

**Building a business case for the environment:
What's strategy got to do with it?**
The case of Volvo Car Group.

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Thesis for the fulfilment of the
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“Comply” is not a vision.

– *Ray Anderson (1934 – 2011)*

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*You're off to great places!
Today is your day!
Your mountain is waiting,
So... get on your way!*

– Dr. Seuss

Abstract

Under an action research paradigm, this thesis project explores the business potential of an environmental strategy and assesses the formulation of such a strategy implemented by an automotive original equipment manufacturer. Because of the heterogeneous nature of a company's approach to environmental issues due to inter alia managerial conducts and company culture, this article provides an in-depth study and explorative analysis on a single-case rather than performing a meta-analysis. The single-case was performed on Volvo Car Group. After considering the intensifying environmental pressures in the automotive industry together with society's quest for sustainable development, the results of this study revealed that having an environmental strategy at Volvo Car Group, hereafter referred to as Volvo Cars, has potential for delivering benefits of tangible and intangible nature considering the company's Swedish heritage, values, unique brand strategy *Designed Around You*, and progressive approach to business in an otherwise conservative industry. However, the results also revealed that the current strategy in place is not reaching this potential. The results from the current strategy's assessment indicate that the environmental strategy is inter alia: (a) at risk of falling by the wayside due in part to a lack of engagement from key stakeholders; (b) in need of strategic reformulation; (c) requires a stronger business approach and further integration within the company's core business. Recommendations for how Volvo Cars should approach these results have been provided within the context of this thesis project. The primary objective of this exploratory study is to brief the Executive Management Team at Volvo Cars on the research results related to the environmental strategy in question. Research was conducted performing cycles of change with key stakeholders at the company including those developing the strategy and those leading the company. The analysis of the environmental strategy identified the key issues and key variables deemed significant for the case. After discussing the theoretical and tangible results, the exploratory study attempts to provide responses to the following questions: How can an environmental strategy be formulated and implemented to make Volvo Cars more efficient and effective in its environmental work? To what extent is Volvo Cars' environmental strategy strategically formulated and implemented? Under which circumstances is the environmental strategy currently delivering benefits to the company? Recommendations for the reformulation of the strategy and areas for further work and research are presented to the client in the Executive Summary and final sections of this paper. The research may act as guiding material for other companies, academics, or any other parties interested in the formulation and implementation of environmental strategies that maximize benefits for firms.

Keywords: environmental strategy, environmental management, automotive industry, sustainable development, manufacturing operations, single case study, action research

Paper type – Master of Science thesis project

Executive Summary

According to academic literature, the green and competitive debate continues to shape business approaches to environmental issues at firms worldwide. Although there have been major advances in environmental management over the last few decades, the environment continues to be perceived as a cost in business rather than treated as a business matter with trade-offs like any other. Strategies have been developed to support companies facing intensifying environmental pressures so that they may better manage these issues; however, many such strategies fall to the wayside due in part to the gap between “what (not) to do” and “how (not) to do it”. Volvo Cars, the Swedish-made premium automobile manufacturer, is an example of such a company that has been part of this debate and has recently encountered this gap with its corporate environmental strategy.

Purpose – The purpose of this paper is to investigate the manner in which an environmental strategy has been implemented by the automotive original equipment manufacturer: Volvo Cars; the newly stand-alone Swedish company whose core values are safety, quality, and environment. Central to this research is the problem that the environmental strategy, like so many other strategies in business at large, has lacked the engagement of key stakeholders and is at risk of falling by the wayside. In order to explore the extent to which the environmental strategy has been implemented at the company, the research identifies examples of environmental work across the company since the strategy was first implemented in 2010. A literature review with focus on strategic environmental approaches and strategies enabled the assessment of the formulation, development, and implementation of the company’s environmental strategy by means of comparative analysis. Not only does this paper investigate and assess the environmental strategy itself, but it also investigates the circumstances under which tangible and intangible benefits may be derived through effective implementation of a properly and strategically formulated environmental strategy. The results of this research are meant to contribute to Volvo Cars’ review of its environmental strategy by providing the company with clarity and knowledge on inter alia: (a) how to integrate the environment within business thinking; (b) how to explicitly formulate strategies that pursue both environmental performance and financial performance; (c) how to identify the status of the company’s environmental strategy on a sequential scale from “deny” to “proactive”; (d) what the current situation is at the company with regards to its environmental strategy and its core value environment. The results feed into the aforementioned knowledge gap on “what (not) to do” and “how (not) to do it” regarding environmental strategies as well as touching upon what companies *say* they do with what they *actually* do. In order to narrow the scope of the investigation and navigate the research, the following research question was defined and divided into two sub-questions:

How can an environmental strategy be formulated and implemented to make Volvo Cars more efficient and effective in its environmental work?

- *To what extent is Volvo Cars’ environmental strategy strategically formulated and implemented?*
- *Under which circumstances is the environmental strategy currently delivering benefits to the company?*

Design/methodology/approach – A review of literature enfolded (1) treating environmental issues as business issues; (2) five generic strategic environmental approaches available in business with examples; (3) the term and concept of strategy; (4) strategy formulation; (5) categories of environmental strategies; (6) the automotive industry’s significance. Volvo Cars’ environmental strategy was then compared with the academic literature. The literature review provided a framework upon which the research was delimited.

Using this framework, Volvo Cars' environmental strategy was placed within the context of the five generic strategic approaches and the definitions of strategy. The research was performed under an action research paradigm seeing as developmental change and efficiency growth problems were central to the case. Top-executives together with strategy developers and implementers participated in focus groups, semi-structured interviews, and a self-completion questionnaire to explore and reveal the strategy's current situation. A qualitative analysis captured and represented the perspectives of the informants upon which the findings, conclusions, and final recommendations are built.

Findings – This exploratory investigation revealed that Volvo Cars, like all other automotive manufacturers, is facing intensifying environmental pressures and is increasingly having to consider the environment in its business practices. Volvo Cars' position as a relatively small player in the industry combined with its Swedish values and heritage may act as supporting factors for the company's resilience to such pressures; furthermore, there is evidence to suggest that Volvo Cars' does treat the environment as a matter of business like any other to a limited degree. This company approach provides further leverage for the company to build its business case for the environment as a sustainability-driven company. While stakeholder expectations of environmental work increase, the company may seek to leverage upon its environmental strategy together with its position and heritage. In order to do so, the strategy in place must be strategically formulated and active within the context of Volvo Cars' core business; otherwise the strategy may flounder. According to the results, however, the environmental strategy is largely unknown at the company, is currently not strategic, and is at risk of falling by the wayside at the company. Evidence from the collected data suggests that the following circumstances are responsible for this lack of strategic formulation and lack of overall awareness at the company:

- (a) There has been little attention, engagement and leadership from key-stakeholders such as top-executives; this may due to the current formulation of the strategy;
- (b) The current strategy's formulation is complicated and is in need of simplification to keep the key stakeholders and strategy areas strategic, active and focused on the core business;
- (c) No distinction has been made between strategic areas and areas of operational effectiveness;
- (d) No common reporting or measuring system is in place to track the activities and accomplishments related to the strategy; consequently, this places limitations on inter alia the communication of substantive environmental activities and the strategy;
- (e) The environmental strategy is weakly integrated within the core business and corporate strategy: *Designed Around You*;
- (f) Diverging views exist regarding if the environmental strategy should be used to add economic value or not.

Research limitations/implications – The limitations of this paper begin with its selection of a single-case study due to Volvo Cars' request for an in-depth study on the environmental strategy in question. The scope of the investigation was initially delimited to manufacturing operations; however, because of the exploratory nature of this study, the resulting outcome was an analysis on the entire formulation of all three parts of the strategy: operations, product, and communications. In doing so, this paper may act as a supporting document in the company's sustainability work in the future. Furthermore, this paper's scope was delimited to

the concept of strategy; however important, organizational and stakeholder theory were outside of the scope.

Originality/value – The originality of this paper is evident within its in-depth and up-to-date analysis of a single-case study. Previous research has focused largely on corporate environmental performance disclosed in company environmental reports. Furthermore, existing literature acknowledges that environmental strategies in firms tend to have a heterogeneous nature due to varying company approaches and, therefore, should be studied in an in-depth manner. This paper is unique in its attempt to bridge a knowledge gap in business and a research gap in scientific literature together with the assessment of an environmental strategy’s formulation and implementation at Volvo Cars. The paper offers value for Volvo Cars as well as other audiences interested in the legitimacy of environmental strategies in firms and the circumstances that enable benefits to be derived.

Conclusion & Recommendations – Due to intensifying environmental pressures such as air pollution, resource scarcity, regulations, and stakeholder expectations, it is of no surprise that environmental strategies are increasingly being designed to diminish the impact of firm products and processes. Furthermore, such strategies are being developed to support firms in addressing the ongoing green and competitive debate with both symbolic and substantive actions at play. An environmental strategy at Volvo Cars has potential to support the company should it choose to use it as leverage for competitive advantages; however, the findings suggest that the current strategy is not such a leverage point as it is largely non-strategic and is in need of reformulation and development. Through cycles of change, the research process has had an effect as it has stimulated the reformulation and reimplementation of the environmental strategy at Volvo Cars among strategy developers and implementers; the formulation of Volvo Cars’ environmental strategy 2.0 has now begun. While formulating this strategy, the research provides Volvo Cars with recommendations in support of this new development including, but not limited to:

- (a) INCREASE commitment and leadership from top-executives; executive backing is perhaps one of the most crucial aspects to having an active, effective, and integrated strategy;
- (b) IMPLEMENT a common measuring and reporting system to track environmental achievements and measure the environmental work at the company (see Quality at Volvo Cars); hidden-opportunities may unveil themselves as a result;
- (c) EXPLICITLY and commonly define the environmental strategy so that Volvo Cars may relate to it; this includes clear links to the core business, distinctions between strategic areas and areas of continuous improvements, realizing trade-offs, and actively choosing what not to do (the fundamental building blocks of strategy);
- (d) USE strategic environmental approaches to business; for guidance, use one or more of the five generic approaches described in the research to concoct the circumstances necessary for the strategy to deliver intangible and tangible benefits;
- (e) IDENTIFY “material” issues most relevant for Volvo Cars and quantify the relationship with financial performance;
- (f) HEIGHTEN internal and external communication of environmental work; this can be used to stimulate awareness, interest, and demand for more environmental work at the company;

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Abbreviations

AR – Action Research

CSR – Corporate Social Responsibility

Dfe – Design for environment

EM – Environmental Management

EMT – Executive Management Team

EMS – Environmental Management Systems

EU – European Union

GRI – Global Reporting Initiative

ISO – International Organization for Standardization

LCA – Life-Cycle Analysis

MBI – Market-Based Instruments

NGO – Non-Governmental Organization

OEM – Original Equipment Manufacturers

OE – Operational Effectiveness

PLI – Product Lifecycle Initiative

PS&VLM – Product Strategy and Vehicle-line Management

R&D – Research and Development

TPS – Toyota Production System

US – United States

WTP – Willingness-to-pay

1 Introduction

ENVIRONMENT – A GROWING GLOBAL CONCERN

During the past half-century, citizens across the world have become increasingly aware and interested in the anthropogenic effects on their heartlands and hinterlands. This increase in awareness can be associated with the relatively recent interest, abundance and accessibility to media and scientific literature focusing on environmental impacts and sustainable development; such literature includes inter alia reports by the Intergovernmental Panel on Climate Change, the Brundtland Report of 1987, as well as the celebrated and commonly referenced nonfiction book of 1962 entitled *Silent Spring* by Rachel Carson. Together with disruptive and sustaining technologies such as the internet and personal electronic devices, interested citizens around the world have undeniably more accessibility to such material than ever before and this has aided in the spread of this interest, awareness, and pro-environment demands on a global scale. As today's environmental issues mount, society at large is increasingly and incessantly engaging in a dialogue regarding the services that the environment provides which facilitate our consumption and the concept of 'sustainability'.

ENVIRONMENT – AN ECONOMIC DEMAND

Since the latter part of the 1990s, the link between environmental and economic concerns has become progressively evident and the interest in sustainable development and ecosystem services in both research and policy has grown rapidly (Ambec & Lanoie, 2008; Costanza et al., 2014). Most recently, research conducted by Costanza et al., (2014) valued ecosystem services and suggested that the global value estimate on total global ecosystem services was found to be US\$145 trillion/yr. Furthermore, the loss of ecosystem services due to land use change was estimated between \$4.3 and \$20.2 trillion/yr. Based on these values and other supporting academic literature, it is evident that today's extreme consumerist demands in society do not pay the full-cost of the supply of resources and are likely to eventually experience the aftermath of mounting costs related to the loss of eco-services. With the availability of valuation methods comes a tool that can help to put a price on the priceless (Raingold, 2011); such methods enable the placement of monetary value on ecosystem services, which consequently may realize resource scarcity and externalities in today's market-based economy. Such terminology is now being embraced by a number of parties such as economists, policy makers, academics, and high-level managers in firms. Not only has the dialogue on the environment developed with a relatively new lexis and economic significance, but it has also stimulated changes in consumer and legislative demands that put pressure on firms to implement environmental practices, propose green products or services, and to minimize their ecological footprint (Albertini, 2013b; Ambec & Lanoie, 2008). In response, most firms subject to this pressure have reacted by adopting environmental management (EM) that encompasses a firm's technical and organizational activities so that it may meet such demands (Albertini, 2013b). Firms in the automotive industry are examples of those facing such intensifying environmental pressure and that have had to adopt EM as a license to operate, particularly in the United States (US) and Europe. With over a billion passenger cars on the planet and with 72% of passenger transportation in the EU-27 alone depending on them (Backhaus, Breukers, Mont, Paukovic, & Mourik, 2012), the automotive industry is a player at the global level with intensifying economic, environmental, and social implications. While environmental regulations tighten and consumer demands continue to shift, key players in the industry may seek to develop new ways to attract inter alia employee

competencies, suppliers, and investors, that support future mobility solutions; solutions that embody distinct environmental offerings, thus supporting society's recent quest for sustainable development.

PROBLEM STATEMENT

Demands for considering the environment in business practices have largely been on the rise since the environmental movement began in the 1960s. In response to these demands, firms have been developing strategies to support the management of tightening environmental regulations and shifting sales conditions in hopes of keeping ahead of, or up with, the wide-ranging and transformative changes likely to occur (McKinsey, 2013). According to McKinsey (2013), this is particularly relevant to automotive original equipment manufacturers (OEMs). When firms design strategies to manage such changes in demands, many such strategies fall by the wayside to be surpassed by new, more engaging strategies; moreover, when firms design strategies to manage environmental demands, a noteworthy risk lingers in addition to the risk of a strategy falling by the wayside.

According to academic literature, treating environmental issues as business problems may sound straightforward, however, the link between EM and financial performance is not (Albertini, 2013; Eccles & Serafeim, 2013; Reinhardt, 1999). This nebulous link causes trouble for many companies attempting to design strategies that stimulate answers to "Does environmental performance affect financial performance?" (Horváthová, 2010); "Does it pay to be green?" (Ambec & Lanoie, 2008); "When does it pay to be green?" (Orsato, 2006); and "When and how does it pay to be green?" (Reinhardt, 1999). In the midst of managing changing demands and low operating margins, companies may begin to address issues that are not relevant to, or that do not effectively work with, the company's corporate strategy and operations (Eccles & Serafeim, 2013). Furthermore, companies who take this approach may continue to regard the environment mainly as a matter of corporate social responsibility (CSR) or a cost, rather than approaching it as a business matter like any other that has trade-offs like any other.

Not only might companies be investing in unnecessary activities, they might also be missing a clear understanding of the trade-offs that exist between financial and environmental performance. The result of this lack in understanding may lead to a company to be penalized for dismissing environmental initiatives, thus leading to missed opportunities in inter alia resource efficiency, environmental differentiation, risk management, or cost savings. This problem is especially relevant for firms that are in conservative industries subject to high environmental pressures such as the automotive industry.

Volvo Cars, being an automotive OEM, is subject to this problem as it attempts to conform to environmental pressures and is built upon a conservative business model that relies on a product with high environmental impacts. Should a company like Volvo Cars wish to successfully improve its corporate environmental performance simultaneously with financial performance, trade-offs need to be realized and business principles need to be applied habitually to its EM. As Reinhardt (1999) once stated, "[common business assumptions regarding the environment] can all be overcome. If executives bring to environmental decision making the same kind of optimism, opportunism, analytic thinking, and openness that they instinctively bring to bear on other business problems, both their companies and the environment will benefit" (p.151). The basics of business should not change when the word "environment" is included in a business proposition.

Volvo Cars requested this investigation be performed on its environmental strategy as its developers and implementers suspected a lack of engagement from key stakeholders. The research, therefore, seeks to investigate the extent to which an environmental strategy is currently benefitting, and can benefit, Volvo Cars as (a) a newly stand-alone automotive OEM facing intensifying environmental pressures and (b) as a company with a self-stated mission to strengthen its commitment to the environment. The research explores how the company's current environmental strategy addresses the defined problem and assesses if the company's strategy approaches the environment (a) as a business matter (b) strategically, and (c) addresses the interests of key stakeholders such as investors, customers, employees, non-governmental organizations (NGOs), governments, and society at large.

OBJECTIVES & QUESTIONS

The purpose of this research is to investigate and assess the formulation and implementation of an environmental strategy developed by the automotive OEM Volvo Cars. This paper addresses the problem that an environmental strategy, like so many other strategies at large, is at risk of falling by the wayside due in part to the lack of engagement from key stakeholders. Furthermore, the investigation attempts to assess the circumstances under which an environmental strategy may stimulate actions that deliver benefits of tangible and intangible nature to the company and its stakeholders.

The paper also responds to the call for in-depth studies as most studies found in the literature focus on a broader analysis of firms and largely source their information from published environmental reports and company webpages. Furthermore, this paper attempts to fill the gap in the literature between "what to do" and "how to do it" (Nunes & Bennett, 2010; Orsato, 2006). Through the use of the single-case study on Volvo Cars, this paper attempts to (a) fill the gap between what a company is actually doing internally and what a company says its doing in external reports; and (b) identify what Volvo Cars is doing now and how it should do things in the future regarding its environmental strategy.

One objective of this research is to fill part of the aforementioned research gaps with regards to the extent that environmental strategies are actively implemented in a company and attempts to provide Volvo Cars with a list of actions that may enable such a strategy to capture the value of its current environmental work with focus on operations. A second objective is to use an inductive approach on a case study to explore an environmental strategy in-depth and understand how a particular company's environmental strategy may be developed to stimulate valuable actions for the business.

The research question was defined as the following:

How can an environmental strategy be formulated and implemented to make Volvo Cars more efficient and effective in its environmental work?

To simplify the research, the research question was broken down into two sub-questions:

- *To what extent is Volvo Cars' environmental strategy strategically formulated and implemented?*
- *Under which circumstances is the environmental strategy currently delivering benefits to the company?*

RESEARCH METHODOLOGY

Phase I of action research framed the research approach together with an emic focus and purposive sampling. The methodology chosen for the intended research purposes included three steps: (1) a literature review; (2) a single case study using the first two cycles of action research; (3) a comparative analysis between the case study findings and the literature review. These three methodologies facilitated a broader analysis on environmental strategies and thus shaped the responses to the defined research question.

Literature review

Overview

The literature review began primarily by assessing work by Forest L. Reinhardt on environmental business investments, Michael E. Porter and Henry Mintzberg on strategies, and more recently, work by Elizabeth Albertini on environmental strategies, and work by Robert G. Eccles and George Serafeim on strategy formulation. These six were chosen due to their unique work in the field of strategy, environment, and business, as well as the highly applicable nature of their work to business in practice. Although work by Porter and Reinhardt is dated, their work is of significant value due to their distinctive findings as well as the prominence of their work in business acumen today.

Purpose

The purpose of the literature review was to (1) explore the debate on business and the environment that goes beyond the simplistic and commonly used questions: “Does it pay to be green?” and “When does it pay to be green?”, (2) investigate different stages of environmental strategies, (3) realize trade-offs between financial and environmental performance, and (4) identify theoretical frameworks that suggest how to create a performance enhancing and balanced environmental strategy.

Method

Secondary data collection included supporting literature which was retrieved primarily through use of the Lund University Library search engines and databases, as well as other internet search engines available to users. In order to facilitate the review and later analysis, the literature was categorized as follows:

1. Environment as a business matter: Literature that touched upon integrating the environment within business practices and treating it as a business matter with trade-offs like any other.
2. Environment & strategies: Literature that explored strategy in general and environmental strategies. Moreover, this category included literature that identified the difference between operational effectiveness and strategy, literature that outlined and delineated the formulation of strategies, and literature that proposed theoretical frameworks for strategies that boosted both environmental and financial performance.
3. Formulating strategies: Literature that delineated the formulation and implementation of strategy. This category allowed for the researcher to assess the best practices of strategy formulation and implementation with regards to an environmental strategy.

4. **Benchmarks:** Literature that explored firms that have implemented a type of strategy or strategic approach that has enabled the company to treat the environment as a business matter and derive tangible and intangible benefits from such a strategy.

An assessment of the literature's applicability to the case-study was performed and the strengths and weaknesses of literature methodologies were noted during the process.

Single case-study

Overview

Due to variability in managerial behavior, knowledge, and organizational characteristics, environmental strategies in firms tend to have a heterogeneous nature (Albertini, 2013b). Because of this tendency towards variability and heterogeneity in environmental strategies, there is a constant need in academia to fill the scientific research gap between dated and current single-case studies on this subject; such case-studies provide the building blocks for further research, such as meta-analyses studies, in the future. Furthermore, there is a constant need in business to breach the knowledge gap on the formulation and implementation of strategy. Therefore, a single-case approach was chosen because of two main reasons: (1) a research gap was expressed by academia for in-depth individual studies to better understand conditions under which environmental-related investments influence profitability and (2) a knowledge gap was expressed by business on the formulation and implementation of an environmental strategy at Volvo Cars.

Purpose

The purpose of this single-case approach to research was to (1) perform a deep dive on a contemporary environmental strategy in the automotive sector; and (2) test its significance in the company as well as the circumstances required for it to derive benefits. This case is unique due to the company's current situation. Since 2010, Volvo Cars has been a stand-alone company and thus has more freedom and independence now than ever before in the company's history. The fairly recent changes in company organization and corporate strategy have stimulated a movement within the company to distinguish itself as a Swedish brand. Together with a new company vision and mission, as well as a differentiating corporate brand strategy, the timing for the reassessment, development, and reimplementation of the company's environmental strategy gives cause to perform this single-case research study.

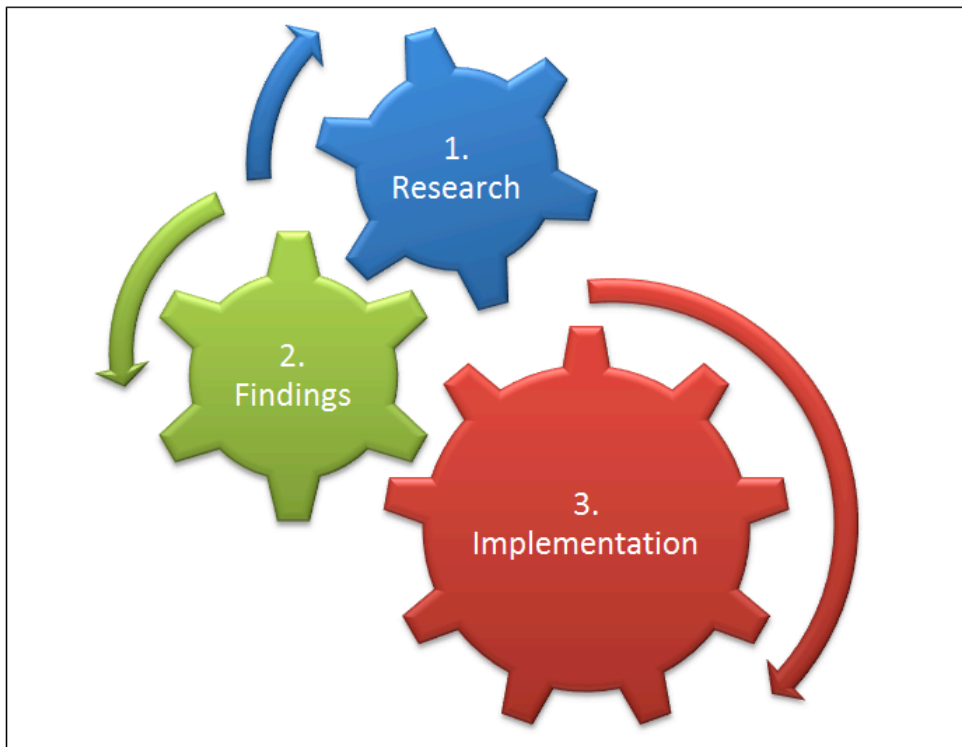
Method

Due to the limited time allocated to the thesis period, this project engages in a modest version of action research (AR) as true action research requires a substantially longer amount of time to properly execute. The intention of engaging in the first two cycles of action research is to begin a project that supports the company in subsequently continuing the action research cycle. Therefore, primary data collection was performed following the first two AR cycles consisting of the research cycle and the findings cycle. Thus, the first phase of AR was selected as the research method of choice for the purposes of this case study.

AR is a type of research that emerges from working with practitioners and therefore relies on partnerships and practitioners (Bradbury-Huang, 2014). It is "an orientation to knowledge creation that arises in a context of practice and requires researchers to work with practitioners" (p. 93). The necessary actors involved in AR are researchers and clients where researchers provide the research expertise and clients provide sanction, insights, and information. As illustrated in Figure 1, there are three cycles that repeat in AR: (1) the research cycle which includes the definition of problems; (2) the findings cycle which

includes data collection and analysis; and (3) the implementation cycle which includes the use of the results. These three cycles are then repeated after reflecting and evaluating the action.

Figure 1 – Cycles in Action Research



Because AR is closely associated with participatory research (PR), PR was also considered during the research method selection; however, its ideology did not match the needs of this particular case study. Action research ideology emphasizes problem solving and the development of knowledge (Brown & Tandon, 1983). Unlike participatory researchers, action researchers often share the belief “that enhanced efficiency and effectiveness will improve the situation of all system members, even if short term effects concentrate wealth and power in relatively few hands” (Brown & Tandon, 1983, p.283). The necessary actors involved in AR are researchers and clients where researchers provide the research expertise and clients provide sanction, insights, and information; furthermore, the approach demands that the results support systemic consensus on goals of intervention and problem solving with systemic benefits. Due to various limitations (listed in limitations section), the research was limited to the research cycle and the findings cycle of AR as they were deemed most effective for the intended research purposes. Aside from the implementation cycle, the research followed the cyclic, participative, qualitative, and reflective stages of AR; Volvo Cars may continue work in more of these cycles in the future.

- (1) **Research cycle** – Data was collected using three different techniques: focus groups, semi-structured interviews, and a self-completion questionnaire. Three focus groups were moderated, nine semi-structured interviews were conducted, and one survey was distributed to all focus group participants and interviewees. These three methods were guided by Bryman & Bell (2011). The above listed data collection techniques facilitated the collection of both qualitative and quantitative data which support the final recommendations. The selection of focus group attendees, interviewees, and survey recipients was made according to employee responsibilities at the company

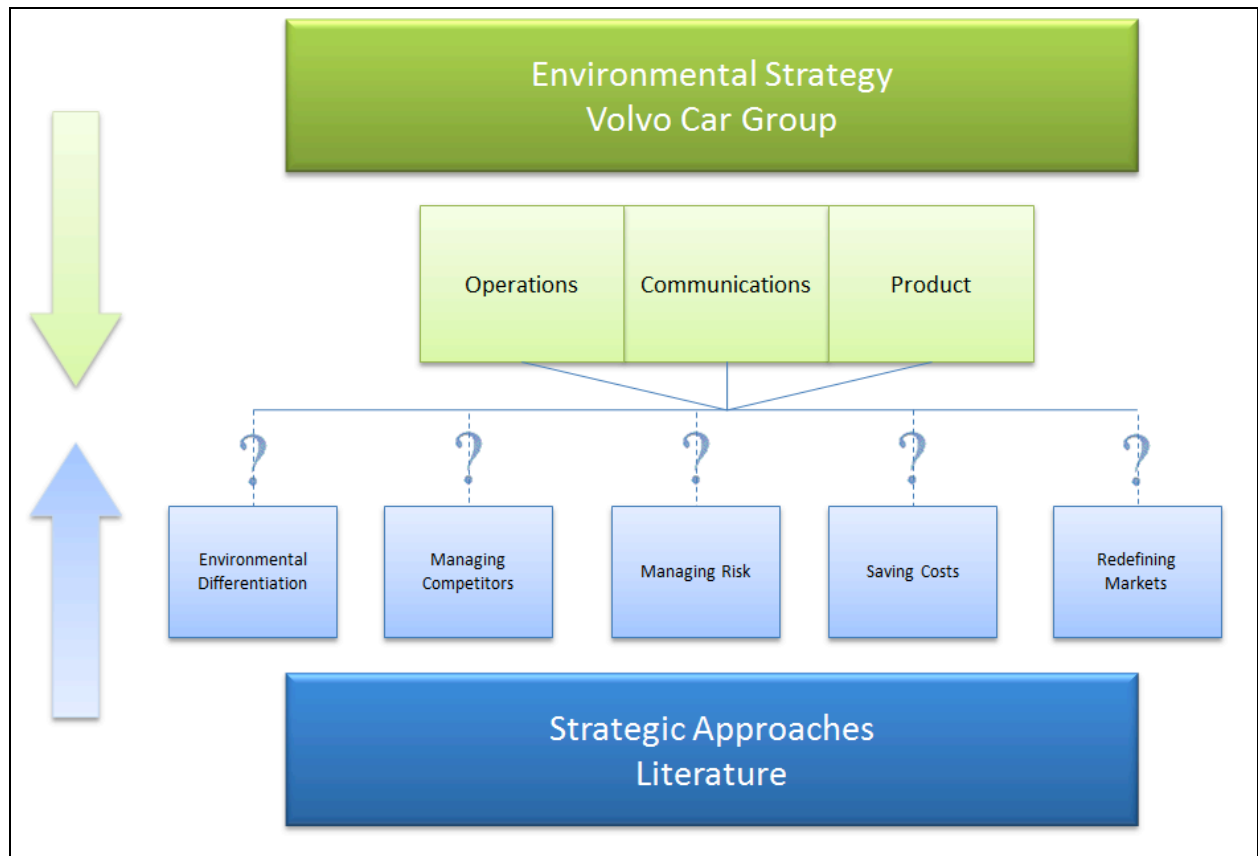
and the degree of their involvement in the company's environmental strategy; top-executives and operational managers alike were selected in the process. In total, eighteen informants participated in the project; however, only the data collected from strategy developers and top-executives (totaling ten informants) were utilized in the analysis due to a difference in availability and the due date for the academic thesis. This enabled for an emphasis to be placed on the views of those working directly with the strategy and those who make the final decisions at the company. Both the focus groups and interviews provided top-down and bottom-up data containing valuable insights from multiple levels of the organization for this project.

- (2) **Findings cycle** – The qualitative data, which included general observations and direct remarks from participants, was collected from the focus groups and semi-structured interviews conducted in the research cycle. The main findings were compared with the five generic strategic environmental approaches by Reinhardt (1999), strategy by Porter (1996) and Mintzberg (2007), environmental strategies by Albertini (2013a) and strategy formulation by Eccles & Serafeim (2013). The quantitative data, which was composed of the survey results, were collected from each of the interviewees and rated on a scale of one through five. This scale enabled an analysis of the results to take place which subsequently supported the findings.

Comparative analysis

The purpose of the comparative analysis is to provide the basis for answering the defined research questions. Overall, the comparative analysis was carried out by testing the case's environmental strategy with the outlined strategic approaches in chapter two. Figure 2 illustrates the manner in which the findings from the investigation can be associated with the strategic approaches found in the literature. The analysis was performed by comparing the theoretical findings in the literature with those of the findings from the case study's data collected through mixed methods. The secondary and primary data findings were comparatively analyzed based on the following parameters: (1) the consistencies and inconsistencies found within the case study findings; (2) the extent to which the case relates to the approaches mentioned in the literature for incorporating environment in business thinking; (3) the extent to which the case relates to strategy as defined by Michael Porter; (4) the extent to which the case relates to the sequential stages of environmental strategies and strategy formulation itself.

Figure 2 – Where does Volvo fit, if at all?



SCOPE & LIMITATIONS

The work described in this paper encompasses three months of research and writing. The scope of the research was delimited to the first phase of action research in order to approach the case study that relied on the client's wishes, expectations, and participation. A balance had to be found where a meaningful problem could be worked with at a reasonable depth. Therefore, the researcher and company decided to perform an investigation on the basic building blocks of the environmental strategy and see where the investigation led to. Although the company had initially requested that the scope be delimited to only the operations area of the strategy, we chose not to pursue this direction as the significant problem lay within the entire strategy within all of its three areas: operations, product, and communications. Time discrepancies between the academic calendar and the industrial holiday calendar became a barrier for primary data research due to a substantial decrease in participant availability during the summer months; however, for the most part, this limitation was overcome by conducting the majority of the interviews and focus groups early on in the process and achieving a 100% participation rate from all informants. Furthermore, limitations are embedded within the findings as they are dependent on the results in the data collection and in the literature review.

AUDIENCE

The intended audience for this research is varied. The research will be of particular interest to the case study company (Volvo Cars) under examination; particularly those working with

strategy and those working with matters relating to sustainability at the company. Other audiences that are not related to the company, such as those interested in the environment, business, and strategy may also find themselves audiences to this paper. Furthermore, this research may be of interest to academics, particularly those interested in performing meta-analyses on environmental strategies in business. This research may also be of interest to other automotive OEMs or other companies interested in strategy formulation, particularly with regards to industrial environmental strategies.

STRUCTURE

Chapter 1 – Introduction

Chapter 2 – Environment as a business matter: Literature review

Chapter 3 – The case of Volvo Car Group: Single-case study

Chapter 4 – Analyzing strategy: Comparative analysis & discussion

Chapter 5 – Rethinking strategy: Extended discussion

Chapter 6 – Summary & Conclusions: Recommendations

2 Environment as a business matter

The purpose of this chapter, *Environment as a business matter*, is to review the relevant literature on the different approaches to managing the environment in business practices together with the literature on strategy, its formulation, and its implementation relative to environmental strategies. A review of this literature was performed to provide the researcher and Volvo Cars with the fundamentals of strategy and strategic environmental approaches in order to attain a deeper understanding of environmental strategy on an overall level. The chapter is divided into the following three main sections:

The first section, *Green & Competitive*, provides the background on the area of environment in business practices and briefly introduces the reader to EM in business.

The second section, *Integrating the environment into business thinking*, makes explicit the enabling strategic aspects and approaches outlined in the literature for integrating the environment as a business matter in practice as well as formulating a strategy. Aspects include generic strategic environmental approaches, the difference between strategy and operational effectiveness, and strategy formulation.

The third section, *Environmental Strategies*, presents sequential stages of environmental strategies in firms ranging from “deny” to “proactive” and delineates the three generic phases a firm undergoes before it may reach a stage of environmental excellence and build its case for environment and, subsequently, sustainability.

Green & Competitive

The approaches to EM in industrial practices have evolved significantly over the last 45 years. Since the 1970s, EM has developed from a primitive pollution control and prevention purpose all the way to advanced systems with still emerging nascent features capable of supporting competitive advantage in the modern global economy (Nunes & Bennett, 2010). Due to society’s recent engagement in sustainable development, it can be argued that industrial corporations without modern environmental management systems (EMS) in place are perceived as laggards on the global stage. However, despite the advancements and large-scale implementation of EM standards such as ISO 14001, one of today’s greatest challenges for companies remains the realization of benefits and trade-offs when considering the environment in business practices (Eccles & Serafeim, 2013; Reinhardt, 1999). The literature repeatedly presents the argument that EM should not be seen as an additional cost for companies, but as an opportunity to improve competitiveness (Albino, Balice, & Dangelico, 2009; Porter & van der Linde, 1995).

Companies working to address environmental issues are commonly faced with the green and competitive debate questions: “Does it pay to be green?” (Hart & Ahuja, 1996) and “When does it pay to be green?” (Orsato, 2006). Despite the great complexity and highly dynamic nature of the topic together with society’s growing interest in sustainable development, such questions are framed in such a way that yes-no answers, payback, or net present value calculations suffice as answers. Therefore, this research advocates that companies working to address environmental issues ask themselves a more nuanced question such as the one suggested by Reinhardt (1999): “Under which circumstances do environmental investments deliver benefits?” This next section touches upon the approaches companies may adopt in order to strategically, systematically, and systemically tackle such a question; the ensuing

section then discusses the significance of strategy when addressing environmental issues in business.

Integrating the environment into business thinking strategically

Conventional business thinking has traditionally perceived the management of environmental issues as being an additional cost imposed on firms thus degrading competitiveness. However, over the past two decades, this paradigm has been challenged by a number of analysts (e.g. Reinhardt & Porter, 2007; Porter & van der Linde, 1995). As Ambec & Lanoie (2008) stated, “analysts have argued that improving a company’s environmental performance can lead to better economic or financial performance, and not necessarily to an increase in cost” (p.45). To acknowledge and even accept this in a company’s way of thinking is one thing, however, to actively implement it within business practices is quite another matter and requires strategic approaches should a firm wish to achieve a ‘win-win’ position.

Academic literature has presented various types of approaches available for companies to consider the environment as a business matter and integrate it within business thinking (Albertini, 2013a; Albertini, 2013b; Albino et al., 2009; Bagley, 2010; Nunes & Bennett, 2010; Hart, 1995; Orsato, 2006; Reinhardt, 1999). Although it is dated, Forest L. Reinhardt (2000) book *Down to Earth: Applying business principles to environmental management* is a well-established and respected piece of work that is still relevant in business practices today. Unlike other research sources, Reinhardt’s work systematically presents an array of tangible environmental approaches that are applicable to most, if not all, companies having to work with and address environmental issues. As illustrated in Appendix 1, Reinhardt’s five approaches provide a guiding framework for those companies interested in going beyond solely the management and social responsibility of environmental issues and beginning the process of integrating the environment into their business thinking. The five approaches include: (1) Environmental Differentiation; (2) Managing Your Competitors; (3) Managing Risks; (4) Saving Costs; (5) Redefining Markets. The following sections make explicit the different approaches and highlight various companies who have successfully executed them.

Strategic environmental approaches

Environmental Differentiation

The first approach encompasses the ‘creation of products or the employment of processes that offer greater environmental benefits, or impose smaller environmental costs, than those of their competitors’ (Reinhardt, 1999, p.150). Reinhardt (1999) argued that this approach is much like any other business approach in industrial marketing when the company adds value to customers’ activities and then captures some of that value itself. Furthermore, Reinhardt stated that “lowering a customer’s environmental costs adds value to [a company’s] operations just as surely as a new machine that enhances labor productivity does” (p.151). The approach has the potential to enable a company to cover additional expenditures for its differentiating efforts by capturing additional market share, commanding higher prices, or both. Efforts in this area may include, but are not limited to: (1) minimizing the use of non-renewable resources in processes or product user-phases; (2) increasing the use of renewable resources with consideration to their rate of replenishment; (3) avoiding toxic materials; (4) designing the products for re-use, recycling, or responsible disposal; and (5) internalizing

externalities by using methods such as hedonic pricing¹. Concepts that are applicable to such efforts include design for environment (Dfe), eco-design, extended producer responsibility, and product stewardship which are becoming more and more common in corporate culture (Albino et al., 2009).

Although commonly used interchangeably, Dfe has been defined as a practice in which environmental considerations are integrated into product and process engineering design procedures (Ramani et al., 2010) whereas eco-design has been defined as a proactive approach to EM that aims to reduce the total environmental impact of products (Pigosso et al., 2009). Both Dfe and eco-design use life-cycle analysis (LCA) in the design phase of a product; LCA is a valuable analytical tool used to assess the environmental aspects and potential impacts associated with a product over its life cycle (USEPA, 2014). Those companies focusing on minimizing all known environmental impacts associated with a product's entire lifecycle, including end-of-life of products, can conceptualize this effort with the term 'product stewardship' or 'extended producer responsibility' (EPR) coined by Thomas Linqvist (2000). According to the literature, the keys to successfully implementing the environmental differentiation approach is to (1) identify the consumers' willingness-to-pay (WTP), (2) communicate in a credible and transparent fashion, and (3) protect the company's initiatives against competitors and capture the value delivered to customers.

According to Ambec & Lanoie (2008), "it is possible that better environmental performance through greener products or services can allow companies to use a differentiation strategy [that may] exploit niches in environmentally conscious market segments" (p. 49). However, before a company may do so, the company must build performance capacity to meet or exceed stakeholder expectations and demands. Identifying and assessing consumer WTP is one of the key aforementioned success factors in this approach. With regards to the communication of a product's differentiating environmental features, eco-certification programmes have been developed in various countries such as the Nordic Council White Swan and the European Eco-Label. EU Directive 92/75/EC, together with supporting directives, made mandatory the EU Energy Label to be clearly displayed when selling or renting cars, white goods, and light bulbs (EC, 2010). Eco-labelling, however, is a voluntary option available for companies who wish to credibly communicate their efforts. Eco-labelling and eco-certification programs can be used to support the communication of a product's environmental features, for increasing credibility, and for making a 'green' product more recognizable (Albino et al., 2009; Ambec & Lanoie, 2008). Although this study acknowledges the limitations and criticisms associated with eco-labelling, it is noteworthy to mention it as an option for businesses exploring different ways of strengthening the communication of its products and efforts. General Motors is an example of an automotive company utilizing this tool to communicate the environmental features of its Chevrolets (GM, 2014; see Appendix 2). Table 1 illustrates an example worthy to consider with regards to eco-labelling which is the International Organization for Standardization's (ISO) framework. This framework was created based on the guidelines and general principles stated in ISO 14020:2000 that describes three different types of eco-labels: ISO Type I, ISO Type II, and ISO Type III. Each type and its associated definition defined by ISO (GEN, 2014) can be found in Table 2.

¹ See PUMA example in chapter five. Puma's PUMAVision is an environmental initiative that uses hedonic pricing on its products.

² For the purposes of this research, like-activities are those same or similar activities found in a network of competing

Table 1 – International Organisation for Standardization: Eco-labelling framework

| | |
|--------------|--|
| ISO Type I | Voluntary, multiple-criteria based, third party program that awards a license that authorises the use of environmental labels on products indicating overall environmental preferability of a product within a particular product category based on life cycle considerations. |
| ISO Type II | Informative environmental self-declaration claims. |
| ISO Type III | Voluntary programs that provide quantified environmental data of a product, under pre-set categories of parameters set by a qualified third party and based on life cycle assessment, and verified by that or another qualified third party. |

Among the companies most successful at adopting the Environmental Differentiation approach is Patagonia; the American outdoor apparel company. In the 1990s, Patagonia launched new lines of clothing made of recycled polyethylene terephthalate (PET) and organic cotton. At the time, this was a revolutionary step in the clothing industry and was a commercial success despite the higher prices on the garments (Ambec & Lanoie, 2008; Reinhardt, 2000). Furthermore, Patagonia took a more systemic approach to its business by taking responsibility for, not only the environmental impacts associated with its core business, but also its supply chain operations. In order to ensure the environmental quality of its products, Patagonia reduced the number of its suppliers from 108 to 45 so it could better manage the conditions and procedures of each facility (Reinhardt, Casadesus-Masanell, & Kim, 2010). This change led to more than just environmental quality; efficiency within processes and in communication also improved. More recently, in 2010, Patagonia implemented a new and extreme initiative called Product Lifecycle Initiative (PLI) which “constituted Patagonia's efforts to take responsibility for the products it made, from birth to death and then beyond death, back to rebirth” (Reinhardt, 2010). More on this example and others can be found in chapter five.

Managing Your Competitors & Managing Risks

“Whether managers are operating in an environmentally responsive or unresponsive manner, they are exposed to regulatory uncertainty” (Fremeth & Richter, 2011, p. 145). Managing Your Competitors and Managing Risks are two approaches that offer firms a way to derive environmental and business benefits through private standards or regulations that favor their products and reduce the risks associated with regulatory uncertainty. Fremeth & Richter (2011) advocate an integrated approach to strategy whereby firms implement pragmatic, progressive policies that enable them to shape future policy around existing environmental strengths. This is an approach that they suggest will help firms to manage their competitors by “raising competitors’ costs when competitors have yet to develop identical competencies” (p.145). Furthermore, higher environmental performance levels may help to build and support relations between firms and external stakeholders (e.g. government, NGOs, media, communities); this may also act as a way to mitigate risks associated with these relations (Ambec & Lanoie, 2008). By systematically and systemically embracing advancing regulations, Fremeth & Richter (2011) suggest that firms are able to satisfy activists who are

pressuring policymakers to force firms to conform to higher environmental standards; such an approach “allows managers to adapt to coming regulation at their own pace while leveraging market competencies” (p.145).

Bagley (2010) encouraged a similar approach whereby research was performed on the ability of managers to help shape their political and regulatory environments. Bagley suggested that “instead of just reacting to regulations after they are adopted, firms can propose rules that would be favourable to them by lobbying and engaging in other political activities” (p. 590). Ambec & Lanoie (2008) suggested that one way of doing this would be for companies to encourage the use of market-based instruments (MBI), such as green taxes and pollution permits, over regulation as MBIs are generally known to provide incentives for abatement cost minimization and continuous innovation. By proposing and pushing for tighter standards, firms that develop products and running processes that have high environmental performance may be able to reap strategic first-mover advantages. For example, DuPont lobbied to ban chlorofluorocarbons (CFCs) and other ozone-depleting substances because it was leading in the research for substitutes which subsequently placed the company in a competitive position relative to competitors (Ambec & Lanoie, 2008; Reinhardt, 2000).

Firms may also consider strategic partnerships with like-positioned companies and setting up private standards that put pressure on other firms or competitors. An early example of this happened to be when, in response to the devastating Bhopal explosion at a subsidiary Union Carbide plant in 1984, the leading companies in the Chemical Manufacturers Association created the initiative called Responsible Care (Reinhardt, 1999). Although heavily criticized (e.g. Hoffman, 1999; King & Lenox, 2000), a set of private regulations was developed that each of the members adopted in 1988 and, as a result, by 1994 the U.S. chemical companies had reduced their release of toxic materials by 50%; furthermore, the organizing members of Responsible Care improved their competitive positions. It must be noted that this example was predominantly a reactive example and, although accidents do happen, companies can effectively manage risk by acting proactively. A company that identifies unnecessary activities, such as those associated with wasted resources (e.g. pollution), and strategically approaches it in a proactive manner (e.g. Patagonia’s approach) may be presented with unforeseen opportunities for attaining competitive advantage. To succeed with these approaches, Reinhardt (1999) suggested that “the prerequisites to success of private regulatory programs like Responsible Care are the same as those for government regulatory programs” where regulators must (1) be able to set measureable performance standards, (2) have access to information to verify compliance, and (3) be in a position to enforce their rules (p.153). Furthermore, such a program requires perseverance, commitment, and dealing with freeloaders (Hoffman, 1999; King & Lenox, 2000).

Saving costs

Porter & van der Linde (1995) were successful in conveying to the corporate and academic communities that “pollution is a manifestation of economic waste and involves unnecessary or incomplete utilization of resources...Reducing pollution is often coincident with improving productivity with which resources are used” (p.99). Womack and Jones defined waste as “any human activity which absorbs resources without creating value” (as cited in Shamah, 2013, p. 210). It can also be said that waste is synonymous with inefficiency. According to Ambec & Lanoie (2008), this association implies that “reducing pollution can generate a reduction of expenditures on raw material, energy, or services” (p.51). Less pollution not only means a reduction in expenditures and liability costs, but also an evasion of potentially costly litigation and fines. Thus, firms may find that they are able to cut costs, manage risks, and improve environmental performance simultaneously with this approach

(Ambec & Lanoie, 2008; Lankoski, 2006; Reinhardt, 1999; Porter & van der Linde, 1995). The key to success in this approach is to make investments only if they deliver value after all management costs have been included (Reinhardt, 1999). Furthermore, the companies that are likely to benefit most from this approach are those facing intensifying regulations and that are scrutinized heavily by the public. Due to the internal observability, measurability, and controllability of firm processes, *Saving costs* through the improvement or redesign of processes is arguably one of the most attainable and exercised approaches in industry today. One such type of approach that is world-renowned is LEAN manufacturing, also known as the Toyota Production System (TPS), which materialized due to Toyota's managerial values known as the Toyota Way (Shamah, 2013).

According to research by Shamah (2013), a lean enterprise is “an integrated entity that efficiently creates value for its multiple stakeholders by employing lean principles and practices” (p. 204). Lean can also be described as a type of thinking instilled within a firm and focuses on creating or capturing value (where value is defined by a firm's customers). Julien and Tjahjono (2009) described the term as being a philosophy of operation. Originally, “lean thinking,” where “lean” implies the idea of “manufacturing without waste,” arose from Toyota's manufacturing operations. The aforementioned philosophy focuses on the prevention of defects and waste within production with the goal of eliminating wastes defined as “as anything other than the minimum amount of equipment, materials, parts, and working time that is absolutely essential for production” (as cited in Shamah, 2013, p. 207). Manufacturing companies have often attempted to improve their operations by targeting inefficiencies in order to manage their competitors and to avoid competitive disadvantages (Shamah, 2013; de Koning et al., 2008). TPS is a successful example of such an attempt which has enabled Toyota to continuously improve its way of doing business on every level, from top management to production processes and all the way upstream to its suppliers and downstream to its end customers. Shamah (2013) further emphasized LEAN's focus on value rather than solely on cost reductions:

...a critical element of lean thinking is its focus on value [as defined by the customer]. Value creation is frequently seen as being equivalent to cost reduction. This represents a common critical shortcoming of the understanding of what is meant by “lean” (Hines et al., 2004). In 1996, Womack and Jones explained that the notion of value is the first principle of lean thinking. Hence, lean thinking had progressed from merely being a “shop-floor-focus” on waste and cost reduction to an approach that consistently sought to enhance perceived value for customers by adding product or service features and/or avoiding wasteful activities (p. 205).

Reinhardt's (1999) approach complements TPS as it too promotes increased efficiency and internal cost reductions through the improvement or redesign of processes. Furthermore, the *Saving costs* approach subsequently can increase a firm's environmental performance through, for example: (1) reducing unnecessary waste, “including the waste of time” (Andersson et al., 2006); (2) achieving higher efficiency; (3) implementing product “take-back” schemes (e.g. Xerox, Patagonia's PLI); and (4) realising Dfe initiatives. Although the Toyota Way represents more than only saving costs (Shamah, 2013), TPS continues to provide other companies with a significant benchmark for higher efficiency which can be affiliated with lower costs per unit of output.

A number of academic articles support the approach of reducing costs and increasing efficiency (e.g. Shamah, 2013; Ambec & Lanoie, 2008; Reinhardt, 1999). Although not all efforts in pollution reduction are accompanied by better economic performance, the expenses incurred to reduce pollution can be offset by gains made elsewhere (Ambec & Lanoie, 2010).

Redefining markets

By approaching environmental performance in a systemic, rather than systematic way (e.g. by combining several approaches), companies have been able to “rewrite the competitive rules in their markets” (Reinhardt, 1999, p. 156). Hence, *Redefining markets* is an approach whereby companies may attempt to reinvent their industry. Companies with research and development capabilities that are facing intensifying environmental pressures may find themselves in a position wherein this approach is most applicable (Reinhardt, 1999). Xerox Corporation Ltd. & Interface Inc. are examples of corporations successful at implementing this approach in the past.

In the 1990s, Xerox, a multinational office equipment manufacturer and supplier, decided to redefine its business model by, not only selling office equipment, but retaining responsibility for the equipment’s disposal. The company implemented a product “take-back” scheme whereby customers’ equipment that had been superseded by new technology could be given back to the company. This type of approach enabled the company to take back the dated equipment which could then be disassembled, remanufactured to incorporate new technology, and resold at the same price as new machines. Today, this type of approach is generically referred to as the circular economy, which, as defined by McKinsey (2014):

“aims to eradicate waste—not just from manufacturing processes, as lean management aspires to do, but systematically, throughout the life cycles and uses of products and their components. Indeed, tight component and product cycles of use and reuse, aided by product design, help define the concept of a circular economy and distinguish it from the linear take–make–dispose economy, which wastes large amounts of embedded materials, energy, and labor.”

This practice enabled Xerox to gain a competitive advantage over its competitors and reduce its overall costs. Additional value was delivered to customers as they no longer had to be responsible for the proper disposal of the machinery. Furthermore, Xerox (2010) claimed that the “practice of reusing parts reduces the amount of raw material needed to manufacture new parts, which generates several hundred million dollars in cost savings each year, in addition to life cycle energy savings.” According to Reinhardt (1999), Xerox reportedly saved US \$50 million in its first year of the practice. Other manufacturers of electronics have taken similar initiatives such as Hewlett-Packard, IBM, & Canon. Unlike the aforementioned companies, however, Interface and Fairphone (see chapter five) have taken more radical approaches to redefining their markets.

Interface, the world's largest manufacturer of modular carpets, challenged itself and its competitors in the early 1990s with a more radical approach to business – by implementing a sustainability framework at the core of its business model which has acted as a platform to drive transformational innovation and profits (van der Pluijm & Perret, 2013). After reading Paul Hawken’s book *The Ecology of Commerce*, Interface Founder Ray Anderson realized that his business actions were harming the world his grandchildren would inherit (Gies, 2011). Because carpets are typically produced with the use of fossil fuels and generate large quantities of waste, this realization was not easy to accept. However, rather than turning a blind-eye and favoring ignorance, Anderson responded by challenging his co-workers to pursue a bold new vision to:

"Be the first company that, by its deeds, shows the entire world what sustainability is in all its dimensions: people, process, product, place and profits - and in doing so, become restorative through the power of influence" (p.7).

After initiating this radical approach to the carpet company's business model, Anderson vowed that Interface would achieve a zero environmental footprint by 2020 (Gies, 2011). Despite the founder's recent passing, the company remains an icon for sustainability driven business models. What was once a player in an industry that acceptably generated vast amounts of wastes and (re)produced its products using predominantly fossil fuels became the benchmark player in many industries due to its exemplary leadership. For more information on the financial standing and environmental achievements of this company and others, please refer to chapter five.

Collectively, the aforementioned strategic approaches provide a type of framework that outlines attainable methods for treating environmental issues like business issues. Through the application of business principles, the above-mentioned examples of companies successful at implementing such approaches have acted, and may continue to act, as benchmarks for companies seeking new ways to effectively incorporate the environment into their business practices. Due to increasing awareness of environmental issues and the concomitant demands on business activities, companies around the world will have to, and are already having to consider the environment at some level; however, those companies who do not consider it as a matter of business with trade-offs like any other may face missed-business opportunities. With this in mind, Reinhardt (1999) emphasized that the approaches are not designed for companies to solve the world's problems; rather, they are designed to encourage managers to bring the environment back into the fold of business problems and determine the circumstances under which it pays to be green. "Imaginative and capable managers who look at the environment as a business issue will find that the universe of possibilities is greater than they ever realized" (p.157).

What is Strategy?

Implemented in 2010, Volvo Cars' environmental strategy was found by the researcher together with the strategy developers and implementers to be strategically inexplicit. As described in chapter three, both the term and concept of 'strategy' was neither explicitly nor commonly defined. Although the term and concept of strategy is commonly and continuously used in business lexes, plans, and practices, research and empirical evidence reveal that the term *strategy* is much more complicated for strategy implementers to define than its dictionary definition implies; chapter three further describes the experience Volvo Cars' strategy developers and implementers have had with this dilemma.

According to the Oxford dictionary, strategy is defined as "a plan of action designed to achieve a long-term or overall aim" (as cited in Mintzberg, 2007). The term strategy, what it means, its formation and formulation, remain significant aspects that are too frequently overlooked in practice and that often are not reflections of one another. The literature has identified that people may *think* of strategy as one thing, but *see* it as another (Mintzberg, 2007). In order to draw attention to the extent both individuals and organizations alike exercise this term without having a true understanding or common consensus of its meaning, this research searched primarily within the work of two experts in business management and strategies: Henry Mintzberg and Michael Porter. In a manner similar to how Reinhardt's strategic approaches act as a type of framework for businesses to identify with and build upon, Mintzberg's (2007) and Porter's (1996) research on strategy act as knowledge bases upon which business strategies may be more clearly designed and developed.

Implicit & explicit strategy formulation

Mintzberg (as cited in Mintzberg, 2007) once defined strategy as being “a pattern in a stream of decisions” (p. 1). However, once his research had developed, Mintzberg (2007) came to the realization that strategy was not a pattern of decisions, but a pattern of *actions*. The difference between the two definitions can be said to be similar to the difference between a company’s symbolic commitments by making decisions and its actual substantive commitments reinforced with actions. This realization led Mintzberg to question if decisions always preceded actions and if not, then the formulation of strategies may not always precede their associated actions.

Therefore, in his book on *Tracking Strategies*, Mintzberg (2007) investigated if strategies could be, not only implemented after being ‘formulated’, but formulated and defined by behaviors and activities in a company over time. His work was inspired by Henrick Simon who stated: “The series of decisions which determines behavior over some stretch of time may be called a strategy” (p. 67). Mintzberg then identified how strategies had been investigated with regards to their formulation, but little research had been performed on how strategies actually develop in practice. Porter (1998) had identified two different types of processes which formulate strategy in organization (as cited in Bajwa, Zia, & Shahzad, n.d.):

- (1) Explicit strategy formulation that is based on the planning process;
and
- (2) Implicit strategy formulation that has evolved as an outcome of an organization's functional activities.

However, Porter chose to focus his work on the explicit formulation as he regarded the explicit process of strategy formulation the better process of the two in order to achieve maximum benefits for the firm. Contrary to Porter, Mintzberg (2007) chose to focus on the implicit strategy formulation which he called an *emergent* strategy, similarly to Porter’s *implicit* strategy. He further emphasized this choice by stating “so long as we viewed strategy as an explicit, priori set of guidelines, we were restricted to studying strategy – making in abstract, normative terms” (p. 1). Therefore, Mintzberg studied the patterns in organizations and investigated their origins as a way of studying strategies together with the processes by which they are cultivated.

Strategy & differentiation

Porter (1996) defined a competitive strategy as being different, as making trade-offs, as choosing what *not* to do; “it means deliberately choosing a different set of activities to deliver a unique mix of value”(p.64). Trade-offs can distinguish a company from its competitors which is why strategy is required. Without trade-offs, Porter emphasized that “...there would be no need for choice and thus no need for strategy” (p.70). Therefore, in order for strategic positioning to be competitively advantageous, activities involved in a strategy must be performed differently than rivals.

In his work on *What is Strategy?*, Porter (1996) identified a reoccurring problem with companies attempting to use a strategy to strategically improve processes and translate such improvements into financial gains. What Porter identified was that companies tend to

continuously benchmark themselves against like-activities² shared among their competitors. With the hopes of achieving a competitive advantage, companies tend to compare their activities with their competitors' like-activities in an attempt to achieve greater process efficiencies. Although cost advantages may be derived from performing like-activities more efficiently than competitors, Porter considered this type of isolated approach a "mutually destructive competition". He determined that this approach acts as a type of corporate race for process efficiency wherein continuous improvements are easily copied and improved by competitors (p.61). The result is that the 'productivity frontier', as Porter called it, of these like-activities is continuously pushed outward which may lead one to question the effectiveness of this approach. Peter Drucker (1974) once stated "efficiency is doing things right, effectiveness is doing the right things" (p.45); this emphasizes Porter's argument. After acknowledging this problem, Porter delineated strategy by distinguishing between 'strategy' and 'operational effectiveness'.

Strategy & operational effectiveness

Operational effectiveness (OE) means "performing similar activities better than rivals perform them [and] includes, but is not limited to efficiency" (p.62). OE can also be perceived as continuous improvements. It refers to practices that allow a company to better utilize its inputs by, for example, reducing defects in products which thus increases quality; or by developing better products faster which thus increases productivity. In contrast, strategy (strategic positioning) means performing activities differently than rivals; such activities include different activities as well as similar activities that are performed in different ways. Figure 4 further illustrates the difference between the two. The reason for Porter's focus on a firm's activities when discussing strategy is because, as Porter stated:

Cost is generated by performing activities, and cost advantage arises from performing particular activities more efficiently than competitors. Similarly, differentiation arises from both the choice of activities and how they are performed. Activities, then, are the basic units of competitive advantage. Overall, advantage or disadvantage results from all [of] a company's activities, not only a few (p.62).

Although one is not more important than the other, Porter emphasized the importance for firms to be able to identify between strategy and OE so that differentiating competitive advantage objectives are not confused with those of more easily replicable continuous improvements. Should a firm develop a strategy with the aim of achieving a competitive advantage, identifying between performing activities better than competitors and performing activities differently is an essential step in the strategy's development process. Without specifying and distinguishing between continuous improvement-related activities and differentiating-related activities, a firm runs the risk of only pushing out the productivity frontier.

Figure 3 – Operational effectiveness and strategy according to Porter

² For the purposes of this research, like-activities are those same or similar activities found in a network of competing companies.

| Operational Effectiveness | Strategy |
|---|--|
| performing similar activities <i>better</i> than how rivals perform them. | performing activities <i>differently</i> from how rivals perform them. |

As Porter described it, companies move toward the productivity frontier when a company improves its OE of individual activities, groups of linked activities (such as order processing and manufacturing), or company-wide activities. “OE competition shifts the productivity frontier outward, effectively raising the bar for everyone... although such competition produces absolute improvement in OE, it leads to relative improvement for no one” (p.63). Should a firm not identify between the activities related to OE and those related to strategic positioning, the firm runs the risk that its strategy will be unsuccessful at achieving or sustaining a competitive advantage. As Porter highlighted, “any good idea [can] and [will] be quickly imitated... performance would [then] once again depend wholly on operational effectiveness” (p.70). Furthermore, achieving a competitive advantage is only worthwhile if the company can capture the additional value it has created before rivals replicate it. Because performing activities differently is an approach which is more difficult for rivals to copy than simply improving like-activities, companies that identify strategy with “doing things differently” are more likely to experience the advantage of distinguishing themselves, protecting themselves, and capturing the concomitant financial gains associated with differentiation. Understanding the difference between moving towards the productivity frontier and doing things differently is important for firms to delineate before explicitly formulating a strategy; furthermore, to design a strategy that stimulates value-adding actions to a firm and its stakeholders requires decisive and competent understanding of strategy. Formulating strategy, as the next section describes, ultimately requires a true understanding of the trade-offs inevitably associated with strategy.

Formulating a strategy

Upon investigating the environmental strategy at Volvo Cars and beginning a process of change at the company, a need for guidance on strategy formulation emerged; therefore, this research turned to literature on this topic. Literature on strategy formulation, however, is vast and extensive. A high demand for such literature is omnipresent as firms constantly seek and develop new strategies to competitively position themselves within dynamic markets; more often than not, however, strategies fall to the wayside and become static due to factors such as a lack of engagement or effectiveness, weak implementation, and market or organizational changes. Volvo Cars’ environmental strategy is one example (see chapters 3 & 4). Although an extensive number of sources are available for examining strategy, the research chose to focus only on a select few articles deemed appropriate for the purposes of the company. The research selected material by Harvard Business Review authors Eccles & Serafeim (2013), that provides an up-to-date approach to formulating strategies related to sustainability. Furthermore, it complements the Global Reporting Initiative (GRI) approach to sustainability, particularly with regards to materiality assessments. For the purposes of the investigation with Volvo Cars, only the environmental aspects of strategy formulation were focused on where applicable.

Eccles & Serafeim (2013) identified a key problem that many companies experience when addressing issues related to sustainability. As recognized by the authors, companies understand the importance of delivering and increasing shareholder value while improving the firm's environmental, social, and governance (ESG) dimensions; however, too often are programs launched by addressing issues that may lack relevancy to the firm's strategy or core business operations. "Largely missing from these efforts is a clear understanding of the very real trade-offs that exist between financial and ESG performance" (p.52). While environmental investments may have their short-term and long-term double or even triple dividends, if a firm does not manage the associated trade-offs duly then the consequences on the firm's bottom-line may be dire; and in an age of transparency, a firm that abstains from improving its ESG performance runs a high risk for being heavily criticized and penalized on the global stage. Similarly, companies that tend to disclose "good news" and suppress "bad news" about their environmental performance (Albertini, 2013), run the risk of being criticized or penalized for "green washing". In order to address the identified problem, the authors proposed a framework for a sustainable strategy that is designed to overcome this problem by maintaining a company's focus on the core business. The research found that this framework provided valuable insights that can be applied to strategies addressing any one of the many dimensions of sustainability; therefore, parallels were drawn between this framework and the formulation of an environmental strategy.

According to their econometric analyses of more than 3,000 organizations, Eccles & Serafeim (2013) identified that major innovations in products, processes, or business models have greater positive impacts on ESG and financial performance than minor innovations in efficiency improvements. The authors claimed that "if companies innovate, they can simultaneously improve ESG and financial performance" (p.53); however, the authors also stated:

In the absence of substantial innovation, the financial performance of firms declines as their [ESG] performance improves. To simultaneously improve both kinds of performance, they need to invent new products, processes, and business models.

Although this may be perceived as radical, companies such as Interface and Patagonia are examples of companies that have successfully executed such an innovative approach and derived performance advantages both financially and in terms of ESG. Such innovations are typically high risk involving extensive investments with long pay-back periods; however, such innovations enable a firm to tackle the ESG challenges left unsolved in a sector which provides a competitive opportunity. Thus, a strategy that stimulates innovation may (a) bridge the gap between ESG and financial performance and (b) support firms to manage the concomitant trade-offs involved.

In order to formulate such a strategy, Eccles & Serafeim (2013) provided "a framework for creating sustainable strategies that...simultaneously boost both financial and ESG performance" (p.52). In order to successfully follow the framework, the authors claimed that firms are required to continuously perform two things (1) focus on the environmental issues that are most relevant to shareholder value and (2) produce major innovations that prioritize those concerns. As listed below, the framework provides four broad initiatives "required for developing the kind of innovation programs that create a sustainable strategy" (p.53). For the purposes of the framework, the environmental issues that are most relevant to shareholder value are referred to as "material". The framework consists of the following:

- (1) Identify Material Issues

- (2) Quantify relationship between financial and material performance
- (3) Innovate products, processes, and business models
- (4) Communicate company's innovations to stakeholders

Identify Material Issues

According to the Global Reporting Initiative (GRI), “material topics for a reporting organization should include those topics that have a direct or indirect impact on an organization’s ability to create, preserve or erode economic, environmental and social value for itself, its stakeholders and society at large” (p3). Environmental issues for OEMs include resource inputs and outputs which range from land-use change from the mining, cultivation, and fabrication of materials all the way to manufacturing and product use-phase emissions, water and energy usage, waste management, and product end-of-life management, among others (Eccles & Serafeim, 2013). According to Eccles & Serafeim (2013), identifying the significance of a material on shareholder value requires a firm to undergo a process that examines three key aspects: *evidence of interest*, *evidence of economic impact*, and *a forward-looking adjustment*.

- (1) *Evidence of interest*, similarly to the GRI’s ‘Significance to Stakeholders’ and ‘Significance to the Organization’ analyses (GRI, 2014) this process basically determines which environmental issues are most relevant in an industry and to its stakeholders. It is a recommended method determined by performing research using keywords relating to environmental issues on source documents including inter alia Form 10-Ks, legal news, CSR reports, and media reports. This provides an indication of the most significant environmental aspects that arise within an industry.
- (2) *Evidence of economic impact* basically determines which issues matter most concerning financial performance. It is determined by evaluating whether or not the management (or mismanagement) of an environmental issue will affect corporate valuation parameters such as revenue growth, return on capital, risk management, and management quality (p.54).
- (3) *A forward-looking adjustment* recognizes an emerging environmental issue that has not yet been identified in the *evidence of interest* and *evidence of economic impact* procedures. If the issue has potential to create positive or negative effects that other stakeholders or future generations have to manage, then this issue may be deemed material; however, the issue must have shown effects of considerable magnitude for it to be considered material.

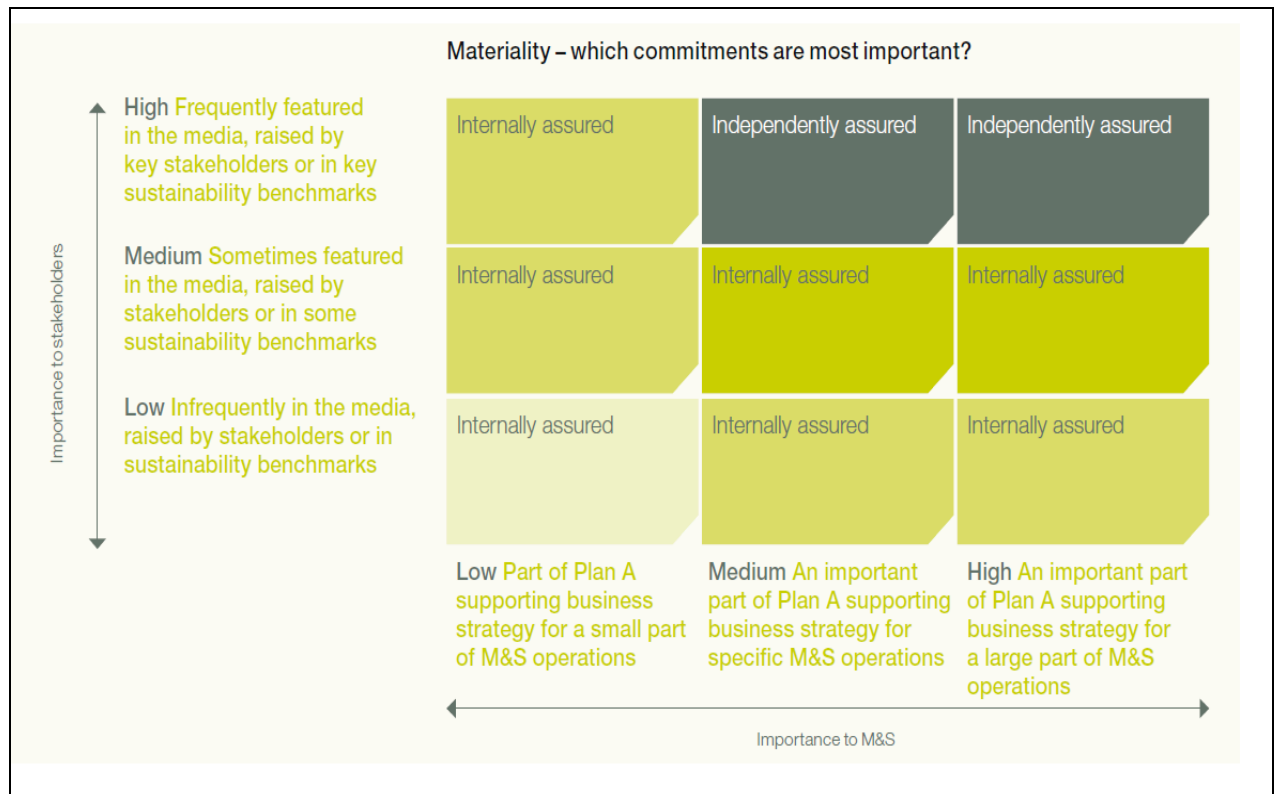
The aforementioned process is similar to one undertaken by the Sustainability Accounting Standards Board (SASB) that has identified five broad ESG categories “that can affect a firm’s financial performance and therefore be highly material to investors” (Eccles & Serafeim, 2013, p.55). After performing each procedure, a firm then can produce what is referred to by SASB as a ‘Materiality Map’. A specific example of such a map can be found in Appendix 3. Appendix 3 illustrates SASB’s Materiality Map on the ESG issues related to transportation that may be considered material by the firm. As outlined in the map, the environmental issues considered most relevant to the automotive industry are emissions

from the product (fuel efficiency) emissions from manufacturing plants together with resource consumption. Once a firm's material has been identified, the firm may continue to the second step in the framework: Quantifying the relationship between financial and ESG performance.

Quantifying the relationship between financial and ESG performance

Once a firm's materials have been identified, the authors directed that an assessment should be performed to assess the impact of the material on the firm's financial performance. In order to do so, the environmental issue being considered together with the firm's strategy objective must be considered. A firm may do this by identifying a range of environmental initiatives such as becoming carbon neutral or managing a firm's impacts on ecosystem services and evaluate how each initiative may effect inter alia costs, the brand, sales, employee motivation, employer attraction, and the overall resilience of the business. Marks & Spencer (M&S), the major British multinational retailer, is an example of a company who took this type of approach after identifying and evaluating 180 ESG material initiatives. Such initiatives ranged from becoming carbon neutral to improving employee health and were evaluated on their influence on costs, sales, brand, employee motivation, and the resilience of the business. The company called the sustainability program "Plan A" which was launched in 2007 and consisted of 100 commitments that the company committed to achieve in five years (M&S, 2014). Table 3 provides an illustration of the company's program and how it prioritized materiality commitments. Although not all impacts from initiatives were easy to evaluate, some made clear the trade-offs involved between financial and ESG performance; M&S was able to conduct return-on-investment analyses to determine which projects to devote more resources to (Eccles & Serafeim, 2013). Although this process is complex and work is being performed to simplify the process, Eccles & Serafeim advocated that it can enable "companies [to] make an informed estimate of the slope of the performance-frontier curve for any pair of ESG and financial variables by determining whether each incremental improvement in ESG performance causes a corresponding positive or negative change in financial results – or has no impact" (p.54). Once this is performed, a company may continue with the third and fourth steps of the framework: *Innovate products, processes, and business models* and *Communicate the company's innovations with stakeholders*.

Table 2 – Marks & Spencer's Plan A: Materiality



Innovate products, processes, and business models

Once a firm has identified the environmental issues, or material, to focus on, Eccles & Serafeim (2013) recommended that the firm compares itself with its peers on those issues. If the firm’s performance on those issues should fall below the industry’s benchmark, the authors advised that the firm’s first priority would lie in improving its performance in those areas. Prioritizing this may act as risk mitigation and management due to the fact that firms run high risks of public scrutiny should one be identified as the laggard in a sector. Similarly to Eccles & Serafeim (2013), the examined literature suggested that innovations in efficiency may enhance financial performance such as reducing manufacturing wastes and such activities are important and necessary for firm competitiveness; however, such innovations are insufficient should a company wish to implement a strategy that attains a competitive advantage. It is the challenges that are unsolved in a sector, often those with the most risk, that present the greatest opportunity for competitive advantage. Major organization-wide innovations including “entirely new products, processes, and business models” are necessary in order to seize such opportunities as these innovations often “improve performance in bundles of material issues” (p.54). Realizing the trade-offs that exist between environmental issues and financial performance is key for taking a calculated risk with such opportunities. Natura Cosméticos, the leading cosmetic company in Brazil, is an additional example of a company successful in taking such a risk. In addition to being one of the first companies to issue integrated annual reports, this sustainability-driven company has been able to inter alia (a) source most of its ingredients domestically, (b) use a fair trade model to support small suppliers in rain forest communities, and (c) tie managerial performance ratings and bonuses to environmental and social goals together with financial results in an attempt to ensure that decision making is guided by all three measures of sustainability (MIT, 2013; Eccles & Serafeim, 2013). The profitability of the company soared between 2002 and 2011 and of all of the significant outcomes from Natura’s innovative approach, one of particular interest highlighted by Eccles & Serafeim was that:

Financial analysis shows that the company's high profitability was driven by exceptional operating performance and not by financial leverage. Since 2002, Natura has significantly reduced its greenhouse gas emissions and water consumption, developed more environmentally friendly packaging, and provided training and education opportunities to about 560,000 consultants (p.55).

Upon innovating its products, processes, and business model, a firm may perform the last step in the framework: *Communicate the company's innovations with stakeholders*. This approach seeks involvement from key stakeholders; for the purposes of Volvo Cars, these stakeholders are considered to be employees, customers, suppliers, financiers, governmental and non-governmental bodies, political groups (Reinhardt, 1999) as well as any others Volvo Cars may have identified in their work on stakeholders. Although stakeholder theory lies beyond the scope of this thesis, stakeholder theory is a relevant area of research that Volvo Cars may consider when identifying and communicating with its stakeholders.

Communicate the company's innovations with stakeholders.

“A company cannot assume that shareholders and other stakeholders will understand how its innovations have improved ESG and financial performance – and how the two interrelate – if it fails to communicate effectively” (Eccles & Serafeim, 2013, p.58). Furthermore, often what is communicated has varying degrees of symbolic and substantive actions which may influence the degree of acknowledgement the firm receives from its stakeholders. Therefore, companies need to provide their shareholders and stakeholders with the information that justifies both its ESG and financial performance and clearly illustrates their connection. An effective way of doing this would be by integrating the company's annual report with its sustainability report such as Natura has done as well as SKF and Vattenfall (SKF, 2013; Vattenfall, 2013). Although it is now required by all companies listed on the Johannesburg Stock Exchange, elsewhere this practice is voluntary and is increasing in popularity. According to Eccles & Serafeim (2013), integrated reporting involves more than a written document; “the most effective reporting is as much about listening as talking, and it serves as a key platform for stakeholder engagement” (p.58). Stakeholder engagement can involve a practice such as Natura's Conecta, an online social network in which participants could contribute to the integrated reporting process; in the first year, over 8,000 people registered and contributed to Natura's integrated report. The authors finalized this last step in the framework by stating that integrated reporting enhances discipline as management and employees alike are forced to think about both the ESG and financial performance in their decision making as well as the concomitant trade-offs involved; this focus on improving both kinds of performance may help to spur innovation in areas otherwise missed.

Environmental strategies

Much like strategy itself, there is neither a universally accepted definition for environmental strategy, nor is there a universal environmental strategy framework that works for all; each environmental strategy is unique to its firm, developers, and implementers. However, active environmental strategies do have at least one thing in common: they tend to work towards cost reduction and (or) product differentiation. As Albertini (2013b) stated, “there are at least two types of competitive advantage – cost advantage and differentiation advantage – that can emerge from environmental strategies” (p. 434). Reinhardt's (1999) *saving costs* approach illustrated how cost advantages lie in the improvement or redesign of processes with focus on input and output reduction. Differentiation advantages are typically associated with best practices of EM with focus on product design, life-cycle, and the product market (Albertini, 2013b; Orsato, 2006). A number of the environmental strategic approaches have emerged in the literature and have already been mentioned earlier in this chapter. Orsato (2006)

presented another generic framework that classified four common types of competitive environmental strategies with focus on cost reduction and differentiation. This framework presented a classification scheme including: eco-efficiency, beyond compliance leadership, eco-branding, and environmental cost leadership; this classification scheme was suggested in order to address the generic question “When does it pay to be green?”

Although the “green and competitive” debate lingers on, the majority of studies show that improved environmental performance within corporations has positive or no impacts on a firm’s financial performance; in other words, the literature revealed that improved corporate environmental performance seems to have no negative impact on corporate financial performance (Nishitani & Kokubu, 2012; Hart & Ahuja, 1996). However, despite a firm’s stance in the debate, intensifying regulation, media attention, and growing stakeholder pressure, are factors that are compelling firms to steadily increase the extent of disclosure on activities relating to their environmental strategies and performance over the past two decades (Albertini, 2013a). Many of these environmental activities are disclosed in a firm’s integrated annual report, sustainability report or, to a lesser degree, in an annual report. Although the disclosure of activities has increased, Albertini (2013a) identified two significant issues related to such environmental performance disclosure.

Firstly, Albertini (2013a) noted the lack of standardization, regulation, or audit of environmental report content and identified that disclosure differs from company to company as the quantity and type of information disclosed varies with each report. “Because of the extensive variety of environmental disclosure, companies can manage their legitimacy by increasing the volume of information, using narrative and positive language, or avoiding alarmist information in their report” (p. 234). Secondly, Albertini identified the second issue as being the relative importance given to the environmental strategy in a company’s core business strategy, henceforth referred to as a corporate strategy. After performing a computerized content analysis of annual reports from 55 of the largest French industrial companies, Albertini identified that environmental innovations are means for increasing energy efficiency and for obtaining a competitive advantage; this parallels work performed by Eccles & Serafiem (2013) and Porter (1996). Furthermore, research showed that the EM system implemented by *proactive* companies allows such firms to improve their environmental performance.

The past 30 years of literature revealed that analyses fall into two categories of environmental strategies: sequential approaches and non-sequential approaches (Albertini, 2013a). For the purposes of the research for Volvo Cars, focus was placed on the sequential approaches due to the sequential steps taken over the years at the company such as its early consideration for environment in the 1970s, its innovations, its environmental strategy in 2010, and its recently added core value environment. Sequential approaches to environmental strategy involve a linear progression to high environmental performance and often present a range of four to six progression stages ranging from “deny” to “proactive”, also known as “non-compliant” all the way through to “excellence” (Albertini, 2013a).

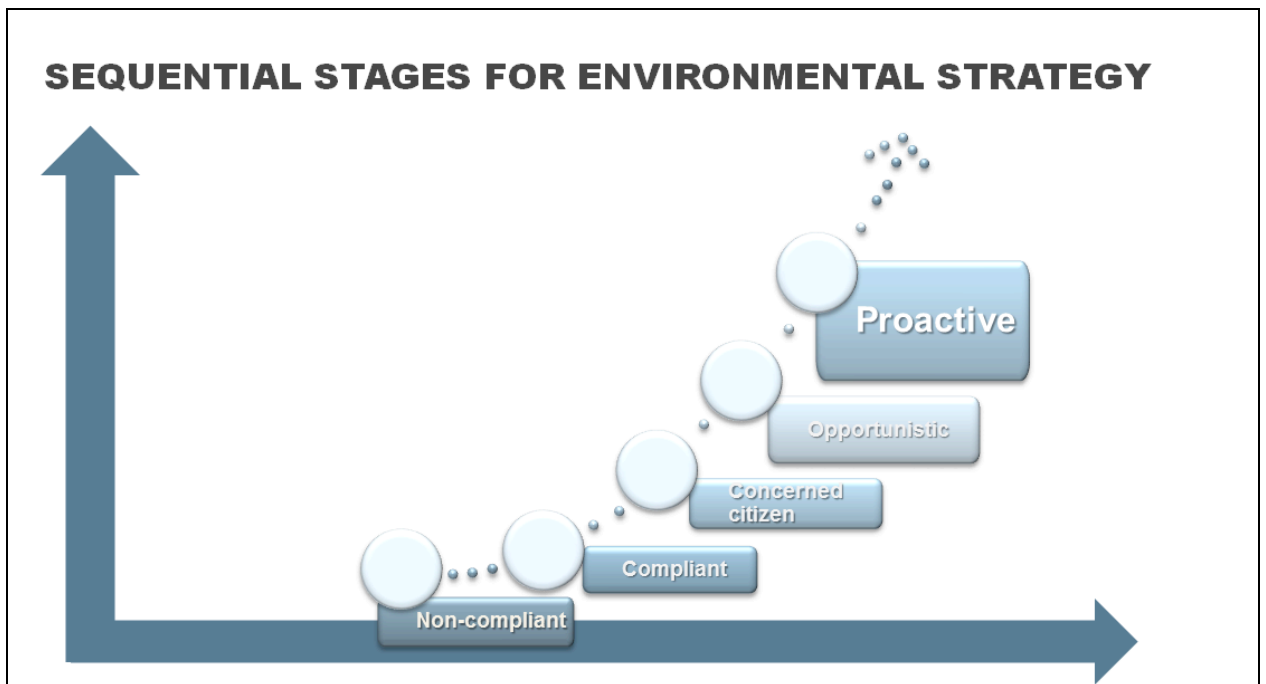
A strategy that falls under the “deny” stage can be referred to as a non-compliance strategy and occurs when a company is lacking an environmental policy together with failing to address the requirements of regulation and social pressure. “At this stage, environmental performance is often measured by the number of environmental accidents, penalties, or lawsuits attributable to a non-compliance environmental strategy” (Albertini, 2013a, p. 234). The next stage, the “compliant” stage, represents those compliant companies that have an environmental policy with which they follow minimally in order to avoid any losses in market

share, reputation, or legal penalties. Activities in both the “deny” and “compliant” stages typically involve air, water, and land pollution from manufacturing operations and firm environmental performance is generally measured by pollution control indexes such as “greenhouse gas emissions, toxic chemical release in the water, in the air and on land, or waste management” (p.234).

The third and fourth stages fall into the “concerned citizen” or “opportunistic” stage wherein the companies tend to strive for beyond compliance and go further than what regulations demand. Focus is placed on reducing waste, increasing recycling, and decreasing toxic emissions; in progressive cases, focus is placed directly on reducing the firm’s impact on ecosystems. Rather than using “end-of-pipe” control measures as indicators for environmental performance, these stages tend to use voluntary pollution prevention programs, a number of environmental investments, or a firm’s participation in voluntary environmental initiatives (Albertini, 2013a).

The last stage, the “proactive” or “excellence” stage, involves companies that are leading in environmental performance by developing innovative capabilities to resource efficiency (concerning inputs and outputs), green product design, and product stewardship or EPR (Albertini, 2013a). This phase involves companies with an active EMS and these companies are often certified with ISO 14001; however, ISO 14001 certification is arguably becoming an expectation placed on firms by stakeholders so other means of environmental leadership should be considered to complement and build upon this certification. In order to study these “proactive” strategies, Albertini (2013a) elaborated by stating that “researchers often use organizational indicators to measure environmental performance: for example, the portion of output realized with less polluting production processes, the modification of manufacturing processes, the number of eco-conceived products, or environmental training for employees” (p.235). Figure 4 illustrates the linear progression to high environmental performance over time based on the five progression stages identified by Albertini (2013a).

Figure 4 – Sequential stages for environmental strategy from deny / non-compliant to proactive/excellence



Although leading companies may identify themselves with a “proactive” stage in their strategies, a closer examination of the activities and commitment at a company may reveal that the company is opportunistic, but has more in common with a “compliant” stage of their strategy. As Albertini (2013b) delineated:

A “compliance” strategy is measured by the number of environmental penalties; the amount of energy and water consumption; the extent of waste management; and pollutant emissions on land, in the water and in the air. An “opportunist” strategy is measured by environmental awards, charter or sponsorship, and extra financial rating. A “proactive” strategy is measured by the eco-conception of products, the modification of manufacturing processes, the implementation of EMS, ISO 14001 certification, and extensive environmental reporting, innovation, and research (p.235).

Although the aforementioned literature on environmental strategy is valuable and provides firms with insight on environmental strategy categorization, it largely focuses on the disclosure of a firm’s environmental activities and not on the implementation of strategies. Should a firm such as Volvo Cars wish to implement an environmental strategy, it is important to first acknowledge the basic fact that business value or competitive advantage cannot be automatically created or gained by simply developing an environmental strategy and disclosing its implementation (IIEE MOOC, 2014). Associate professor Philip Peck in the IIEE MOOC claimed when examining sustainability strategies, firms must “first build capacity” (2014). In order to do so, there are three phases of capacity building in industry that Peck suggested. For the purposes of the research for Volvo Cars and because of the interdependent nature of the two, the term environment replaces sustainability in his work. The phases suggested by Peck included the following (1) *Commitment, compliance, and awakening*; (2) *Operational, process and product excellence*; (3) *Building the business case for environment*.

- (1) *Commitment, compliance, and awakening*: this phase often involves the occupational health and safety work that then expands its scope to consider environmental activities for the purpose of reducing the firm’s negative impacts on the environment. Learning the basics regarding environmental reporting, transparency, and engaging an appropriate dialogue with stakeholders are the building blocks involved in this phase. This is also where companies become “more attuned to trends in areas such as public and policymaker expectations particularly related to environmental issues” (Peck, 2014);
- (2) *Operational, process and product excellence*: this is the phase wherein companies are progressively improving their work related to environmental issues. While much of their focus remains internal, firms in this phase may lift their gaze and look beyond compliance. Firms may begin to work progressively with resource efficiency by chasing wasted materials and energy, examining their supply chain’s impacts and inefficiencies upstream and unveiling otherwise missed opportunities;
- (3) *Building the business case for environment*: This is the phase wherein firms have the ability to focus on the opportunities relating to environmental issues rather than dealing with them as threats. Similarly to the “proactive” or “excellence” stage of environmental strategies (Albertini, 2013a) as well as the importance of innovation in a strategy (Eccles & Serafeim, 2013; Porter, 1996), this phase depends on a company’s ability and will to examine those environmental issues unveiled in the previous phase, consider them as business opportunities for innovation, and credibly communicate and disclose the environmental and financial information associated with such innovations to stakeholders and shareholders alike. Examples of activities

that firms are performing are: Integrated annual and sustainability reporting; Codes of Conduct for suppliers, portfolios of 'sustainability-related products and services'; and partnering with NGOs or academia for sustainability work (MOOC, 2014). However, as Peck continued to note, "while a number of the leading companies around the world are entering this phase, most companies have not yet reached this level" (2014).

The creation of value from environmental activities is challenging for organizations; those that are appropriately positioned and that are led by executives that value environmental work as a matter of business like any other at the company are examples of those that may be in good standing for embracing such a challenge and seeing it as a competitive opportunity. Leadership and calculated risks are required to develop products and services that have low or zero environmental impacts thus supporting society's quest for sustainable development. Because of the realistic pressures on the automotive industry due to resource scarcity, climate change, stakeholder expectations and legal demands, an OEM may be able to lead by example and build its business case for the environment by focusing its research and development attention on mobility solutions.

3 The case of Volvo Car Group

This chapter, *The case of Volvo Car Group*, begins by briefly introducing the automotive industry and the environmental pressures it is facing before plunging into the single-case study. The purpose of this chapter is to reveal the primary data collected during the first cycle of action research before the analysis of the company's environmental strategy is described. The chapter is divided into the following three main sections:

The first section, *Under Pressure: The automotive industry and the environment*, addresses the current situation of the automotive sector and introduces the significance of an environmental strategy. It briefly introduces how an environmental strategy may act to support an automotive corporation should it choose to approach environmental challenges as opportunities for competitive advantages and innovation.

The second section, *Environmental strategy*, introduces the environmental strategy at Volvo Cars.

The third section, *Approach*, then delineates the approach taken to assess the environmental strategy at Volvo Cars.

The fourth section, *Company background*, then provides a description of the company and expands on its environmental strategy.

The fifth section, *Primary data collection*, presents the collected primary data in detail.

Under pressure: The automotive industry and the environment

Together with globalization, technological advancements continue to drive economic growth and, in some cases, unleash disruptive innovations and change. The last century unleashed a composite of disruptive and sustaining innovations (Christenson, 2003) such as the steam engine, the production-line manufactured automobile, personal computers, and the internet, all of which have had drastic implications on the way people live and behave, the ways in which markets function and fail, and the state of the very resources that facilitate the production and manufacturing of such innovations. Invented in the 1880s by Gottlieb Daimler and Karl Benz, the modern automobile has profoundly marked its place in society by shaping not only the global economy, but also how billions of people live across the world (Daimler, n.d.; McKinsey. 2013).

With a global revenue estimate of EUR 1.544 trillion (Magna, 2014), an industry profit of EUR 54 billion (McKinsey, 2013), and acting as main source for job creation on the global stage, the automotive industry is a major player and decision-maker in the global economy (Orsato & Wells, 2007). Furthermore, the automotive industry is one of the greatest drivers and sources of industrialization policies and technological change largely due to its economic influence and extensive research and development capabilities. As Orsato & Wells (2007) noted, the tremendous economic importance [and research and development capabilities] of the industry generates ecological impacts (p. 994). Significant environmental impacts have been associated with all phases of a car's lifecycle and the infrastructure that it requires such as roadways and supply infrastructures. As environmental pressures such as resource scarcity, air pollution, and climate change together with stakeholder and legislative demands increase, the automotive industry is currently under great pressure to utilize its significance in the

global economy together with its research and development capabilities to innovate and adapt to these growing pressures. The electric car is a primary example of a disruptive innovation led by the automotive industry; the Toyota Prius, for example, was the world first mass-produced hybrid car and, after providing an alternative to the standard applications of the internal combustion engine (ICE), it has set the standard for other OEMs to follow (Toyota, 2014).

According to McKinsey (2013), OEMs are currently facing change and have to adapt to increasingly demanding environmental requirements and the rise of new players, particularly in China. McKinsey stated that “the global automotive industry is about to enter a period of wide-ranging and transformative change, as sales continue to shift and environmental regulations tighten. The lesson: companies that want to have a successful, long-term future need to get key strategic decisions right in the next decade” (p.3). Similarly, KPMG (2014) noted that mobility solutions are increasing in importance and stated that:

Automotive companies are adapting to a fast-changing competitive landscape. CO₂ emissions are becoming a major concern, due to increasingly tough regulations and consumer concern over pollution. Such environmental factors, combined with rising fuel prices, mean that ICE downsizing is becoming a higher priority, as electric battery technology has so far failed to produce a cost-effective alternative (p. 10).

Environmental challenges are driving OEMs to downsize their ICE and switch to alternative powertrains, and according to KPMG (2014), the key success factors for OEMs moving ahead in the future include moving towards hybridization and enhancing or differentiating vehicle lifecycle. Furthermore, “most economic and environmental challenges faced by the automotive industry have close relationships with the development of other industrial sectors, such as the steel, aluminum, and petroleum industries” (Orsato & Wells, 2007, p. 995); the authors emphasized that new technologies and pressures from the economic, social, and environmental dimensions of society are making a new configuration of the industry and its associates possible. “Escalating environmental pressures have the potential to accentuate the economic constraints faced by the auto industry to such an extent that, eventually, a new technological regime for the automobile may emerge” (p.995). KPMG (2014) also pointed out that:

The continuing urbanization of the world's population is putting unbearable strains on road infrastructure, and calls not just for new vehicles but a new approach to ownership. Mobility-as-a-service (MaaS) is starting to make inroads, but with a whole new generation of city inhabitants possibly never owning a car, the sector needs to find ways to satisfy this segment and build brand loyalty (p.11).

With over a billion cars worldwide (Sousanis, 2011) and an average life expectancy of approximately 8 – 10 years per new vehicle (Gorzelay, 2013), the need to manage the industry, its processes, and its product life-cycles has grown as resource scarcity and other environmental issues such as air pollution intensify together with legislative, consumerist, and stakeholder demands and expectations. Being a major economic pillar, the automotive industry has an enormous influence and, arguably, a responsibility for determining the future of mobility and the way in which the industry produces and manages its products; from the mining of materials to the production-line processes and then on to the user-phase of the vehicle, the end-of-life phase, and even back to remanufacturing phases. The performance of the industry, with both its processes and products, is crucial to preserving the last of the earth's (our) natural resources, public goods such as two of the fundamental elements of life, air and water, as well as its (our) pristine areas. The fairly recent acceptance of environmental

issues affecting the welfare of society and the economic system we depend upon has gradually been infiltrating the walls of today's automotive industry and into business decisions. In order to actively address such issues, embrace them as challenges, and unveil otherwise hidden opportunities, an OEM may turn to developing and implementing a proactive environmental strategy that may support it in achieving its desired position or attaining competitive advantage within this potent and competitive industry. By way of a proactive environmental strategy, an OEM may use it as leverage to achieve a competitive advantage in challenging environmental areas yet to be exploited by other OEMs and build its case for the environment as a business matter with trade-offs like any other.

Environmental strategy

In 2010, Volvo Cars implemented a new environmental strategy that involved three different functions of the business: manufacturing operations, research and development (R&D), product strategy and vehicle-line management (PS&VLM) and corporate communications. Due in part to its work in operations and environmental issues, the Environmental Protection department acquired the responsibility of coordinating the strategy. In brief, the environmental department is responsible for coordinating the strategy together with other key stakeholders who are responsible for their assigned part in the strategy; these three parts include: operations, product, and communications. The environmental department is responsible for the operations part; the product and communications parts are the responsibility of members working in R&D, PS&VLM, and corporate communications.

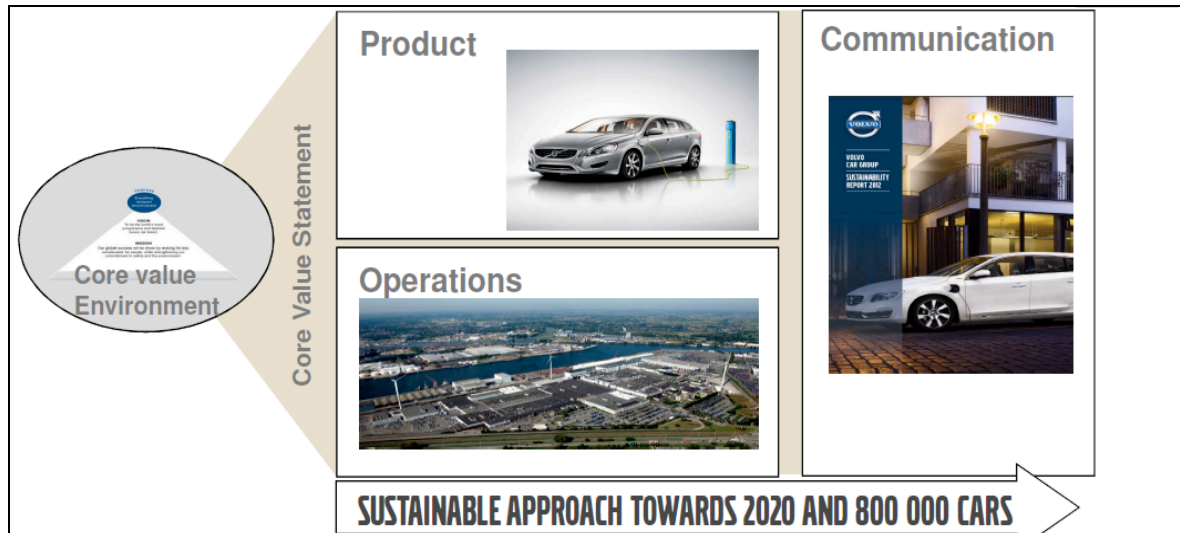
Within each part of the strategy (operations, product, and communications) are strategic areas chosen by the key stakeholders. There are seven strategic areas in operations, five strategic areas in product, and zero strategic areas in communications. Each of these seven and five strategic areas has a target set to support the company's desired position: to be the world's most progressive and desired premium car brand (Volvo Car Group, n.d.). The strategic areas are illustrated in Figures 10 and 11 respectively.

The strategy is meant to be led by the appointed Environmental Strategy Area Coordinator from the Environmental Protection department whose main tasks involve performing a yearly analysis of the strategy, assess its strengths, weaknesses, opportunities, and threats, as well as identifying its desired state. The strategy coordinator is then meant to produce a purpose, method, plan, and desired result for each of the chosen strategic areas. With regards to reporting information related to the strategy, the strategy coordinator is meant to report to the Environmental Committee led by an executive who then is responsible for recommending strategic environmental decisions to the Executive Management Team (EMT).

Given that an annual analysis of the strategy was required to be performed in 2014, the Environmental department saw this as an opportunity to request that an external analysis be performed; in this case, this Master of Science thesis project. The department initially requested the researcher to perform an investigation and analysis on the current environmental strategy for the purposes of assessing its state and significance at the company so that the researcher may provide direction, new insights, or recommendations for improvements with regards to the strategy's formulation. The department also had initially requested that the researcher's scope be delimited to operations. However, after deciphering in the initial research meetings within the pre-analysis with Volvo Cars that an obscure problem existed relating to the strategy and key stakeholders at the company, it was then decided by the researcher and the department that a brief assessment of the complete

strategy was necessary. This assessment acted as an essential step for obtaining a comprehensive overview and understanding of the strategy before delimiting the focus to only one of its three parts. Figure 5 illustrates the strategy divided into its three key parts: operations, product, and communications.

Figure 5 – Volvo Cars' Environmental Strategy (Volvo Car Group, 2014)



Approach

The researcher began the investigation by first discussing with the environmental department how the strategy was formulated, why the strategy was formulated, and what the known strengths, weaknesses, opportunities, and strengths were. Within the process of this investigation, the environmental department expressed that their expectations of the deliverables were open and intangible; their main expectation was to perform an investigation that provided new insights with regards to the current environmental strategy. The situation that arose from the ensuing discussions strongly matched that of an action research paradigm as described by Bryman & Bell (2011), and Brown & Tandon, (1983). Action research, as described in chapter one, largely matched the needs of the environmental department as it involves “an approach in which the action researcher and a client collaborate in the diagnosis of a problem and in the development of a solution based on the diagnosis” (Bryman & Bell, 2011, p.413). Furthermore, under an action research paradigm, the action researcher seeks to make social systems more efficient and more effective and aims to solve problems of individuals or institutions (Brown & Tandon, 1983). Pursuant to this study, action research was conducted so that a joint exploration with the company and the researcher could be performed to elucidate the detected problem with the strategy, assess its significance, and identify tools that may be used to overcome the problem.

Before the interactions with Volvo Cars personnel, background research was performed on the company to have a better understanding of the organization as a whole. The research then advanced to initial discussions with the strategy developers. These activities revealed that it was difficult for both parties to elucidate the exact problem that they experienced. It became increasingly clear during this initial stage of the investigation that the personnel had difficulty expressing or describing the ‘problem’; however, they perceived that they were facing challenges with the strategy’s implementation. Therefore, the researcher turned to a

wider range of qualitative methods to support the development of the research and investigation of the problem at hand. These methods included focus groups, semi-structured interviews, and a self-completion questionnaire, all of which were guided by Bryman & Bell (2011) and that supported the process of identifying interesting and problematic themes relating to the strategy.

The focus group technique was selected for collecting data with strategy developers and implementers as it enabled the researcher and key stakeholders to explore the environmental strategy together in depth; it also facilitated the development of the research by providing valuable insights to the group interactions, dynamics and perspectives of the stakeholders as the key strategy developers (Bryman & Bell, 2011). The semi-structured interview technique was selected as it provided flexibility in the interviews that were conducted with top executives. This flexibility enabled the interviews to follow a structure, but also to allow room for executives to pursue topics of particular interest to them (Bryman & Bell, 2011). The self-completion questionnaire technique was also selected as it provided the research with quantifiable results that could be compared to the less tangible responses in both the focus groups and the semi-structured interviews. The research practitioner then collected the primary data by conducting three focus groups with both strategy developers and implementers, steering six semi-structured interviews with members of top executives, as well as distributing a standard self-completion questionnaire to all of the informants. The self-completion questionnaire enabled the cross-examination of responses and any inconsistencies in informant responses were taken into account.

Company background

Founded in 1927, Volvo Group was once an organization that manufactured cars, trucks and marine engines. It was not until 2000 that the Swedish organization sold its car division, Volvo Car Corporation, to Ford Motor Company which owned the company until 2010, when Geely Automobile purchased what is now known as Volvo Cars. Now separate from Volvo Group and Ford, the last four years have enabled Volvo Cars to develop as a stand-alone company; for the first time in its history, Volvo Cars is completely disentangled from a larger organization and is able to determine its own path as a company. The company is now led by its Chief Executive Officer who ensures that any demands given by the Board of Directors are met. Volvo Cars Board of Directors represents the desires of Volvo Cars private owners; the relationship between the owners and the company remains unclear. This relationship was not investigated within the scope of this paper, but is an area in need of further research by Volvo Cars in the next and third cycle of action research: the reformulation and implementation of the strategy.

Volvo Cars manufactures approximately 450,000 cars per year, employs 23,242, in over 10 countries globally. In 2013, around 2,300 Volvo dealers sold 427,840 cars in over 100 countries (Volvo Car Group, 2013). In 2013, the company reported an operating income of SEK 1,919 million, compared with SEK 66 million the previous year, and a net income of SEK 960 million compared with a negative net income of SEK -542 million in 2012. As a newly independent and unlisted company, external communications at Volvo Cars has claimed that the company has made bold advances into the premium-market segment of the automotive industry particularly with its new Volvo Engine Architecture (VEA). Furthermore, Volvo Cars has claimed that the VEA engines have shown the industry and the world that it is possible to have a premium car brand that relies only on highly efficient four-cylinder engines; for example, Volvo's new XC90. According to inside sources, Volvo Cars has claimed that the new XC90 is the most efficient luxury Volvo model to be manufactured

and the most fuel-efficient sports-utility vehicle relative to its size on the global stage today (Figure 7). Once primarily recognized for its boxy automobiles such as Volvo's 200 series (Figure 8), both the company and the critics have claimed that Volvo Cars now distinguishes itself as a relatively small yet competitive premium brand on its way towards competing with leading premium automotive manufacturers such as Audi, BMW, and Mercedes.

Figure 6 – Volvo 240



Figure 7 – Volvo XC 90



The company currently has a corporate-wide strategic framework composed of seven different elements including a company purpose, culture, vision, mission, brand strategy, corporate objectives, and strategic change themes. Figure 8 illustrates the strategic framework at Volvo Cars.

Figure 8 – Corporate-wide strategic framework at Volvo Cars



The framework begins with the company purpose: *Designed Around You*. Together with its Swedish heritage, having a human-centric focus shapes the purpose of the company and “is what makes [Volvo Cars] different from other car companies” (Volvo Car Group, 2013, p.10). Together with *Designed Around You*, Volvo Cars has added Volvo Cars Culture to the strategic framework which outlines three cultural values that the company aspires to embody: (1) passion for customers and cars; (2) move fast, aim high; and (3) real challenge & respect. Figure 9 provides an illustration of the culture in short.

Figure 9 – Volvo Cars Culture: A culture defined by three values



The vision, "...to be the world's most progressive and desired premium car brand" is meant to provide an objective, or direction, for the company to follow so that it may reach its desired position. The mission, "our global success will be driven by making life less complicated for people, while strengthening our commitment to safety, quality, and the environment" is meant to describe the company's values and its commitment to customers. The company values, which are different from the cultural values, include *safety*, *quality*, and *environment*. "They form the essence of our product offer and operations, with the objective to create value for our customers, employees, the society and other stakeholders" (Volvo Car Group Intranet, 2014). Each core value is accompanied by a core value statement that illustrates the company motivations behind the core value. The core value statement for environment is illustrated in Appendix 1. Three specific areas have been defined in the core value statement environment that "drive [Volvo Cars] focus on the environment" and are listed as followed:

- People's health
- Energy efficiency
- Resource efficiency

The brand strategy, which refers back to the company's purpose, *Designed Around You*, is then used to describe its promise to customers and its focus on products. The brand strategy is "how [Volvo Cars is] going to appeal to...customers. It stipulates Volvo Cars' uniqueness as a brand from both a customer promise and product attribute perspective." Following the brand strategy are the corporate objectives which define the long-term goals and what Volvo Cars needs to achieve them; and finally, the strategic change themes make up a short list of six renewal actions that the company uses to bridge the gap between today's position and where the company wants to be in the future (according to the corporate objectives). "The themes cover some of the core areas of [Volvo Cars] business: finance, brand, products, markets and people. They describe what [Volvo Cars needs] to focus on in the near future." Appendix 4 provides a diagram detailing the six strategic change themes.

An observation was made by the researcher during one of the interviews with regards to the six change themes. This observation suggested that two of the six could more easily be associated with the company's environmental performance: (1) Emphasize profitability and

efficiency and (6) Build a global organisation with performance and health, able to act in a fast, smart, and nimble way. The interviewee stated that the environmental strategy could perhaps be “[aligned] with the change themes: profitability, smart and nimble” The two aforementioned strategic change themes, mainly with the use of the terms *efficiency* and *smart and nimble*, were of particular interest to the researcher when reflecting on the company’s environmental strategy. In order to explore if a relationship existed between Volvo Cars’ environmental strategy, the corporate-wide strategic framework, and the company’s mission to strengthen its commitment to the environment, data (as described in chapters one and four) was collected by exercising the action research paradigm by way of focus groups, interviews, and a standard self-completion survey questionnaire.

Primary data collection

Active research began by selecting a segment of the organization’s population for investigation. Purposive sampling (Palys, 2008) was applied in order to identify informants because the investigation with strategy developers had a purpose in mind regarding the engagement of key stakeholders. Therefore, the sample members’ included strategy developers, strategy implementers, and top executives. The research was carried forth by administering the following research instruments: focus groups, semi-structured interviews, and a self-completion questionnaire. A 100% response rate was achieved as all of the requests for interviews and focus groups were accepted, and all members responded to the survey questionnaire. This high response rate provided evidence of a high degree of interest and motivation from Volvo in this investigation moving forward.

Focus Groups

Active research began by administering research instruments focus groups conducted with strategy developers and implementers. The participants were labelled A through to E for confidentiality reasons. The focus groups involved a discussion mainly driven by the participants and steered by the researcher with open questions and background information on the five generic approaches (Reinhardt, 1999) and definitions of strategy (Porter, 1996). The intent of the focus groups was to assess the current situation amongst the participants and pose questions including, but not limited to:

- What does the term and concept of *strategy* mean to strategy implementers?
- What does the term and concept of *value* mean to strategy implementers?
- What is the current situation of the environmental strategy as it is today?
- How does the strategy fit within the context of OE and strategy as defined by Porter?
- How does Volvo Cars compare with the five strategic approaches, if at all?
- What are the next steps in this strategy’s development or implementation?

Strategy & Value

Once the first few questions were posed, the resulting responses and ensuing discussions presented a clearer image of the environmental strategy’s current form and status. A first issue deemed important to this analysis was that different interpretations of the environmental strategy were evident as participants had difficulty agreeing upon the meaning of the term *strategy*. Individual participants shared their interpretations of the term strategy as “the long term goal” (participant E); “[being] based on how we make money” (Participant

C); “how you can meet your objectives” (Participant A); “how we want to be and then how we want to get there” (Participant B); “is it the goal? Or the way to reach the goal?” (Participant D); “the way to reach the goal” (Participant B). Furthermore, confusion was evident when discussing the meaning of the terms *vision*, *action plan*, and *policy* and the roles they play. Furthermore, participant D made the remark that “...there are as many definitions as we have people talking about strategy.” Hence, with regards to the term *strategy*, it came as no surprise that “... [the overall] conclusion is that everyone has a different view of what it is and it’s not easy to pinpoint” (participant B).

A second issue deemed important to this analysis was that the discussion led to evidence that a conflict of interest was present regarding the role of the environmental strategy and whether it should stimulate actions that derive economic value or not. Participant C suggested that the strategy should be the way “...to make money” whereas Participant E objected this suggestion by emphasizing that the objective of the environmental strategy is not to make money as “that’s [the role of] the corporate strategy.” When discussing the term *value*, evidence emphasized the aforementioned conflict of interest as participants did not all agree that economic value could or should be derived from the environmental strategy. Some participants believed that *value* was attaining an “edge or a gain,” not necessarily linked with monetary values (Participants A, B, D, E); another saw it as something that “someone is willing to pay for” (Participant E); another saw it as being “value for money... How much did you put into it to have that wanted product on the market?” (Participant A); and yet another saw it solely as “something that makes money” (Participant C).

Current situation: Strategy or OE?

A third issue deemed important to this analysis was that the questions regarding OE and strategy as defined by Michael Porter provided fruitful discussions with regards to the actual formulation of Volvo’s environmental strategy. OE was preferably referred to by one participant as “continuous improvement” (Participant C) and strategy was associated with being a “step change” by another participant (Participant B). After clarifying the interpretations of OE and strategy, participants began reflecting upon where the environmental strategy fit within the context of continuous improvements (OE) and step changes (strategy). It became clear throughout the ensuing discussion that there remained uncertainty if the objective of the strategy was to:

- (a) Differentiate the company from its rivals
- (b) Perform like-activities better than its rivals
- (c) Differentiate the company from its own past activities
- (d) Perform activities better than the company used to
- (e) All of the above
- (f) None of the above

Current situation: Strategic areas?

After considering the main objective of the strategy, the discussion turned to the formulation of the environmental strategy itself. The strategy was originally formulated with what were labelled ‘strategic areas’ in two of the three key parts (operations, product, and communications): seven strategic areas were listed for operations and five strategic areas

were listed for product. Figure 10 illustrates those listed strategic areas chosen for the operations part and Figure 11 illustrates those for the product part.

Figure 10 – Strategic areas: Operations



Figure 11 – Strategic areas: Product



Three findings were held to be of particular relevance to this analysis because they relate to the basic building blocks of the strategy that determine its place and effectiveness within the organization. These findings from the discussion on the strategy's formulation and its chosen strategic areas were:

- (1) All participants had the quizzical realization that the chosen strategic areas may not be so strategic after all; they realized that some of the chosen areas may be areas of compliance and continuous improvements, not strategic areas at all.
- (2) Participants were generally in agreement that the way in which the strategy was formulated was rather divided and complicated.
- (3) Participants then continued the discussion by suggesting that the formulation of the entire strategy needed to be revised. The reason for this suggestion was due to the general agreement that the strategy's activity-level was low and that the chosen strategic areas were identified as not being strategic but more related to continuous improvements.

Current situation: Strategic environmental approaches

Fourthly, questions regarding the five strategic approaches also stimulated fruitful discussions as participants could identify elements of Volvo's products and processes with four of the five generic strategic environmental approaches. The participants were asked if they could place environmental work at Volvo Cars in the described generic strategic approaches. According to the participants, Volvo fit within the context of the Environmental Differentiation approach, the Environmental Risk Management approach, the Saving Costs approach, and the Managing Your Competitors approach. It was of interest to the research that, for the Saving Costs approach, Participant C expressed the concern that the remanufacturing of parts was an activity that Volvo Cars engaged in, but that "the benefit of

[taking back the battery and remaking it into a new one] is not included in the business case”. Table 3 illustrates examples of activities suggested by the participants as fitting within the context of the aforementioned approaches. This table provides the examples of activities mentioned and does not encompass all of the environmental work at Volvo Cars.

Table 3 – Identifying Volvo Cars with the strategic environmental approaches

| | |
|-------------------------------|--|
| Environmental Differentiation | <ol style="list-style-type: none"> 1. The new engine family: VEA engines (four cylinder engines) 2. Plug-in diesel hybrid (first of its kind) |
| Environmental Risk Management | <ol style="list-style-type: none"> 1. Water-based paint used in paint shops; in 1991, Volvo Cars’ Torslanda paint shop became the cleanest paint shop in the automotive industry. 2. Potential for green initiatives (e.g. green roofs and meadows) |
| Saving Costs | <ol style="list-style-type: none"> 1. Substantial investments in energy efficiency have been made, particularly in Ghent plant. 2. Remanufacturing of parts but needs improvement according to participants 3. Potential to increase resource efficiency (i.e. steel and other materials) |
| Managing Your Competitors | <ol style="list-style-type: none"> 1. Working relationship established with academic institutions, NMC Group, and IVL Svenska Miljöinstitutet. 2. Potential to establish stronger relations exists with e.g. Naturskyddsföreningen or environmental groups. |
| Redefining Markets | None mentioned |

Next Steps

Overall, agreements and disagreements were evident with each question posed in, and the discussions advanced into establishing one common consensus: the need to redefine and develop the current environmental strategy. The reformulation of “environmental strategy 2.0” (participant A) was decided upon. As the research progressed and the strategy’s reassessment continued, it became evident that the strategy developers saw the need to

reformulate, simplify, and further connect the strategy with the core value environment. The participants decided to make the three focus areas mentioned in the core value statement as reference points to build upon. The following three areas linked to the core value statement have now become the reference points and the first building blocks in the formulation of the environmental strategy 2.0:

- People's health
- Energy efficiency
- Resource efficiency

Interviews

Semi-structured interviews were conducted with a select group of executives, top managers, and directors at Volvo Cars including three senior vice presidents (SVPs), two vice-presidents (VPs), and one director. Their titles have been omitted in this paper for confidentiality reasons. Interviewees were labelled F through K accordingly. The objectives of these interviews were to:

- (1) Understand how the term *environment* is defined and perceived top decision-makers in the organization;
- (2) Assess if the environment was regarded as a business matter or a corporate responsibility, or both;
- (3) Comprehend how the terms *strategy* and *value* are regarded by top management on a general level;
- (4) Assess the current situation of the environmental strategy at the top management level and explore if a relationship exists between the environmental strategy and the company's mission as well as corporate strategy;
- (5) Examine the significance of having an environmental strategy at the company in their views as well as the opportunities and challenges that they believe may influence its success.

Environment

Information to fulfill the first objective (1) was collected in interviewee responses to questions regarding the term *environment*. A common theme among interviewee responses was that CO₂ and the company's heritage were two of the main drivers for adding the term environment into the mission statement and one of the ways in which the company defines environment. Interviewee F suggested that the company had moved away from regarding the environment as solely "pollution from the industry...around the factories" towards "...a more balanced view [including] efficiency of the engines and CO₂." Similarly, Interviewee H stated that "most people...relate to emissions." Furthermore, Interviewee G stated that the term environment could be broken down into "at least two dimensions: one is the production development process, and the other one is products; what we put on the street and actually sell to people." Although the interviewee acknowledged these two dimensions as including production processes, product recyclability, resource consumption, waste, etc., it was made clear that the product dimension was currently very much in focus as it is translated "to fuel consumption which is measured in CO₂ emissions." Other participants suggested that the term *environment* is defined as being "part of the company's DNA," Volvo's history, Volvo's "Swedish heritage," and something that "relies on what we did in the past." As Interviewee I highlighted, "it depends on who you ask...a big number define it as DNA

and relies on what we did in the past...the second group redefines it as something more” and that the company can utilize “the strong heritage in the brand... [as a] fantastic opportunity [to do]...more” regarding environment.

Interviewee I expressed that ‘environmental work at the company needs to be seen less as a cost and more as an opportunity’. The interviewee elaborated by mentioning that ‘many top management members do not see the full potential of the environmental care opportunities’. Furthermore, the interviewee expressed that there existed ‘difficulty in translating environment into business terminology at the company’ and suggested that the term *resource efficiency* could be a better term for the company to use, rather than *environment*.

Environment as a business matter

Information to fulfill the second objective (2) was collected in interviewee responses to questions regarding the degree of significance between the three core values of the company: safety, quality, and environment. When posed with questions relating to whether or not the environment was regarded as a business matter like any other, all respondents responded that it was to some extent; however, as previously mentioned, Interviewee I strongly emphasized the need to improve this. Interviewee F’s response clearly stated “of course we should use it from a business perspective” and Interviewee K responded that “at the end of the day, our products have to comply with all the environmental requirements. We of course have to operate in a compliant manner [making] it an integrated part in most of the decisions.” Although a number of interviewees acknowledged that the environment was a corporate responsibility as well, Interviewee F’s statement reflects the common theme among responses: “We save a lot in how much energy we spend in our plants and in our offices, and that saves us money, so...to me the social responsibility is an indirect result, the main result is to be smart and make money, and I’m 100% convinced that you do that better if you are [resource efficient]”. The aforementioned definitions of the environment together with the responses from interviewees (such as those from Interviewee F and K) suggest that the environment is treated by top management as a matter of business; the responses suggest that this is largely due to external pressures such as legislation (i.e. CO₂ emissions), consumer demands (i.e. fuel efficiency), and internal research and development capabilities (e.g. VEA engines).

The consistency and degree to which the environment is treated as a business matter with trade-offs like any other are difficult to measure based only on participant responses, particularly when considering the response from Interviewee I. Unlike the responses given by other interviewees, Interviewee I expressed that the environment was not being treated as a business matter to the degree it could be. Interviewee I elaborated by stating that “resource efficiency is a business opportunity”, but that “a lack of knowledge and attention” from the company’s top decision-makers was lacking. The interviewee also emphasized that missed opportunities were a consequence of this and explained that:

The simple answer is that many leaders do not have the full understanding of the potentials that the business has in resource efficiency because they are too busy in other factors for creating business value. “Hidden losses” like energy, waste etc. must have more attention [from top management] because many times these losses can create more value than, for instance, a new feature in an new car. But it is not always that “sexy” to talk about. The challenge we have is to create this attention [and] also emphasize that missed opportunities were a consequence of this.

When comparing the three core values, it was evident within responses that the participants thought it was difficult to compare or rank them in importance. Interviewee F stated “I think [environment] is definitely equal to quality, but it’s not equal to safety, because without safety you don’t have a company”. Similarly, Interviewee H responded by saying “is [environment] as important as the other ones? Maybe not, because the other ones have been highlighted over [a] long time from the very beginning”. Most interviewees, however, stated that the core value environment *should* be equally as important as the other two core values, despite safety being ranked as the top priority and quality ranked second. Most of the respondents acknowledged that there was still room to improve in this area with regards to the core value environment and one interviewee in particular stated that “there are still opportunities to make the core value environment equal to safety, but we’re not there yet” (Interviewee I). Interviewee K suggested that “Volvo wouldn’t be Volvo without all three of those core values” and that the value has “acted as a driver for innovation”; however, interviewee K also added that the company can do “much more” to support the core value environment and to get credit for what the company has accomplished thus far. Upon discussing the company’s definition of environment and how the core values compare to one another, it became clear that the main drivers behind adding the term *environment* into the company’s mission were: CO₂ and the company’s heritage defined by past environmental achievements listed in Appendix 5.

Strategy & Value

Upon defining the term *strategy*, information to fulfill the third objective (3) was collected when interviewees largely responded that it is centered on a chosen direction or wanted position. It was defined by interviewees as “a road map of tactics to reach [our] wanted position” (Interviewee I); “gives you direction” (Interviewee J); “how to do things to get there” (Interviewee H); “the art of saying no...it’s about prioritization...it should also include what [one does] not want as well as what [one does] want to do” (Interviewee G). Defining the term *value* varied in interviewee responses and both hard (tangible) and soft (less tangible) values were mentioned. Interviewee G stated that “value can be different things, but value is something I appreciate and am prepared to pay for”. Interviewee F defined value in various ways including “what the company is...what the brand is”; “cash inflow”; and the company’s three cultural values (1) passion for customers and cars, (2) move fast, aim high, and (3) real challenge & respect. Interviewee F elaborated that a “value cannot differ...if you have created a value, it is part of the company.. whereas strategy can vary from time to time”. After discussing the meaning of strategy and value, the environmental strategy became the next focus in the interview process.

Current situation: Environmental strategy

Information to fulfill the fourth objective (4) was achieved as soon as it became evident that the majority of top-management interviewees were unfamiliar with the environmental strategy at the company. It was made clear throughout the interviews that many top management members were either caught unaware of the environmental strategy at the company or had very limited knowledge about it. Interviewee H emphasized this by stating “I believe that the environmental strategy is rather unknown in general by our people” and Interviewee K supported this statement with evidence by stating that the interviewee ‘was not aware that the company had an environmental strategy’. The interview process, therefore, became a source of evidence for first impressions on what kind of significance an environmental strategy could have in the company as well as what role it could play.

Interviewee G believed that the environmental strategy could be “our way to execute how and what we actually do with the term environment in our mission” and went on to pose the relevant question “what is it that we want to do when we say it’s there in our mission? We need to do something about it.” Interviewees differed in their responses with regards to the environmental strategy being integrated within the corporate strategy or not. Some interviewees believed it should be fully integrated and others were more reserved as they expressed concern that the environmental strategy could be engulfed and even perhaps lost within the corporate strategy should it be fully integrated and embedded within it. Interviewee F stated that “we need to integrate all this into the overall corporate strategy”; Interviewee G stated that “I hope it is...all strategies should be somewhat coordinated and aligned... when we define the environmental strategy, it should be...aligned with the corporate strategy in terms of the same headlines and headings. You can, say, align it with the change themes: profitability, smart and nimble” and highlighted how those responsible for the strategy should be able to answer the following question in relation to the six change themes: “what do you actually do to support the bigger picture?”; Interviewee J suggested that it could be “further improved [and] needs to be more embedded”; Interviewee K stated “I don’t believe in an environmental strategy that is too far away from the overall strategy” and highlighted the need for a strong link to exist between the two; for example, “there needs to be a link between [the environmental strategy] and profitable growth”; one of the six strategic change themes. Both Interviewees I and H were both reserved about integrating it fully into the corporate strategy as both revealed the risks involved. Upon reflecting on the integration of the strategy within the corporate strategy, Interviewee H stated:

The positive is that its seen as a part of the core strategy, but the negative could of course be that it gets not enough space, that it gets squeezed in between somewhere, and therefore it doesn’t get the right light on it so to speak and the right priority.

Interviewee I agreed that it should be integrated but emphasized that it should be integrated “in a way that uses a business approach” as mentioned in the earlier section *Environment*. The interviewee expanded on this thought by mentioning that the environmental strategy should not have separate key performance indicators (KPIs) than the corporate strategy and that the corporate strategy’s KPIs should have environmental activities integrated within them. In this way, the interviewee suggested that the environmental activities at the company would then directly support the corporate strategy’s KPIs; thus keeping the company focused on the core business by creating business value with the company’s environmental work (defined by the interviewee as *resource efficiency*). Similarly, Interviewee G stated “we should have a base business which is energy and resource efficient, which can be translated and talked about as environmentally friendly”.

Environmental strategy: a missing link?

Information to fulfill the fifth objective (5) was collected once interviewees expressed areas of opportunity for an environmental strategy as well as the challenges that it may face in its implementation. As Interviewee F stated “a value cannot differ... if you have created a value, it is part of the company...it’s like no one can debate that safety should be part of Volvo, that’s undebatable”. This statement reinforces that, by having the value environment, the company needs to be able to work towards making it “undebatable” like safety as the interviewee suggested. When responding to questions regarding the use of an environmental strategy and how it could link to the core value environment, Interviewee F suggested that the company can “hopefully take a price premium for [environmental investments] in the future... [but we] will be able to do that if it’s not driven only by legislation”. Interviewee F

continued by mentioning that ‘when thinking about the future we think about environment, so [an environmental strategy] will support a better price position like safety or quality does’. Interviewee G stated that “we have to figure out how to make it into our advantage [and] how we can benefit from it.” With regards to communication, Interviewee K noted that the company’s communication of its environmental investments and efforts could be improved as “we haven’t reached the customers and the world... I think we can do much more” in how the company communicates and markets the brand with regards to the company’s environmental work. After acknowledging that the company has performed a lot of environmental-related work that has gone unacknowledged, Interviewee H supported the aforementioned statement by pointedly stating:

How do we create even more awareness and knowledge about how we actually are working with the [core value] environment... We talk very much about quality, and the quality transformation, we talk about safety, we talk about the world’s safest car... there’s no doubt about Volvo really leading in safety. If you go to any employee at Volvo Cars, no one would say that we are not working with safety, no one would say that, but when it comes to environment, [stakeholders may wonder] are we working with that? We have seen it on the product, but the rest, are we doing something? Or is it just papers? I think there is much more doubt about how efficient we are regarding the environment.

Interviewee H continued by claiming that “[the company] does a lot of good things” referring to environment and, upon commending the work of earlier communication efforts (e.g. VEA engines, air filters in China, the latest Robyn commercial), the interviewee continued by stating “we can do more.” Interviewee G also highlighted the need for better communication on environmental activities by stating that “we have the technology and we need to know how to talk about it, how to implement it, how to package it to customers... we need to be better and more creative on the commercial side, the marketing and sales side, the business proposition for the customers. How do we price for it? How do we package it?” Furthermore, Interviewee G claimed that there are a lot of environment-related activities being performed at Volvo that people in general, despite how many years the company has worked on them, do not know about; “the air filters are a good example”.

As previously mentioned, the environmental strategy was largely unknown by interviewees; however, all of the responses were positive towards the significance of having such a strategy at the company. Furthermore, Interviewee K touched upon the strategy itself and the importance of having a strategy that is easily understood and that engages all key stakeholders:

First of all, I think the internal anchoring process is extremely important, I think that it is important that the strategy is very very well understood by all key stakeholders because you can produce the best strategy on earth, but if you don’t have the commitment in the organization, especially from the people who will be the ambassadors of this document, and the message, then it will never fly... I think making sure that people are engaged, that they are allowed to contribute, and that you also get full buy-in from top-management in the roll out of that kind of document, because I think environment is probably an area where you always have the battle between everything [having] to be cost efficient, but at the same time you want it to be good from an environmental point of view... In good times, it is easy to be the good corporate citizen doing everything even above what is required and in tough times, the compromising starts, and I think unless you have a buy-in from top-management that ‘yes, this is something we shall defend also in tough times’ it may become a... piece of paper not really made use of. So, I think it cannot be isolated; it must be kept alive... [Moreover] the political anchoring and timing [of the strategy] cannot be underestimated.

Perhaps unknowingly, Interviewee H’s below statement delineated the problem with the current environmentally strategy upon which this research is based by stating:

“How do we form a strategy that can be used and understood, [one] that engages people? ...Because strategy can be rather boring...How can we leverage on others, what they have been doing, how they have formed their strategies, because in some ways it doesn’t matter if you are an automotive company or another company, it’s how you create the engagement and we have done many things to be proud of, but there’s so much more that’s needed.”

Overall, the interviewees provided valuable insights that added to the research. In order to compare the responses from strategy developers and implementers with those of top management members, a self-completion questionnaire was distributed to each participant and interviewee involved. Although not fully representative, this questionnaire provides insights on any discrepancies or similarities that may exist between top management and strategy implementers.

Self-completion questionnaire

For each focus group and interview, a standard self-completion questionnaire was distributed to participants A – E and interviewees F – K. This survey was designed with four (4) closed statements (labeled A – D in table 4) whereby respondents were asked to evaluate the statement on a scale of one to five (1 – 5); a score of one (1) represented that the respondent strongly disagrees with the statement and a score of five (5) represented that the respondent strongly agrees with the statement. The statements comprised of those in Table 4 and the originals are located in Appendix 6.

Table 4 – Self-completion questionnaire statements

| | |
|-------|---|
| A | At Volvo Cars, our core value <i>Environment</i> , is equally as important as our core values <i>Safety</i> and <i>Quality</i> . |
| B | The environmental strategy at Volvo Cars can add economic value to the company. |
| C | The environmental strategy can best support the company’s mission by being integrated within the corporate strategy: Designed Around You. |
| D | Volvo Cars should improve the communication of its environmental work in order to raise customer awareness. |
| Scale | 5 = strongly agree 1 = strongly disagree |

The individual results from each respondent were added together and divided by the total number of respondents (five) to yield the mean. The mean indicated the extent to which the average respondent agreed with each statement. The higher the mean, the more respondents agreed with the statement; the lower the mean, the less the respondents agreed with the statement. The mode indicated the most preferred rating (i.e. level of agreement) on the scale by respondents. For illustration purposes as shown by Figure 13, three assumptions were made: (1) an assumption was made that any result greater than 2.5 on the scale indicated that the respondent agreed with the statement; (2) an assumption was made that any result less than 2.5 on the scale indicated that the respondent disagreed with the statement; (3) an assumption was made that a result of 2.5 on the scale indicated that the respondent was uncertain about the statement. First, the results of the participants are presented; second, the results of the top management members are presented. The results are illustrated in Tables 5 and 6 respectively.

Participant responses

Table 5 – Self-completion questionnaire results: Participants

| Statement | Result 1 | Result 2 | Result 3 | Result 4 | Result 5 | Mode | Mean |
|---|----------|----------|----------|----------|----------|------------|------------|
| A At Volvo Car Group, our core value Environment, is equally as important as our core values Safety and Quality. | 2 | 1 | 2.5 | 1.5 | 1.5 | 1.5 | 1.7 |
| B The environmental strategy at Volvo Car Group can add economic value to the company. | 5 | 3.5 | 5 | 4.5 | 5 | 5 | 4.6 |
| C The environmental strategy can best support the company's mission by being integrated within the corporate strategy: Designed Around You. | 3.5 | 4 | 5 | 5 | 2.5 | 5 | 4 |
| D Volvo Car Group should improve the communication of its environmental work in order to raise customer awareness. | 5 | 5 | 5 | 4.5 | 3.5 | 5 | 4.6 |

Statement A - Participants

At Volvo Cars, our core value Environment, is equally as important as our core values Safety and Quality.

Results A: The responses from strategy developers and implementers revealed that none of the respondents agreed with the statement. This was deciphered from a mode of 1.5, a mean of 1.7, and a range of 1.5 on the scale from 1 to 5. Therefore, the majority of the participants

did not believe that the core value environment was as important as the other two core values at the company.

Statement B – Participants

The environmental strategy at Volvo Cars can add economic value to the company.

Results B: The responses from strategy developers and implementers revealed that all participants agreed with the statement. This translated to a mode of 5, a mean of 4.6, and a range of 1.5 on the scale from 1 to 5. Therefore, the majority of participants believed that the environmental strategy could add economic value to the company.

Statement C – Participants

The environmental strategy can best support the company's mission by being integrated within the corporate strategy: Designed Around You.

Results C: The responses from strategy developers and implementers revealed that almost all of the participants agreed with the statement. This translated to a mode of 5, a mean of 4, and a range of 2.5 on the scale from 1 to 5. Therefore, the majority of participants believed that the strategy can best support the company's mission by being integrated within the corporate strategy.

Statement D – Participants

Volvo Cars should improve the communication of its environmental work in order to raise customer awareness.

Results D: The responses from strategy developers and implementers revealed that all participants agreed with the statement. This translated to a mode of 5, a mean of 4.6, and a range of 1.5 on the scale from 1 to 5. Therefore, the majority of participants believed that the company's should improve the communication of its environmental work in order to raise customer awareness.

Interviewee responses

Table 6 – Self-completion questionnaire results: Top management

| Statement | Result 1 | Result 2 | Result 3 | Result 4 | Result 5 | Mode | Mean |
|---|-----------------|-----------------|-----------------|-----------------|-----------------|----------------------|-------------|
| A At Volvo Car Group, our core value <i>Environment</i> , is equally as important as our core values <i>Safety</i> and <i>Quality</i> . | 4 | 2.5 | 2.5 | 4.5 | 4 | 2.5 & 4 | 3.5 |
| B The environmental strategy at Volvo Car Group can add economic value to the company. | 5 | 5 | 4 | 4.5 | 4 | 4 & 5 | 4.5 |
| C The environmental strategy can best support the company's mission by being integrated within the corporate strategy: <i>Designed Around You</i> . | 5 | 5 | 4 | 4.5 | 5 | 5 | 4.7 |
| D Volvo Car Group should improve the communication of its environmental work in order to raise customer awareness. | 2.5 | 4 | 4.5 | 4.5 | 2.5 | 2.5 & 4.5 | 3.6 |

Statement A – Top management

At Volvo Cars, our core value Environment, is equally as important as our core values Safety and Quality.

Results A: The responses from top executives revealed that none of the respondents disagreed with the statement. This translated to a mode of 2.5 and 4, a mean of 3.5, and a range of 2 on the scale from 1 to 5. Therefore, the majority of interviewed top management members believed that the core value environment is as important as the other two core values at the company.

Statement B – Top management

The environmental strategy at Volvo Cars can add economic value to the company.

Results B: The responses from top executives revealed that all respondents agreed with the statement. This translated to a mode of 4 and 5, a mean of 4.5, and a range of 1 on the scale from 1 to 5. Therefore, all of the interviewed top management members believed that the strategy could add economic value.

Statement C – Top management

The environmental strategy can best support the company's mission by being integrated within the corporate strategy: Designed Around You.

Results C: The responses from top executives revealed that all of the respondents agreed with the statement. This translated to a mode of 5, a mean of 4.7, and a range of 1 on the scale from 1 to 5. Therefore, the majority of interviewed top management members believed that the strategy could best support the company's mission by being integrated within the corporate strategy.

Statement D – Top management

Volvo Cars should improve the communication of its environmental work in order to raise customer awareness.

Results D: The responses from top executives revealed that none of the respondents disagreed with the statement. This translated to a mode of 2.5 and 4.5, a mean of 3.6, and a range of 2 on the scale from 1 to 5. Therefore, the majority of interviewed top management members believed that communication of environmental work should be improved to raise company awareness.

4 Analyzing strategy

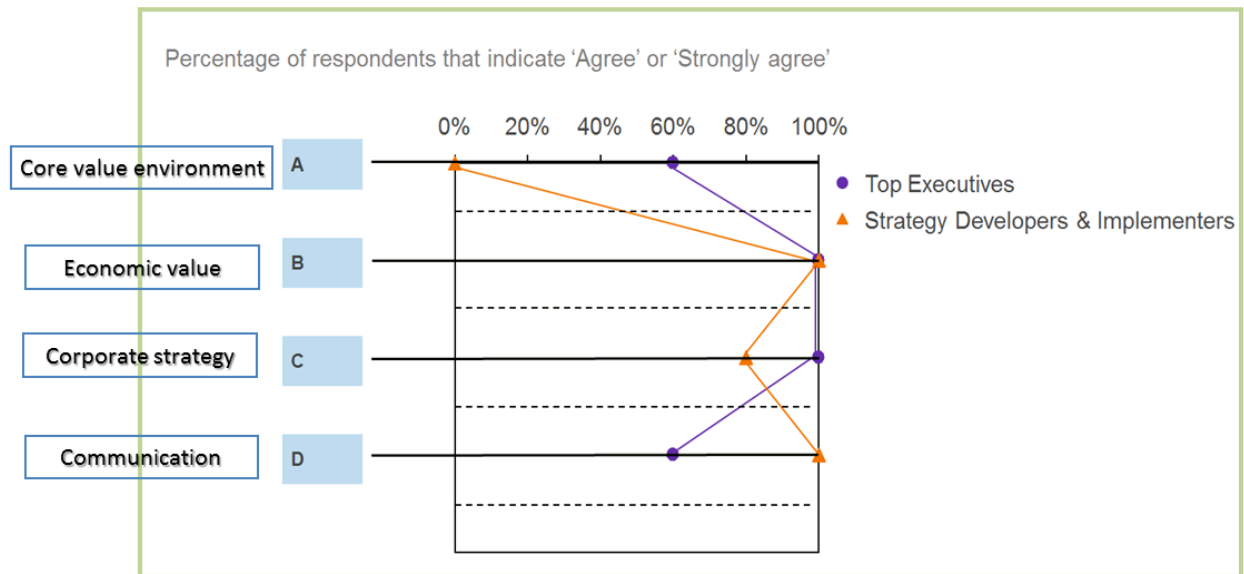
The purpose of this chapter is to delve deeper into the analysis of the collected data by presenting a meta-analysis and discussion on the results of the previous chapter. Unlike the previous chapter, the collection of results from the data are analyzed and compared against one another to account for any inconsistencies. The methods of analysis include comparing the responses of the participants and interviewees both in the focus groups and the interviews, together with the self-completion questionnaire results. The self-completion questionnaire results for each participant and interviewee were compared with the responses in the focus groups and interviews to account for any inconsistencies and consistencies in each participant's and interviewee's responses. The analysis was performed using qualitative data analysis "as an art" (SAGE, n.d.) to unveil the problems associated with the environmental strategy; this analysis was guided by material from Bryman & Bell (2011).

Self-questionnaire analysis & key findings

In order to further comparatively analyze the findings from the focus groups and interviews, the analysis turned to the results from the self-questionnaire. Figure 12 is used to illustrate the differences and similarities of each group's standpoint; the results were plotted in order of the four statements with the strategy developer and implementers in orange and the top executives in purple. Three assumptions were made in the makings of this diagram: (1) an assumption was made that any result greater than 2.5 on the scale indicated that the respondent agreed with the statement; (2) an assumption was made that any result less than 2.5 on the scale indicated that the respondent disagreed with the statement; (3) an assumption was made that a result of 2.5 on the scale indicated that the respondent was uncertain about the statement. Therefore, this graph was produced by calculating the number of respondents that gave an "agree-answer" based on the assumption that a score greater than or equal to 2.6 indicates that they agree or strongly agree (i.e. they signal a positive bias towards the statement).

The figure illustrates how the results from strategy developers and implementers diverge with those of top executives and management regarding statement A: *At Volvo Cars, our core value Environment, is equally as important as our core values Safety and Quality*; and statement D: *Volvo Cars should improve the communication of its environmental work in order to raise customer awareness*. The figure also illustrates how the results from strategy developers and implementers are similar to those of top executives regarding statement B: *The environmental strategy at Volvo Cars can add economic value to the company*; and statement C: *The environmental strategy can best support the company's mission by being integrated within the corporate strategy: Designed Around You*.

Figure 12 – Self-completion questionnaire analysis



Statement A –

At Volvo Cars, our core value Environment, is equally as important as our core values Safety and Quality

As Figure 12 illustrates in orange, strategy developers and implementers did not agree that the core value environment was as important as the core values safety and quality at the company. The discussions that emerged primarily within the focus groups, but also within interviews, on this topic further support this standpoint as strategy developers and implementers discussed a lack of awareness and attention from top executives with regards to environmental work at the company. Strategy developers and implementers emphasized that the environment was still viewed largely as a cost at the company, despite there being a recent shift towards treating it more as a business matter; it was evident from the discussions that emerged that this shift had not yet proliferated throughout the company and that environmental work was not granted the business attention strategy developers and implementers claimed it deserved. Figure 12 illustrates in purple that 60% of top executives agreed that the core value environment was equally as important as the other two values at the company. However, it was interesting for the purposes of the research to note that, upon acknowledging the importance of the environment in the company's heritage, top executives acknowledged in their interviews that the core values safety and quality have received more attention than the core value environment; they also expressed that work can be improved and more can be done with regards to the core value; what this work might be was not specified. Plausible reasons for the discrepancy between the results of the strategy developers and implementers (0%) and top executives (60%) as illustrated in Figure 12 may include that (a) top executives may feel it is expected of them to answer that environment is equally as important at the company; (b) there may be a problem with the message being delivered or in the delivery of the message to top executives regarding the realities behind environmental work at Volvo Cars; this problem may have led executives to believe that environmental work has been treated with equal importance as safety and quality, and (c) strategy developers and implementers may believe that this area is important but has not been given the attention it deserves, particularly when comparing to the attention given to safety and quality at Volvo Cars. These last two plausible scenarios are supported by evidence in the actions and the organization structure of the company including, but not limited to the following:

- Safety at Volvo Cars has several initiatives and departments solely dedicated to matters of safety such as the Safety & Chassis department and Volvo Cars Safety Center. According to an anonymous internal primary source, safety at Volvo Cars' is deeply integrated part of the company and its departments are often given priority in business matters;
- Quality at Volvo Cars has many departments and governing bodies. It also has the Quality Transformation which is a well-known initiative throughout the company. This transformation has been given priority in the company's internal communications and posters can be seen throughout the company to spread its message. The Quality Transformation is the biggest quality-improvement program in the company's history;
- Environment at Volvo Cars consists of an Environmental Committee and a main department that works only with manufacturing and its extended department with environmental coordinators in R&D and Product Strategy & Vehicle Line Management. There is no governing body solely responsible for all matters related to environment at the company, other than the CEO. Furthermore, according to participants of the focus groups, the Environmental Committee and its activities are not given enough attention by top executives, the environmental strategy is largely unknown throughout the company, and there are missed opportunities for environmental value-creation as a result;

Statement B –

The environmental strategy at Volvo Cars can add economic value to the company.

Figure 12 continues down the orange and purple lines by illustrating the corresponding results from both parties. Both groups strongly agreed that the environmental strategy can add economic value. The questionnaire revealed that all parties agreed that the environmental strategy can add economic value and, therefore, is not looked upon solely as a cost. In this case, the fact that the top executives claimed that the environment was treated as a business matter at the company supports this statement. Although the majority of strategy developers strongly agreed to the statement, it is, however, interesting to note that the developers and implementers continued to debate in the focus groups whether or not the strategy should be used to derive economic value for the company. Plausible reasons for this could be due to personal assumptions on (a) whether it pays to be green or not or (b) ethical reasons behind deriving economic value from an environmental strategy. This observation is an interesting finding to note and to consider when formulating the environmental strategy 2.0.

Statement C –

The environmental strategy can best support the company's mission by being integrated within the corporate strategy: *Designed Around You.*

Similarly, Figure 12 illustrates a consensus on the environmental strategy being integrated within the corporate strategy. Actions that provided tangible evidence to support this claim were evident in during the second focus group when strategy developers and implementers began engaging in the reformulation of the environmental strategy. The participants began referring directly to the corporate strategy, its core values, and its core value statement for environment by explicitly attempting to tie the beginnings of the new strategy with the three specific areas of the core value statement listed as followed:

- People's health
- Energy efficiency
- Resource efficiency

Furthermore, top executives supported this claim through their interviews as all interviewees expressed the need for the strategy to be aligned and interlinked with the corporate strategy so that it is relatable, engaging, and directly supporting the company's direction with backing from top executives. Although both parties showed agreement to this statement, it is also interesting to note that two concerns were expressed regarding this statement by top executives: (1) there is a risk of the environmental strategy being engulfed and lost within the greater corporate strategy; (2) the strategy needs to be integrated using a business approach; otherwise, the risk of the environmental strategy falling by the wayside may increase. These two concerns are significant and worthy of consideration for the redevelopment and implementation of the strategy.

Statement D –

Volvo Cars should improve the communication of its environmental work in order to raise customer awareness.

Figure 12 further illustrates in orange how the majority of strategy developer and implementer believed that communication of the company's environmental-related work in operations and product development should be improved so that it reaches the customers and stimulates awareness of such activities. Similarly, the majority top executive and manager also agreed that communication should be improved (seen in purple); however, the number is notably lower than that of the majority strategy developer and implementer. Although speculative, this may provide an indication that the majority of strategy developers and implementers believe that there are activities that may be of value to the customer's awareness and interest but these activities are not reaching the end customer. Respectively, the majority of top executives and managers did believe that communication of activities should be improved; however, a number of them noted in their interviews that such communication was already being performed in a decent manner. Although speculative, the difference in the general views between the strategy developers and implementers response compared to top executives may indicate that the majority top executives may not be aware of some of the valuable environmental activities, may not see the value in communicating them, or may think that the communication of those activities is already satisfactory. Thus, the company may be missing opportunities to receive (further) acknowledgment or be rewarded for its environmental work from the end customer and other interested stakeholders.

Key Findings: Focus group & interview summary

With regards to the environmental strategy together with the company's self-stated mission to strengthen its commitment to the environment, the focus groups, semi-structured interviews, and the self-completion questionnaire revealed both similar and diverging results. The focus groups delivered a clearer picture of the problem regarding the environmental strategy's current situation. The semi-structured interviews provided evidence that top executives are interested yet largely unaware of the environmental strategy at the company. The self-completion questionnaire provided evidence of diverging perspectives on how the core value environment is regarded at the company relative to the other two core values: safety and quality.

Participant: key findings

Most notably, the responses from strategy developers and implementers revealed that:

- (a) This research is of interest as all participants agreed to participate and explore the problem at hand;
- (b) The company's core value environment is not regarded as being equally as important as the core value's safety and quality at the company;
- (c) The current strategy has largely been inactive and is in need of reexamination and redevelopment to stimulate engagement from key stakeholders;
- (d) The current strategy's formulation is complicated and is in need of simplification to keep the strategy areas and key stakeholders active and focused on the strategy. The generic strategic environmental approaches described in this paper may be used as guiding material to this end;
- (e) There exists a will from strategy developers and implementers to begin reformulating the strategy and implement environmental strategy 2.0;
- (f) No common reporting system is in place for the activities and accomplishments related to the strategy. As Drucker put it, "what gets measured gets managed" (as cited in Prusak, 2010); therefore, the likelihood of missed opportunities may be high at Volvo Cars due to the lack of a central data management platform or similar to measure environmental activities and to track the strategy's progress;
- (g) There is a consensus that environmental strategy will best support the company's mission by being integrated within the corporate strategy: Designed Around You;
- (h) Diverging views exist among strategy developers and implementers regarding if the environmental strategy should be used to add economic value or not;

Interviewee: key findings

Correspondingly, the responses from top executives most notably revealed that:

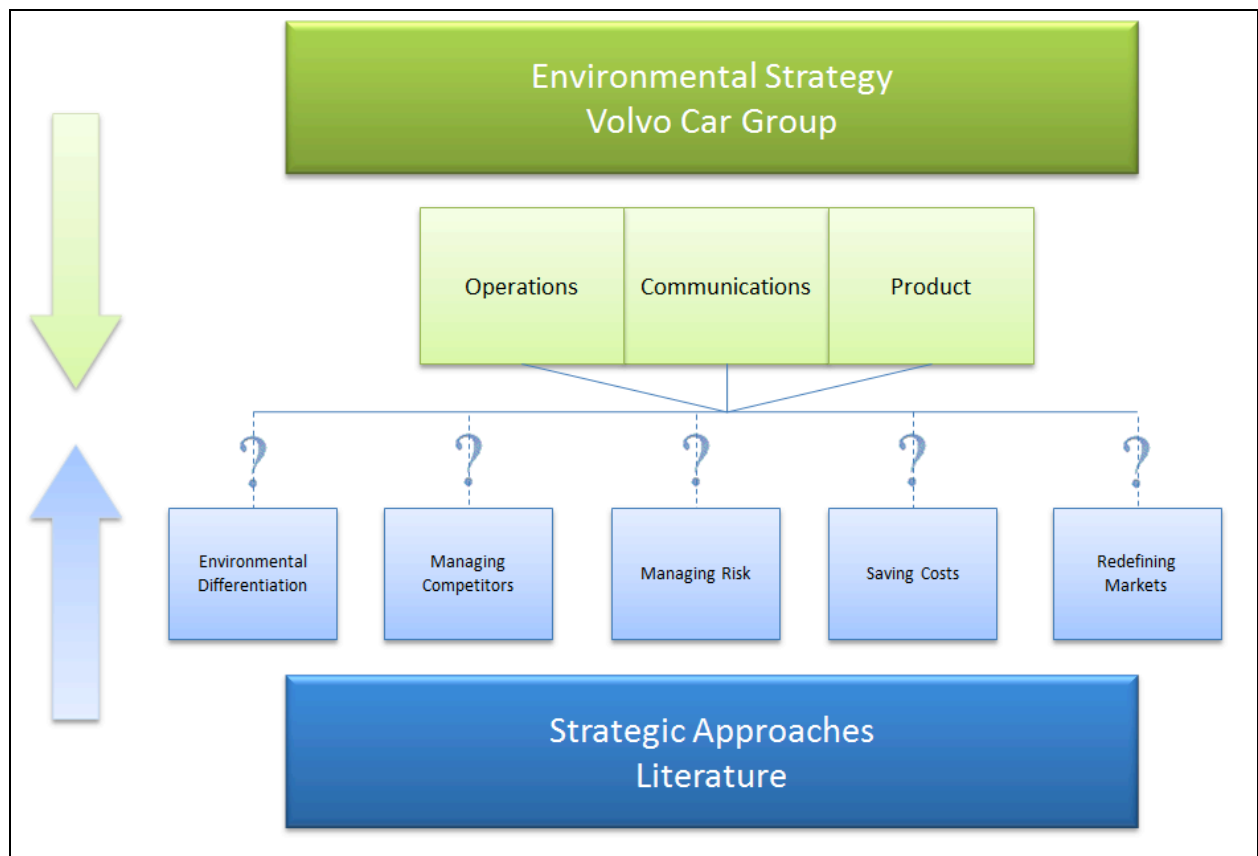
- (a) This research investigation is of interest to them as all interviewees agreed to participate and were inquisitive about the deliverables and final results;
- (b) The company's core value environment is regarded as being either equally, or almost as equally, as important as the core values safety and quality at the company;
- (c) The current strategy is largely unknown at the executive and top management levels;
- (d) A need exists for top executives to be engaged and provide backing for the redevelopment and reimplementation of the environmental strategy;
- (e) Leadership and attention from top-management with regards to the strategy's progression and continuum may further emphasize the need for a reporting system to track the strategy's accomplishments, its activity status, and to identify value-creation or capture opportunities otherwise missed;

- (f) The environment is perceived at the top-management level as a matter of business with ensuing ties to social responsibility;
- (g) The environmental strategy will best support the company's mission by being integrated within the corporate strategy: Designed Around You;
- (h) The environmental strategy is believed to be able to add economic value to the company;

Literature & case study analysis

In order to comparatively analyze Volvo Cars' environmental strategy with the literature, the research attempted to (1) place Volvo Cars' environmental work within the context of the five generic approaches (see Figure 13); (2) decipher strategic areas from areas of operational effectiveness within the current environmental strategy; (3) compare the theoretical formulation of strategy in the literature to the practical formulation of the environmental strategy at Volvo Cars. In that order, the following sections describe the analysis.

Figure 13 – Where does Volvo fit, if at all?



(1) Strategic environmental approaches

Figure 13 illustrates the analysis of Volvo Cars' environmental work within the context of the five generic strategic approaches to integrating the environment in business.

By means of the data collected from the chosen research techniques, lineages were drawn between various substantive and symbolic actions and activities at Volvo Cars' and the five generic approaches: Environmental Differentiation, Managing Your Competitors, Managing Risks, Saving Costs, and Redefining Markets; however, the approach Redefining Markets is not included in the table as there was no evidence to suggest that this approach was being exercised at Volvo Cars. Building upon the results illustrated in Table 3, Table 7 illustrates a limited collection of actions and activities at Volvo Cars from inside sources and external reports and places these activities in the five approaches. The activities and actions listed are limited to those since 2010 to emphasize the environmental-related work at Volvo Cars since it was bought by Geely Automobile as a stand-alone company and since the environmental strategy was first implemented. It is important to note that the actions and activities are not limited to their assigned generic approach and can be associated with more than one. Most notably, the VEA engines can be associated with the Environmental Differentiation approach as Volvo Cars has decided to only produce cars with four-cylinder engines; a bold decision with lower environmental impacts in a conservative and highly competitive industry. Furthermore, both Reinhardt's Managing Your Competitors and Managing Risks approaches can be associated with Volvo Car's efforts in China regarding the new plants in Chengdu and in Zhangjiakou. Volvo's new plants are built in such a way that they go beyond the legislation required in China, such as the wastewater treatment plants and closed-loop systems, and comply with European standards instead. This not only mitigates risk and emphasizes a proactive approach, but it also may be used to manage Volvo's competitors. Volvo may be able to influence competitors in China to follow its lead should it exercise its beyond compliance activities and leadership in a strategic way. Energy investments, particularly those of heat recovery and reuse, are improvements and changes in processes and are saving costs for the company while improving environmental performance. Additionally, a new tool in the paint shops has increased efficiency by shortening repair time from ten hours down to fifteen minutes. Both fall within the *Saving costs* approach.

Table 7 – Placing Volvo Cars in the context of the strategic environmental approaches, 2010 - present

| | Operations | Communications | Product |
|-------------------------------|---------------|---|---|
| Environmental Differentiation | Indeterminate | 2014 – Volvo Cars received an award, “Årets Klimat komet”, from supplier Greencargo for the Train-8 solution with respect to environmental impact | 2013 – The new engine family: VEA engines (four cylinder Drive- E powertrains) 2013 – Demo fleet of C30 electric generation II with new electric engine. 2012 – V60 Plug-in diesel hybrid (first of its kind) 2012 – V40 launched with |

| | | | |
|-------------------------------|--|--|--|
| | | improvements. | CO ₂ emissions of 88g/km |
| Environmental Risk Management | <p>2011 – Freshwater footprint analysis performed for all production sites; targets set to reduce footprint by 2020</p> <p>Current – Green Cargo rail being utilized for inbound and outbound logistics</p> <p>Current – Environmental Early-Phases: environmental checklist is referred to during the early stages of Volvo model installations.</p> <p>Current – Routine risk assessments performed with every new change in the plants.</p> | <p>Current – Sustainability Report issued annually and in accordance to ISO 14001 and GRI- level B specifications.</p> | <p>2014 – Online purchasing of new XC90; perhaps unintentionally, virtual purchasing mitigates environmental risks</p> |
| Saving Costs | <p>2014 – New tool in paint shop has increased efficiency and shortened repair time from ten hours down to fifteen minutes.</p> <p>2012 – Zhangjiakou Plant - Designed for closed loop water treatment system which means water is constantly treated and reused within the factory (Sustainability Report, 2013).</p> <p>2011 – Energy</p> | Indeterminate | Remanufacturing of parts |

| | | | |
|----------------------------------|--|----------------------|---|
| | <p>efficiency investments decreased energy consumption by 20% compared to 2010</p> <p>Current – Green Cargo optimizes transport based on reliability, cost and environmental impact.</p> | | |
| <p>Managing Your Competitors</p> | <p>Current – Working relationship established with academic institutions, NMC Group, and IVL Svenska Miljöinstitutet.</p> | <p>Indeterminate</p> | <p>2013 - Cooperation with Siemens on C30 new electric engine</p> |

(2) What is Strategy?

Although Volvo Cars exhibits elements of strategic environmental approaches that fit within the context of the generic approaches presented by Reinhardt (1999), a problem related to the environmental strategy's formulation, and subsequently its implementation was discovered upon examining the literature and the collected data. Upon reflecting on Porter (1996) *What is Strategy?*, the data provided evidence that the environmental strategy at Volvo Cars was not well-defined according to Porter's definitions of strategy and operational effectiveness. A common understanding of *strategy* as both a concept and a term had not been realized by strategy developers and implementers. Furthermore, a number of the strategic areas chosen for operations and product (illustrated in Figures 14 and 15) were identified by focus group participants as being areas of operational effectiveness (continuous improvements) or compliance, but not strategic areas after all. It became clear that strategy and operational effectiveness had been treated as two of the same regarding the chosen strategic areas. As Porter emphasized in his work, this lack of distinction between the two concepts may lead firms to invest time and resources in continuously pushing the productivity frontier outwards, thus increasing efficiency in its activities relative to its competitors, but risking effectiveness to attain a competitive advantage for long enough to derive the benefits. The reason for this is because increasing efficiency in like-activities is easy for rivals to copy; however, performing activities differently can be more effective for attaining competitive advantage as different activities are not as easy for rivals to copy. Due to the initial demands of the client to delimit the scope of the investigation to the operations part of the strategy, this part of the analysis was performed comprehensively only on the operations part and to a lesser degree on the parts of product and communication.

Figure 14 – Strategic areas: operations



Figure 15 – Strategic areas: Product



Product

In product, there are five strategic areas with separate activities and targets. Upon assessing these areas, Participant A stated in a focus group “I think that to 80% you will find that [we are] doing things more or less the same as the [rivals].” Of all five areas, *Interior environment* was recognized as an area of opportunity for Volvo Cars to perform activities differently and therefore it was identified as a strategic area. The other activities were also acknowledged as being possible strategic areas; however, it was expressed by the participant that the current approach at the company was not strategic in those areas. As focus group discussions progressed and new perspectives were expressed, it was concluded by the focus group participants responsible for the product side of the strategy that the original five chosen strategic areas in product were not going to be continued. It was decided that new areas would be formulated in a strategic manner during the development of environmental strategy 2.0.

Communications

Although it is an important part of the strategy, no strategic areas had been chosen for the communications part of the strategy. However, it is worthy of noting for the purposes of the research and redevelopment of the environmental strategy that participants were concerned about the lack of internal and external communication within the company regarding valuable actions and activities relating to the environment. Participant A expressed that the company could start to approach communication by first asking the question “what do we want to communicate?” and then perform the actions and activities necessary to be able to communicate such accomplishments. Participant C then emphasized how the company could do so by setting targets on what the company wants to “communicate in ten years, in five years, and in one year”. Another participant, Participant B, emphasized how this could be an approach that could be used to build “brand value...[after all] people buy 60% on brand and 40% on the actual product”. Without any targets in this area of the strategy, however, the communication of work relating to the strategy appears weak and is in need of reconsideration for environmental strategy 2.0. Considering the concerns of the participants and the general importance of communication, the communication area of the strategy holds potential for being an effective tool for stimulating key stakeholder engagement and organizational action; a tool that could greatly facilitate and support the implementation and

effectiveness of the strategy. Therefore, the lack of targets in this part is neither strategic nor operationally effective.

Operations

In operations, there are seven strategic areas with separate activities and targets. In each area, an assessment was made to determine if the area was indeed strategic or if it was an area of operational effectiveness. The current areas identified as strategic include: *Among leaders in water conservation, water footprint, Among leaders in Climate Neutral Operations and Energy Efficiency,* and *Sustainable transport solutions*. Further assessment of all three strategic areas is recommended and each area should be aligned with the environmental strategy 2.0.

1. Zero environmental accidents

The first chosen strategic area, entitled *Zero environmental accidents*, was identified in the focus groups as being a non-strategic area due to the nature of its related activities and targets. As it is equally or more important as any strategic area for the company, *Zero environmental accidents* was identified as an area of operational effectiveness that should be continuously pursued as an activity that the company may perform better than rivals. Therefore, this area is not a strategic area according to the literature as it is an activity shared by rivals that Volvo Cars has the possibility of performing better, but it is not an activity that necessarily may be performed differently. As written in the environmental strategy document for operations (internal source), the description of the area is described in Table 8.

Table 8 – Zero Environmental Accidents area in strategy

| Zero Environmental Accidents |
|---|
| Processes and technical installations to prevent environmental accidents and strengthen a zero tolerance behavior. |
| Activities in this area include: <ul style="list-style-type: none"> (a) Secured and strengthened competences and risk awareness (b) Environmental control implemented in early phases in all Volvo Cars projects. |
| The KPIs for this area are: <ul style="list-style-type: none"> (a) environmental accidents (b) near misses (c) risk observation |

Because of the above area description, activities, and associate KPIs, this area is not strategic as it is not necessarily performing activities differently than competitors; however, it may be performing activities better than competitors. Therefore, the area may be identified as an area of operational effectiveness rather than as a strategic area due to its limited differentiation characteristics.

2. Among leaders in water conservation, water footprint

The second chosen strategic area, entitled *Among leaders in water conservation, water footprint* was identified as being a strategic area due to the possibility of performing activities differently than rivals. The description for this strategic area indicates an approach that may enable Volvo Cars to perform similar activities better than rivals. Therefore, this description requires reassessment so that it is in-line with environmental strategy 2.0 and a competitor analysis is needed to be performed should Volvo Cars wish to perform activities differently than rivals.

As written in the environmental strategy document for operations, the description of the area is described in Table 9.

Table 9 – Among leaders in water conservation, water footprint area in strategy

| Water Conservation, Water Emissions Performance |
|---|
| Among leaders in water conservation |
| <p>Activities in this area include:</p> <ul style="list-style-type: none"> (a) Implement Best Available Techniques (BAT) in the industrial wastewater treatment processes (b) Implemented Global Corporate Water protection standard in all Volvo Cars operations (c) Take lead in water conservation activities in areas with freshwater scarcity |
| <p>The KPIs for this area are:</p> <ul style="list-style-type: none"> (a) Water consumption (city water, m³/car) (b) Months of not exceeding the target or limit value reported to authorities |

3. Among leaders in climate neutral operations and energy efficiency

The third chosen strategic area, entitled *Among leaders in Climate Neutral Operations and Energy Efficiency* was also identified as being a strategic area due to the possibility of performing activities differently than rivals. The description for this strategic area indicates an approach that may enable Volvo Cars to perform similar activities better or differently than rivals depending on the new industrial investments. Therefore, this description requires reassessment so that it is in line with the environmental strategy 2.0 and a competitor analysis is needed to be performed by the Environmental department should Volvo Cars wish to perform activities differently than rivals. As written in the environmental strategy document for operations, the description of the area is described in Table 10.

Table 10 – Among leaders in climate neutral operations and energy efficiency area in strategy

| Climate Neutral Operations & Energy Efficiency |
|---|
| Among leaders in Climate Neutral Operations and Energy Efficiency. |
| <p>Activities in this area include:</p> <ul style="list-style-type: none"> (a) Volvo Cars Operations to be climate neutral (b) New industrial investments are optimized concerning energy consumption (c) Continuous improvements/reduce waste |
| <p>The KPI for this area is: Energy efficiency projects (GWh)</p> |

4. Total Waste Management

The fourth chosen strategic area, entitled *Total waste management*, was identified in the focus groups as being a non-strategic area due to the nature of its related activities and targets. It was identified as an area of operational effectiveness that should be continuously pursued as an activity that the company may perform better than rivals. Therefore, this area is not a strategic area according to the literature as it is an activity shared by rivals that Volvo Cars has the possibility of performing better, but it is not described as an activity that is necessarily

performing activities differently. Should Volvo Cars wish to make this a strategic area, a reassessment of the activities and KPIs is necessary so that they are aligned with the environmental strategy 2.0. As written in the environmental strategy document for operations, the description of the area is described in Table 12.

Table 11 – Total waste management area in strategy

| |
|--|
| Total Waste Management |
| Generic Waste Management and Best Practice Implementation |
| Activities in this area include: <ul style="list-style-type: none"> (a) Maximize resource efficiency and decrease amount of waste (b) Waste Awareness in early phases |
| The KPIs for this area are: <ul style="list-style-type: none"> (a) Waste efficiency projects (Tonnes & SEK) (b) Hazardous waste cost/car (c) KPIs on different specific fractions |

5. Sustainable Transport Solutions

The fifth chosen strategic area, entitled *Sustainable transport solutions* was also identified as being a strategic area due to the possibility of performing activities differently than rivals. The description for this strategic area indicates an approach that may enable Volvo Cars to perform similar activities better or differently than rivals depending on the management of, and changes made to, the supply chains with regards to sustainability and the modes of transportation (e.g. Green Cargo is an activity that supports this strategic area). However, the description requires reassessment to align with the environmental strategy 2.0 and a competitor analysis is needed to be performed should Volvo Cars wish to perform activities differently than rivals. As written in the environmental strategy document for operations, the description of the area is described in Table 12.

Table 12 – Sustainable transport solutions area in strategy

| |
|---|
| Sustainable Transport Solutions |
| Development of sustainable transport |
| Activities in this area include: <ul style="list-style-type: none"> (a) Design for sustainable transport (b) Measurement of filling degrees and tons/km |
| The KPI for this area is: Thesis ongoing |

6. Emissions to Air

The sixth chosen strategic area, entitled *Emissions to air*, was identified in the focus groups as being a non-strategic area due to the nature of its current related activities and targets. It was identified as an area of operational effectiveness that should be continuously pursued as an activity that the company may perform better than rivals. Therefore, this area is not a strategic area according to the literature as it is an activity shared by rivals that Volvo Cars has the possibility of performing better, but it is not described as an activity that is necessarily performing activities differently. Should Volvo Cars wish to make this a strategic area, a

reassessment of the activities and KPIs is necessary so that they are aligned with the environmental strategy 2.0. As written in the environmental strategy document for operations, the description of the area is described in Table 13.

Table 13 – Emissions to air area in strategy

| |
|---|
| Emissions to Air |
| Continue to be among leaders regarding emissions to air |
| Activities in this area include: <ul style="list-style-type: none"> (a) Best Available Techniques regarding air purification at all sites (b) Best in class paint shops |
| The KPI for this area is: Hydrocarbons per m ³ of painted surface |

7. Soil and ground water control

The seventh chosen strategic area, entitled *Soil and Groundwater control* was identified as a non-strategic area due to the nature of its current related activities and targets. It was identified as an area of operational effectiveness that should be continuously pursued as an activity that the company may perform better than rivals. In its current state, this area is not a strategic area as it is described as an activity that is not necessarily performing activities differently. Should Volvo Cars wish to make this a strategic area, a reassessment of the activities and KPIs is necessary so that they are aligned with the environmental strategy 2.0. As written in the environmental strategy document for operations, the description of the area is described in Table 14.

Table 14 – Soil and groundwater control area in strategy

| |
|---|
| Soil and Groundwater control |
| Minimize Volvo Cars industrial footprint and proactive handling of historical contaminated areas |
| Activities in this area include: <ul style="list-style-type: none"> (a) Proactive and standardized process (b) Mapping of current environmental footprint – Due Diligence (c) Liability investigations (d) Be in front of authorities |
| The KPI for this area is: Unavailable |

(3) Formulating a strategy

Upon assessing the environmental strategy at Volvo Cars with the literature, the researcher observed that many of the responses regarding the environment from top management included the company’s heritage and DNA. Furthermore, many of the environmental activities being promoted by the company, such as those listed in Appendix 5 and on the company’s website, are those from the company’s actions in the past. Upon considering these two factors together with the largely inactive state of the current environmental strategy, the researcher reflected upon Mintzberg (2007) and his work on the emergent

strategy. Mintzberg questioned if decisions always preceded actions and, if not, then the formulation of strategies may not always precede their associated actions. In the case of Volvo Cars environmental strategy, there is evidence from both the external communication and from the responses of the interviewees and participants to suggest that the environmental strategy is not an explicit strategy, but an implicit strategy or, as Mintzberg (2007) considered it, an emergent strategy. To that end, Porter (1996) defined competitive strategy as being different, as making trade-offs, as choosing what *not* to do; however, none of the strategy developers or implementers had explicitly defined the environmental strategy as being different, as making trade-offs, or as choosing what not to do. According to Porter (1998), this would suggest that Volvo Cars' environmental strategy evolved as an outcome of an organization's functional activities and not from planning processes like that of an explicit strategy's formulation. Porter (1998) focused on the explicit process of strategy formulation as he claimed it was the better process of the two in order to achieve maximum benefits for the firm; whereas Mintzberg (2007) studied strategy including its implicit form in order to better understand strategy on a more nuanced level. It may be argued that the environmental strategy at Volvo Cars was explicitly formulated; however, the evidence collected in this research suggests that the strategy has been formulated using a more implicit process and has not achieved maximum benefits for the firm as it has largely been inactive since 2010. What this signifies is that, with the redevelopment of the environmental strategy 2.0, there is an opportunity for Volvo Cars to formulate the strategy explicitly so that its work attempts to create and capture maximum benefits for the company.

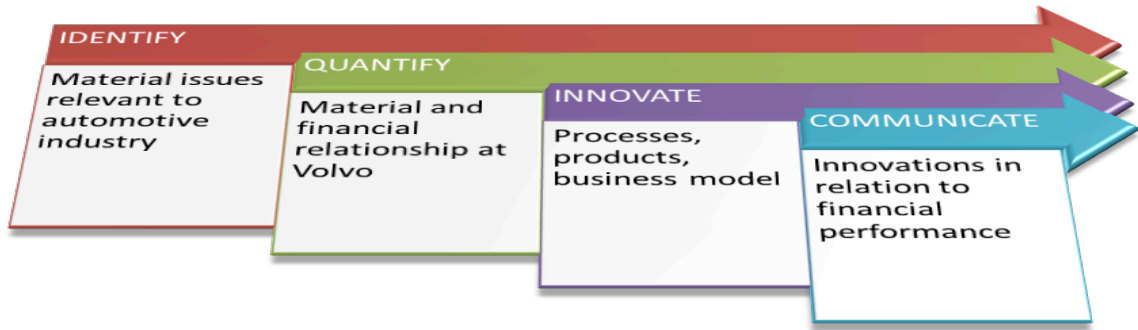
Furthermore, Volvo Cars can explicitly begin identifying with the sequential approaches to environmental strategies according to Albertini (2013) as well as the phases of capacity building according to Peck (MOOC, 2014). As Peck stated in Chapter 2, a company must first build capacity before it may examine a sustainability strategy, or in this case, an environmental strategy. Strategy developers and implementers may be able to identify if Volvo Cars as an organization finds itself in one of the following three phases of capacity building: (1) Commitment, compliance, and awakening; (2) Operational, process and product excellence; (3) Building the business case for environment. Judging from the evidence portrayed in the data, Volvo Cars is in the second phase and is moving towards the third phase; however, more work in capacity building is required according to the data results before the company may enter phase (3) Building the business case for environment. By identifying with the stages and phases of an environmental strategy's development process according to the literature, strategy developers and implementers may be able to follow the steps outlined in the literature, particularly those outlined by Albertini and Peck, within each stage and phase or may be able to establish and define their own steps using the literature as guiding material. By examining the literature provided in this research paper, the strategy developers and implementers at Volvo Cars may be able to distinguish its environmental strategy as a non-compliant, compliant, concerned citizen, opportunistic, or proactive strategy. In addition to distinguishing the sequential stage and capacity building phase that Volvo Cars is currently in, strategy developers and implementers may explicitly formulate environmental strategy 2.0; to do this, they must consider the three important steps to an explicit strategy (1) decide how to be different; (2) be aware of the trade-offs involved; (3) choose what *not* to do as well as what do to.

While considering the three aforementioned steps to strategy formulation, strategy developers and implementers may wish to consider the strategy formulation procedures suggested by Eccles & Serafeim (2013). Together with Porter (1996) and Reinhardt (1999), the authors claimed that too often do firms lack "...a clear understanding of the very real trade-offs that exist between financial and ESG performance" (p.52). Similarly, Porter (1996)

and the authors both advocate the importance of spurring innovation within a firm to achieve a sustained competitive advantage. Although the strategy formulation suggested by Eccles & Serafeim (2013) may not be fully transposable to the environmental strategy at Volvo Cars, components of their strategy formulation may be used for the benefit of the newly and explicitly formulated strategy 2.0. Figure 16 illustrates a simplified process of strategy formulation according to the framework proposed by Eccles & Serafeim (2013). Furthermore, components of each procedure may act as a guiding material for developing a reporting system for activities related to the environmental strategy. Such components include, but are not limited to, the following:

- (1) Identify the material issues most relevant to Volvo Cars. This may be done using a Materiality Map produced by SASB or a similar body; or this may be done by attracting or using internal competencies to perform this process;
- (2) Identify Volvo Cars key stakeholders and open a dialogue with them on environmental material issues to gain insights well in advance, establish two-way communication, and to strengthen the company's relationships. Use stakeholder research already performed by the company, or perform research on stakeholder theory to identify the significance of stakeholders in this strategy;
- (3) Quantify the relationship between financial performance and the identified material performance at Volvo Cars. This may be done by assessing the current impact of the material on the firm's financial performance. For example, if CO₂ emissions were selected as the material, then an assessment shall be performed on the impact of such emissions on the firm's financial performance by asking questions such as but not limited to, what kinds of inputs and processes are creating these emissions? How do these affect inter alia costs, the brand, sales, employee motivation, employer attraction, and the overall resilience of the business? How would becoming carbon neutral affect those same aforementioned factors?
- (4) Once the first few steps have been completed, strategy developers and implementers may begin comparing the company with its peers on those same material issues identified and quantified to gain insight on where Volvo Cars stands amongst competitors. Upon performing this, the strategy's formulation can then move forward to stimulating innovation in products and processes at Volvo Cars;
- (5) Communicate the innovative and differentiating work related to the strategy. Clear and detailed external and internal communication with key stakeholders is important as Volvo Cars cannot assume that stakeholders and shareholders will understand how its innovative activities have improved the company's environmental and financial performance. Furthermore, the company can receive, at the very least, recognition and acknowledgement from a wider audience for its efforts which may lead to further tangible and intangible benefits for the company.

Figure 16 – Simplified strategy formulation process recommended for Volvo Cars



5 Rethinking strategy

As Clayton Christenson once stated, “if your resources aren’t supporting the strategy, the strategy is not implemented” (2013). This statement is relevant for the environmental strategy as the strategy has largely been strategically inactive since 2010: this may be due to the lack of a strategic, integrated, and commonly defined strategy together with the lack of active engagement from key stakeholders. The strategy has been written in the company’s sustainability report as an implemented strategy; however, the strategy itself has yet to be commonly and strategically defined, measured, and managed accordingly. The current strategy is divided, has too many strategic areas (many of which are not strategic), lacks focus and consistency with the three main strategy parts (operations, product, and communication), and has a formulation that is in need of improvement in the fundamentals of strategy such as a common vision, mission, objectives, targets, measurement and reporting system, as well as key performance indicators among strategy developers and implementers; such fundamentals should be made explicit as one strategy and directly aligned as well as integrated within the company’s bigger picture (i.e. corporate strategy).

The important point is that corporate environmental strategy must be developed with an appreciation of the context in which it takes place, otherwise environmental initiatives will flounder (Hoffman, 2001). Of all the main findings from the data collection, there were two concerns expressed by executives that relate to this point and are worthy of further attention by key strategy stakeholders. These concerns were voiced by top executives in their interviews when discussing the integration of the environmental strategy within the corporate strategy. These concerns consisted of: (1) there being a risk of the environmental strategy being engulfed and lost within the greater corporate strategy; (2) if the strategy is to be redeveloped, it needs to be done using a business approach; without a business approach, the risk of the environmental strategy falling by the wayside is likely as the business needs to focus on its core, particularly in times of turbulence. Therefore, the fundamentals of the strategy need to be built using a business approach in such a way that appreciates and complements Volvo Cars’ strategic direction as a global corporation and as an automotive OEM facing intensifying environmental pressures in the industry. Furthermore, the strategy must address the environmental issues that are material to the company by applying business principles to EM. The fundamental building blocks of strategy and strategic business approaches to environmental issues need to be considered and applied to heighten the significance and the effectiveness of the environmental strategy at Volvo Cars. After having analyzed the environmental strategy at the company and compared it with the examined literature on strategic environmental approaches, strategy, strategy formulation, and environmental strategies, recommendations were made to include the following:

- (a) **ONE STRATEGY:** The fundamentals and building blocks of strategy need to be commonly defined as one strategy with a shared focus in strategic parts (not divided as it is today). These commonly defined building blocks of strategy need to be established by strategy developers when formulating environmental strategy 2.0. The three areas mentioned in the focus group by participants (people’s health, energy efficiency, and resource efficiency) support the redevelopment process towards having one focused, integrated, and active environmental strategy with potential to unveil missed opportunities regarding the environmental issues that are material to Volvo Cars;

- (b) **DELEGATE:** Delegation of responsibility needs to be placed on a top executive in order to, at the very least, emphasize the significance of the strategy at the company and provide the appropriate leadership;
- (c) **COMMUNICATE:** A communication system with all key stakeholders may be implemented so that communication channels are improved and regularity of communication is increased; strategic areas in the communication part of the strategy should also be defined for both internal and external communication;
- (d) **MEASURE & TRACK WORK:** A reliable reporting system needs to be better put in place so that (a) all activities and results are accounted for; (b) further actions are stimulated; and (c) continuous strategy engagement, improvement, and involvement occurs to, at the very least, reduce risks such as that of inactivity and missed opportunities.

Environmental 'astuteness': Examples of leaders in the field

With one commonly defined strategy using one of the five strategy approaches, a delegated leader on the executive level, a communication system, and a measuring and reporting system, Volvo Cars' environmental strategy 2.0 may move forward using an integrated business approach and build its business case for the environment. According to the data collected in the research, the environment is perceived by top-management as a matter of business with subsequent ties to social responsibility at Volvo Cars. Although the environmental strategy has largely been strategically inactive since its first implementation in 2010, it is clear based on the findings that the redevelopment of the strategy has the potential to effectively engage key stakeholders, receive backing from top-executives, and stimulate actions that may add benefits of tangible and intangible nature to the company. First, however, the company must explicitly develop environmental strategy 2.0 using the fundamental building blocks of strategy. As Porter highlighted (1996), too often do companies benchmark themselves against each other in efficiency and too often does this lead to a mutual destruction with a wider productivity frontier. Should Volvo Cars wish to have a proactive environmental strategy (Albertini, 2013a) and build the business case for environment, the company must first look within itself and build capacity for developing an explicit strategy that stimulates innovation in its products and processes. Bagley (2010) found that strategies that were proactive with dealing with the interface between a firm's business and the natural environment that went beyond environmental regulatory compliance were associated with improved financial performance. Leading firms that have incorporated the environment into business thinking and made environmental issues business issues are those that have actively and explicitly made diminishing environmental impacts from products and processes an active part of the company's DNA. After considering the trade-offs and innovating products, processes, and, in some cases business models, these companies are excelling in both environmental performance and financial performance. Firms that are leading in environmental performance and financial performance are those that have proactive environmental strategies with focus on innovation. Volvo Cars may find inspiration from these companies leading in environmental astuteness and sustainability while developing environmental strategy 2.0. Examples of these leaders include Patagonia, Interface, Fairphone, and Puma; all three of which have displayed leadership and succeeded as companies that have integrated environmental issues into the company's DNA at varying degrees. Volvo Cars may derive inspiration from the leaders in environmental and sustainability and they are described as followed:

Patagonia

As mentioned previously in this study, Patagonia is a leading sustainability-driven company.. The company's mission is "to build the best product, cause no unnecessary harm, use business to inspire and implement solutions to the environmental crisis" (Patagonia, n.d.), and the company claims that staying true to the company's core values while focusing on making the best products possible has enabled its success in the marketplace. Patagonia's PLI initiative consisted of strengthening the relationship between the company and its customers and establishing a mutual contract to "reduce, repair, reuse, and recycle" those Patagonia apparel that customers consumed. With this initiative, Patagonia has exemplified its "holistic commitment to lengthen the lifecycle of each product and reduce landfill waste" (Reinhardt et al., 2010). As expressed by Reinhardt et al., (2010), "while pursuing its strong environmental stance, Patagonia maintains a larger gross profit margin than its competitors and is targeting a 10% rate of annual growth in sales."

Although the two companies are in very different sectors, it may be of interest for Volvo Cars to note that Patagonia also targets customers that are willing to pay a premium price for premium quality; such customers are those falling in the same category as those post-modern urban dwellers that Volvo Cars is now targeting. According to an article on Patagonia's sustainable business model by Eric Lowitt (2011) for the Guardian Professional Network:

The companies that share in common with Patagonia three building blocks — lower pressure from shareholders to sell more now (Patagonia is privately held), long-standing and well known commitment to sustainable ideals, and high-quality products — will have a possible shot at counter-intuitive growth as a result of this kind of strategy. If this approach leads to growth, sustainability will become more closely aligned with business success as a result.

Furthermore, Reinhardt et al., (2010) highlighted that the company's environmental mission not only refers to reducing environmental impacts, but it also shares its practices with other companies. This may serve Volvo Cars in following Reinhardt's Managing Your Competitors strategic approach should it choose to establish a working relationship with this leading outdoor-apparel company.

Interface

According to Ray Anderson, the late founder of Interface Inc., the concept of "comply" is not a vision. As the world's largest manufacturer of modular carpets, Interface Inc. has displayed the success of a company that has engraved sustainability into its very DNA. The company did not start out as a sustainability-driven company in the 1970s and produced carpets typically with fossil fuels and generated vast waste in the process. However, in 1995, Interface's Mission Zero program was adopted and aided Interface to reduce its environmental impacts by 2020. In the process, the company was able to cut out \$400 million worth of waste to date since 1994. Also since 1994, the company has been able to increase sales while cutting greenhouse gases, fuel consumption, waste generation, water usage. According to Bülow (2012), the following events have occurred at Interface since it became a sustainability-driven company:

- 88 % reduction in waste sent to landfill since 1996 per unit of production
- Water intake in manufacturing is down 84 % since 1996 per unit of production
- Total energy use down by 47 % since 1996 per unit of production
- Non-renewable energy is down by 64 % since 1996 per unit of production
- Absolute reduction of Interface GHG emissions by 32 % from baseline

- 31 % of global energy is from renewable sources
- 44 % of total raw materials are recycled or bio-based materials
- 99 % of the products sold in Europe were manufactured in Europe
- 41% reductions in waste-costs per unit since 1994

The company is an example of one that has had an explicit strategy that has ensured both ESG performance and financial performance due to the company's innovative approach and integrated sustainability into its business model. Together with the ESG performance, Interface has been successful in maintaining an operating profit margin of approximately 9% in the last five years, compared to its main competitors such as Herman Miller, which had an operating margin trailing twelve months of 0.0% (NasdaqGS, 2014). Interface's success in making its business model a sustainability-driven one can serve as a benchmark for Volvo Cars and a source of inspiration for the environmental strategy 2.0.

Fairphone

Fairphone, the Dutch smartphone that has recently come into production, is another example of a company that is successfully increasing sales while decreasing negative environmental impacts. The company broke its pre-order target of 5000 sales in June of 2013; unlike Apple and Samsung, this company manufactures its smartphones without using conflict minerals and focuses on worker welfare (Vogel, 2014).

Puma

PUMA, one of the world's leading athletic retail companies, has managed to use environmental valuation methods to value the ecosystem services that facilitate the production of its products through its PUMAVision programme. This programme considers ecosystem services within its pricing methods by internalizing externalities and selling its shoes using the method of total cost pricing (PUMAVision, 2010). In 2010, the company released its Environmental Profit and Loss Account that described the approach and valuation of ecosystem services identified in Puma's products and processes. Puma's use of the total cost pricing method revealed the company's impact on nature and the company was rewarded for its efforts by winning the Guardian's biodiversity category and the Guardian Sustainable Business awards in 2011 (Beavis, 2012).

Valuing natural capital in business

Constanza et al. (2014) called for ecosystem services to be valued and the need for common asset institutions to better account for such values. In response to this call, this thesis project suggests the need to research how an automotive company (such as Volvo Cars) may begin to consider the ecosystem services that facilitate the very existence of its core business and that influence its corporate profitability. Not only may Volvo Cars get inspiration from an initiative such as the PUMAVision programme, but it might also find new innovative ways to promote its positive externalities, such as research & development activities that go beyond compliance, which add to its private and social returns (Helbling, 2012). In this way, Volvo Cars may be able to externally communicate its positive externalities with the highest social returns and connect that with its products to illustrate to its target customer (post-modern urban dwellers) that its products do, in reality, consider the "bigger picture". Volvo Cars could do this through valuation of those ecosystem services that it has most influence on and focus on how it might a) identify and decrease its negative externalities and b) identify and boost its positive externalities through its products. By establishing a stronger link between Volvo Cars' selected activities and its product through valuation and communication, the company is not only practicing 'what gets measured gets managed', but it is also communicating its commitment to the environment as stated in its mission.

Based on the responses from interviewees, the term environment can be defined as being one of two main things: CO₂ or the company's heritage. The CO₂ definition can be associated with increasing legislative and consumer demands on vehicle emissions and fuel efficiency, and the Swedish heritage definition can be correlated to the company's past environmental achievements such as the Lambdasond of 1976; a three-way catalytic converter with oxygen sensor that removes up to 90% of noxious exhaust fumes and was the first on the market (Volvo Car Group, 2013). If the company were to differentiate itself from other companies subject to the same laws and consumer demands, it might wish to expand its definition to include more than only CO₂ such as the eco-system services that it heavily relies upon, and would begin to use the company's Swedish heritage and past environmental achievements as leverage for future opportunities.

Volvo Cars: Leveraging a position of opportunity

One of the major findings from the interviews, focus groups, and surveys is that top management and strategy implementers are already incorporating the environment in business thinking. Comparing Volvo Cars' approaches to environmental work with those found in the literature reveals that Volvo is not lagging behind the times but is in a good position to build capacity as an environmentally-driven company. Together with Volvo's Swedish heritage and values, this finding provides Volvo Cars with a company-wide incentive to use this as leverage going forward with its corporate strategy Designed Around You. Should Volvo place more effort in (a) highlighting its environmental work; (b) providing mobility solutions; (c) unveiling and seizing missed-opportunities; (d) leveraging the momentum already in place from the VEA engines project together with; (e) investments made in resource and energy efficiency at the plants, this automotive company may have what it takes to being a leader in, not only world-renowned safety, but also environment on a global level.

6 Summary & Conclusion

Diminishing the environmental impact of products and their associated processes has become an important focus of corporate environmental strategies (Albino et al., 2009). Such strategies are being developed to support firms in addressing the ongoing debate on business and environment while managing the intensifying environmental, societal, and economic pressures being experienced today. However, too often are such strategies faced with implementation and engagement challenges that cause them to fall by the wayside. As Hoffman (2001) expressed, corporate environmental strategy must be developed with an appreciation of the context in which it takes place, otherwise environmental initiatives will flounder. Therefore, the call for an investigation on Volvo Cars' environmental strategy that was implemented in 2010 has enabled the provision of this research paper that supports a redevelopment of the strategy with an appreciation of the context in which it takes place. This paper attempted to fill the gaps between "what (not) to do" and "how (not) to do it" by proposing the following research question divided into sub-questions. As they have already been described in the previous chapters, the aforementioned questions are answered in brief below.

How can an environmental strategy be formulated and implemented to make Volvo Cars more efficient and effective in its environmental work?

- *To what extent is Volvo Cars' environmental strategy strategically formulated and implemented?*
- *Under which circumstances is the environmental strategy currently delivering benefits to the company?*

Firstly, it is evident that the extent to which Volvo Car's environmental strategy is strategically formulated and implemented is in need of strengthening and needs to be explicitly formulated as it has largely been an implicit strategy relying on past activities. The strategy is in need of (1) the focus of one commonly defined environmental strategy; (2) strategic areas per definition for all parts of the strategy including communication; (3) a strategy directly integrated into the core business and corporate strategy (similarly to the quality initiatives and how they are integrated within the business at Volvo Cars); (4) the necessary backing and attention from top-executives; (5) a designated top-executive that is responsible for leading the strategy; (6) a common measuring and reporting system to measure the environmental work at the company and track environmental achievements; (7) improved communication of the substantive environmental activities at Volvo Cars to stimulate further actions and spread awareness internally and externally. Conclusively, the result of these findings is the overall need for reformulating the strategy according to the building blocks of strategic environmental-business approaches and strategy formulation. The resulting need for the strategy's reformulation was recognized by both the informants and the researcher and the resulting action that has ensued at the company is a redevelopment of the entire environmental strategy: Environmental Strategy 2.0.

Secondly, it is uncertain whether or not the environmental strategy has delivered tangible benefits to the company due to the aforementioned limiting circumstances listed in above. The strategy may be delivering intangible benefits from the symbolic action of having an environmental strategy implemented at the company since 2010; however, this remains uncertain due to the inactivity of the strategy together with the lack of a common strategic approach. What is clear, however, is that the strategy may be explicit using one or more of

the five approaches described in this paper to concoct the circumstances necessary for an environmental strategy to deliver benefits. By using one or more of the five generic approaches and realizing the relationship between the owners and the company, Volvo Cars may concoct the circumstances necessary for the strategy to stimulate actions that create and capture value at the company. More attention on Volvo Cars' environmental work is required in the organization as a whole should the environment also be perceived as an equally important company value like safety and quality. Further research is recommended to be performed on the formulation of environmental strategy 2.0 using this sub-question as it is highly relevant for measuring the effectiveness of an environmental strategy in business.

Although the initial scope of the research had been requested by Volvo Cars to be delimited to only the operations part of the strategy, the research which was performed under an action research paradigm revealed that developmental change within the formulation of the entire strategy was the true problem in need of addressing. Together, the researcher and informants have responded to the call for action regarding the redevelopment of the strategy and this is the next step for strategy developers and implementers at the company. Further research by the company is required once the new environmental strategy has been formulated. Such research includes, but is not limited to, (1) in-depth studies on the three separate areas of the strategy to assess each areas performance and measure value-capture and creation; (2) the circumstances under which environmental investments deliver benefits to Volvo Cars' shareholders and stakeholders; (3) stakeholder analysis and addressing the interests of key stakeholders such as investors, customers, employees, NGOs, governments, and society at large; and (4) the prospect of creating a department with environmental competencies that go beyond the limits of manufacturing and strategically secure Volvo Cars' future on a more wide-ranging level in increasingly demanding markets.

The result of this project may act as the first building block for Volvo Cars as it strengthens its commitment to its core value environment. This paper has provided direction and material on "what (not) to do" and "how (not) to do it" for strategy developers and implementers at Volvo Cars. Change has already been achieved with the decision to redevelop the environmental strategy; Environmental Strategy 2.0 is now underway as a result of this project.

Should Volvo Cars wish to have an effective, integrated, and proactive environmental strategy, the company as a unit may leverage upon its newly-found independence as a stand-alone company together with its Swedish heritage and embrace the environmental challenges facing the automotive sector as business opportunities and challenges. This paper found that an integrated, strategically formulated, and corporate-wide environmental strategy with backing from top-management can support this business approach to environmental issues. In doing so, the environment will become an integrated part of business thinking at Volvo Cars; moreover, missed-opportunities will be unveiled as a result of this approach only to present opportunities for competitive advantage and innovation in a transforming landscape of environmental demands.

For Volvo Cars to successfully move forward into the implementation phase of action research, the company may seek expertise in the area of strategy to ensure the quality of the reformulated strategy from the start, thus mitigating quality risks for Environmental Strategy 2.0. The next step of reformulating and implementing the strategy is critical to its success. As a result of this project, the Executive Management Team's attention has now been captured. Because of this engagement and the momentum that it brings, the researcher strongly advises those responsible for the strategy to perform this next step immediately.

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- *All details relating to interviews, focus groups, and the informants have been omitted from this version due to reasons relating to confidentiality. For further information, please contact the author of this paper.

Appendices

Appendix 1 - Reinhardt's five approaches to environment in business

| Approach | Description | Success factors |
|--|---|--|
| Environmental Product Differentiation | Offer products and/or employ processes that offer greater environmental benefits or impose lower environmental costs than those of competitors. | <p>IDENTIFY Willingness to pay</p> <p>COMMUNICATE CREDIBLY</p> <p>PROTECT FROM COMPETITORS</p> |
| Managing Your Competitors | Force competitors to match behavior. Incur higher costs in response to environmental pressure. | <p>Regulations favoring your product.</p> <p>Set collaborative private standards</p> |
| Saving Costs | <p>Internal cost reductions: Cutting costs while improving environmental performance.</p> <p>E.g. Waste generation E.g. Product "take-back" schemes E.g. Design-for-environment initiatives</p> | <p>IMPROVE OR REDESIGN PROCESSES</p> <p>Investments are only worthwhile if they deliver value after all management costs have been included.</p> |
| Managing Environmental Risk | Environmental improvements can be risk management devices; a source of competitive advantage by cost effectively reducing long-term business risk. | <p>Integrate environmental risks into the company's overall risk management approaches.</p> |
| Redefining Markets | Combining innovations in property rights and advances in technology may be able to create very strong competitive positions. | <p>Succeeding companies appear to be leaders in industries facing intensifying environmental pressure due to research capabilities.</p> |

Appendix 2 – General Motors' third party audited eco-label


2012 SONIC

| ecologic Features | Consumer Benefit |
|---|--|
| <p>FUEL-SAVING TECHNOLOGIES</p> <ul style="list-style-type: none"> • Continuously Variable Valve Timing adjusts air flow in and out of the combustion chamber under all engine speeds. • The engine has been factory-filled with engine oil meeting GM's new dexos™ specification. • Electric power steering uses an electric motor instead of an engine-driven belt. | <ul style="list-style-type: none"> • An engine that can regulate its own air flow makes for better fuel economy and lower emissions. • Advanced dexos oil technology provides for greater fuel economy as compared to the previous GF-4 oil. • Because this system uses an electric motor instead of an engine-driven belt, it has a lighter overall workload. The lighter the engine's workload, the better its fuel economy. |
| <p>END-OF-LIFE RECYCLABILITY</p> <ul style="list-style-type: none"> • After the vehicle's useful life, 85% of it is recyclable. | <ul style="list-style-type: none"> • At the end of this vehicle's life span, the majority of its components can be broken down and recycled, which conserves resources and reduces landfill deposits. |
| <p>RESPONSIBLE MANUFACTURING</p> <ul style="list-style-type: none"> • Landfill gas supplies more than 20% of the energy for heating and cooling of the final assembly facility. • Both the transmission and engine facilities are landfill-free. • Sonic is the only vehicle in its class assembled in the United States. | <ul style="list-style-type: none"> • By using landfill gas, a renewable energy source made from waste, this assembly facility is less reliant on fossil fuels. • By accomplishing a landfill-free status, these facilities use a process to reuse, recycle or convert to energy all waste created in their daily operations, which conserves resources. • This vehicle was assembled in the United States, which reduces energy consumption and emissions related to vehicle transport. |

Third-party audited.
Visit chevrolet.com/ecologic for details.

For more information: chevrolet.com/ecologic
 Printed at a facility certified for its environmental management system.

Appendix 3 – Materiality Map: Transportation issues table (SASB, 2014)

| | | Draft Disclosure Topics for the Transportation Sector | | | | | | | |
|---|-------------------------|--|---|--|---|---|---|---|---|
| | | Automobiles | Auto Parts | Car Rental & Leasing | Airlines | Air Freight & Logistics | Marine Transportation | Rail Transportation | Road Transportation |
|  | Environment | <ul style="list-style-type: none"> Greenhouse gas emissions Energy management Waste management | <ul style="list-style-type: none"> Energy management Waste management | | <ul style="list-style-type: none"> Environmental footprint of fuel use | <ul style="list-style-type: none"> Environmental footprint of fuel use | <ul style="list-style-type: none"> Environmental footprint of fuel use Ecological impacts | <ul style="list-style-type: none"> Environmental footprint of fuel use | <ul style="list-style-type: none"> Environmental footprint of fuel use |
| | Social Capital | | | <ul style="list-style-type: none"> Passenger safety | <ul style="list-style-type: none"> Passenger safety Passenger rights & regulatory compliance | | | | |
| | Human Capital | <ul style="list-style-type: none"> Employee health, safety & well-being | <ul style="list-style-type: none"> Employee health, safety & well-being | | <ul style="list-style-type: none"> Talent & diversity | <ul style="list-style-type: none"> Fair Labor Practices | | | <ul style="list-style-type: none"> Working conditions & driver retention |
| | B. Model & Innovation | <ul style="list-style-type: none"> Product safety Fuel economy & use-phase emissions Product end-of-life management | <ul style="list-style-type: none"> Product quality & safety Product stewardship Product end-of-life management | <ul style="list-style-type: none"> Integration of environmental & social factors into service offerings | | | | | |
| | Leadership & Governance | <ul style="list-style-type: none"> Supply chain management Fair lending | <ul style="list-style-type: none"> Competitive behavior Supply chain management | | <ul style="list-style-type: none"> Competitive behavior | <ul style="list-style-type: none"> Accidents & safety management | <ul style="list-style-type: none"> Business ethics Accidents & safety management | <ul style="list-style-type: none"> Competitive behavior Accidents & safety management | <ul style="list-style-type: none"> Accidents & safety management |
| | Emerging | <ul style="list-style-type: none"> Competitive behavior | | | <ul style="list-style-type: none"> Regulatory capture & political influence Noise & light pollution | <ul style="list-style-type: none"> Contractor management | <ul style="list-style-type: none"> Climate change adaptation End-of-life management | <ul style="list-style-type: none"> Climate change adaptation | <ul style="list-style-type: none"> Climate change adaptation |


Appendix 4 – Volvo Cars: Six strategic change themes







Appendix 5 – Volvo Cars’ list of its major environmental achievements since 1945

- 1945 Volvo introduces remanufactured spare parts - an exchange system still in use
- 1972 UN Global conference on the environment in Stockholm: Volvo raises the critical role of the car in society
- 1976 Three-way catalytic converter with oxygen sensor (Lambdasond®) removes up to 90% of noxious exhaust fumes - first on market
- 1982 Torslanda plant begins to use waste heat from local oil refinery
- 1987 Torslanda water treatment plant removes 90% of harmful effluents
- 1989 Volvo demonstrates alcohol power technology: cleanest car tested to date
- 1989 Introduction of internal environmental audits
- 1989 Plastics in Volvo cars marked to facilitate recycling
- 1990 First award of Volvo Environment Prize
- 1991 Volvo Cars first to introduce car free of ozone-depleting chlorofluorocarbons (CFCs)
- 1991 Paintshop at Torslanda plant is the world's cleanest
- 1992 Asbestos eliminated from car production
- 1992 Volvo Environmental Concept Car (ECC)
- 1993 Chlorofluorocarbons (CFCs) no longer used in climate systems of series-produced Volvo cars
- 1994 ECRIS, a new research facility for environmentally optimised dismantling
- 1995 Volvo Bi-Fuel, Volvo Cars' first generation of methane-driven cars
- 1995 Introduction of standards to improve dealers' environmental activities
- 1995 Launch of Car & Eco Care, the Volvo Cars range of environmentally labelled car care products
- 1996 Introduction of environmental standards for suppliers
- 1998 Introduction of PremAir® - a radiator coating designed to convert harmful ground-level ozone into pure oxygen
- 1998 Volvo Cars first carmaker to publish environmental product information (EPI) for cars (originally named EPD)
- 1999 IAQS (Interior Air Quality System) introduced for cleaner cabin air
- 2000 Tailpipe emission control technology from Volvo Cars' ULEV engines becomes available globally
- 2001 New generation of Bi-Fuel cars
- 2002 Volvo Adventure environmental education programme for young people (formerly Volvo Young Environmentalist Award)
- 2002 New Volvo cars designed for 85% recyclability
- 2003 Volvo Cars achieves global ISO 14001 certification
- 2004 Introduction of particulate filter for diesel engines
- 2004 Volvo S40 1.6D is first Volvo car with fuel consumption less than 5 l/100 km
- 2005 Bioethanol (E85) powered Volvo S40/V50 Flexifuel launched in Sweden
- 2007 IAQS & Automatic ventilation recommended by Swedish Asthma & Allergy Association
- 2007 Volvo Flexifuel offer broadened - 3 models and 5 engines introduced
- 2007 Volvo ReCharge Concept - a plug-in hybrid with 100 km battery range - introduced
- 2008 Volvo uses only green electricity (hydropower) in European manufacturing units
- 2008 Powershift technology introduced - automatic transmission with 8% lower fuel consumption compared to conventional automatic transmissions. Available in C30/C70/S40/V50
- 2008 Volvo C30/S40/V50 1.6D DRiVe introduced - with CO₂ emissions of 115 (C30) and 118 g/km (S40 and V50)
- 2009 Joint venture between Volvo Cars and energy supplier Vattenfall to develop plug-in hybrid cars and energy infrastructure
- 2010 New environment strategy including both operations and product
- 2011 Decrease of energy consumption per vehicle by almost 20% compared to prior year
- 2011 Analysis of operational fresh water footprint performed for all production sites
- 2012 V60 Plug-in Hybrid (world's first diesel-powered plug-in hybrid) reached the first customers
- 2012 V40 launched with CO₂ emissions down at 88 g/km
- 2013 The new, high-efficient four-cylinder engine family Drive-E Powertrains launched
- 2013 First demo fleet of the C30 electric generation II with a new electric engine (in cooperation with Siemens)

Appendix 6 – Self-completion questionnaire originals


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|--|--|
|  | <p>Interview ____, 2014</p> <p>Moderators: Claire Lawson & Sofia Boyagi Participant: _____</p> <p>Survey statement 1</p> |
|    | <p><i>At Volvo Car Group, our core value "Environment" is equally as important as our core values "Safety" and "Quality".</i></p> <p>Please mark your choice with an X on the scale below:</p> <p>1 5</p> <p>Strongly Disagree Somewhat Agree Strongly Agree</p> |

Scale: 1 – 5
1 = strongly disagree
5 = strongly agree

| | |
|---|---|
|  | <p>Interview ____, 2014</p> <p>Moderators: Claire Lawson & Sofia Boyagi Participant: _____</p> <p>Survey statement 2</p> |
|    | <p><i>The environmental strategy at Volvo Car Group can add economic value to the company.</i></p> <p>Please mark your choice with an X on the scale below:</p> <p>1 5</p> <p>Strongly Disagree Somewhat Agree Strongly Agree</p> |

Scale: 1 – 5

1 = strongly disagree
5 = strongly agree

| | |
|--|---|
|  | <p>Interview _____, 2014</p> <p>Moderators: Claire Lawson & Sofia Boyagi Participant: _____</p> <p>Survey statement 3</p> |
|    | <p><i>The environmental strategy can best support the company's mission by being integrated within the corporate strategy: Designed Around You.</i></p> <p>Please mark your choice with an X on the scale below:</p> <p>1 5</p> <p>Strongly Disagree Somewhat Agree Strongly Agree</p> |

Scale: 1 – 5
1 = strongly disagree
5 = strongly agree

| | |
|---|--|
|  | <p>Interview _____, 2014</p> <p>Moderators: Claire Lawson & Sofia Boyagi Participant: _____</p> <p>Survey statement 4</p> |
|    | <p><i>Volvo Car Group should improve the communication of its environmental work in order to raise customer awareness.</i></p> <p>Please mark your choice with an X on the scale below:</p> <p>1 5</p> <p>Strongly Disagree Somewhat Agree Strongly Agree</p> |

Scale: 1 – 5
1 = strongly disagree
5 = strongly agree