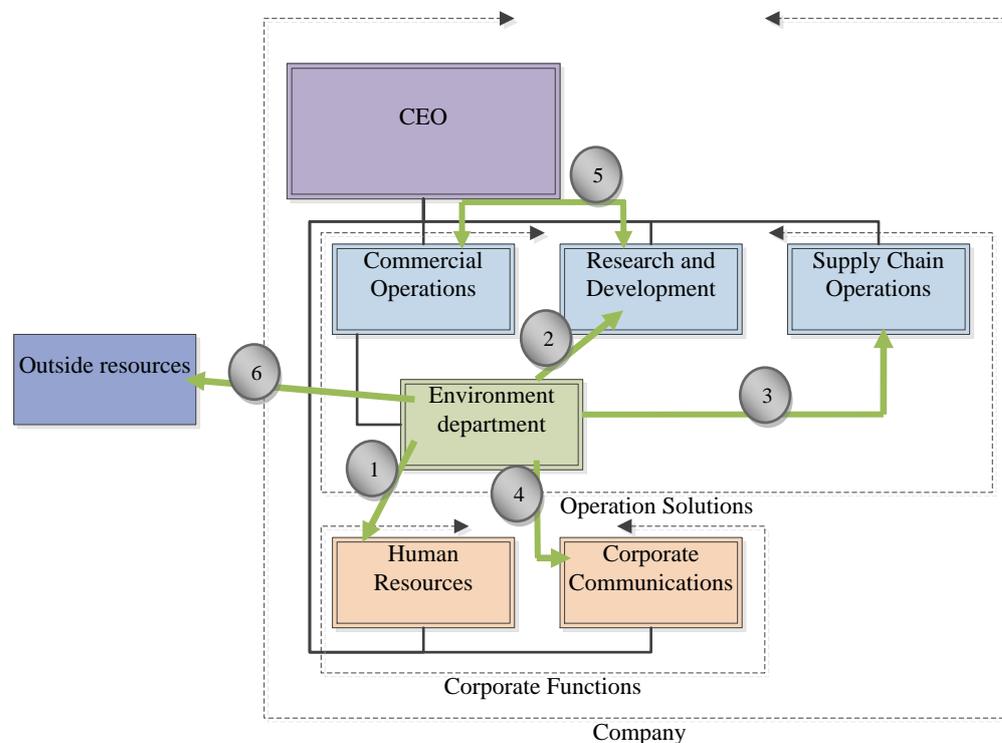


Figure 4.1 Simplified organisational chart of the company XYZ.

The people that were interviewed are all working in the departments represented in the figure, employee A works in the environment department and employees B and C work in the research and development department.

The environmental decision making process is as follows, the numbers are solely for reference purposes:

1. The environmental department produces training material for new employees
2. The environmental department has already created project standards that integrate sustainability  
The environmental department is present on projects (as part of the core team or as consultants)
3. The environmental department has created guidelines for the supply chain department
4. The environmental department helps with the communication around sustainability developments
5. Research and development proposes projects to commercial operations (the marketing department)  
Marketing makes the decision to start project or not by looking in the project fits the requirements of the organisation
6. The environmental department works with people outside the organisation for new ideas (conferences, new legislation etc...)

The environmental department does of course have a central position towards most of the environmental communication, the decision making and the new developments. This department is responsible for communicating the changes through various means. The company's strategy is normally communicated through intranet and various channels. Information on the environmental aims and the current changes are transmitted through the internal newspaper. The environmental department organises meetings and presentations throughout the organisation when there is something important to communicate. They also organise environmental trainings at request for other parts of the organisation. Having such a specialist pole of people inside the company XYZ has greatly helped with the company's expertise in sustainability and using this knowledge to improve the company.

## **4.5 What drivers have influenced XYZ to act more sustainably?**

Many drivers have influenced and still influence XYZ to act more sustainably. The following section will look into some of the strongest drivers that have influenced the company and how they changed.

The Figure 4.2 below sums up the strongest drivers that were discovered with this research. These drivers were found in various sources such as the interviews conducted (Interview with employee A, 2013; Interview with employees B and C, 2013), the environmental reports (Document D, 2000; Document E, 2009; Document F, 2011), presentations where the company presents its achievements and future plans

(Document A, 2011; Document B, 2011; Document C, 2011) and the company's webpage (XYZ's Website, 2013).

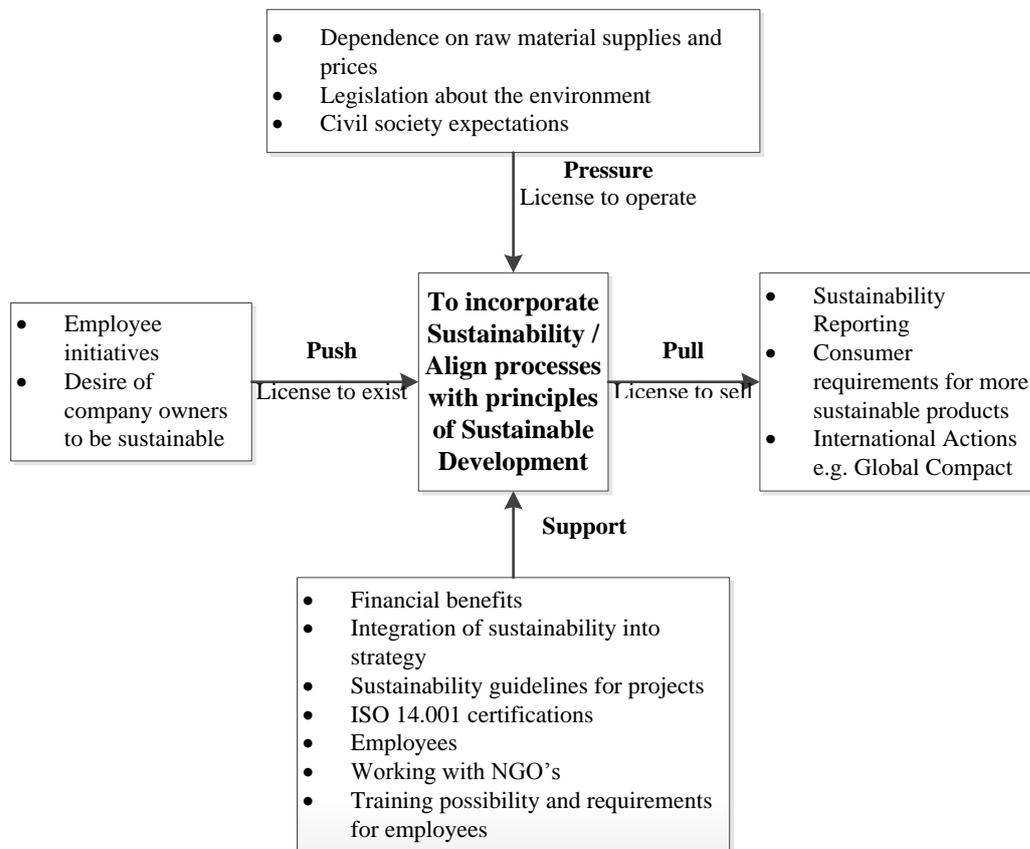


Figure 4.2 Major drivers that have influenced XYZ to work more sustainably.

Environmental behaviour was a great driver from the start of the company XYZ's change towards the integration of sustainability issues into the way that they work. Some people in the organisation took it at heart to perform sustainable projects. Although it was unstructured in the beginning, it created competitive advantage and boosted the environmental performance of the organisation from early on. The cost also became a driver early on, they noticed that by wasting fewer resources and reducing the material used, they could save money. Later on the company started seeing the larger picture and decided to start integrating environmental ideas into the strategy of the company. This led to the start of the rationalisation of the whole sustainability thinking inside the company, all of the employees could now start and get involved to help this change and they had specific targets to achieve (Interview with employee A, 2013).

In its official documents, the company XYZ divides its drivers in three categories: economic benefits, acknowledging and respecting the environmental issues and listening to their stakeholders. To achieve sustainable growth, the company uses the internal and external drivers to create their environmental strategy and set environmental targets, and then it takes action through projects to try to reach these targets. Resource depletion, climate change and water scarcity are strong drivers for XYZ to change. They are also heavily influenced by their stakeholders such as legislators, NGO's, retailers, customers and consumers. The internal drivers for the

company XYZ are the company's vision, mission, environmental policy and brand image. (Document A, 2011; Document B, 2011; Document C, 2011)

Their association with an environmental NGO's has been a great driver, it has allowed them to define their goals whilst including external stakeholders, to communicate and prove to the outside world that they are not acting alone and that they take the environmental issues seriously (Document F, 2011).

Overall the company has been influenced by many drivers, it has managed to include many support drivers but has also been influenced by push, pull and pressure drivers.

## **4.6 The importance of project management related to sustainability in XYZ**

XYZ permanently updates their products to fit the market needs via research and development projects. Their products are developed to have the smallest environmental impact possible, and as the company does many such projects, they are an important part of what XYZ does to improve its sustainability.

To ensure that projects do actually deliver sustainable results, the company has managed to integrate completely the environmental side of sustainability into the research and development activities. This was initiated before the creation of the environmental department almost 15 years ago, but was only used on some projects. They now have a specific custom process that they follow during all projects and the environment is a key decision making indicator that they always monitor and measure. This is much more efficient than the previous way of working that was driven by the employees. Depending on the size of the project, the project manager can select what is required from these guidelines, and if needed an environmental manager can be included in the project team as a consultant. The project management team is then responsible for finding solutions that fit the environmental requirements (Interview with employee A, 2013; Interview with employees B and C, 2013).

During the interview process, it became clear that the sustainable focus of the company during projects is on the deliverables. They do not focus as much on the process because the deliverables will have a much higher impact on the company's overall sustainability, added to the fact that the way of working inside XYZ tends towards being more sustainable, the concept of "sustainable project management" was not something that they seemed to have encountered before. The project team does not focus on sustainable inputs for projects as they have to follow the guidelines of the company and go through the purchasing department for anything related to the supplies.

There are of course limits to performing projects sustainably, the new developments are limited by technological barriers and the project team is limited by the limits of working inside the company XYZ such as the company's buildings that are up to 60 years old and not always energy efficient. The company remains a business, so doing sustainable projects is very important, but they still need to take into consideration the cost, quality, the consumer's requirements and other constraints when selecting the projects to undertake (Interview with employees B and C, 2013).

The company XYZ is currently in the process of selecting the projects to undertake to achieve their new strategic objective. They have a specific group of people whose responsibility is to put together this plan; this will be the project selection process. As their strategic goal is ambitious, a great focus will be given to selecting projects with sustainable outcomes. Some projects will be in-house, while others will be done in collaboration with the whole supply chain. The suppliers, the customers and the consumers are expected to change for XYZ to reach their sustainability targets (Interview with employees B and C, 2013).

#### **4.7 How does the company XYZ benefit externally from their achievements?**

To make the most of their actions related to sustainability, company XYZ has understood that it should communicate both inside and outside the organisation to make everybody aware of what they are doing. They currently communicate in many different ways both globally and locally, they put a lot of effort into this and they do so in a professional way. Locally they have a personalised newspaper about sustainability, they also have adverts and communications about recycling in the local newspapers and they organise activities with the local people to create awareness about what they do and as part of the recycling education. On a global level they have the environmental reports, their webpage has a lot of information about how they work with sustainability, their partnerships with organisations create a positive discussion around the company, they participate and organise conferences and the company transmits its message in many other ways. These means are vital to improve their chance to meet their goal which is to improve the amount of products that are recycled by the final consumer. (Document A, 2011; Document B, 2011; Document C, 2011; Document D, 2000; Document E, 2009; Document F, 2011; Document G, 2010; Document I, 2013; Document J, 2013; Document K, 2003; Document L, 2010; Interview with employees B and C, 2013; XYZ's Website, 2013)

The following section will look into the contents of three of the company's sustainability reports from 2000, 2009 and 2011 and their use as communication tools. The first report contains more facts; the following editions look like advertising tools. The 2009 and 2011 editions have many graphics, colours and pages with only pictures and no added value. The company XYZ does market research studies with the consumer to see how they select their products when thinking about sustainability. They use this information to see what areas the consumer finds important and they try to communicate more on these issues. These three reports were published as electronic versions thus saving paper. (Document D, 2000; Document E, 2009; Document F, 2011)

The creation of the first environmental report, referred to as Document D (2000) was a milestone in the transition of the company because to create the first report, the company has to be very aware of what they are doing. It discusses six main areas of concern for XYZ towards the environment: new product design; raw materials and supply chain; industrial operations; transport activities; customers, retailers, consumers and community; and waste management. The report from 2009 (Document E, 2009) discusses the supply chain, forestry, renewable materials, continuous

improvement and recycling. This report also includes a large section about social sustainability showing a change of focus of the information that it communicates about. This includes some topics related to the environmental sustainability outside the organisation: how XYZ works with its suppliers and customers to help them reduce costs and their environmental impact. The company XYZ's latest environmental report, published in 2011 (Document F, 2011), is similar in form to the previous report and the areas of sustainability that it discusses are XYZ's environmental strategy, their goals and achievements in the areas of carbon reduction, recycling, environmental innovation and their sourcing and use of natural resources.

In their first report, the most informative chapter is about the company's industrial operations. This is not their operations area with most environmental impact, but it is the area where XYZ has the most power to change and the most data to report. The focus depended not only on the area's high impact, but also on the areas that have more potential to be changed (Document D, 2000). In the report from 2009 the environmental issue that has received the most focus is the sourcing of the wood and the certification of their wood suppliers (Document E, 2009).

There is a shift in focus over time of the areas where the company reports about, the reporting about their industrial operations and their transport activities from the first report almost disappeared in the later reports. The discussion about the sourcing of their raw material has seen an increase in efforts and reporting, so has the social sustainability. And the focus on recycling is similar through time.

The report from 2000 gives some information about the targets for improvement but it focuses mainly on information about the past, giving case studies of what they have achieved or attempted. For example it describes how they educated external stakeholders to influence the supply chain, encouraging them to follow XYZ in their path to improve their environmental footprint. The report from 2009 is more about the general ideas behind why they do things with some case studies of good practice from the company. (Document D, 2000; Document E, 2009)

There is a trend towards more organised and simpler reports, in 2000 the report contained 13 pages about the industrial operations alone and in the latest report there are 2 pages per topic. The overall report also has fewer pages, with 38 pages instead of 52 for the previous ones. The more recent report looks more organised towards the message that XYZ wants to deliver and the focus is more explicit. (Document D, 2000; Document F, 2011)

## **4.8 Conclusion of the case study**

Company XYZ has successfully, over the years, managed to implement a sustainable project management methodology that they find satisfying. They now integrate the environmental dimension of sustainability in all of the phases of the project and have significantly improved their environmental impact. Interviewee C said that they found that it was very important to have individual people in the company that are motivated by environmental sustainability; these people can drive the company to change, even if the process is unorganised. Equally important is the requirement to have businessmen that understand how to make business about the changes. This is

required in order to really being successful in deploying what you have. Their next step has been to integrate sustainable requirements in the company's strategy statements. Then they worked on standardising the process of project management to systematically incorporate sustainability when working on projects.

They are now in a situation where environment is systematically considered with the inputs of the projects, the process and the deliverables. Now they focus mainly on the project deliverables as the impact can be a lot bigger than with the inputs and process. Sustainability is integrated in the three levels of the organisation, namely the strategic level, the methodological level and the operational level.

They currently work with their suppliers on some development projects, but also to help them achieve more sustainable processes creating a win-win situation.

Although the company XYZ has a great level of sustainability, they are fully aware that they still need to improve further, especially in developing new products. Areas where they can improve are in the development of new material (for example bio-polymers), reducing the quantity of each material in their products and making the buildings more energy efficient.

## **5 Chapter Five: Discussion and conclusion**

As the case study reveals, company XYZ seems to have a high level of maturity in its way of working towards sustainability and understanding these issues. When compared to the theory it has understood and worked on many of the areas discussed. The following chapter will compare the results from the literature review with the results of the case study, then it will answer the research questions and finally it will look into the limitations of this research and further research possibilities.

### **5.1 Comparing the results of the literature with the case study**

Overall, the company XYZ has followed many areas discussed in the literature, comparing the literature to the information about the company it is clear that the company has put a lot of effort in improving many parts of the organisation to be more sustainable. Comparing the history of sustainability discussed in the literature and that of the company the timeline in the Figure 5.1 was created.

This simplified timeline shows that the company XYZ has been working with sustainability issues for a long time when comparing to the general timeline. The first actions taken by the company are arguably not due to sustainability drivers but cost drivers (waste management and creating more efficient transport activities). The environmental thinking seems to start around the 1990's inside the company when changes start to result from environmental reasons and not financial reasons. When looking at the timeline, it seems that the company XYZ tends to react quite well and fast to large changes outside of the company. This could be one reason behind the apparent success of the company in benefiting more from support drivers than be pressured by other drivers.

When looking at some of the areas where companies have a large environmental impact, the company has effectively been working on trying to improve all four areas discussed under the Section 2.2: pollution and waste, consumption of energy and resources, transport activities and products. They have also been using similar indicators than those suggested in Table 2.2, such as “Reducing our energy consumption by 15% by 2005” (set in 2002) or “Reducing our carbon dioxide emissions by 10% before 2010” (set in 2005) and “Capping our carbon dioxide emissions at 2010 levels until 2020 despite growth”. These strategic objectives are all SMART and the company XYZ has only a few objectives at a time, one on the strategic level and sometimes others on a smaller level such as increasing the amount of renewable material in their products. They have also created targets that are related to increasing the consumer recycling rate and limiting the travel of both the products and the people of the company. Some of these targets were achieved, but some of them did not. Nevertheless, even when they did not meet their targets, the company often had some benefit such as starting the process of change and creating awareness on the particular issue. Sometimes the reason that they did not meet these targets is because they were too ambitious, and although they did not achieve what they desired, they could still have great improvements from trying. In the case study, the strategic

targets have been on a high level (global energy consumption or global carbon dioxide emissions) so to be successful they needed to implement a wide range of projects on all of their sites.

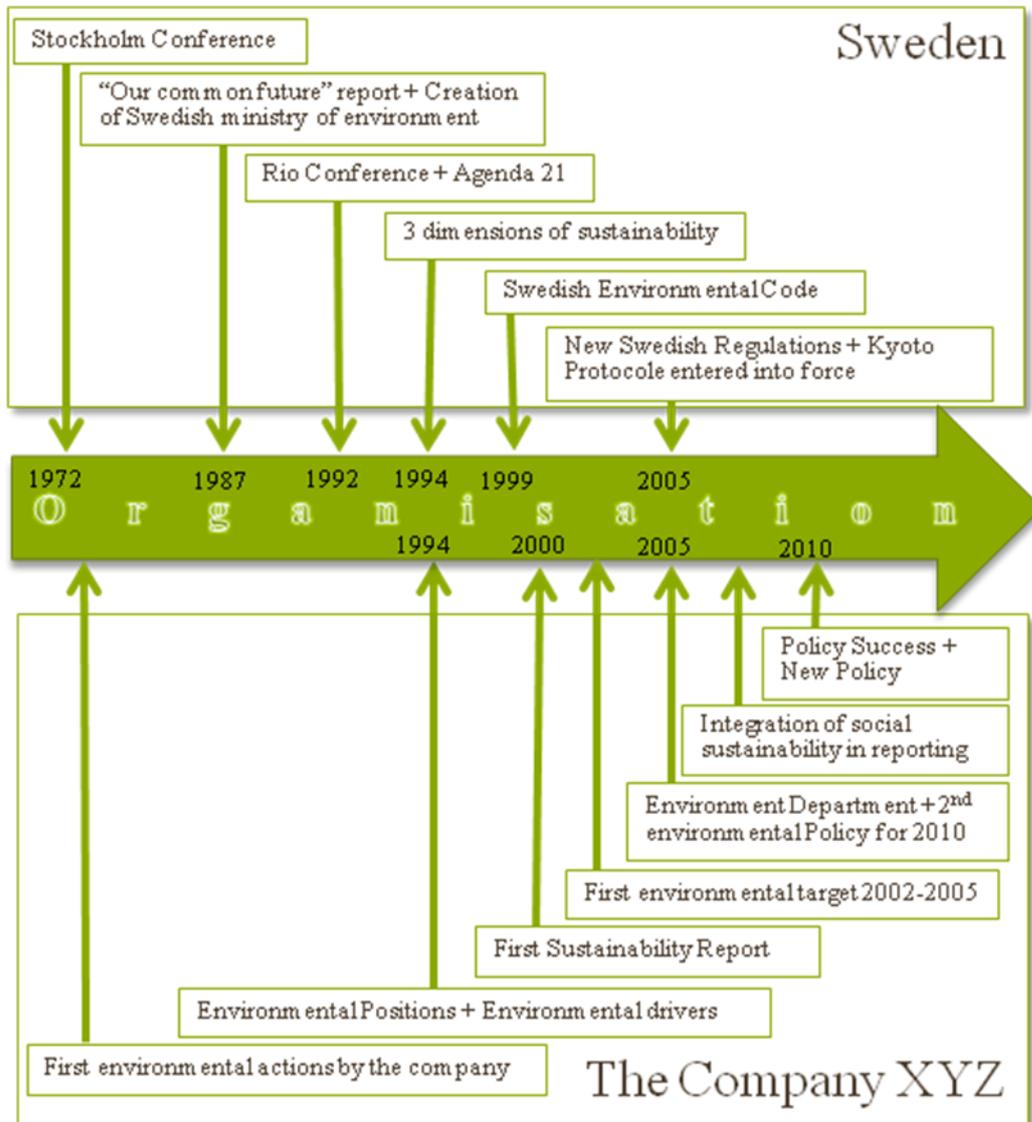


Figure 5.1 Simplified timeline of the history of sustainability in Sweden and in the company XYZ.

When comparing the drivers found in the literature and those discovered in the case study some of them are represented in both sections, such as the employees that push the environmental change, some literature describes this as one of the strongest drivers towards sustainability, the case study example confirms this. The pressure drivers that are described in the literature and have influenced the company XYZ are the civil society expectations, some legislation that was passed and the limitation of earth's resources. The pull drivers that have influenced the company are the customers and consumers demands for sustainable products, the company's sustainability reporting and the company's association with various organisations such as the Global Compact. The company XYZ communicates massively about their environmental credentials to benefit as much as possible from their actions. The support drivers that

the literature describes that have influenced XYZ are the company's sustainability frameworks that are represented in their strategic plan and the way that they work related to sustainability, also the technological progress that has allowed the company XYZ to produce machines that consume less resources and finally the employees that act positively and proactively towards a change to be more sustainable.

The case study seems to integrate what is described in the literature, but some areas are different. The owners push the environmental change, but the literature only considers outside investors, it does not talk about the real advantage of the business being privately owned. In the case of the company XYZ it has been a major driver for them, first because the owners are motivated by the change towards sustainability, but also because this allows the company to focus on long term goals and the short term profits are not as important as they do not have to pay dividends to their shareholders.

The literature describes NGO's as being pressure drivers, but the company XYZ has actually teamed up with some of these organisations and transformed this to a support driver.

As the company XYZ has been an early player in the whole sustainability discussion, they started improving the way that they work from early on and were therefore not as influenced by the pressure and pull drivers. This seems to have made the whole transition easier for them, as they were in fact doing these changes because they wanted to not because legislation was forcing them to. Of course they were still influenced by some of these drivers, such as the customer requirements and some legislation, but the impact of these drivers and the changes that result from them would not have been as important as for other companies that did not focus on these environmental issues before. Having a formation for every new employee about what the company does in the area of sustainability, encouraging them to suggest changes and offering more training if they require is also good. This allows them to involve all of the company's employees and make sure that they know what the company is doing and what its goals are for the future.

There are many limits to being sustainable, the limits described in the literature that have influenced the company are for example the cost: the company XYZ does invest a lot of money to try and be more sustainable, they spend money on cleaner energy and on research and development projects to create more sustainable products or even bio-polymers. Some of these projects do not deliver and others are rejected before they start. As a company, even if they have a focus on long term goals, they need to consider the financial aspect of doing business. The literature discusses one limit as being the lack of trust from the consumer towards the product or company and the claims about their products. This seems is true for a very small portion of the consumers of XYZ's products, they prefer substitutes that are easier to recycle and they claim that the environmental qualities of XYZ's products are only valid if they are recycled after use, and a lot of them are not. But this only concerns a minority of people and it was published on a website of people that are heavily involved in environmental issues and it does not seem to impact the business of XYZ on a large scale. They participate in some activities that do not only get good press, such as the Global Compact and carbon offsetting activities. Nevertheless, the company XYZ is proud of what it does in these areas and does not discuss the limits. This could be bad for example if the company does too many carbon offsetting activities and uses them as a reason to pollute more whilst selling its business as "carbon neutral".

On the other hand, the people in the company XYZ do not seem to resist the change as the literature suggests could happen, they are trained to work more sustainably and to accept and even participate in any change that can happen. This can facilitate the implementation of changes that will affect the way that employees work.

To achieve all of its sustainability related goals, the company XYZ has proceeded on different levels. It has created strategic goals to reach, it has created an environmental department to help the whole organisation in dealing with these issues and it has created procedures on how to work more sustainably. The whole supply chain is integrated in the life cycle assessment and it has implemented simultaneous changes on the three levels described in the Section 2.5.1: the strategic level, the process level and the operational level. To implement these changes, the company XYZ undertakes many projects with sustainable goals and deliverables. On some projects they have also been working with competitors. All of this was suggested in the literature except the benefits related to the creation of a specific pole that is specialised in sustainability.

This environmental department seems to be one of the great strengths of the company XYZ and thanks to this pole anybody in the company can easily access specialist advice on topics related to the environment. This pole was integrated into the company to create a clear decision making process and communication procedures about sustainability related topics inside and outside of the company. The people inside this pole help during projects as environmental consultants to make sure that projects do not lose track of their environmental goals. Although the literature does not talk about integrating such a pole, it does discuss using environmental consultants; this could be a solution for smaller organisations.

During their projects, the company XYZ does have procedures when selecting the inputs such as the suppliers or the material that they use during their projects, but these procedures are not project related, they are valid for any activity inside the company. The process of managing projects is very specific and was created by the company XYZ to fit their needs. It has integrated the environmental dimension wherever it is required throughout the projects. Other parts of the process of managing projects are also related to the way of working inside the company such as the limits on business related travel or printing. When looking at the deliverables, they often look at creating new products that are more sustainable than previous products.

The company XYZ started working on sustainability a long time ago, and not much literature or other examples were available to them at the time so they had to actively search for solutions to their problems. This resulted in extra costs and time required to develop suitable solutions, but it has been beneficial as the solutions that were developed are fully understood by the company and it allowed them to achieve a high maturity today.

The company XYZ has been communicating heavily about its sustainability successes and plans for the future. It publishes sustainability reports that look like commercial brochures and it updates them regularly. It also uses other ways to communicate its achievements inside and outside of the company. The company has certified all of its sites with the ISO 14.001 certification to prove that they actually do respect certain requirements. This has permitted the company to create a good brand reputation towards sustainability.

One limit that is not discussed in the literature is the correct disposal of XYZ's products after the consumer has used them, XYZ would like to get high recycling rates, but this depends on the consumer. Working with the whole supply chain on being more sustainable can lead to challenges that are not under the company's control.

Overall a lot of what the company XYZ has done to get to their level of maturity related to sustainability was described in the literature, two main gaps were however discovered, the first is the benefit of being a privately owned company and the second is the importance of having a responsible and experienced sustainability department inside the company.

For a company with such a good maturity in sustainability, it was surprising that the interviewees were not aware about "sustainable project management", but the case study revealed that they did not need to focus on this as their work conditions lead them towards sustainable project management.

## 5.2 Conclusion

The goal of this report was to establish the link between projects and project management in the implementation of sustainability in a company. Here is a summary of the findings including the answers to the research questions.

What are the possible drivers for businesses to act more sustainably? How and why do they change with time?

Businesses are driven by various internal and external stakeholders to act more sustainably, some of them will be strong drivers, others will have a smaller influence. The drivers are different for each organisation and it is important to understand what the stakeholders want before rushing into any kind of change project. The drivers and the stakeholders change with time: when a new legislation is passed, when the company expands and needs to consider the new local requirements, when a new scientific discovery related to the company or its activities is made, after any sort of crisis (economical, environmental or political) there will be new drivers that appear and old drivers that disappear. Drivers may require fast change, and it is not always possible to change fast with reasonable cost. But they can also be good if the company uses them well and respects the desires of the stakeholders. In the company XYZ the first drivers were cost drivers, then environmentalist behaviours, then there was a wave where everything was standardised and the last step was marketing their achievements. As XYZ was quite advanced in the area of sustainability, many of the drivers were support drivers instead of pressure or pull drivers; this would most probably be different for a company that is not as mature in the area of sustainability.

How to use these drivers to change to a more sustainable business? What is the role of projects and project management in this change?

The company XYZ set a strategic target that was focussed on the environment, after, project managers are at the heart of the change as they define and implement the solutions that contribute towards this strategic target. The changes happen on different

levels, they have developed new procedures and they constantly develop new products that are more sustainable. Creating a sustainability pole inside the company has also helped them a lot to be experts on the environment as a company. Setting targets to reach should be at the same time ambitious, to actually have an impact, whilst remaining realistic to increase the chances of meeting them.

How can businesses that implement such change extract the most benefits from it? What are the limits and drawbacks to working sustainably?

To generate the most benefits from this environmental change, the company XYZ communicates heavily about its achievements, to a point that it is now recognised as a sustainable company that sells sustainable products. There are many limits to this, and they have not always reached their goals, but today the company XYZ is mature when it comes to sustainability. The drawbacks to working sustainably are that people often resist change, there is a cost related to the change and sometimes the change projects fail to deliver.

### **5.3 Limitations of the research and further research possibilities**

The method used to answer these questions was fairly adapted, but the data collection was limited as most of the references from the case study are directly from the company XYZ and the employees are not representative of the regular employee in the company. The case study could have been more critical if more external resources and references were available.

The case study only covers one company that happens to have over-average sustainability and seems to adapt fairly easily to new demands. The results are limited and would be different with any other company with different maturity, working in a different area, with more variety of products.

To develop the results of this research, it could be possible to add the experience of other companies that are in a different stage of their focus on the integration of sustainability: some that are just starting it, some that have been working with it and are starting to implement the changes and some companies that are created with a goal of being sustainable from the very start. From this it could be possible to create some framework for project managers to follow with suggestions on the type of changes that have been successful for other organisations. This could also help understanding if it is easier to achieve a better sustainability by doing small changes over a long time period or doing large changes in a shorter time period.

Other research could be done on analysing the importance of having an entire team of environmental experts inside the company and what their relations should be with other departments of the company and during projects to help the organisation in the best way. It is also possible to look at a point where it is beneficial for a company to include this team inside the organisation rather than use environmental consultants from time to time.

Looking into the further research possibilities related to the project management process, it could be possible to look into the relation of the project management process maturity and the ease of integrating sustainability into the process. Another area of possible research would be looking at how it could be possible to integrate sustainability into the project management process of an organisation that uses project management standards like the APM Body of Knowledge.

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