



Sveriges lantbruksuniversitet  
Swedish University of Agricultural Sciences

Department of Economics

# **Low carbon non-product related procurement**

- the Case Novo Nordisk A/S

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- the Case Novo Nordisk A/S

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# Abstract/Summary

Climate change is an ongoing global issue that has severe effects on health, economy and nature. Climate change is mainly caused by human-induced GHG emissions. Companies have a fundamental role in transforming natural resources into items and services that enable the level and quality of life in today's society (Benn *et al.*, 2014). Therefore, companies are the fundamental part of the problem, and they have a vital role in finding the solution (Boiral *et al.*, 2012). The potential competitive advantage that companies can gain by implementing corporate social responsibility (CSR) has changed the question from *whether* to *how* companies can integrate sustainability into their practices (Wu & Pagell, 2011). Thus, companies are now facing the need to assess and evaluate the most material actions to be employed. Research has revealed that a substantial part of companies' climate impact comes from scope 3 emissions (Downie & Stubbs, 2013). Scope 3 emissions are generated in companies' supply chains, outside of companies' operations and direct control. Therefore, companies are forced to rethink their climate strategies and to widen their consideration to include scope 3 emissions. Recently, the procurement function has been recognized to be essential for the overall sustainability of the material flows entering a company (Porter & Van der Linde, 1995; Schneider & Wallenburg, 2012). As most of scope 3 emissions are generated through non-product related (NPR) procurement activities, this study focuses on the procurement of less strategic items and services.

The aim of this study is to investigate the complexity and challenges in the implementation of low carbon procurement (LCP) in the context of NPR procurement. The aim is expected to be achieved by exploring the influence of external and internal factors for the implementation of the procurement process. Another means to achieve the aim is to study what category managers perceive as challenges in the implementation of low carbon NPR procurement. How to implement low carbon initiative by employing the change management model is also analyzed in this study. A qualitative single case study design with three research units is employed. The selected case company, Novo Nordisk A/S, is a well-known pharmaceutical company with a pro-active environmental profile. The company has identified that a significant climate impact comes from the company's supply chain (Novo Nordisk, 2014), and the company has challenged itself to reduce its overall climate impact through NPR procurement activities. The empirical data in this study was acquired by using a two-step approach, implemented through semi-structured interviews and validated by triangulation with documented materials. The findings of this study were analyzed using a conceptual framework that was developed based on the literature review that was conducted for this study. The conceptual framework consists of internal and external factors (drivers/barriers) for the implementation of LCP and an illustration of the integration of CM into NPR procurement processes. Finally, two change models were combined and used for further analysis of the topic and shed light for the challenges.

The findings in this study show that external and internal factors may have a different influence in each of the categories studied, and factors can mirror to same aspects. The key challenges can be divided into three interrelated dimensions: the lack of top management interest, methodological difficulties, and regional differences in capacity, motivation and resources. The challenges perceived were quite similar in each category. Finally, using change management models, the steps to overcome the key obstacles in the implementation process were identified to be creating a strong coalition to drive the change mandated by top management and anchored in affiliates, designing integrated climate strategies with clear targets and strong communication and stakeholder collaboration.

# Abbreviations

AR	Annual Report
CDP	Carbon Disclosure Project
CEO	Chief Executive Officer
CEM*	Concure expense management
CEM**	Corporate environmental management
CF	Carbon footprint
CM	Carbon Management
CSR	Corporate social responsibility
CSV	Creating shared value
CO <sub>2</sub>	Carbon Dioxide
COP21	2015 Conference of Parties
CDLI	Climate Disclosure Leadership Index
DSJI	Dow Jones Sustainability Indices
EF	Emission Factor
EV	Electric vehicle
EIO	environmental input output
EMS	Environmental management system
EPA	United States Environmental Protection Agency
E P & L	Environmental profit and loss assessment
EF	emission factors
FSC	forest stewardship council
GHG	greenhouse gases
GIS	General Indirect Sourcing
GLIA	Global Information & Analysis
GP	green procurement
HQ	headquarters
IDF	International Diabetes Foundation
IPCC	Intergovernmental Panel on Climate Change
ISO	International Organization for Standardization
LCP	low carbon procurement
LCA	Life Cycle Assessment
MNC	Multinational company
M & E	Meetings and Events
NGO	Non-governmental organizations
NPR	Non-product related
Novo Nordisk	Novo Nordisk A/S
Rio +20	The United Nations Conference on Sustainable Development
R&D	Research & Development
SCM	Supply Chain Management
TBL	Triple bottom line
UK CIPS	United Kindom Chartered Institute of Procurement and Supply
UN	United Nations
UNFCCC	United Nations Framework Convention on Climate Change
WHF	World Hemophilia Foundation
WHO	World Health Organization
WBCSD	The World Business Council for Sustainable Development
WRI	World Resources Institute
WWF	World Wide Fund for Nature

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# 1 Introduction

Climate change is an ongoing global issue that has severe effects on health, economy and nature. Climate change increases the exposure to climate-sensitive diseases (www, WHO, 2014), expensive disruptions to society (www, EPA, 2014) and biodiversity loss (IPCC, 2013). Global challenges emerge due to that climate change influences the economy in various ways, affecting some industries more than others, e.g. in form of different regulations (Downie & Stubbs, 2012). Strategic dilemmas appear in the form of changing cultivation patterns, increased risks, new regulation regarding GHG emissions, and possible additional climate-related costs (Boiral *et al.*, 2012). Global warming is caused by the increased level of greenhouse gasses (GHG) in the atmosphere, which are creating a *shell* around the Earth. This *shell* retains heat that otherwise would dissipate, and the phenomenon is called the *greenhouse effect* (www, EPA, 2014). More precisely, the *greenhouse effect* is mainly caused by anthropogenic<sup>1</sup> emissions that are released through human industrial and agricultural activities (IPCC, 2013).

IPCC state in their 5<sup>th</sup> Assessment report (2013, 1): "Human influence on the climate system is clear, and recent anthropogenic emissions of greenhouse gases are the highest in history." The most common and significant human-induced gas is Carbon Dioxide (CO<sub>2</sub>). Less than 2°C is a commonly accepted maximum temperature increase for avoiding a total disaster caused by human-induced GHG emissions (IPCC, 2013). According to the United Nations Framework Convention on Climate Change<sup>2</sup> (www, UNFCCC, 1, 2015), reaching the goal of limiting global warming to less than 2°C requires a commitment from all the key actors. The relevant actors in solving this global dilemma are governments, the private sector, non-governmental organizations (NGOs) and the civil society. Moreover, companies have a fundamental role in transforming natural resources into items and services that enable the level and quality of life in today's society (Benn *et al.*, 2014). Therefore, companies are the fundamental part of the problem, and they have a vital role in finding the solution (Boiral *et al.*, 2012). Finding the solution is not the responsibility of individual actors but requires collaboration between the actors on the international stage.

The first international political reaction against climate change and the first attempt to stabilize GHG emissions took place at the Rio Earth Summit in 1992 in the form of UNFCCC and was followed by the Kyoto Protocol<sup>3</sup> in 1997 (www, UNFCCC, 2, 2015). The next milestone in combating climate change will be the Conference of Parties (COP21) in Paris in December of 2015. The goal for COP21 is to reach a universal and legally binding agreement to limit global warming to less than 2°C (www, COP21, 2015). If this agreement is achieved, it will lead to new emission control regulations. Current policies on climate change are mainly focused on limiting direct emissions (scope 1) from significant large-scale emitters in Europe, North America and Australia (Downie & Stubbs, 2012). Indeed, different reporting schemes have been established to keep track of and control emissions. New rules would enforce companies to measure, manage, mitigate<sup>4</sup> and report their GHG emissions in a larger scale. Companies have understood the imminence of global GHG regulation (Matthews *et al.*, 2008) and recognized the importance of reducing the climate impact.

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<sup>1</sup> Anthropogenic – human-induced (IPCC, 2013)

<sup>2</sup> UNFCCC is an international environmental treaty which has as its ultimate goal to stabilize human-induced greenhouse gas concentrations to avoid disastrous impacts

<sup>3</sup> The Kyoto Protocol is an international agreement linked to the UNFCCC. The protocol commits states to setting internationally binding emission reduction targets and is ratified by 134 nations. (UNFCCC, 2015)

<sup>4</sup> Mitigation refers to the reduction of human-induced GHG impacts (IPCC, 2013)

Al-Rodhan (2006, 5) defines globalization as "... a process that encompasses the causes, course, and consequences of transnational and trans-cultural integration of human and non-human activities". Globalization is driven by several factors such as technological development, politics, socio-cultural processes and the awareness of global risks such as climate change (By & Burnes, 2013). Globalization has given rise to the birth of multinational companies (MNC). A MNC is a company that is engaged in production and/or other practices in more than one country through subsidiaries and has direct control over the policies in these subsidiaries (Franklin, 1990). Globalization and the absence of global legally binding regulations (Scherer & Palazzo, 2007) have generated a wide group of external stakeholders to pressure companies to take more responsibility of their actions. External pressure has led companies to respond to challenges such as climate change. Increased external pressure is a key driver for companies to address their climate commitments and other sustainability initiatives (Boiral *et al.*, 2012).

Because of globalization and increased external pressure to include new responsibilities, companies have recognized the need to change, and "the basic goal has been the same to make fundamental change in how business is conducted in order to help cope with a new, more challenging market environment" (Kotter, 1995, 89). The potential competitive advantage that companies can gain by implementing corporate social responsibility (CSR) has changed the question from *whether* to *how* companies can integrate sustainability into their practices (Wu & Pagell, 2011). The World Business Council for Sustainable Development (WBCSD) defines CSR as follows: "Corporate Social Responsibility is the continuing commitment by business to contribute to economic development while improving the quality of life of the workforce and their families as well as of the community and society at large" (WBCSD, 1998, 3).

CSR leads companies to obtain new dimensions of their core responsibilities that lead organizations to find innovative alternatives to create profit by also generating value for society. Value can be generated by addressing society's needs and issues (Porter & Kramer, 2011). Harris and Crane (2002) argue that companies need to embrace new values, beliefs and behaviors that prioritize environmental considerations, which help the companies to perform in a sustainable manner. They establish the connection between sustainability and greening the organizational culture. Moreover, the positive relation between change management and improved environmental performance exists (Ronnenberg *et al.*, 2011). Therefore, companies need to change through greening the organizational culture to be able to implement their sustainability initiatives.

## 1.1 Problem Background

Climate change is the one of the most threatening environmental concern that companies are facing, and it is a complex issue to tackle. The focus of global debates, agreements, and negotiations such as COP21 is on climate change, and companies are confronted with increased external pressure to act (Lash & Wellington, 2007). At the same time, practitioners and scholars understand the benefits that companies can reap from assessing and managing their GHG emissions (Downie & Stubbs, 2012). Economic benefits from companies' mitigation practices vary between regions, industries and measurement methods (Boiral *et al.*, 2012). The main drivers for companies to integrate mitigation and climate strategies consist of increasing energy and carbon costs, brand reputation and energy supply risks (CDP, 2010). Further, companies will benefit in form of cost savings, new business opportunities and risk

mitigation regarding corporate image, scarce resources and regulations. In McKinsey's (2008) study of how companies in several industries think about climate change, the majority of the respondents acknowledged the materiality of climate change. Therefore, the companies in the study felt the urgency to integrate carbon management (CM) into their business practices. CM is defined as "the measurement and management of emissions of carbon dioxide (CO<sub>2</sub>) and the other five greenhouse gases covered by the Kyoto Protocol" (Chan, 2009, 11).

Companies measure their environmental impacts with different methods, and the carbon footprint (CF) is a common way to measure and communicate a company's GHG emissions. Many definitions for CF exist, but Wiedmann and Minx (2008, 5) have a definition: "a measure of the exclusive total amount of carbon dioxide emissions that is directly and indirectly caused by an activity or is accumulated over the life stages of a product".

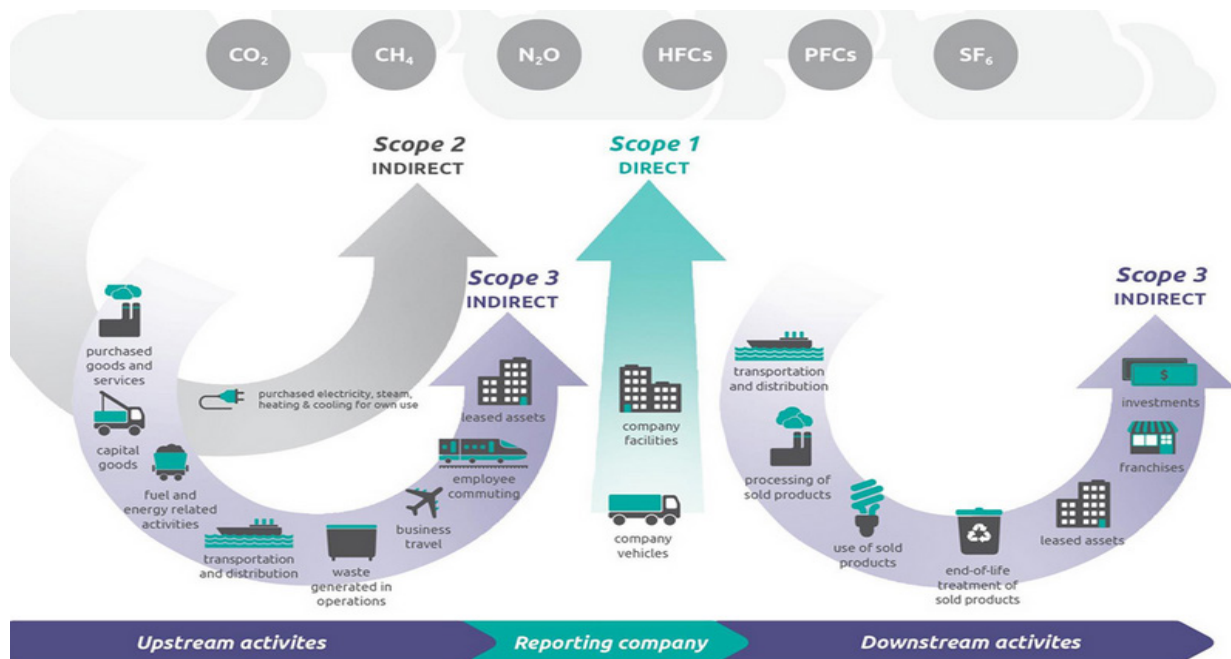


Figure 1. Scope 1, 2, 3 of GHG protocol emissions (Source: GHG protocol, 2011, 05)

The most commonly accepted classification of GHG emissions is to divide them into three different scopes (Chan, 2009; Correia *et al.*, 2013) as shown in Figure 1. The different emission scopes are described below (adapted from www, carbon trust, 2015; GHG protocol, 2011; Chan, 2009; Correia *et al.*, 2013):

- *Scope 1 emissions* (direct emissions) are generated from all the activities across an organization including fuel combustion, company vehicles, and fugitive emissions.
- *Scope 2 emissions* (indirect emissions) are related to energy (electricity, heat and steam) that an organization has used but that has been purchased from a third party.
- *Scope 3 emissions*<sup>5</sup> (indirect emissions) cover all the emissions of an organization that are generated by its activities outside the organization's operations.

The requirement to measure and manage GHG emissions has led companies to pursue CF projects in order to estimate how much they contribute to climate change (Matthews *et al.*, 2008). International organizations such as the WBCSD, World Resources Institute (WRI) and

<sup>5</sup> These emissions include purchased goods and services, business travel, employee commuting, waste disposal, use of sold products, transportation and distribution (up- and downstream), investments, leased assets, and franchises (GHG protocol, 2011)

the Carbon Disclosure Project (CDP) have broad carbon emission reporting schemes that provide companies with instruction on how to report their emissions (Matthews *et al.*, 2008). Reporting on scope 3 emissions is voluntary in all schemes, and a lack of the standardization of the GHG emission accounting policies adds to the complexity of measuring and evaluating these emissions (Lee, 2011). Scope 3 emissions are generated in the supply chains of companies and are thus left outside of a company's direct control. Hence, companies' current GHG mitigation strategies are mainly focused on scope 1 and scope 2 emissions. Interestingly, scope 3 emissions account for an average of three fourths of all emissions (Huang *et al.*, 2009; Downie & Stubbs, 2013), and thus have the highest mitigation potential and materiality for the majority of the companies.

The solution to sustainability issues is to find the most optimal way for each company to conduct profitable business while creating value for the society. The need for environmental protection and the increased demand for limited natural resources have led companies to restructure their supply chain operations and to transform their business models (Wu & Pagell, 2011). Scholars (i.e. Porter & Van der Linde, 1995; Schneider & Wallenburg, 2012) have recently recognized the significance of integrating sustainability principles into the procurement function for the company's overall sustainability. The material and service flows entering into the company come through procurement processes (Schneider & Wallenburg, 2012). Therefore, a company has an opportunity to influence to which degree flows of material and service entering into the company have an impact to environment or society at large. Material and service flows present opportunities for integrating social and environmental considerations into processes (Schneider & Wallenburg, 2012). Recent studies into companies' CFs have indicated that the majority of the companies' GHG emissions are generated in their supply chains (Huang *et al.*, 2009; Downie & Stubbs, 2013).

Kraljics (1983) in his purchasing portfolio first shifted procurement from a tactical to the strategic business function. Since then, the importance of comprehensive and inclusive supply (chain) management (SCM) has been emphasized. Consequently, SCM has substituted the purchasing management activity, which is only focusing on the buying situation (Johnsen *et al.*, 2014). Indeed, SCM is based on the idea that a company's success partly depends on the actions of its suppliers and other stakeholders (Schneider & Wallenburg, 2012) in addition of company's performance. There is no precise definition for SCM (Mentzer *et al.* 2001), but it can be characterized as the flow of goods and services from a source to the customer. In particular, SCM consists of processes such as "purchasing, expediting, inventory management, delivery and receipt of goods and quality control" (www, UK CHIPS, 2015). As the focus is on the supply management and procurement related to strategic goods and services (Haake & Seuring, 2009; Mosgaard *et al.*, 2013), the majority of research fails to include *non-product related* (NPR) procurement into the research scope. Thus, it is important to make a distinction between two types of procurement: product-related, *major procurement* (direct spend) and NPR procurement (indirect spend).

The first category, major procurement, refers to materials and services with a direct influence on product quality or production. The latter covers all the goods and services that a company needs for supporting its practices but that do not have a direct impact on production or product quality (De Boer *et al.*, 2003). As Haake and Seuring (2009) suggest, the focus of this study is on the broader perspective on the supply chain. Therefore, instead of focusing on a single company and product, this study takes the wider approach of taking into account the ultimate supply chain (USC). According to Mentzer *et al.* (2001, 4), the USC presented in figure 2 "includes all the organizations involved in all the upstream and downstream flows of

products, services, finances, and information from the ultimate supplier to the ultimate customer”.



Figure 2. Illustration of USC (Source Mentzer *et al.*, 2001, 4)

The terms *procurement*, *purchasing*, and *sourcing* are often used interchangeably in the literature although the concepts might have significant differences depending on the user (Johnsen *et al.*, 2014), and therefore are necessary to be defined. According to the UK CIPS (2015), procurement is a comprehensive *chain* of actions from “identification of a requirement to the disposal of that requirement”. De Boer *et al.* (2003, 911) define procurement as the execution of the following functions: definition of need, selection of supplier, negotiation and contracting, and ordering and monitoring the delivery. Purchasing is a simplified process of procurement and is defined as the actual situation in which items or services are bought from a supplier. Sourcing, on the other hand is the strategic part of the procurement process, focusing on the market search of potential sources of goods and services (www, UK CIPS, 2015). The term *procurement* is used according to the definition of de Boer *et al.* (2005), and a distinction between procurement and purchasing is made.

Novo Nordisk A/S (Novo Nordisk) is a global healthcare company with over 40,000 employees in 75 countries. Novo Nordisk has a Triple bottom line (TBL) business philosophy, which “frames Novo Nordisk’s long-term strategy to be a sustainable business “ (Novo Nordisk, internal file, 2015). It obligates employees to always consider the impacts in addition to company also to environment and society. Novo Nordisk conducted an Environmental Profit and Loss<sup>6</sup> (E, P & L) study that identified that most of the company’s GHG emissions were found to occur in the company’s supply chain (Novo Nordisk, 2014). Thus, for Novo Nordisk to be able to reduce their overall CF, they need to find a way to integrate LCP principles into their practices.

## 1.2 Problem

The most significant environmental issue that companies are struggling with is finding a solution to how to reduce their climate impact. CF presents a company’s overall climate impact from all its business activities and, therefore, includes direct (scope 1) and indirect (scope 2 and scope 3) emissions (Wiedmann & Minx, 2008). Traditionally companies have focused on managing GHG emissions related to scope 1 and 2. Evidently, a major part of companies’ GHG emissions come from their supply chains and are beyond their direct control (Meehan & Bryde, 2011). Efficient management and mitigation strategies require a correct understanding and awareness of scope 3 emissions (Downie & Stubbs, 2013). However, there is no clear consensus on how companies should measure, scope and assess their scope 3 GHG emissions (Matthews *et al.*, 2008). Researchers emphasize the key role of procurement function to influence the material flows entering into the company (Porter & Van der Linde, 1995; Schneider & Wallenburg, 2012). Procurement functions ability to influence the environmental impact of the service and material flows through procurement criteria’s enables the company to reduce its CF. As scope 3 emissions are corresponding to the majority of companies’ emissions (Downie & Stubbs, 2013), mitigation strategies should be directed

<sup>6</sup> Environmental Profit and Loss assessment is a means of placing a monetary value on the environmental impacts along the entire value chain of a given organisation (Novo Nordisk, 2014,5)

into NPR procurement activities. Consequently, NPR procurement covers the majority of the procurement activities that contribute to companies' scope 3 emissions.

The sustainability criteria in the procurement process can be integrated into the supplier selection process or in the purchasing decision (Schneider & Wallenburg, 2012). It is complicated for companies to implement green NPR procurement in cases when the top management lacks interest in integrating sustainability into related activities (Haake & Seuring, 2009; Mosgaard, *et al.* 2013; Mosgaard 2015). NPR procurement also has an invisible impacts and benefits on the micro-level (Mosgaard, *et al.* 2013; Mosgaard 2015) and a great amount of suppliers and products are involved. Besides, NPR procurement contain high-level involvement of internal customers<sup>7</sup> (Cox *et al.*, 2005), which means that procurement decisions are executed by employees without professional procurement experience. Furthermore, successful LCP requires prior understanding and skills regarding CF and CM (Correia *et al.*, 2014). Consequently, decisions are strongly influenced by individual behaviors and preferences (de Boer *et al.*, 2003), and they are thus challenging to manage. Moreover, Haake and Seuring (2009, 284) argue that "not such a thing as 80% of sustainable" exists, by which they address the impact of NPR procurement and the entire supply chain. Therefore, companies that aspire to be sustainable are beginning to shift from only considering the company's operations towards comprehensive inclusion of NPR procurement into the climate strategy.

"It can be argued that the successful management of change is crucial to any organization in order to survive and succeed in the present highly competitive and continuously evolving business environment" (By, 2005, 369). A global survey conducted by McKignsey and Company (2008) suggests that companies need to change constantly to guarantee their further existence. However, two-thirds of implemented change processes fail. Furthermore, there is a gap between theory and practice of sustainable procurement. This gap has three reasons: lack of capabilities, instruments, or processes for the actual implementation of sustainable considerations (Schneider & Wallenburg, 2012). Thus, managers face the issue of how to implement sustainability initiatives in practice. While there are theoretical ideals for a company's sustainable procurement, it can be extremely challenging to implement LCP focusing on non-strategic procurement areas, which is where a large part of a company's impacts on the climate comes from.

### 1.3 Aim and Research Questions

The aim of this study is to investigate the complex issue of implementation low carbon NPR procurement. The aim is expected to be achieved through exploring the influence of internal and external factors in the procurement process. Factors may function as drivers or barriers for company's motivation to implement green initiatives (Appolloni *et al.*, 2014). Next step is unravelling the perceived challenges by category managers related to the inclusion and prioritization of low carbon criteria in NPR procurement process. Finally, once having this data, analyzing the implementation of the low carbon initiative in the context of NPR procurement is possible. Moreover, this study focuses only on the three specified indirect spend categories, namely travel, meetings & events (M & E), and office supply. The research questions are related to each of the three specific categories studied in Novo Nordisk:

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<sup>7</sup> Internal customers cover all employees employed by Novo Nordisk A/S

*How do external and internal factors influence the implementation of LCP in the context of NPR procurement principles?*

*What are the challenges perceived by category managers in the implementation of LCP in the context of NPR procurement?*

*How can Novo Nordisk implement low carbon initiative in its NPR procurement process?*

## 1.4 Delimitations

Low carbon NPR procurement is a complex issue, so there are a number of perspectives that could have been chosen, and therefore several limitations exist. This study was limited to being a *snapshot* of the phenomena, to gain the picture of current status at the given time. First, this study is limited to a managerial perspective, focusing on the issue of low carbon NPR procurement and change management, while the more technical aspects of CM and the wider perspective of GP were left out. This study is also limited to exploring the issues related to CF and GHG emissions, excluding the other sustainability aspects related to procurement. Therefore, the exclusion of the trade-off issue between social and other environmental considerations reduces the complexity with which this complicated issue is dealt with here. Limiting the scope enables this study to focus on the chosen research topic more profoundly. Only three specified NPR categories were chosen to be scrutinized and analyzed more closely, while other categories with less GHG reduction potential were left out. The limitations may overlook some of the challenges observed during this study, due to the individual characteristics of each of the NPR product categories. Also, accommodation services was left out from the study, to narrow down the scope even more. Moreover, this study is limited to a corporate perspective, and the perspectives of other stakeholders of the NPR procurement, such as internal customers, suppliers, and regulatory bodies, were excluded. Even though these perspectives would be interesting to include, such a study would require more time and more resources. In addition, change management analysis is limited on planned change theory and models. Furthermore, as a single case study of a single company, the results and findings of this study cannot be generalized.

## 1.5 Outline

The outline of the thesis provides the reader with an overview of the structure of the study at hand. The first chapter introduces the reader to the study by presenting the research topic and the problem background, the problem, the aim and the research questions. This chapter is intended to provide the reader with a clear understanding of what is studied, and what has been excluded from the scope and why. The second chapter introduces the theoretical perspective, and the literature reviewed. In Chapter 3, the research methods used, the reasoning for the method, and the choices made in the empirical chapter are explained. In Chapter 4, the empirical findings collected through interviews, reports and internal files are presented. In Chapter 5, an empirical findings (Ch.4) are analyzed by using theoretical framework (Ch. 2). In Chapter 6, the findings are discussed and connected to the previous studies presented in Chapter 2. In Chapter 7, thoughts, conclusions and potential future research areas that were found during this study are presented. The conclusions are followed by the list of references and appendices.

After introduction chapter, the next chapter will present the conceptual framework and review the existing literature of the topic the study at hand.

## 2 Theoretical Perspective and Literature Review

*The theoretical framework and literature review presented here provide an overall view of all the concepts and theoretical aspects that are relevant with respect to the research questions and the aim of the study. First, theoretical aspects and concepts regarding sustainable, green and low carbon procurement are introduced. These provide a definition and methods for how sustainability is integrated into procurement practices. The definition is followed by an overview of concepts regarding NPR procurement process. Differences between procurement of major items and procurement of NPR products are identified, to gain a better understanding of the gap between theory and practice of LCP in the context of NPR procurement. Finally, theories and concepts on organizational change are explored to understand how organizational change in the form of sustainability initiative in procurement activities can be implemented.*

### 2.1 Sustainable and Green Procurement

Sustainable procurement does not have a single definition in the literature (Schneider & Wallenburg, 2012), but Pagell *et al.* (2010, 58) describe sustainable sourcing as "a managing all aspects of the upstream<sup>8</sup> component of the supply chain to maximize triple bottom line performance". TBL thinking, first coined by Elkington (1998), means that besides a company's responsibility to create profit, it is responsible for contributing to the society and the environment in which it operates. Apart from sustainable procurement, there are multiple definitions for green procurement (GP) in the literature (Appolloni *et al.*, 2014). According to a recent definition by Large and Thomsen (2011, 177), GP is an integration of environmental considerations into procurement activities, policies, and programs. Despite the distinction between sustainable procurement (balance between all three dimensions of social, environmental and financial aspects) and GP (more emphasis given for environmental considerations), some scholars do use these terms interchangeably with environmental purchasing and supply (chain) management (Appolloni *et al.*, 2014). There is a growing interest in GP among scholars and practitioners, mostly driven by external demands such as competitive, regulatory and community pressures (Appolloni *et al.*, 2014). Appolloni *et al.* (2014) in a literature review of research about GP in the private sector, indicated a significant increase in the publication during recent years; from 1996 to 2013 overall 86 management perspective studies were conducted, from which 32 were published between 2011 and 2013.

Historically, researchers and practitioners have focused on the financial part and on the efficiency of procurement activities (Kraljics, 1983). Procurement has been seen as a tactical process with a small or no impact on a company's performance or competitive advantage (Handfield *et al.*, 2002). Procurement professionals have broadly used Kraljic's (1983) purchasing portfolios as a tool and well-served support in SCM (Pagell *et al.*, 2010), which shifts procurement from tactical to the strategic position. Kraljic's (1983) purchasing portfolio consists of 5 phases, namely: 1-2) classifying purchased items and services with respect to profit impact and risk, 3-4) analyzing the supply market and the supply position, and based on previous phases 5) developing strategies for each category. Pagell *et al.* (2010), among other scholars, recognize the urgency to develop Kraljic's (1983) purchasing portfolio in the new business environment, where procurement has shifted towards sustainability and generated a more strategic position within the company.

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<sup>8</sup> Activities between the focal company and its supplier. Downstream: Activities between the focal company and the end customer (GHG protocol, 2011)



Sustainability increases the complexity of procurement activities because practitioners need to integrate multiple criteria into their decision-making processes, and that increases the number of possible trade-offs (Wu & Pagell, 2011). Environmentally sound solutions tend to increase costs in the short term and create value in the long term (Wu&Pagell, 2011). Thus, integrating environmental criteria into business practices is complex. Research has documented that managers lack sufficient information and are forced to make their decisions under uncertainty of environmental outcomes and prospective regulations (Wu&Pagell, 2011). A company can ensure its contribution to the dilemmas that make the greatest difference for the society, environment and potentially increase the company's competitive advantage by focusing on the most material functions and issues. Consequently, managers need to prioritize their focus areas, and this leads unavoidably to trade-offs (Correia *et al.*, 2013). Based on the literature review conducted by Correia *et al.* (2013), a relationship between sustainable procurement, GP and LCP, respectively, relates to each other in a way as seen in Figure 3 below. This hierarchy is not only emphasizing that carbon issues are part of the wider perspective of environmental issues. Moreover, environmental issues are part of the more comprehensive sustainability agenda, however they do not have complete correspondence. In particular, the relationship highlights the fact that there are trade-offs between these elements when managers are making decisions on their strategic approach (Correia *et al.*, 2013). The trade-offs are emerged from competing agendas when prioritizing one of these three elements, such as “renewable energy versus habitat loss” (Correia *et al.*, 2013, 61)

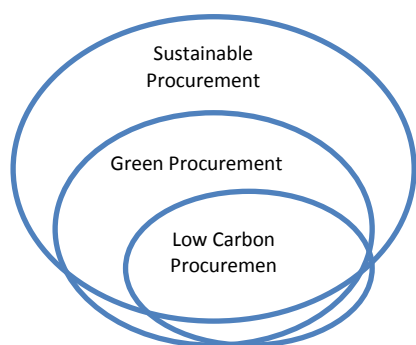


Figure 3. The relationship between sustainable, green and low carbon procurement (Modified from Correia *et al.*, 2013, 61).

According to Sheinder and Wallenburg (2012), successful sustainable procurement is dependent on stakeholder management. Corporate sustainability is based on the collaboration and aligned efforts between multiple departments<sup>9</sup> (Handfield *et al.*, 1997), and procurement has a key position to influence the overall sustainability of the company (Tate *et al.*, 2010). Therefore, sustainable procurement requires systematic collaboration and communication between departments. Moreover, traditional supplier-focused procurement fails to consider other stakeholder needs and as such, cannot reach the goal of sustainability alone (Sheinder & Wallenburg, 2012). Thus, the collaboration between different functions within the company and considering external stakeholders' demands are essential for successful sustainable procurement. Conventional procurement has evolved towards a sustainable procurement portfolio, and therefore strategies have changed:

- Change from a tactical approach towards a strategic approach (Handfield *et al.*, 2002; Pagell *et al.*, 2010). Thus, more emphasis is given to long-term strategic decisions than short-term tactical choices.

<sup>9</sup> Department is specialized functional area within an organization or a division, such as accounting, marketing, planning.  
Source: <http://www.businessdictionary.com/>

- Increased complexity of the decision-making process (Wu & Pagell, 2011): The focus on cost has shifted towards a focus on the total costs of ownership and integration of environmental and social impacts (Pagell *et al.*, 2010). There is also a shift from mainly quantifiable and financial performance parameters towards more qualitative parameters, such as social welfare or working conditions (Carter & Rogers, 2008).
- More emphasis is given to stakeholder management and widening the focus from supplier selection to consider also other essential stakeholders (Sheinder & Wallenburg, 2012). Stakeholder management includes collaboration and communication with internal and external stakeholders. Internal collaboration is established between different functions inside the company and focus is on the development of the new capabilities for internal stakeholders (Sheinder & Wallenburg, 2012; Tassabehji & Moorhouse, 2008). External stakeholder management includes supplier engagement towards collaboration and long-term contracts (Pagell *et al.*, 2010).

### 2.1.1 Implementation of Sustainable Procurement

In practice, companies can emphasize any of the sustainability dimensions in procurement in two ways. Companies can either increase their sustainability criteria in the procurement process or increase the number of procurement activities in which sustainability criteria are considered (Schneider & Wallenburg, 2012). Sustainability criteria in the procurement process can be tightened in two situations: either in the supplier selection process or in the purchasing decision. In other words, the environmental performance of the supplier can be evaluated on two levels: product level and corporate level. Each approach includes trade-offs when compared to the other. It is important for companies to resolve this issue because it influences the way a company defines their view of environmental responsibility. This, on the other hand, affects how the company assesses and evaluates its suppliers (Handfield *et al.*, 2002). Even though the literature provides several definitions for the general outline of sustainable procurement, there is no consensus for when procurement activities can be considered sustainable (Schneider & Wallenburg, 2012). Schneider and Wallenburg (2012, 245) explore the different dimensions of procurement sustainability and conclude that there is not one single type of sustainability but a "wide spectrum of various profiles". Schneider and Wallenburg's (2012) conclusion is compatible with Porter and Kramer's (2011) claim, according to which a company cannot efficiently contribute to all aspects of sustainability. Therefore, a company should focus on the most material and beneficial issues for all stakeholders.

## 2.2 Sustainable NPR Procurement

NPR procurement typically includes multiple different products and suppliers (de Boer *et al.*, 2003). The process is time-consuming due to non-standardized goods and services that are purchased in small quantities. NPR procurement involves a great number of internal customers that are highly involved in the three first *tactical* phases. Interestingly, companies use large amounts of money in these purchases (de Boer *et al.*, 2003). Haake and Seuring (2009) have conducted a literature review of sustainable procurement with the emphasis on the research related to NPR products and services regarding sustainability. As pointed out in the literature review, there are only few studies on sustainable NPR procurement, and most of the empirical findings in sustainable procurement fail to consider the procurement of NPR items and services. According to Haake and Seuring (2009), out of 191 studies published between 1994 and 2007, only nine give any consideration to NPR items and services. More

particularly, in these nine studies only little attention is given to NPR categories. Furthermore, none of these studies has a focus on LCP in the context of NPR procurement.

It is commonly agreed among scholars that a major challenge in changing the NPR procurement process is a lack of management interest (Haake & Seuring, 2009; Mosgaard, *et al.*, 2013; Mosgaard, 2015). Surprisingly, the money spent by companies on the NPR procurement process can be over half of the company's total spend, and thus indirect spend contains a great potential for cost reduction (de Boer *et al.*, 2003, 911). Consequently, de Boer *et al.* (2003) emphasize that savings regarding NPR procurement can be directly transferred to the profits company is gaining. However, the amount of money spent on NPR products and services depends on in which industry the company or organization operates. For example, manufacturing companies often spend a relatively small amount on these products, whereas for service-based companies and organizations, the share of indirect spend can be significantly higher (Haake & Seuring, 2009). Researchers have recognized that the NPR products and services have a low impact on profit (Haake & Seuring, 2009). Besides, NPR products are not measured in terms of units of final products produced. Therefore, NPR procurement categories are rarely prioritized (Mosgaard *et al.*, 2013). Moreover, Haake and Seuring (2009) argue, that the lack of connection between the company's competitive advantage and the final consumer demands, are two key reasons for companies to neglect sustainable initiatives in NPR procurement.

### 2.2.1 Strategic Approach to NPR Procurement

Strategic procurement is aligned with the company's overall business strategies. Consequently, it supports and reflects the targets and priorities (Johnsen *et al.*, 2014). NPR procurement strategies may be external or internal (Cox *et al.*, 2005). Internal strategies refer to the improvement of internal competencies in the procurement department or other departments involved with NPR procurement, whereas external strategies primarily refer to improving supplier relationships (Cox *et al.*, 2005). An empirical study analyzing business strategies for the NPR items and services confirms that there is a shortage when it comes to companies' NPR procurement strategies. More precisely, the study conducted by Cox *et al.* (2005) indicates that a majority of the companies in the study had only initial strategies or no strategies at all.

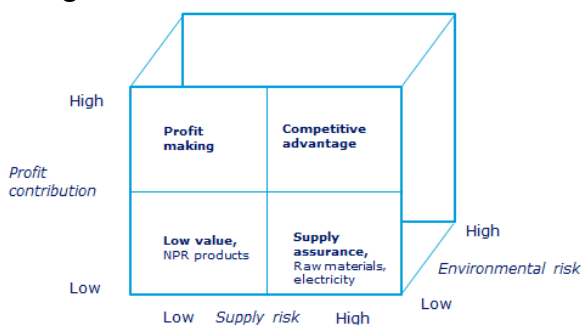


Figure 4. Portfolio procurement analysis (Modified: Handfield *et al.*, 2005, 11).

Handfield *et al.* (2005) expand Kraljics (1983) procurement portfolio to include environmental risk in addition to profit and supply risk, in order to provide emphasis for NPR items and services – see Figure 4. In Figure 4 illustration indicates that once the dimension of environmental risk is taken into account, the strategic importance of NPR procurement increases. Without environmental considerations, NPR product and services do not have strategic position. Haake and Seuring (2009) propose that the inclusion of sustainability into NPR practices is a sign of the proactive behavior of an individual company. Proactive

behavior does not always generate short-term benefits (Cordeiro & Sarkis, 1997), but it has potential to create a long-term competitive advantage for the company (Bowen *et al.*, 2001). According to Lee (2012), there are five CM activities that can be integrated into a company's carbon strategy: emission mitigation, process and supply development, new market and business improvement, organizational connection, and external stakeholder engagement. Therefore, low carbon NPR procurement with inclusion of CM activities will create strategic importance for the procurement function.

## 2.2.2 Sustainable NPR Procurement: External and Internal Factors

External and internal factors influencing the implementation of GP are robustly studied in the literature. Factors function as drivers or barriers for company's motivation to implement green initiatives (Appolloni *et al.*, 2014). According to Appolloni *et al.* (2014), it is important for companies to understand the barriers to GP for them to be successfully able to implement a change in their procurement practices. Table 1 below presents the findings of Appolloni *et al.*'s (2014) literature review, in which the researchers identify drivers and barriers found in the literature of the field. However, the concept of barriers and drivers in GP can only partly be applied to NPR procurement (Mosgaard *et al.*, 2013). Therefore, the Table 1 is combined with Haake and Seuring's (2009) and Mosgaard *et al.*'s (2013) findings on drivers and barriers in sustainable NPR procurement. External and Internal factors introduced in Table 1 are used to explore later how they influence the implementation of LCP in the context of NPR procurement. A company's drivers for adopting sustainable procurement practices explain the company's motives for new processes. On the contrary, barriers are challenges that a company faces while attempting an integration of these practices.

**Table 1. External and Internal factors for GP combined with GP of NPR products (Modified from Appolloni *et al.* 2013, 125-128; Haake & Seuring 2009, 289; Mosgaard *et al.*, 2013)**

External factors	Internal factors
Regulations	Cost reduction
End customer	Internal buy-in and knowledge
Competition	Environmental orientation
Society	Collaboration
Environmental orientation	Top management support
Supplier commitment	Integrated strategies
Industry	Time
	Communication

Legal demands are listed as a significant factor that has a positive effect on the goal of reaching sustainability within supply chains (Appolloni *et al.*, 2014; Haake & Seuring, 2009). However, it rarely seems to influence NPR procurement as regulations usually target particular characteristics of product entering into national market, and the impact of NPR products are geographically widely located (Haake & Seuring, 2009). Whereas external pressure is unlikely to focus on NPR products (Haake & Seuring, 2009), motivations for the company to obtain sustainability among NPR practices are long-term benefits. A company can increase its profits and improve its *competitive* advantage by integrating sustainability initiatives into its practices (Haake & Seuring, 2009). Therefore, when it comes to improving a company's sustainability in its supply chain, *reputation* is recognized as a key driver among scholars (Haake & Seuring, 2009; Appolloni *et al.*, 2014). A company's reputation is usually connected to its main products (Haake & Seuring, 2009). Accordingly, reputation rarely concerns NPR products. Reputation is linked with increased awareness of environmental issues in society, creating external pressure for companies to perform accordingly (Appolloni *et al.*, 2014). In addition, reputation is affected by the end customers' opinion of the company. In their literature review, Appolloni *et al.* (2014) identify that different *industry sectors* have

different factors that affect GP in major procurement. *Supplier commitment* is regarded as a barrier in the literature, and can be seen in form of e.g. poor transparency regarding environmental issues (Appolloni *et al.*, 2014).

*Costs* are considered an important organizational factor influencing GP (see e.g. Haake & Seuring, 2009; Appolloni *et al.*, 2014; Mosgaard *et al.*, 2013, Mosgaard, 2015). According to the results of Appolloni *et al.*'s (2014) literature review, a lack of internal legitimacy and disagreement of purchasing criteria's are seen as organizational barriers in GP. Regarding LCP, a prior knowledge is required for the correct procurement decision (Correia *et al.*, 2013). Insignificant supplier *collaboration* is considered a barrier in the GP literature (Appolloni *et al.*, 2014), and lack of internal collaboration between departments (Mosgaard, 2015). Indeed, Haake and Seuring (2009) point out that collaboration and supplier commitment is usually minimized when it comes to NPR products. Contrary for major items, no co-development for technological solution or complex specification exists. Of the internal factors recognized in the literature, the most significant factor that can be either a driver or a barrier for sustainable procurement is *management support* (Appolloni *et al.*, 2014; Haake & Seuring, 2009). Consequently, a lack of support from the management can lead to situations in which purchasing decisions are made based on economic standards, even if the company's policy support decisions of an opposite character (Mosgaard *et al.*, 2013). *Time* has been recognized as a factor to exclude additional requirements from the procurement practices (Mosgaard *et al.*, 2013). Lack of *communication* is mentioned as a barrier to GP practices (Appolloni *et al.*, 2014). Haake and Seuring (2009) point out that most likely less communication is involved in NPR procurement compared to GP of major products. Mosgaard's (2015) study about Nordic MNC and its subsidiaries shows that the support from the central purchasing departments is essential for supporting GP in the subsidiaries. Among the scholars, the stage of a *company's overall environmental awareness* influences the obtaining of GP practices (Mosgaard *et al.*, 2013).

## 2.3 Low Carbon Procurement

LCP is defined by Correia *et al.* (2013, 60) as "the process whereby organizations seek to procure goods, services, works and utilities with a reduced carbon footprint throughout their life cycle and/or leading to the reduction of the overall organizational carbon footprint when considering its direct and indirect emissions". A literature review conducted by Lee (2011) reveals that there is only little empirical knowledge about why and how companies consider CF within their SCM. Moreover, despite a high interest in green SCM, GP, and sustainable sourcing, there are only a small number of studies that have been conducted on LCP (Correia *et al.*, 2011). According to Correia *et al.* (2013), successful LCP requires a basic understanding and skills regarding CF and CM. CM consists of a wide range of different practices that include scoping measurement boundaries, identification of emission sources, selection of methodologies, setting targets, deciding priorities, developing systems and procedures, and engaging of employees and suppliers (Chan, 2009). Despite the increased awareness and understanding of the urgency of carbon mitigation, managers find it difficult to convince all the stakeholders in the supply chain to act accordingly (Johnsen *et al.*, 2014). More precisely, many MNCs have achieved improvements in CM and GHG emission reduction. However, the majority of upstream suppliers are less advanced, mostly due to a lack of capacity and due to a concern that green initiatives are too expensive for their businesses (Johnsen *et al.*, 2014). According to Downie and Stubbs (2012), current studies related to CM in a procurement context focus on understanding CF through EIOA,

responsibility of GHGs in supply chains, double counting, and the measurement scope. The literature identifies the following challenges in LCP:

- Lack of understanding and correct allocation of the company's scope 3 emissions (Downie & Stubbs, 2012)
- Trade-offs among other sustainability criteria is when prioritizing emissions – for example environmental considerations like toxins or social considerations (Correia *et al.*, 2014).
- Shift from short-term tactical benefits to long-term strategic savings (Correia *et al.*, 2014).
- Methodological issues like scoping the operational boundaries, cut-off thresholds, data transparency and availability, issues with uncertainty and the number of different analytical methodologies (Plassmann *et al.*, 2010; Huang *et al.*, 2009).
- Requirement of basic skills and understanding of CF and CM (Correia *et al.*, 2014).

Since the company can manage only what it measures (Lee, 2011; Downie & Stubbs, 2012), managers should have the knowledge and understand the sources and levels of their company's GHG emissions (Lee, 2011). Lee (2011) argues that in reality, evaluating and measuring GHG emissions in a quantifiable manner may lead to an increased awareness of a company's GHG emissions and CF. Consequently, companies can identify and prioritize their CF mitigation risks and reduction opportunities. On the other hand, inaccurate understanding and assessment of a company's overall CF may lead to incorrect mitigation targets, and inappropriate CM and business strategy efforts (Downie & Stubbs, 2012). More particularly, incorrect data used for strategic purposes leads to a misallocation of resources between company's own operations and supply chain, production activities and collaboration with stakeholders. Therefore, correct measures and integration of CM is essential for effective corporate strategies and target setting. Lee (2011) argues that setting the company's focus on reducing scope 3 GHG emissions may be more cost efficient when compared to focusing on scope 1 and 2.

According to the GHG protocol (2011, 68), companies use two types of data for CF measurement: activity data and emission factors (EF). Activity data is a quantitative measure of those processes of a company that result in GHG emissions (see Appendix 1), whereas EF (Appendix 2) is used to transform activity data into GHG emissions. Companies can use two different approaches in calculating their CF. One option is the bottom-up Process Analysis (PA) such as life cycle assessment (LCA), and another is top-down based environmental input-output (EIO) analysis (Wiedman & Minx, 2008). The challenge that companies have in including scope 3 GHG emissions in their carbon reduction strategies is that "they are rarely estimated because they are not well understood, and there is little motivation or technical capacity to do so in current carbon footprint protocols" (Huang *et al.*, 2009, 8509). Currently, there are several protocols – including WRI, WBCSD and ISO – that guide companies to report their scope 1, 2, and 3 GHG emissions. However, practitioners and scholars (Huang *et al.*, 2009; Downie & Stubbs, 2012) argue that the current guidelines for reporting scope 3 emissions are not eligible for companies to obtain reliable measurements.

## 2.4 Change Management and Organizational Change

"The world is changing and organizations must also change if they are to have a sustainable future" (By & Burnes, 2013, 253). Change has been an interest for many researchers among many disciplines – indeed, the interdisciplinary literature review conducted by Van de Ven and Poole (1995) identified over 1 million studies regarding change or development. The number of studies explains the variety of the terminology, as well as the number of

dimensions and the multiple models regarding organizational change. Change itself has different definitions, but according to Van de Ven and Poole (1995, 512), change is "a one type of event ... an empirical observation of difference in form, quality, or state over time in an organizational entity".

There are two dimensions of change: incremental and transformational. Typically, fundamental change is caused by a crisis, and the change is a way for the company to survive the crisis (Van de Ven & Poole, 1995). Incremental change is progressive and gradual change, which takes place in the individual parts of an organization (Van de Ven & Poole, 1995). Historically, organizations started implementing incremental change in the 1960s and 1970s through the organizational renewal movement, which emphasized the morale and satisfaction of the workforce and criticized inefficient bureaucratic managers (Benn *et al.*, 2014). In the 1980s and 1990s, along with increased globalization, economic reforms and competition, companies started to shift from incremental change towards transformational change (Benn *et al.*, 2014). Today, many managers have recognized the urgency to stay between or combine these two approaches to be able to respond market demands efficiently (Burnes, 2009; Benn *et al.*, 2014).

#### 2.4.1 Planned Change

Theories and models on planned change assume that organizations are purposeful and adaptive, and that change occurs because of urgency perceived by the leader, change agent or some other person (Van de Ven & Poole, 1995). In the literature, theorists commonly describe organizations using a metaphor: an organization is an *organism*, a living and adaptive system (Cameron & Green, 2009). More precisely, an organization is balancing between external environments and the internal needs of groups and individuals (Cameron & Green, 2009). Thus, organizations survive if they are like *open systems* and are able to adapt to the external environment, and finally find the balance between individual and organizational needs (Cameron & Green, 2009). In other words, an organization identifies a need for a change, undertakes an evaluation process and implements a change if it is necessary (Burnes, 2009).

#### 2.4.2 Greening Organizational Culture

Organizational culture has an essential impact on a company's performance (Cameron & Green, 2009), and thus it has a fundamental role in changing the way companies perform. Indeed, in a survey conducted by Booz and Company (2013, 3), it is argued that for in order to implement a successful change, it is necessary for "companies to take a more holistic approach to change and to find ways to work with and within the organization's culture during change initiatives." The term *organizational culture* has no agreed upon definition, but it is defined by Gibson *et al.*, (2012, 31) as "what the employees perceive and how this perception creates a pattern of beliefs, values, and expectations". Harris and Crane (2002) argue that findings in environmental management literature claim that for companies to perform in a sustainable manner, organizations need to embrace new values, beliefs and behaviors that prioritize environmental considerations. In other words, to be able to become sustainable, companies need to go through a green cultural transformation. Shook (2010) challenge the old thinking that by changing how people think will the behaviors change. Instead, he propose that a fundamental way to change culture is to first change the way people behave, what they do. Changed behavior will automatically change the way people think and what they value, which in turn will change organizational culture. GP is usually introduced in a company with the procedure or specific instructions for the employees. However, according to Mosgaard

(2015), the actual implementation of GP requires new practices to be integrated into current procurement practices or a change in behavior.

Particularly in the sustainability context, advocates of sustainability have recently been questioning if change can be achieved incrementally (i.e. Benn *et al.*, 2014) or if companies should carry out more radical and fundamental transformative change (e.g.. Halt & Milstein, 1999). According to Halt and Milstein (1999, 24), companies that have only changed incrementally will fail because these companies do not "change the fundamental manner in which they provide products, processes, and services". Furthermore, recent studies have examined the relationship between a company's inefficiency and its capabilities to respond to sustainability requirements. Depending on the external environment, with stable circumstances companies can efficiently implement incremental change to achieve sustainability (Benn *et al.*, 2014). Thus, Benn *et al.* (2014) suggest that there is not one correct approach to change, rather companies need to choose the suitable type of change in each situation. Moreover, incremental change can be efficient in creating new values, structures and processes that support a shift towards CSR. Benn *et al.* (2014) maintain that collective experience and studies indicate that incremental change can lead to achieving sustainability goals. Moreover, incremental change is suitable for small changes to fill the gaps between strategies and processes, employee capacity development and small changes in corporate culture. More precisely, when companies face major changes in their practices and strategy, comprehensive transformational change is valuable (Benn *et al.*, 2014). Indeed, today most of the companies deal with sustainability issues by adopting incremental and transformational change simultaneously (Burnes, 2009). As Benn *et al.* (2014, 220) argue, a company's change strategy for achieving sustainability needs to be "situational and connected to and driven by organization's strategy". According to Cameron and Green (2009), Lewin (1947), and Kotter (1995), Lewin's 3-step model and Kotter's 8-stage model are excellent starting points for change initiatives.

#### 2.4.3 Unfreeze – Change – Refreeze

As Kurt Lewin, psychologist and the father of the most famous change model stated: "If you want to truly understand something, try to change it." In order to understand change, models and perspectives first need to be understood and implemented. One of the most popular models used in change management with respect to organizational culture is Lewin's (1947) model known as *Unfreeze – Change – Refreeze*. This model is generated from his examinations of group dynamics, especially focusing the forces that modify these dynamics. The underlying principle of Lewin's change model is that for any change to be successful, the driving forces for the change need to be greater than the resisting forces for that change (Cameron & Green, 2009). According to Ronnenberg *et al.* (2011), Lewin (1947) observed that to enable change there must be an interruption to the powers that support equilibrium. The interruption can be executed either by removing resisting powers or by applying more force to the change process to reach the desired outcome. Once the change is accomplished, the powers must be balanced again for the new equilibrium, which is the desired outcome. Moreover, Lewin (1947) refers to these forces of change as unfreezing (preparation and reasoning of the desired change), change (implementation) and refreezing (institutionalization). Despite the fact that Lewin's (1947) model is widely used, it is criticized to be too simplistic. Thus, in this study it is combined with another widely used planned change model, which is created by Kotter (1995). Kotter's (1995) model consists of eight stages that can be implemented within planned change.





Figure 5. Unfreeze - change - refreeze – model illustration (modified from Lewin's 3-step model).

The first phase of Lewin's model presented in figure 5, *unfreeze*, is a stage of change in which necessity and urgency for the change is recognized among the key stakeholders (Ronnenberg *et al.*, 2011). Moreover, according to Burnes (2009, 248), Lewin believed that human behavior is based on "a quasi-stationary equilibrium supported by a complex field of driving and restraining forces". Therefore, in order for the behavior to be changed, these restraining forces should be overruled. Furthermore, Beard and Rees (2000) argue that training may increase initial environmental awareness. Therefore, companies that are trying to solve cognitively biased issues regarding the importance of environmental management are practicing the unfreeze phase of planned management. The second phase of the 3-stage model is *change*, which refers to the actual implementation of the change. More specifically, in this phase, managers and employees are familiarized with the new context and understanding of the new models of behavior (Ronnenberg *et al.*, 2011). Due to the complexity of the forces involved in the planned change process, it is impossible to predict the outcome. In fact, Lewin (1947) argues that one should identify and evaluate all the possible options on a trial-and-error basis. According to Ronnenberg *et al.* (2011), the support of managers and top managers, training employees, involvement and communication are recognized as important factors for the *change* phase in the literature. The last part, *refreeze* is the final stage in Lewin's model, and in this stage, a *new reality* is institutionalized. *New reality* is a desired stage that is wanted to be reached through a change process. The company needs to ensure that the *new reality* remains and receives acceptance. Only then, the company can prevent behaviors and processes to return back to the stage prior to the change process.

Table 2. Lewin's 3-step change model combined with Kotter's 8-step model. (Source: Lewin, 1947; Kotter, 1995).

Kurt Lewin	John Kotter
Unfreeze	1. Establish a sense of urgency 2. Create the guiding coalition
Change	3. Develop a vision and strategy 4. Communicate the change vision 5. Empower Employees for Broad-Based Action 6. Generate Short-Term Wins
Freeze	7. Consolidate Gains and Produce More Change 8. Anchor New Approaches in the Culture

Kotter (1995) developed his 8-step model for organizational change, which can be used to complement Lewin's 3-step model (Tanner, 2011), as is seen in Table 2. The first of Lewin's steps corresponds to the two first steps in Kotter's model, that is, to the steps of establishing the urgency and need for the change and creating a powerful change coalition. The next phase in Lewin's model, *change*, corresponds to Kotter's next four steps, which include developing a vision and strategy for the change, communicating about them, empowering employees and ensuring short-term wins. The last part of the 3-step model, *refreeze*, corresponds to Kotter's two last steps in which gains are consolidated and more change is produced and, finally, new approaches are institutionalized in the corporate culture.

## 2.5 Conceptual Framework

The global debate on corporate sustainability has shifted its focus onto the context of the SCM, especially to the function of procurement. There is a clear consensus on the strategic role of procurement regarding a company's opportunity to influence and reduce negative

social and environmental impacts. Particularly, the notion of the significant potential for companies to reduce their overall CF by mitigation of the scope 3 emissions among supply chain operations is recognized. More importantly, shifted focus creates new challenges for companies to implement sustainability initiatives in practice.

This chapter explored theories and implementation of sustainable procurement, GP and LCP and identified special features of NPR procurement. Figure 6 below is an illustration of a conceptual framework developed based on the previous research, literature review, and existing theoretical concepts related to the topic of this study. The conceptual framework integrates LCP into the context of NPR procurement. On the left-hand side of Figure 6, internal and external factors are introduced. These factors may function as drivers or barriers for implementation of low carbon NPR procurement. Due to the novelty of the connection between NPR procurement and LCP, the comprehensive inclusion of factors is obtained from related fields of this study. The right-hand side of the conceptual framework shows how LCP can be integrated into the context of NPR procurement. Sustainable procurement can be achieved either by increasing the number of sustainability criteria or the number of procurement activities where sustainability criteria are considered. Sustainability criteria can be related to suppliers or the product itself. Thus, the conceptual framework highlights these issues in the context of low carbon NPR procurement. Finally, the theories of organizational change and change management are employed as a basis for analysis of how a sustainability initiative can be implemented in the NPR procurement context. 3 steps of change are illustrated in the middle of the framework. More precisely, Lewin's 3-step change model combined with Kotter's eight stages of change are used, as a starting point for the analysis of how Novo Nordisk could integrate environmental considerations into their day-to-day NPR procurement practice.

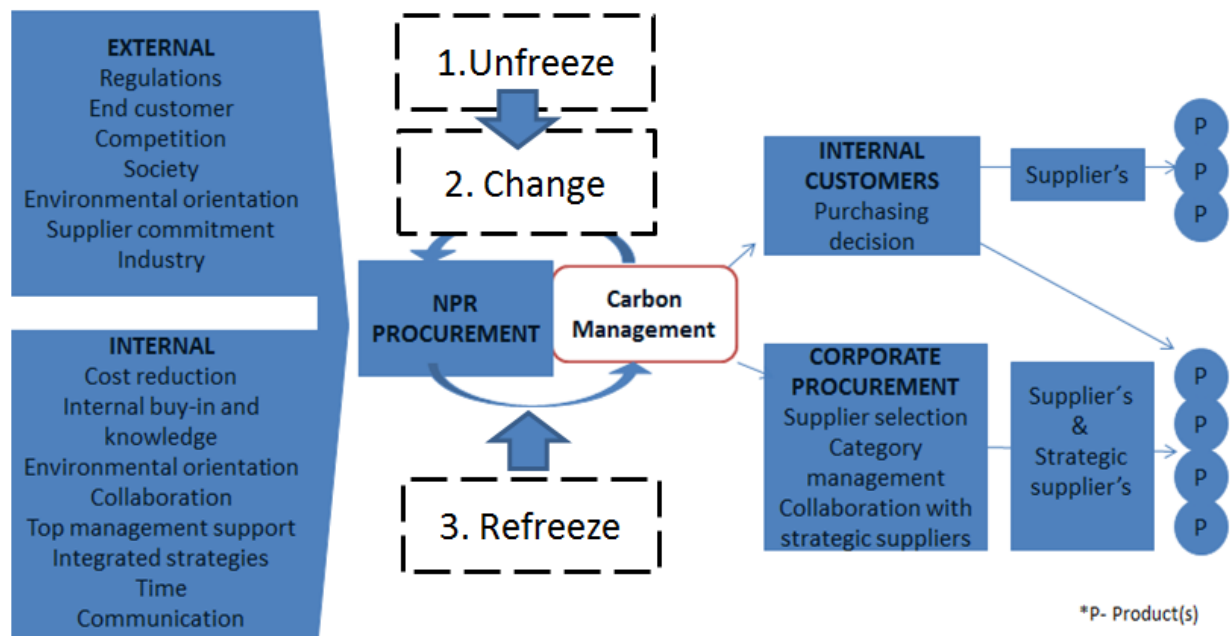


Figure 6. Conceptual framework of low-carbon NPR procurement.

After the discussion of theoretical perspective of the topic, and the overview of the research in the field, the next chapter will focus on the methodological questions related to this project.

## 3 Methodology

*The purpose of the methodology chapter is to provide reasoning and understanding behind the choices made regarding the methods and approaches used in this thesis. Followed by explaining the steps in the research process: data collection, analysis, and reflections. And lastly, this section is describing the limitations of the study at hand.*

### 3.1 The Literature Review Process

The purpose of the literature review was to gain more understanding of the problem and of previous studies in the research field. The first step in the preparation process of the literature review was to search peer-reviewed articles and other publications that have been published related to sustainability and GP, NPR procurement, LCP and change management. The following keywords and a combination of those keywords were used: "green, sustainability, low carbon, NPR, procurement, purchasing, sourcing, supply (chain) management, carbon footprint, carbon management, change management, organizational change". Multiple choices with respect to choosing the literature were made. First, the most technical studies on assessment were neglected because of the managerial (instead of technical) perspective in this study. In addition, a focus on procurement practices instead of SCM was chosen. For the change management, the most common approaches were reviewed and out of those, two models were chosen for this study, after their relevance to the research questions was considered. More precisely, a focus on the organizational change in the context of sustainability was chosen. The following databases were used in the research of the literature; Google Scholar, Rex<sup>10</sup>, Global Information & Analysis (GLIA)<sup>11</sup>, and Scopus. The second step of the literature review process was to review, to find and to choose the most relevant articles for the study. Lastly, reference lists from the chosen articles were looked over to assure that all the relevant studies were considered in this research paper. NPR and LCP, the main elements in this study are relatively new to scholars and research at large. Therefore, a wider perspective was used in the literature review was used, and sustainability and GP were included for a broader understanding of the research area. The broad view ensures that no unnecessary limitations take place due to the lack of previous academic research available.

### 3.2 Choice of Theoretical Framework

The selection of the theoretical framework is crucial, and it has a significant impact on the analysis of the empirical results and findings of this study. Theories were chosen based on their relatedness and ability to provide answers to the research questions of the study. The choice of theoretical framework was challenging due to the scarcity of previous studies in the field of NPR and LCP and the absence of research connecting these two elements. Moreover, theories on sustainable procurement, GP, and CM were also included to strengthen the analysis and to create the base for the conceptual framework. Theories of change management in the context of sustainability were studied to gain an understanding of how organizational change in the form of sustainability initiative could be implemented in the context of NPR procurement. However, no direct connection between sustainable NPR procurement and change management has been established before. One of the most popular change models, Kurt Lewin's *unfreeze – change – refreeze* combined with Kotter's 8-stage model were chosen to be used in this study. The models are used to explore how to implement low carbon

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<sup>10</sup> University of Copenhagen database.

<sup>11</sup> Novo Nordisk A/S database.

NPR procurement as presented in the conceptual framework in Figure 6 (Ch. 2). In recent years, purchasing activities have been recognized as a key factor in integrating sustainability into all the processes and departments of a company. Overall, sustainable procurement, LCP and NPR procurement, together with change management provide a theoretical base for the topic and problem statement of this thesis. As research is a process of choices, and every choice comes with a trade-off, some interesting theories were forced to be left out, e.g. stakeholder theory and decision-making theory. These areas could be further explored in future research to explore the power relationships between different stakeholders related to low carbon NPR procurement and to see which stakeholders are the most important with regard to this function. Decision-making theory could assist in understanding how to integrate GHG considerations into decision-making processes, and understand the possible trade-offs.

### 3.3 Empirical Case Study

This section explains and motivates the choice of a flexible research strategy design and the data collection method used in this project.

#### 3.3.1 Qualitative Single Case Study

When carrying out a social study, there are two main types of study design: qualitative and quantitative (Robson, 2011). The main feature of the qualitative design is that accounts and findings are presented in a non-numerical form, and usually an approach of inductive reasoning combined with an exploratory perspective is taken (Robson, 2011). Inductive reasoning is empirically driven and based on the facts and details from which the researcher draws his conclusions, and it is described as a *bottom-up* approach (Bhattacharjee, 2012). Conversely, in a quantitative study, quantifications and numbers are in focus of the research, and a deductive approach is usually taken (Robson, 2011). Deductive reasoning starts with the hypotheses drawn from theory and problem area, followed by testing, after which conclusions are drawn. From these conclusions, the researcher draws the facts, details, and examples, and this is described as a *top-down* approach (Bhattacharjee, 2012). According to Robson (2011), the three purposes of research are exploratory, descriptive, and explanatory. Where exploratory research tries to understand, descriptive research describes, and explanatory research explains the phenomenon (Bhattacharjee, 2012).

In this study, a qualitative research design was used, which is common when studying sustainability. Qualitative research allows for an in-depth understanding of the phenomenon, which is more important in this study than the ability to generalize results. Earlier research in the field, such as Mosgaard *et al.* (2013) that also studies which factors influence green NPR procurement, used a qualitative case study research. Thus, this approach enables to not only determine how different factors influence implementation of low carbon NPR procurement, but also to describe perceived challenges regarding the implementation and how change could be implemented. First, the phenomenon had to be uncovered (the link between current practice of NPR procurement and LCP had to be found) in order then for to be described and concluded upon, having in mind the set research questions of this project. Therefore, a descriptive research approach is used in this study so that the influence of the factors in each category can be described individually (to uncover) and that the perceived challenges in implementing LCP in the context of NPR procurement can be found, giving ideas for how change could be implemented. The study focuses on describing the phenomena through observation and detailed documentation rather than seeking an explanation or causal relationships.

The research strategy is a way to implement research, and there are multiple options to choose from. Social sciences commonly use flexible design research strategies like ethnography, grounded theory study and case study (Robson, 2011). Where ethnographical studies focus on cultures and societies, grounded theory studies construct theories based on the collected data (Robson, 2011). A case study is a model widely used for flexible design research strategy and is described as "an empirical inquiry that investigates a contemporary phenomenon within its real-life context; when the boundaries between phenomenon and context are not clearly evident; and in which multiple sources of evidence are used" (Yin, 1984, 23). Moreover, Robson (2011, 79) writes that a case study can be used for "development of detailed, intensive knowledge about a single 'case', or a small number or related 'cases' ". The case study may take a single case or multiple case study approach. In general, a multiple case study approach is recommended because of its generalizability, but a single case study approach can be chosen if it is well justified (Yin, 2003). Five rationales for choosing a single case approach are the critical, unique, typical, revelatory, or longitudinal case (Yin, 2003). Moreover, a single case study can be holistic by only focusing on one case as one entity, or it can use an embedded research approach in which multiple units within a single case are studied.

The single case study approach is appropriate for the study at hand, as the research focus is on a single company context (the choices made respect to the case study are justified later in section 3.4.). Moreover, the aim is to gain better understanding of LCP procurement portrayed in an NPR procurement context. According to Yin (2003), the rationale for choosing a single case may be that the case is a unique case. A unique case enable better understanding of the nature of a phenomenon that is not yet well understood. The research (e.g. Cox *et al.*, 2005; Haake & Seuring, 2009) underline the manifold characteristics of the procurement categories. Therefore, this research is conducted by using embedded design studying sub-units of NPR procurement to make the distinction of the differences between these categories. As NPR procurement categories and the materiality regarding environmental impact differs largely between industries and organizations, the purpose of this study was rather to gain deeper understanding of the phenomena in the context of Novo Nordisk, than to generalize the results. Moreover, in a flexible case study approach, different data collection methods can be combined, and thus collection of data from different sources is possible to ensure a higher level of validity (Robson, 2011). Also, in first part of data collection process consultants were involved and data were primarily collected for another project (problematized further in section 3.3.2). Furthermore, case studies are criticized fail to be accurate (Yin, 2003); to avoid this, in this study a systematic approach with careful data documentation and collection has been employed. Lastly, this study could be used as a basis for future research in this field and be applied to other companies within or even outside of Novo Nordisk's industry.

### 3.3.2 Interviews

The interview method "involves questioning or discussing issues with people. It can be very useful technique for collecting data which would likely not be accessible using techniques such as observation or questionnaires (Blaxter *et al.*, 2006, 172)". As a method, interviewing is most appropriate for observing and discussing the challenges that managers perceive regarding the implementation of LCP and organizational change with respect to the integration of sustainability initiative into procurement practices. According to Robson (2011), surveys do not provide an opportunity for collecting information of underlying facts and motives in the same way as interviewing does. There are three types of interviews: structured, semi-structured and unstructured. For finding the answers to the research questions

here, semi-structured interviews were conducted, enabling discussion of a complex topic, which would not be possible through surveys (Robson, 2011). As interviewing is time-consuming, semi-structured interviews were used to guide the direction of the interview, giving more freedom to develop relevant questions during the interview than in structured interviews. An interview can be conducted on the phone, face-to-face, or through the internet (Robson, 2011). The face-to-face approach is used in this study as it is most recommended. In this study, the semi-structured interviews were conducted in two parts.

As a prelude to the research, the first part of interviews (four interviews, see Appendix 2) were conducted together with the consultants to gain understanding of the consistency of specific indirect spend categories and the information available. When a third party collects the information for another purpose than to directly answer the research questions, and interviews are not recorded, some essential information may be lost or irrelevant questions are asked. Information extracted during the first round had to do with the identification of emission sources, available activity data and the overall consistency of the sub-categories. To ensure that all the essential data from interviews were captured and documented, a triangulation tactic (see section 3.3.3) was used. It should be noted that the first part of the research and data collection was conducted in a reverse order. First data was collected and then a theory on LCP was created to be able to identify the information gaps and to analyze the data and challenges with respect to LCP in the context of NPR procurement. The second part of the interviews was designed based on the data collected and gaps identified during the first round of the interviews (three interviews, see Appendix 3). All the key participants in the project were interviewed for a second time for the purposes of exploring the perceived challenges of the implementation of LCP in the NPR context and challenges that might occur in the change process. As the interviews were time-consuming, and the interviewees were interviewed twice, the purpose of the second round of interviews was clearly communicated. Each interview took 45 minutes. As Robson (2011) recommends, all the second round interviews were recorded with permission to ensure that no information was missed.

All the interviews were conducted in English due to a lack of common language. The main data collection method in this study was interviews, and the quality of the data collected has a significant impact on the final quality of the research. According to Robson (2011), observation bias cannot be avoided, but, in this study, the influence was diminished because the interviews were transcribed, and the data presented in the empirical part of this study was sent to the interviewees for approval and comments. According to Bhattacharjee (2012), the choice of interviews cannot be based on convenience and, therefore, must be conducted with careful consideration. In this study, the interviewees were selected with the assistance of a sustainability initiator. The selection was based on the participants' professional experience, high level of personal involvement, and their broad understanding of their specific indirect spend category processes, structure and end-user behaviors.

### 3.3.3 Other Data Collection Methods

In this study, triangulation was used to ensure the accuracy of the collected data. Triangulation refers to the employment of several data collection techniques instead of one, for ensuring the reliability of the data (Saunders *et al.*, 2009). Data can be collected from official documents, for instance: "memos, electronic mails, annual reports (AR), financial statements, newspaper articles, websites, may be used as independent data sources or for corroboration of other forms of evidence" (Bhattacharjee, 2012, 107). Additional data

collection methods employed were Novo Nordisk's carbon calculation tool, AR, the company's website and other relevant internal documents.

### 3.3.4 Researcher as a Participant Observer

The trustworthiness of research is connected with the influence of the researcher's role, why bias and subjectivity should be minimized. "Participant observation is very high on ecological validity because it involves studying social phenomena in their natural contexts (Saunders *et al.*, 2009, 297)." The data for this study was collected in the role of a participant observer, as the student carrying this study was employed by Novo Nordisk. Conducting the study as a participant observer enabled open access to the key participants, data, and material, and provided internal understanding of the organization. The risk of increased subjectivity was reduced by conducting the research in a department where student was not employed.

### 3.3.5 Data Analysis

It is essential to describe the way qualitative data is analyzed to explain how the data was interpreted and thus impacted by the researcher in the analytical phase (Robson, 2011). According to Robson (2011) qualitative data needs to be analyzed in a systematic way. In this study data analysis was chosen to be implemented through thematic coding. Thematic coding was conducted through following steps as introduced by Robson (2011, 476): First, in order to get familiarized with the data, it was transcribed and reviewed to identify initial ideas. Then data was processed by generating initial codes, based on similarities in the data, which enabled to arrange further into themes based on the theoretical framework. Themes were used to construct the thematic networks, and which enabled data later on not only be analyzed in each category but also shed light on the category differences. Finally, the data was collated and interpreted. Throughout the analysis, the issue of human propensity to over – or under react for new information, or ignore conflicting information (Robson, 2011), were acknowledged and given special attention.

## 3.4 Choices Made in the Case Study

This section explains the motivation for the selection of the industry, company and research problem. The reasoning behind choosing the particular indirect spend categories is explained.

### 3.4.1 Choice of the Industry and Company

Historically, the pharmaceutical industry has been and still is under the increasing pressure of several stakeholders' demands to respond positively to CSR-related expectations (O'Riordan & Fairbrass, 2008). Especially due to the high competitiveness of business markets and high expectations from the stakeholder groups, companies in the pharmaceutical sector have a strong engagement to CSR and sustainability initiatives (O'Riordan & Fairbrass, 2008). The research problem is novel, and the research field and the practice of low carbon NPR procurement are only emerging. Therefore, only companies with a proactive approach to sustainability are considering low carbon NPR procurement activities. Research in the field of sustainability and NPR procurement requires studying an industry that has a proactive approach to sustainability initiatives. Thus, the pharmaceutical industry is a logical choice for research with the particular topic of low carbon NPR procurement. Novo Nordisk has a long history in sustainability and climate considerations, which makes the company an ideal case for this research.

### 3.4.2 Choice of the NPR Procurement Problem

It has been noted in this study that scope 3 activities have the highest mitigation potential for the majority of companies (Downie & Stubbs, 2013). The E, P and L assessment (2014) for Novo Nordisk, confirmed that most of the GHG emissions are found in company's scope 3 emissions, especially among Tier 1<sup>12</sup> and Tier 3 suppliers. Moreover, most of the studies in the GP field exclude items and services that are not directly connected with the final product of the company (e.g. Haake & Seuring, 2009; Mosgaard *et al.*, 2013; Mosgaard, 2015), and there are relatively few studies about LCP (Correia *et al.*, 2013). Yet, connection between NPR procurement and LCP do not exist. Thus, to bridge this gap within the research of GP, the focus here is on low carbon NPR procurement, to shed light on a poorly understood research area. In addition, the upcoming COP21 may constitute more (legally) binding regulations for companies to consider GHG emissions beyond their operations, which increases the relevance and importance of the study at hand.

### 3.4.3 Research Units

For this study, three specific indirect spend categories are studied, namely travel, events and meetings, and office supply. These three categories were chosen due to their high GHG emission intensity. This intensity suggests a relatively high GHG reduction potential, which is why the selection of these specific categories is most relevant. The purchasing impact areas can be categorized as high, medium or low, depending on the volume money spend by the company. Thus, one of each purchasing impact areas was chosen to enable further analysis of the differences between these areas.

## 3.5 Ethical Considerations

All research that involves organizations or people has ethical concerns that should be carefully thought and addressed (Robson, 2011), to avoid any ethical violation in the research. Research ethics, therefore, relates to questions such as how the research topic is formulated, how the research is designed and access is gained. Also, how the data is collected, processed, stored, and analyzed. Moreover, ethics includes writing the research findings in a moral and responsible way (Saunders *et al.*, 2009, 183). The main ethical considerations in business research are participant's rights to confidentiality and approval (Saunders *et al.*, 2009). This study was conducted with research ethics in mind in each step. To ensure an ethical approach from the beginning, the topic of this research was chosen to constitute a combination of the studied organization's needs and the personal interest of the student, as proposed by Saunders (2009). All the participants in the project were informed that the data collected would be used for the purpose of the thesis. When face-to-face interviews with the practitioners were conducted, first a permission was requested from the superior of the participant to avoid any inconvenience for the interviewees. Second, prior to the interviews, permission for recording was requested. After the interviews and the coding of the data, transcripts were sent out to the interviewees so that they could agree with the content of the data collected by the researcher.

After this description of the methodological choices and aspects of this research, the next chapter will introduce the empirical findings of this research.

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<sup>12</sup>The tiers may vary from business to business. In Novo Nordisk E P & L tiers are as follows: Tier 1 includes finished products and services. Tier 2 includes processed materials. Tier 3 includes raw materials (Novo Nordisk, 2014).



## 4. Empirical Study

*This section presents the empirical findings based on qualitative interviews, which were conducted in two parts, and the secondary sources, such as the case company's internal files, various reports and its internet site. First, the background for the case study is described. This includes topics such as the company's position on sustainability, the company's current climate change strategy and an introduction to the E, P & L study. Finally, the results from the case study interviews are presented. All interviewees have a long personal working experience with indirect spend procurement practices and thus have the best insights for each of these categories in Novo Nordisk. The interviewees are category managers of each specific category analyzed in this study. The results of the empirical study are presented in the following order: travel, meetings & events, and office supply.*

### 4.1 Introduction to the Case Study

Novo Nordisk is a Danish multinational pharmaceutical company founded in 1923 that has its headquarters (HQ) in Bagsvaerd, Denmark. Novo Nordisk has a history of 90 years of innovation and leadership in diabetes care and has a leading position in working within hemophilia care, growth hormones and hormone replacement therapy (Novo Nordisk, internal file, 2015). The company manufactures and markets health care products and devices. Key products consist of diabetes care products, especially human and modern insulin and devices. The company's values and principles are communicated through the Novo Nordisk Way<sup>13</sup>, in which the company commits to continue their journey "to prevent, treat and ultimately cure diabetes" (www, Novo Nordisk, 2, 2014, 4). Along with the values and principles, Novo Nordisk has a commitment to sustainability. Novo Nordisk's products are marketed in over 175 countries, and approximately 24 million patients use the company's diabetes care products. The company has over 41,000 employees located worldwide in 75 countries. In 2014, Novo Nordisk's sales were 88.8 billion DKK<sup>14</sup>, and the company's profit was 26.5 billion DKK (www, Novo Nordisk, 2, 2014, 4).

#### 4.1.1 Novo Nordisk's Engagement with Sustainability

Novo Nordisk has institutionalized a value based management system in the Novo Nordisk Way. A key element in the Novo Nordisk Way is to incorporate the TBL business principle into the company's way of conducting its activities financially, environmentally and socially responsibly. The Novo Nordisk Way means optimizing business performance while contributing to societies in which the company operates. Novo Nordisk has reached their sustainability approach gradually through a series of events and stakeholder interactions. In 1970, through a case called *the enzyme case*, Novo Nordisk faced external pressure from NGOs that claimed that enzymes in detergents could cause allergy (www, Novo Nordisk, 3, 2014). Due to this movement, 700 employees lost their jobs in Denmark and the company's image suffered. After this, the company has encountered external pressure because of some unfortunate events and improved their business practices to avoid repeating these incidents.

Novo Nordisk has several initiatives for driving social responsibility in the company, e.g. Changing Diabetes®, and Changing diabetes in Cities. Novo Nordisk has a commitment and

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<sup>13</sup> Novo Nordisk Way is Novo Nordisk Code of Conduct, which determines who company is, where company want to go and the values that characterize the company (Novo Nordisk, internal file, 2015)

<sup>14</sup> 1 DKK corresponds to 0.134041Euros. 1 Euro corresponds to 1.1138 USD. Source: European Central Bank (retrieved: 4.9.2015).

tries to reduce their environmental impact through the idea *produce more with less* (Novo Nordisk, internal file, 2015). To be specific, this means that simultaneously with their business growth, the company seeks methods for reducing their environmental impacts, such as the use of natural resources as well as decreasing GHG emissions and waste. Novo Nordisk is recognized in the global business environment from their sustainable business performance and approach. The company is listed in Sustainability Indexes including Dow Jones Sustainability Indices (DSJI) (#2), Access to medicine (#2), CDP (#3), Climate Disclosure Leadership Index (CDLI), as well as the Global 100 (#13) (Novo Nordisk, internal file, 2015).

#### 4.1.2 Novo Nordisk and Climate Change

Novo Nordisk stands on conducting business through the TBL business principle and combat complications occurring due to climate change through risk mitigation and CSR (Novo Nordisk, Internal file, 2015). In the scientific debate, Novo Nordisk refers to the findings of the UN IPCC according to which business has a role in combating against climate change by assessing the company's direct and indirect footprint and reporting on performance (www, Novo Nordisk, 1, 2014). In addition, Novo Nordisk pursues a green growth strategy, increases energy-efficiency through operations, endorses renewable energy sourcing, contributes by innovative solutions, promotes a global fair agreement to replace the Kyoto Protocol and encourages employees to lead sustainable lives. Novo Nordisk's current climate strategy is aligned with the principles of GHG Protocol (www, Novo Nordisk, 2, 2014, 4). The strategy contains all scope 1 and 2 emissions within the operational control and substantial scope 3 emissions in size.. In order to combat climate change, Novo Nordisk has established collaboration with several stakeholders such as the World Wide Fund for Nature (WWF) program and the Danish energy company DONG Energy. Under the WWF program, Novo Nordisk has committed to reduce GHG emissions from their global production by 10% between 2004 and 2014, while simultaneously growing as a business. Under the partnership with DONG Energy, Novo Nordisk began to convert all energy savings at its Danish production sites into the procurement of electricity from a wind farm in the North Sea www, Novo Nordisk, 1, 2014). Currently the company is working with a new climate strategy, which will be decided during this year. In its strategy, the company will announce a new climate goal and set the reduction targets until the year 2020 (Novo Nordisk, internal file, 2015).

#### 4.1.3 Novo Nordisk and Environmental Profit and Loss

In 2014, Novo Nordisk together with consultants and Danish Environmental Agency produced E, P & L (Novo Nordisk, 2014) Account. An E, P & L account is an accounting method that enables placing a monetary value on a company's environmental impact along the value chain. The method provides a comprehensive overview of a company's overall natural resource use on their business operations and allows the company to investigate further the opportunities to reduce and manage their environmental impacts. Findings from Novo Nordisk's E, P & L reveal that the most material impact on climate occurs in the company's first and third tier suppliers (See more details about results in Appendix 4).

### 4.2 Novo Nordisk's Procurement

Novo Nordisk's NPR procurement activities are centrally located in the HQ and are under the responsibility of the corporate procurement department. Corporate procurement activities are divided into different spend categories. Corporate procurement is organized in several areas:

Research & Development (R&D), IT & General Indirect Sourcing (GIS), Marketing, Professional Services & Travel Management, Procurement Support, Purchasing Service Centre, Accounts Payable & Concur Expense Management (CEM\*) and Procurement Consulting. The different teams manage different elements in the procurement value chain. The process is far from simple, and navigating within this field requires knowledge about corporate procurements processes, stakeholders, projects, governance and systems. Each spend category have own category manager, and depending on the category, have a national or global approach. Together with affiliates and business units, corporate procurement handles procurement activities including supplier selection and approval, collaboration with strategic suppliers and category management. In general, corporate procurement has limited power for affecting internal customers' procurement decisions.

Purchasing decisions are made at the individual internal customer level and approved by the country and department managers. Purchasing is mainly performed through computer programs such as eProCure (e.g. office supplies), through Concur and travel agencies (travel), or directly by choosing a supplier from the preferred supplier list (M & E). When the preferred suppliers do not provide the required items and services, the purchase may be made outside the preferred supplier list. This type of purchase is done by using *free text* orders or through phone calls.

The pre-selection of suppliers is conducted through a standard sourcing process that applies to all of the sourcing activities that are done in Novo Nordisk. The selection process includes financial assessment, financial stability (supplier's capacity) and accepting Novo Nordisk's requirements for responsible sourcing (Pers.com., Madsen, a, 2015). Novo Nordisk has embraced global standards for responsible sourcing. The standards require that suppliers agree that their business operations are conducted in accordance with the standards and regulations for the environment, human rights and labor, health and safety and business ethics, and that these operations are documented (www, Novo Nordisk, 4 ,2015; Pers.com., Madsen, a, 2015). Moreover, corporate procurement has master agreements with the suppliers that are continuously used by Novo Nordisk. Master service agreements cover everything with respect to requirements and agreement with a supplier and qualifies the supplier as preferred suppliers that internal customers can use for individual projects (Pers.com., Madsen, a, 2015). So called *one stand* agreements are for the suppliers for occasional use.

The data of the spend categories is divided by the amount of spend of the purchases regarding each category, and further divided into different levels. First the company's expenditures are directed into spend in general, including all the expenses Novo Nordisk has from its operations. The second level is divided into three different spend categories: direct, investment and indirect spend. The NPR procurement activities focused on in this study are found under the *indirect spend* category. Direct spend consists of expenses formed through product-related purchases, e.g. energy, raw materials and pharmaceuticals. Indirect spend includes all the expenses that are formed through support functions like IT, marketing, finance etc., including travel, office supply, and meetings and events (see Appendix 5). Next empirical results from travel, M & E and office suppliers are presented.

#### 4.2.1 Travel

Novo Nordisk's travel consists of three main elements (see Appendix 6). These three elements are air travel, ground transportation, and hotel and accommodation services. Whereas air travel consists of all the domestic, continental and intercontinental flights, ground

transportation includes the expenses of trains, busses, taxis, car rental and company leased cars. Accommodation services include hotels and dining. However, travel and accommodation expenses related to meetings and events are excluded from this spend category (Pers.com., Liltrop, 2015).

#### Current strategy and procurement practices

Novo Nordisk's current strategy for travel does not emphasize environmental issues or address sustainability criteria. The previous years' travel strategy was to research and track how airlines use fuel and to explore sustainability initiatives airline companies implemented to reduce their overall GHG emissions. However, Kiss (Pers.com., b, 2015) thinks that GHG reduction would be a natural part of the strategy's environmental dimension for the travel category. Kiss (Pers.com., b, 2015) argues that the GHG emissions that come from the company cars are relatively easier to control compared to air travel. When it comes to the company cars, Novo Nordisk needs to optimize the selection process of the vehicles. Choosing a fuel-efficient car will reduce the GHG emissions emitted. Conversely, a vehicle used for air travel is out of Novo Nordisk's control, and thus it is complex to manage.

Corporate procurement handles supplier selection and collaboration with strategic and preferred suppliers. The final decision-making and purchasing activity is conducted by an internal customer and approved by the responsible manager. Employees purchase flights through travel agencies or Concur, which is a Business Travel & Expense Management program used in Novo Nordisk (Novo Nordisk, internal file, 2015). This program is not available globally, and thus affiliates that are not covered by the Concur book their travels through a travel agency. In situations where preferred suppliers do not provide the required service, internal customers can purchase the tickets outside of the company's preferred system. To ensure efficient travel, it is essential to maintain the flexibility in purchasing decisions. However, flexibility increases the amount of suppliers and complicates the possibility to control internal customers purchasing decisions (Pers.com., Kiss ,b,2015). Moreover, the actual purchasing process varies, depending on the purchased product and service.

#### Supplier selection and additional sustainability criteria

Novo Nordisk's current supplier pre-selection criteria include GHG emission reporting, which all the strategic suppliers provide in the travel category. The challenge for Novo Nordisk is to achieve consistency with suppliers, which is due to a lack of truly global companies that could provide services for Novo Nordisk's needs. The lack of global suppliers leads to inconsistency and to gaps in reporting and increases the number of suppliers. Car leasing companies track, measure, and provide benchmarking for Novo Nordisk. However, company cars are a service in which the GHG emissions per product determine the selected cars, not the leasing company. Thus, it is ultimately company policies that limit the decisions internal customers may take.

Novo Nordisk's corporate procurement department has a continuous and transparent collaboration with its strategic suppliers and emphasizes the company's interest in and support for the development of environmental friendly travel solutions. Indeed, airlines and travel agencies are committed to reporting their GHG emissions to Novo Nordisk on a quarterly basis. Airline companies are developing new methods to reduce their GHG emissions including, for instance, using wings that reduce the use of fuel and starting to use biofuels. Due to the collaboration, Novo Nordisk is aware that some airlines have planes that use more fuel and emit more GHG emissions than others do. However, information about different

planes cannot be used as a selection parameter because the priority for the travel is to ensure that employees reach the desired destination on time. Novo Nordisk tracks and follows current trends and the directions that airline companies are undertaking within the industry. Moreover, Kiss (Pers.com., b, 2015) explains that one company does not have enough power to influence decisions on airline vehicles. The aviation industry itself should primarily drive emission reduction initiatives. Once a low carbon solution with a significant difference in the environmental impact exists, it would naturally be added to Novo Nordisk's selection criteria. In Novo Nordisk, parameters such as efficiency and cost of travel are prioritized over environmental impact. High pressure on the aviation and transportation industry has led to greater transparency in the travel category than in the other spend categories, which enables the current reporting on the business flights and company cars in Novo Nordisk's Annual Report.

#### Internal customers and procurement decision

Novo Nordisk is in a process of developing global travel guidelines. However, a global travel guideline is challenging to implement in reality because of the significant regional differences in travel methods and styles. Currently, each affiliate and business unit has a local travel guideline. Novo Nordisk has a cross-border international contract with some airlines to align the travel requirements between different affiliates. International contracts normally have a limit for spend. Therefore, small affiliates are often excluded from global contracts due to their inadequate level of spend. In a corporate perspective, a global GHG emissions policy exists, but it is a responsibility of each country manager to establish, set desired scopes and implement the policies. Therefore, the final purchasing decision and purchasing activity is left to the internal customer. An internal customer has the authority to execute the purchase required. The frame for the purchase and selection criteria depends on the instructions and policies established by the responsible country manager (Pers., com., Kiss, b, 2015).

Certain procurement and leasing criteria with respect to company cars are mandated through corporate procurement, but they do leave employees a choice between different options. Flexibility enables employees that have a personal preference to have a car with a larger engine and higher fuel consumption, in which case additional costs are reduced from the employee's bonus system. Additionally, the government's tax policies have a significant impact on decision-making with respect to company cars (Pers., com., Kiss, b, 2015). In countries where employees are taxed based on the car's fuel consumption, a low carbon choice is significantly higher than in countries with no such tax policy. The difference in car lease between regions has to do with local customs: while the majority of countries lease company cars, there are some countries in which the only option is to buy company cars.

#### Shift towards low carbon principles

In general, changing an internal customer's mind-set towards reducing travel is a twofold challenge. First, GHG emission reduction is not prioritized nor communicated as an absolute target. The second reason is that many meetings are difficult to substitute (Kiss, Pers.com., b, 2015). The overall perception is that there is a general positive attitude for environmental considerations in Novo Nordisk. Kiss (Pers.com., b, 2015) emphasizes that additional selection criteria can be established if a certain degree of choice in the decision-making process is left to the internal customers. However, successful change of the company culture and processes needs to be pushed from another level of the organization than corporate procurement. According to Kiss (Pers.com., b, 2015), executive managers are important drivers of organizational change, but not a necessary pre-requisite. According to Kiss (Pers.com., b, 2015), the change in procurement habits within Novo Nordisk requires change

management with the mandate and inclusion of country managers. Country managers are responsible for having a satisfied sales force, and the risk in limiting the choice of company cars too much is that decrease sales force performance can decrease.

Novo Nordisk could improve activities related to raising awareness and collaboration by guiding end customers to making low carbon decisions. Kiss (Pers.com., b, 2015) thinks that instructing employees to choose a low carbon option instead of a flight is only done in countries where train travel is convenient, for instance, in France and Germany. When it comes to other locations, it is not possible to book train tickets via the travel agency, which makes it an inconvenient choice. Balancing GHG emission reduction with the overall benefits is crucial with respect to company cars. Especially among the sales force, whose work efficiency is largely dependent on cars. Affiliates' performance is driven by sales, which have a significant impact for Novo Nordisk overall performance. Therefore, GHG reduction strategy with respect to cars is essential to anchor to affiliates for which practicing the reduction strategy will have a fundamental negative impact. Kiss (Pers.com., b, 2015) emphasizes that to change successfully, Novo Nordisk needs to change the communication that company cars are a benefit. Also, the employees *ownership* of this benefit should be changed. There is a common perception that employees will lose their benefits if there is a change in the company car policy or if there are too many restrictions in the selection process. Reducing GHG emissions by setting an internal global standard for new cars (e.g. carbon efficient cars) that would be below the EU average has some challenges: There are barriers for the use of low carbon options such as electric vehicles (EV) globally. Some countries simply do not have the required infrastructure. A business-related barrier is that EV is not a logical choice for sales force due to the nature of their need. To be precise, EV has a short drive range compared to other possibilities. The time to recharge an EV and the sales force need to drive from one place to another, makes EV inconvenient to be used in affiliates.

#### Current sustainability initiatives

The current low carbon initiative within Novo Nordisk travel is the possibility for teleconferences. Teleconference facilities are based on some of the office sites to reduce travel. However, this initiative has not had a significant impact, most likely because it has not been communicated as an absolute target. Thus, the initiative is seen as a voluntary scheme, and it depends on the individual line managers to decide if they address the scheme or not. This sustainability scheme has not been deeply integrated into Novo Nordisk's activities because of the little support from the top management level when there is not budget involved and impact to financial bottom line. Moreover, the teleconference is mainly an IT project, and thus corporate procurement is not the owner of or responsible for driving this initiative. Participant quota for conferences has been introduced, however not as an environmental consideration but as a part of cost awareness program. The cost awareness program is established by senior managers who think that affiliates should be aware of additional costs and think about who is going to fly. The impact of this program is already seen in the reduced number of flights, which has reduced the GHG emissions of business flights. Currently, corporate procurement is running a mitigation initiative called Carbonify (only in Europe). Furthermore, corporate procurement promotes and empowers the use of diesel cars instead of fuel cars to ensure a smaller CF for vehicles.

#### Measurement, reporting, and data transparency

At present, with regard to data on travel, only business flights are reported in the performance section of the Novo Nordisk Annual Report (www, Novo Nordisk, 3, 2014). Information is collected individually from each affiliate and is based on estimates. Each affiliate reports

individually, based on the methodology for calculating the GHG emissions given by the TBL strategy department. Thus, the data collection process is both time- and resource-consuming. Novo Nordisk faces challenges in gathering collective data from numerous countries because the process is time-consuming, which requires resources from the reporting body and affiliates, and the scope for the collected data is narrow. The company has also implemented a sustainability initiative to develop a carbon calculation tool based on spend. This project has faced challenges in the identification of emissions sources and data transparency. Moreover, the company is looking into an opportunity to collect the emission data directly from suppliers.

#### 4.2.2 Meetings and Events (M & E)

Novo Nordisk's Meetings and Event's (M & E) category consists of various activities (see Appendix 7). This category includes conferences, summits and trial-related meetings, sales training, education and product launches as well as internal activities, such as Christmas parties, international meetings, and off-site activities (Pers.com., Fogh Larsen, a, 2014). Corporate procurement mainly works with events like large global clinical trials, portfolio development activities, marketing, and some brand activities that are driven outside the medical affairs team. Other events include conferences and meetings with HCP and other stakeholders with an interest in Novo Nordisk, customer insights and customer events as well as peer events, and events with different organizations, such as International Diabetes Foundation (IDF) or World Hemophilia Foundation (WHF).

##### Current strategy and company practices

Novo Nordisk's current M & E strategy does not emphasize environment or sustainability criteria, and the environment has not been the focus in the recent years either. In the future, a category strategy could be employed to reduce and measure CF. However, this requires that the company's top management aspires to include environmental criteria in the procurement process. The inclusion of new criteria (e.g. CF) would lead to new considerations in processes, decision-making and to dedicated work towards reducing GHG emissions beyond Novo Nordisk's operations. However, before Novo Nordisk can integrate environmental considerations into its category strategy, the company should have knowledge and understanding of GHG emissions. Novo Nordisk would need the motivation to improve the performance in each strategic area. The M & E category of corporate procurement is mostly engaged with key stakeholders at the HQ through meetings and events governed and funded by the HQ. Corporate procurement communicates and coordinates with various affiliates and determines the preferred suppliers. However, affiliates are not always able or interested in using the suppliers that have been selected centrally, and corporate procurement cannot tell affiliates what requirements to fulfill. Hence, it is an internal customer who determines the need and selects the supplier that provides services to respond the demand.

##### Supplier selection and additional sustainability criteria

"TBL business principle and sustainability considerations should be included and should have weight in the decision making" (Pers.com., Madsen, a, 2015). The pre-selection of suppliers is conducted through a standard sourcing process, which applies to all the sourcing activities that are implemented in Novo Nordisk. The company has an ongoing process of a harmonization for the supplier selection and assessment requirements. This project includes selection requirements, such as sustainability criteria, responsible sourcing, and business ethics as well as quality requirements. However, sustainability criteria, such as CF, are parameters just like any other criteria or requirements within the procurement decisions. Any

additional criteria, such as GHG emission or sustainability requirements should be part of standardized agreements, and it should be acknowledged that additional selection criteria would increase the complexity of the selection and decision-making process. Hence, extra requirements would dominate the topic of negotiations and assessment if the requirement respect to the particular supplier and service were relevant and therefore would probably lead to additional costs.

The inclusion of an additional requirement from the supplier in the selection process depends on the internal customer, who handles deciding and determining the final qualified requirements. Therefore, Madsen (Pers.com., a, 2015) emphasizes the importance of decision-makers in the line of business for understanding and feeling the urgency to include new criteria in supplier selection. In other words, for an integration of new criterias to be sufficient, the need for including additional criteria should be agreed by managers and anchored in affiliates. All regions have a different degree of involvement and commitment to procurement practices and change initiatives. While a US affiliate is immediately applying newly agreed upon processes, other affiliates do not necessarily prioritize or have resources to execute the agreed change, and thus additional resistance may appear.

#### Procurement decision and internal customers

There are no global guidelines on meetings and events for internal customers (Pers.com., Madsen, a, 2015). Requirements and responsibilities for suppliers are primary driven by legislation, and they are about HCPs and business ethics. Requirements regarding low carbon criteria have not been established either. However, environmental considerations are a growing topic of interest in the M & E category. Carbon considerations in purchasing behavior do largely depend on how focused an event planners' agency is on the environment. The CF criterias could encourage the company to reduce emissions that come from services in the M & E category. The current degree of prioritizing the reduction of CF differs between the regions. Environmental orientation varies especially between the HQ and outside of the HQ. Customer events held by the HQ recognize that GHG emissions influencing the industry negatively. This recognition is based on close connection to end customers and heavy GHG emission activities. Especially in the sub-category of exhibits, there is a considerable amount of moving gears and people around, use of hotels, catering and other activities that emit GHG emissions. Therefore, CF is considered in the decision-making process. Consequently, focus on CF has increased collaboration with the suppliers in finding low carbon solutions. On the other hand, in U.S. based events, CF is not considered important. Therefore, CF is not considered in the decision-making process.

#### Shift towards low carbon principles

A fundamental challenge in integrating environmental considerations into the procurement process is that additional criteria increase costs. Overall costs are increased when suppliers are expected to report and to reduce GHG emissions. Moreover, in order for integration to be effective, CF criteria requires prioritization by internal stakeholders. In the line of business, internal stakeholders implement CF-related activities on a daily basis. On the other hand, prioritization requires attention at the senior management level. Without top management's interest on environmental concerns, it is difficult to prioritize environmental criteria in business decisions. Thus, targets and the focus should be aligned with the corporate balanced scorecard, communicated by senior management and cascaded down into the company. Novo Nordisk needs a clear target and top management involvement to effect a change in the current M & E procurement process (Pers.com., Madsen, a, 2015). Large-scale transformation requires efficient communication and raising awareness about the company's climate goals.



Hence, the change of procurement habits would require that the company make decisions such as "we would like to make our stands green. All our stands are 80% of reusable materials". Currently, the company does not have clear communication regarding its environmental goals.

The company can reduce its GHG emissions by decreasing the number of activities, combining events or producing events in a different manner. There are cultural and political challenges in Novo Nordisk when combining or prioritizing events and meetings is considered. Madsen (Pers.com., a, 2015) argues that the decision to combine or cancel events is a responsibility of the top management. Employees have ownership over the programs and therefore arguments for the importance of each particular event existing. Naturally, the ownership over the program impacts the perception of the significance of particular agenda of each project. As a result, it is difficult to determine which meetings should be arranged, combined, or canceled. In general, "everyone in Novo Nordisk acknowledges, agrees and supports TBL principles, and anything that is more sustainable or beneficial in social or environmental perspectives is preferred (Pers.com., Madsen,a, 2015)"

#### Current sustainability initiatives

The E & M sub-category of exhibits has the focus and the interest to work on the green initiative. The green initiative has led to close collaboration with suppliers in measuring and reducing GHG emissions. The initiative emphasizes CF as an important selection criterion for the sub-category of exhibits. Focus on GHG mitigation is driven by the demands and environmental awareness of end customers. The main challenge in taking this initiative further and in creating a value proposition in this current approach is a lack of support from the top management (Pers.com., Madsen, a, 2015). Moreover, exhibits green approach with a high degree of reuse of materials and low CF is not well communicated by the line management. Therefore, the development in departments' environmental performance is neither well known nor acknowledged.

#### Measurement, reporting, and data transparency

Novo Nordisk does not report or track their GHG emissions in the M & E category. The Novo Nordisk carbon calculation tool based on spend does not have enough transparency to create a reliable distribution key for the all the sub-categories in this spend category or to identify the correct emission sources (Pers.com., Fogh Larsen, a, 2015). There is potential for LCP practices in this category. According to Madsen (Pers.com., a, 2015), Novo Nordisk has a high-level use of hotels and airlines, in which reporting, transparency, and tracking of CF is at an advanced level. Therefore, based on the available information the company could create CF guidelines and selection criteria's.

### 4.2.3 Office Supply

The office supply category consists of various items and sub-categories that include printed matters, furniture and white goods (see Appendix 8). Interestingly, Novo Nordisk has a recycling warehouse that reduces the company's emissions in this category (Pers.com., Lomholt, a, 2015).

#### Current category strategy and company practices

The office supply category is a non-strategic function with little focus on the management level. The current strategy for the office supply category is to consolidate spend. This consolidation is implemented through reducing the number of suppliers and invoices. The

office supply category does not have a strategy to address environmental considerations. Lomholt (Pers. com., a, 2015) identifies a general shift towards long-term strategies. Long-term strategies conflict with short-term performance evaluation and are thus challenging to implement. For practitioners to be able to integrate long-term goals into their daily practices, the relationship between short-term evaluation and long-term strategic goals should be considered. An inclusion of new criteria is time- and resource-consuming. Therefore, a successful implementation of LCP requires an increased amount of human resources.

The office supply category in corporate procurement is only covering of the office supply procurement practices at the HQ, and therefore no coherent global approach exists. The procurement of office supplies is processed through the company's eProcure system. eProcure includes all the products and services related to supply office equipment from the preferred suppliers. However, if internal customers do not find the desired item in eProcure, an order can be submitted as a free text order in the system. Using a free text order, an internal customer can purchase an item outside of the eProcure system, and every time a new item is purchased, the number of suppliers increases in the supplier database. Thus, the overall number of suppliers is significantly higher compared to the number of preferred suppliers. The number of preferred suppliers is significantly higher than that of strategic suppliers. Moreover, free text and phone orders are primarily intended to be used for occasional orders, but some internal customers use free text orders for all of their purchases, which increases the data in the system.

#### Supplier selection and additional sustainability criteria

Novo Nordisk always inquires the strategic suppliers about their environmental performance. In general, the company prefers suppliers with a sound environmental performance that is in accordance with the financial and regulatory requests. Lomholt (Pers.com., b, 2015) observes that a good example of the current TBL business principle in the office supply category is the main office supply supplier Loreco in Europe. Loreco shares the same business principles as Novo Nordisk. Additionally, the company is leasing most of their office machines, including all the coffee machines and printers. In the current process, environmentally friendly products are usually requested from suppliers. However, requests are not specified in standards or labels such as energy efficient machines (e.g. energy stars) nor are these products evaluated in terms of CF. The company does not have a monitoring or evaluation system for the environmental performance of suppliers or products. The pre-selection of suppliers is conducted using a standardized procedure that includes an evaluation of the supplier's financial situation, capacity, and price. Price is a driving factor in the supplier selection process. Importance is also given to the location of production. The location of production divides suppliers into high, medium and low-risk suppliers. Lomholt (Pers.com., b, 2015) argues that "if the same or a similar item is available locally, there is no point to order items from far away." In addition, sometimes high-risk areas are avoided to ensure compliance with local laws. However, supplier audits are only used with high-risk suppliers according to responsible sourcing, and no focus is given to the environmental performance of the supplier.

#### Internal customers and procurement decisions

In general, corporate procurement and office supply category managers do not have the mandate to influence an internal customer's choice of purchased items. Indeed, the procurement department does not have the resources to govern or mandate a change in the decision-making process. Thus, selection criteria largely depend on the line managers or country manager in each affiliate. The importance of CF varies largely between business units, and the degree of environmental orientation primarily depends on the business units' location.

In each location, offices have different priorities, preferences and resources for considering additional requirements and factors while making purchasing decisions. Especially outside of Northern Europe, including environmental considerations into the procurement process becomes problematic due to a reduced number of alternatives (Pers.com., Lomholt, b, 2015). Office supply procurement collaborates with the company's internal stakeholders in the form of procurement training. The main purpose of this training is to familiarize people with shift from free text orders towards using an eProcure catalog, and thus current training schemes do not include awareness of environmental criteria.

#### Shift towards low carbon principles

Prioritization of other activities, such as e-sourcing and cost reduction, are a challenge for including the evaluation of environmental performance, not a lack of internal customers' interests. The integration of CM to NPR procurement to be effective, environmental performance criteria should be included into general performance evaluation (Pers.com., Lomholt, b, 2015). Lomholt (b, 2015) continue, that inclusion of additional selection criteria, such as CF, is not considered an issue in office supply category. Therefore, future selection criteria could include formal agreements, such as standards, environmental management system (EMS) certified suppliers, eco-labels and code of conduct. Procuring only recycled or forest stewardship council (FSC) paper is a fundamental challenge for Novo Nordisk, because changing employees' perceptions of the FSC paper's poor quality is difficult. Additionally, Novo Nordisk should accept higher expenses for changing the priorities and the source of the paper or other office supply items (Pers.com, Lomholt, b, 2015). However, the use of paper depends on the personal preferences of the employees; even though paperless processes would be established, people tend to print their documents. In general, Novo Nordisk procures environmentally friendly furniture when it is possible. The possibility depends on the products and suppliers. For example, desk and office furniture are fixed, and, therefore, it is easy to include environmental criteria into the selection process. Conversely, loose furniture is more challenging to buy green because there are many varieties. "It is difficult or impossible to tell managers that there is only one option instead of multiple alternatives from which to choose" (Pers.com., Lomholt, b, 2015).

#### Current sustainability initiatives

Recycling warehouse, initiative for the recycled office supplies such as desks, chairs, shelves, computer screens, etc. has been established in the HQ. There are challenges for increasing the use of the recycling center: The procurement behavior has to be changed so that recycled items were preferred and communication about the existence of the recycling warehouse should increase. Currently, knowledge about the existence of this warehouse spread word of mouth, so its existence is not widely known among the employees.

#### Measurement, reporting, and data transparency

Currently, Novo Nordisk does not report or track their GHG emissions related to office supply spend. This indirect spend category contains a large amount of different items including paper products, office machines, and some laboratory equipment. All of these items have significantly different EFs. A noteworthy number of items, suppliers and orders make it challenging to manage this category and to reach a high level of data transparency. Development of calculation tool based on spend also showed that lack of data transparency calculation based on spend have a relatively high uncertainty (Pers.com., Lomholt, a, 2015).

After presenting the empirical results in this chapter, these results will be analyzed in next Chapter based on the conceptual framework introduced in Figure 6 (Ch. 2.).

## 5 Analysis

*This chapter presents the analysis of the empirical findings presented in Chapter 4. The analysis is based on the conceptual framework in Figure 6 (Ch. 2). First, the influence of external and internal factors on low carbon NPR procurement is explored and analyzed. Then, the perceived challenges in the implementation of the LCP in the context of NPR procurement are described. Lastly, Novo Nordisk's possibilities for conducting a change in the form of sustainability imitative in its NPR procurement are analyzed using Lewin's 3-step change model combined with Kotter's (1995) 8-stage change model.*

### 5.1 Influence of External and Internal Factors on Implementing Low Carbon NPR Procurement

According to Appolloni *et al.* (2014), it is important for companies to understand the barriers for GP implementation to be able to achieve change and to implement sustainability practices. In this analysis, the internal and external factors (Ch. 2) are used as a theoretical starting point for analyzing their influence on the Novo Nordisk motivation to implement low carbon NPR procurement practices. Based on the literature review conducted by Haake and Seuring (2009), there are fewer factors that influence sustainable/green NPR procurement in comparison to the procurement of major items. Also Mosgaard *et al.* (2013) argue that barriers and drivers between NPR procurement and major procurement differ. Therefore, combined factors from GP and green NPR procurement are explored with regard to their influence on implementation of low carbon NPR procurement. The key findings in each of the categories studied in the Novo Nordisk case can be found in Tables 3 and 4.

#### 5.1.1 External Factors

In Table 3 below, the findings from the empirical study about the external factors (introduced in Ch. 2) are presented. Table 3 highlights the differences between the sub-categories studied.

**Table 3. External factors for low carbon NPR procurement.**

Factors	Travel	M & E	Office supply
<b>Regulations</b>	Driver: Car taxation schemes, transportation industry requirements	No impact: No GHG related regulatory impacts	No impact: No GHG related regulatory impacts
<b>End customer</b>	No impact	Driver: Exhibit sub-category	No impact
<b>Competition</b>	No micro-level impact, Driver: Macro-level credibility and brand image	No micro-level impact, Driver: Macro-level credibility and brand image	No micro-level impact, Driver: Macro level-credibility and brand image
<b>Society</b>	Barrier: Reporting guidelines Driver: Awareness of GHG emissions	Barrier: Reporting guidelines Driver: Awareness of GHG emissions	Barrier: Reporting guidelines Driver: Awareness of GHG emissions
<b>Environmental orientation</b>	Driver: General awareness of climate change	Driver: General awareness of climate change	Driver: General awareness of climate change
<b>Supplier commitment</b>	Driver: Strategic suppliers' increased transparency	Driver: Strategic suppliers' increased transparency and green exhibitions	Driver: Strategic suppliers' high value products
<b>Industry</b>	Driver: CSR activity	Driver: CSR activity	Driver: CSR activity

The impacts of NPR products are geographically diverse and challenging to attribute (Haake & Seuring, 2009), and in contrast to major items, there is no driving influence from regulations. Moreover, authors argue that *regulations* are directed to prevent products with particular characteristics to enter the national market. Interestingly, car taxation has a significant impact on company cars and the internal customers' selection of low carbon alternatives. Particularly in Europe, car taxation policies serve as an initiative for employees to choose a low carbon option. Also, in the case of business flights, industry specific

regulations enable increased transparency and communication with respect to GHG emissions. The findings here are similar to those in the study conducted by Mosgaard *et al.*, (2013), in which it is pointed out that regulatory demands drive implementation of green procurement in few product categories, such as transport and chemicals. In the other categories studied, regulation schemes did not influence low carbon NPR procurement.

GP literature of major items emphasizes the role of *end customers* as a key driver for companies to obtain green activities due to increased environmental awareness (Appolloni *et al.*, 2014). Contrarily, in the literature on NPR procurement it is argued that end customers have a rather small role or influence on decisions on NPR procurement (Haake & Seuring, 2009; Mosgaard *et al.*, 2013). The empirical part of this study found that M & E (exhibition sub-category) managers are concerned, and actively collaborate with their suppliers to identify emission sources and potential reduction strategies on GHG emissions. Initiating LCP is driven by end customers' interest in and demand to *green events*. However, level of environmental orientation in other M & E sub-categories is dependent on the suppliers' interest in and eagerness of CF prioritization. In the other two categories, end customers' perceptions were not perceived to affect implementation of low carbon NPR procurement.

*Competitive advantage* is recognized in the GP research as a main driver for companies to obtain green initiatives into their procurement practices (Appolloni *et al.*, 2014). However, it is also recognized that customers' interest is directed to the final product of companies, and thus NPR products and services do not have such a strong impact (Haake & Seuring, 2009). A large amount of Novo Nordisk's GHG emissions are found in indirect spend categories. The findings in this study suggest that pro-active behavior and the company's commitment to climate ambition contribute positively to the overall environmental performance of the company. Nevertheless, the category managers did not perceive this potential driver as a key driver. It was agreed, that a positive perception of the company's environmental performance is part of TBL business principle and may increase competitive advantage as a whole.

Increased awareness of environmental issues adds to *society's* influence as a driver for companies motivation to implement low carbon NPR procurement. A company's reputation is usually associated directly with its main products, excluding NPR products and services with less attention (Haake & Seuring, 2009). Today, as a large part of a company's CF originates from NPR products and services, supply chain activities are gaining more attention in the public and in the companies' debates (Downie & Stubbs, 2012). The empirical part of this study indicates that as a part of Novo Nordisk's environmental strategy and commitment, the company conducted E, P & L to locate GHG *hotspots*<sup>15</sup>. As an outcome of this assessment, the company found out that a large amount of GHG emissions came from supply chains and implemented a sustainability initiative to find a solution for reducing their climate impact.

The lack of *supplier commitment* is seen as a barrier for GP (Appolloni *et al.*, 2014). Interestingly, in each category studied, strategic suppliers are engaged in close collaboration and cover a majority in volume of the purchased products and services within the company. Supplier commitment can be seen as increased transparency in emission data, green exhibitions and high value environmental products. Moreover, category managers emphasized that strategic suppliers would be committed to and interested in working towards new requirements. However, the remaining suppliers cover a majority of the total number of suppliers, and little commitment exist. However, these suppliers are needed to ensure the

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<sup>15</sup> The highest GHG accumulations of the company

flexibility and efficiency of company's operations. Novo Nordisk has a responsible sourcing initiative obliging suppliers to agree with minimum requirements. However, there is no evaluation or monitoring of supplier performance.

In the literature, *industry specific* factors are seen as a barrier (Appolloni *et al.*, 2014). However, the empirical study indicated that as the pharmaceutical industry has long history in CSR, therefore, Novo Nordisk has a capacity to implement initiatives that are seen as a proactive behavior. In addition, depending on the supplier industry, some categories such as transportation have advanced reporting and data transparency regarding GHG emissions.

### 5.1.2 Internal Factors

In Table 4 below, the findings from the empirical study about the internal factors (introduced in Ch. 2) are presented. Table 4 highlights the differences between the sub-categories studied.

**Table 4. Internal factors for low carbon NPR procurement.**

Factors	Travel	M & E	Office Supply
<b>Cost reduction</b>	Driver: reduced costs	Barrier: Increased costs	Barrier: Increased costs
<b>Internal buy-in and knowledge</b>	Barrier: Lack of knowledge	Barrier: Lack of knowledge	Barrier: Lack of knowledge,
<b>Environmental orientation</b>	Driver: TBL business principle	Driver: TBL business principle	Driver: TBL business principle
<b>Collaboration</b>	Driver: Collaboration with strategic suppliers / Barrier: Other suppliers	Driver: Collaboration with strategic suppliers / Barrier: Other suppliers	Driver: Collaboration with strategic suppliers / Barrier: Other suppliers
<b>Top management support</b>	Barrier: Lack of top management support has currently high negative impact	Barrier: Lack of top management support has currently high negative impact	Barrier: Lack of top management support has currently high negative impact
<b>Integrated strategies</b>	Barrier: No current strategy	Barrier: No strategy	Barrier: No strategy
<b>Time</b>	Barrier: No time or resources to track and measure best available products/suppliers	Barrier: No time or resources to track and measure best available products/suppliers	Barrier: No time or resources to track and measure best available products/suppliers
<b>Communication</b>	Barrier: Low level of communication of alternatives	Barrier: Low level of communication of alternatives	Barrier: Low level of communication of alternatives

*Cost* has historically been the priority in procurement processes (Kraljics, 1983). Therefore, cost is seen as one of the most significant barriers in the literature on GP (Appolloni *et al.*, 2014), as it is perceived as a cost-increasing activity. In fact, Haake and Seuring (2009) emphasize that cost is considered a higher barrier for NPR procurement due to relatively lower benefits achieved from investments compared to the procurement of major items. Interviewees in each category raised the concern of increased costs when considering CF as a selection criterion. Interestingly, when it comes to travel, the reduction of GHG emissions is directly related to decreased costs, and reduced travel is driven by a cost reduction initiative. M & E and office supply category managers, perceived that considering CF would lead to increased costs and complexity in decision-making. Additionally, in the office supply category, the dilemma between choosing short-term tactical benefits or long-term strategic savings can be seen clearly. To be precise, an environmental choice tend to have a higher initial cost compared to a conventional alternative, but it provides savings in the long-term (Correia *et al.*, 2013).

Appolloni *et al.* (2014) found that the lack of internal legitimacy and consensus on purchasing decisions and criteria are seen as organizational barriers to GP. In Novo Nordisk's NPR procurement practices, *internal buy-in* has a significant impact because purchasing decisions are conducted by internal customers. According to Correia *et al.* (2013), successful LCP requires a basic understanding of CF and CM. However, there is no systematic way to provide

internal customers with sufficient information. Therefore, country and line managers are the ones who have the authority to set the direction for decisions on procurement, and it is their personal views that influence internal policies, guidelines and purchasing preferences.

Insignificant *collaboration* is considered a barrier in the GP literature (Appolloni *et al.*, 2014). Indeed, Haake and Seuring (2009) point out that collaboration and supplier commitment regarding NPR products are usually minimized. It was found in a study at hand, that Novo Nordisk collaborates closely and actively with their strategic suppliers. Findings disclose that supplier collaboration in the travel and M & E (particularly in the sub category exhibits) categories involves CF considerations, which is not the case in office supply. Also lack of internal collaboration and training is recognized to be a barrier (Mosgaard, 2015), because green values needs to be learned not only taught. In Novo Nordisk, no collaboration or training regarding LCP exist.

The *lack of top management support* is considered the main driver or barrier to GP and green NRP procurement (Haake & Seuring, 2009; Appolloni *et al.*, 2014; Mosgaard *et al.*, 2013; Mosgaard, 2015). The lack of top management support is a significant factor; however, the empirical study shows that also country and line of business managers play a substantial role in greening NPR procurement practices. The results indicate that the first push is required to come from the top management level, and that for change to be implemented, support from managers in line of business is needed. Interestingly, top management interest was mentioned to be the key driver for the inclusion of CF considerations into decision-making processes.

One of the factors influencing the adaptation of GP practices in companies is the *alignment of procurement strategy with corporate strategy* (Appolloni *et al.*, 2014). Also Johnsen *et al.* (2014) emphasize the importance of integrated strategies. Novo Nordisk has conducted earlier GHG reduction strategies in travel and supplier selection. However, currently there are no CF related procurement strategies in any of the spend categories. This may be due to the current environmental strategy that has not been integrated into the company's NPR procurement practices, and thus can be seen as a barrier. Novo Nordisk is currently working on the new climate strategy, where inclusion of procurement strategies is possible.

*Time* is recognized as a factor to exclude additional requirements from the procurement practices (Mosgaard, 2015). Inclusion of new requirements, criteria's and reporting are seen as a time consuming procedure that requires resources. Category managers mentioned time as a reason for not including new selection criteria into the decision-making process.

The lack of *communication* is mentioned as a barrier to GP practices (Appolloni *et al.*, 2014), and Haake and Seuring (2009) conclude that even less communication is carried out among NPR procurement-activities, compared to major items. The findings show that regarding initiatives such as recycling, teleconference and green exhibits, the level of communication is not sufficient, and thus the influence of these initiatives has remained low. In the travel category, reductions have taken place through the well communicated cost awareness program, and has good results.

## 5.2 Challenges for Implementing LCP Principles in the Context of NPR procurement

The perceived challenges by category managers that Novo Nordisk face when implementing low carbon NPR procurement are illustrated in Figure 7. Challenges are attributed to three

factors by category managers: lack of the top management interest, the integration of CM into procurement practices and regional differences. Findings in a study at hand are analyzed on general findings regarding challenges in implementation of sustainable NPR procurement.

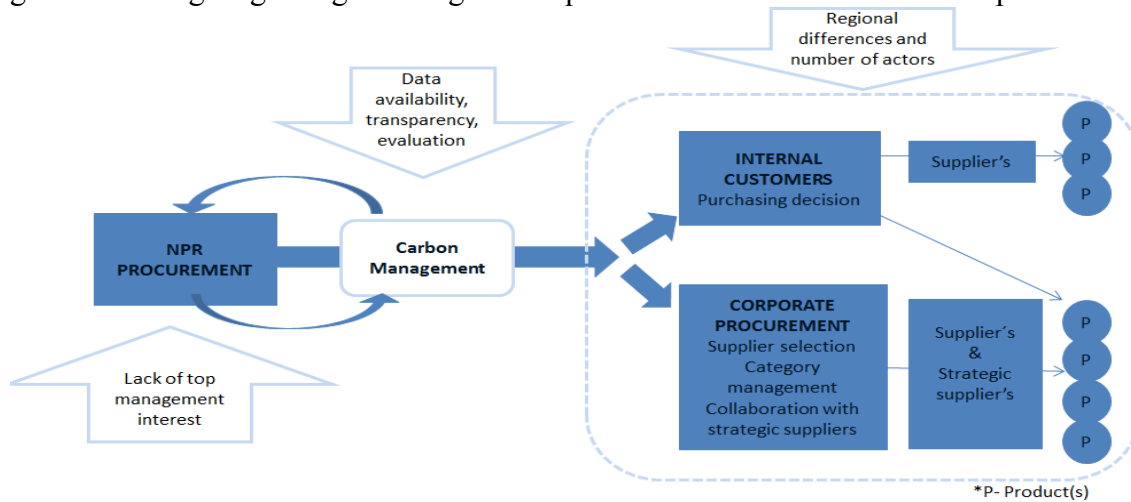


Figure 7 Perceived challenges of implementation LCP in context of NPR procurement

### 5.2.1 Strategic Approach to NPR Procurement

Management interest is identified as a key challenge for GP and sustainable procurement (e.g., Haake & Seuring, 2009; Appolloni *et al.*, 2014), and acknowledged as a reason for the less strategic position of NPR procurement (Haake & Seuring, 2009). The less strategic position is explained by the low impact of the company's a final product in terms of quality and in invisible influence in micro level regarding company's environmental performance (Haake & Seuring, 2009). The findings of this study confirm that the main challenge for Novo Nordisk to move towards a long-term strategic NPR procurement approach is caused by the lack of top management interest. Handfield *et al.* (2002) argue that sustainable procurement has evolved from a tactical approach towards a strategic approach, and that emphasis is given to long-term strategic decisions. Especially this evolvement can be seen in LCP, where decisions are required to be made between short-term tactical benefits and long-term strategic savings (Correia *et al.*, 2013). The results here are coherent with the theory that insufficient interest from the top management level complicates the prioritization of CF. In theory, a company reaches sustainability in the procurement process by increasing the number of sustainability criteria in the selection process of a supplier or a product (Sheinder & Wallenburg, 2012). In the case study, a concern raised by category managers was that costs would increase when qualitative parameters are included in to a procurement decision or a supplier selection process. More precisely, the inclusion of a qualitative parameter in the selection process itself was not the reason for increased costs. The increased costs would come from the reporting and evaluation process of environmental performance of a supplier or a product itself. The evaluation process would require more resources and time from both sides. Lower costs are a driving parameter for procurement decisions and category policies. Therefore, finding the balance between efficiency, cost reduction, and prioritization of low carbon principles was a challenge to implementing low carbon NPR procurement. It was pointed out in the interviews that only the top management has the authority to prioritize carbon principles over costs and to drive change in company processes and policies.

For a company, it is a challenge to shift from short-term tactical benefits to long-term strategic savings (Correia *et al.*, 2011). The shift towards long-term decisions is an underlying reason for preventing the implementation of LCP. Often, an environmental choice has a



higher initial cost compared to a conventional alternative, but it provides savings in the long term (Correia *et al.*, 2013). Based on the results of this study, the performance evaluation does not take into account the CF criteria but has includes spend criteria, and therefore the inclusion of carbon principles into the decision-making process is difficult. In fact, managers confront conflicting requirements between short-term evaluation and long-term performance demands. In theory, procurement strategies should be aligned with a company's overall strategies (Johnsen *et al.*, 2014). The empirical part of this study reported that strategies related to low carbon principles did not exist in any of the procurement categories studied. The lack in the company's focus on aligning environmental strategy with the company's internal departmental strategies is considered a reason for the absence of procurement strategies. Despite the fact that the travel category had an environmental focus on GHG emissions in the previous year, long-term reduction strategies to be established require the top management support. Moreover, based on the findings in this study, corporate procurement does not have the mandate or the resources to execute multiple strategies in Novo Nordisk.

Sheinder and Wallenburg (2012) argue that reducing environmental impact is accomplished by increasing the number of activities in which sustainability criteria are considered. As internal customers are highly involved in the tactical phases of procurement (Cox *et al.*, 2005), it is necessary to consider how to influence the decision-making. The interviewees emphasized the absence of a supporting body that would facilitate change and increase the necessary awareness in procurement activities. The study pointed out the lack of resources and interest to take over the leading role in the change process in the corporate procurement department. Reducing GHG emissions in NPR procurement is seen as equivalent to a lower number of alternatives. A decrease in available alternatives affects people's benefit-cost thinking (Pers. com., Kiss, b, 2015). For example, in the case of company cars, a choice restricted to low carbon cars would lead to a decreased number of varieties available. As the empirical study also identified that some of the categories are highly political, changing the current flexibility of choice would generate resistance and arguments.

### 5.2.2 Integration of CM into NPR Procurement

CM consists of a wide range of different practices that include scoping measurement boundaries, identification of emission sources, selection of methodologies, setting targets, deciding priorities, developing systems and procedures, and engaging with employees and suppliers (Chan, 2009). In theory, a company can only manage what it measures (Lee, 2011; Downie & Stubbs, 2012) and managers should have sufficient knowledge and understanding of the sources and the amount of the company's GHG emissions (Lee, 2011). Scoping measurement boundaries, identification of emission sources and selecting the method have been identified as a challenge for companies in measuring their GHG emissions (Matthews *et al.*, 2008; Huang *et al.*, 2009). The results of this study indicate that Novo Nordisk's current process of measuring CF regarding the three categories studied is only possible for travel and company leased cars. Therefore, data is collected and reported in the AR performance section only for the travel category and only about business flights and company cars (www. Novo Nordisk, 2, 2015). More precisely, the current method only enables the measuring of the narrow scope of travel GHG emissions, and the process is time and resource consuming. The lack of understanding the company's scope 3 emissions and the correct allocation of these emissions may lead companies to set incorrect mitigation targets as well as inappropriate CM and business strategy efforts (Downie & Stubbs, 2012). The case study confirmed that activities such as target setting, prioritizing, and system and procedure development cannot be implemented without reliable measurements.

The literature on NPR procurement has recognized the challenge in managing a large number of suppliers and non-standardized products (Cox *et al.*, 2005). Based on the results of this study, Novo Nordisk buys products and services from multiple suppliers from multiple regions. The great number of suppliers, items and services makes it difficult to collect emission data from the suppliers or to base calculations on the spend data from suppliers. In addition, regional differences in the availability of data were identified. In Europe, data is available and environmental alternatives are available – which is not the case in countries outside Europe. Corporate procurement collaborates and changes information with the strategic suppliers and the level of collaboration varies between different categories. Strategic suppliers may cover only a small number of the total number of suppliers, but strategic suppliers account for the larger part of the volume of spend on products bought.

Correia *et al.* (2013) argue that LCP requires prior understanding of CM and CF. The strategic part of the decision-making process is for the internal customer in NPR procurement (Haake & Seuring, 2009; Cox *et al.*, 2005), which complicates the implementation of LCP. In the case study, the company has procurement guidelines for travel and company cars including guidance and instructions for choosing low carbon options. It is the responsibility of country and line managers to establish departmental guidelines and policies, and differences in motivation to include environmental considerations were recognized. Also, regional differences in capacity, resources and possibilities to implement the change were identified in findings. Therefore, managers in charge handle the level of environmental consideration in each business unit. In the interviews, lack of communication and collaboration with internal customers was recognized. Insufficient collaboration influences internal customers' awareness of environmental issues and, more specifically, of LCP decisions. In theory, corporate sustainability is based on the collaboration and aligned efforts between multiple departments (Hanfield *et al.*, 1997). It was found in this study that low carbon initiatives exist, but they are poorly communicated, and thus has a low user volume. The company has sustainability initiatives that has potential to reduce GHG emissions and costs from travel.

### 5.3 Implementation of Low Carbon Initiative in NPR Procurement Process by Employing Change Management

The theory of organizational change is employed as a basis, or to be precise, Lewin's (1947) 3-step change model combined with Kotter's (1995) eight stages of change. The models are used to identify the challenges that Novo Nordisk has in the procurement practice to implementing sustainability initiative through change management. The underlying principle of Lewin's change model is that for any change to be successful, the driving forces for that change need to be greater than the resisting forces (Cameron & Green, 2009). Thus, first Novo Nordisk needs to overcome the resistance that was identified in the interviews and the notion that change will negatively influence the efficiency of performance, increase costs and decrease the number of available choices. It was also found that comprehensive change is difficult to implement due to the regional and departmental differences within Novo Nordisk. *Unfreeze*, the first step in Lewin's 3-step model, refers to overcoming existing resistance and enforcing the driving forces. In his change model, Kotter (1995) emphasizes the need to feel the urgency for change. The TBL business principle is the overwriting rule in Novo Nordisk, but to be effective, it needs to be integrated into purchasing decisions. This urgency could be created by integrating reduction targets with performance evaluations. The first step in the process is essential and requires acceptance and a realization of the urgency from the part of

managers (Kotter, 1995). The findings here disclosed that urgency could be created at the top management level and then be cascaded down to the other levels in the company.

The next step in Kotter's 8-phase model is to create a guiding coalition. Kotter (1995) emphasizes the significance of a credible and reliable body leading the change. Based on the results of this study, it was clearly communicated that the direction and commitment should come from the top management level. Moreover, it was pointed out that local country managers should be integrated into the change process as they have an important role in it. Kotter (1995) emphasizes that in the most successful change process, the coalition includes powerful people with suitable titles, information, and expertise combined with good reputation and relationships. According to Correia *et al.* (2013), LCP requires some knowledge and understanding of GHG emissions. It is likely, however, that people making the procurement decisions do not have adequate knowledge, and therefore the inclusion of environmental experts would be essential. Thus, country or line managers in collaboration with corporate procurement and the corporate environmental management team could lead the change process with a mandate given by the executive management. The next step in the model is to create a vision and a strategy (Kotter, 1995). The results indicate that Novo Nordisk has a strong and embedded sustainability strategy, supported by TBL business principles. Also, climate strategy is a fundamental part of the environmental strategy. Nevertheless, the current environmental strategy does not courage to an innovative change or to reach ambitious goals, nor does it include NPR procurement. Hence, procurement strategy has not been aligned with the environmental strategy. The new environmental strategy is under a process of renewal.

The next phase, *change*, focuses on familiarizing managers and employees with the new context and new behavior models (Ronnenberg *et al.*, 2011). Next, Kotter (1995) suggests communicating the change vision. The company needs to communicate clearly about its new climate targets, and strategy. Based on the interviews, there is a need for a clear internal communication in the company. Clear communication leads to open discussion and awareness of the targets that the company would like to achieve. The next step in Kotter's (1995) model is to empower employees to act and work according to the vision and to strive towards the new goals. First, Novo Nordisk needs to improve the transparency and quality of data to achieve adequate reliability. In addition, it would be important to encourage employees to make decisions based on qualitative parameters instead of maintaining a dominant focus on costs. Finally, the company could increase its employees' awareness of low carbon options in the decision-making processes. The next step is to generate short-term wins (Kotter, 1995). Previous change initiatives have proven that people need to see short-term progress and profits to be able to engage in a long transformation process (Kotter, 1995). According to the findings of this study, if the company has no ability to evaluate and track the development, this step will be challenging to implement. For Novo Nordisk to gain short-term wins, an ability to measure GHG development is required. The last part of the Lewin's change process is *refreezing*. Lewin (1947) argues that once change is implemented, the new reality needs to be institutionalized. Kotter (1995) recommends working towards consolidating the gains, then to produce more change and finally to anchor the new approaches in the culture. In the context of Novo Nordisk, this could be done by measuring and reporting on the relative development of GHG emissions.

This section analyzed the empirical results (presented in Ch. 4) of the study. The next chapter will discuss the findings further, provide an answer to the research questions, and relate the findings to existing literature.

## 6. Discussion

*In this thesis, the internal and external factors, perceived challenges, and planned change in the context of Novo Nordisk's low carbon NPR procurement initiative have been explored and analyzed. The research questions related to each of the three specific categories studied in Novo Nordisk and in this paper were:*

*How do external and internal factors influence the implementation of LCP in the context of NPR procurement principles?*

*What are the challenges perceived by category managers in the implementation of LCP in the context of NPR procurement?*

*How can Novo Nordisk implement low carbon initiative in its NPR procurement process?*

*Next, the findings of this study are discussed in the context of earlier studies and existing theory.*

### 6.1 How do External and Internal Factors Influence the Implementation of LCP in the Context of NPR Procurement Principles?

The findings of this study regarding internal and external factors influencing low carbon NPR procurement are mostly in line with existing literature on GP and sustainable NPR procurement. However, some differences caused by focus on low carbon perspective in the context of NPR procurement could be identified. First, the results of this study indicate that all the factors do not necessarily have the same influence on different indirect spend categories. Therefore, a factor may act as a driver in one category and as a barrier in another. As Appolloni *et al.* (2014) highlight, the same factor may act as either a driver or a barrier, depending on the context. Thus, it is important that each of the categories is addressed individually, starting from the categories with the most material impact on the focal company. Interestingly, the findings also suggest that where external factors tend to act as drivers, internal factors act mostly as barriers. This result is similar to the findings in the literature review by Appolloni *et al.*, (2014) that demonstrate that the majority of the barriers for GP tend to be internal. This difference between external and internal factors may be caused by increased external awareness and pressure to combat climate change and consider CF in general. The internal barriers reflect the complexity of the challenge that the company is confronting when implementing low carbon NPR procurement. However, once a strategic position is achieved, these internal factors can work as drivers. External factors, regulatory end customers, and competitive advantage are discussed further below. These three findings are particularly interesting because opposing ideas have been presented in the literature.

Based on the results, regulations can be seen as a key driver for implementing LCP in NPR procurement regarding travel. In the travel category, taxation schemes influence the choice of car positively. However, this depends on the particular country's regulatory schemes. Moreover, all the strategic suppliers in the travel category had the capacity to report the GHG emissions of companies and products. Also Mosgaard *et al.* (2013) report that regulation schemes favor less heavy transportation in some countries. However, the literature review of sustainable NPR procurement by Haake and Seuring (2009) suggests that regulations are not

likely to influence sustainable NPR procurement. The argument is based on the notion that a company is bound by regulations on the company's main products.

In the M & E sub-category, end customers' awareness and demands has been identified as a key driver for obtaining a green initiative and for working towards the reduction of GHG emissions. This finding is surprising, as the literature in the field of NPR procurement suggested otherwise. According to the literature, end customers are less likely to be interested in the environmental characteristics of NPR products compared to the products directly affecting the final product (de Boer *et al.*, 2003; Haake & Seuring, 2009). M & E sub-category exhibits are closely connected with the company's final products, which has led to increased concerns and demands on the side of the customer. In other categories lack end customer interest may neglect the implementation of LCP among NPR procurement, and thus function as a barrier.

The macro-level impact on a company's image and competitive advantage should be taken into account when the company is reporting and communicating its concern about scope 3 GHG emissions. This has been overlooked by the literature on sustainable NPR procurement, as it is not mentioned in the earlier literature considering sustainable and green NPR procurement such as Haake and Seuring (2009), Mosgaard *et al.* (2013) and Mosgaard (2015). Mosgaard *et al.* (2013, 143) note that companies "have not experienced any demands for green non-product-related procurement from external stakeholders". This gap in literature may be explained with the fact of scarcity literature existing low carbon NPR procurement. As the CF literature has revealed, there are increased external concerns of climate change and increased demand for companies' climate performance (Downie & Stubbs, 2012). External concerns will generate demands on the company, and thus have an influence on the image and competitive advantage of the company. A company's proactive performance towards CM, combined with reporting and strategic NPR procurement, can be seen as a competitive advantage and a commitment to environmental activities.

Cost is the most important factor for making purchasing decisions, based on what is required from the category managers, country managers, and internal customers (Pers.com, Kiss, b; Madsen, a, 2015; Lomholt, b, 2015). In M & E and office supply categories, LCP principles led to concerns about increasing costs (Pers.com, Madsen, a, 2015; Lomholt, b, 2015), while in the travel category LCP alternatives are mainly seen as a cost reduction possibility (Pers.com, Kiss, b, 2015). In the literature, it is a commonly shared idea between scholars (Haake & Seuring, 2009, Mosgaard *et al.*, 2013, Appolloni *et al.*, 2014) that economic preoccupations function as a barrier. Haake and Seuring (2009) argue that the relatively high cost of reducing environmental impacts leads to ignoring the other factors, while Appolloni *et al.* (2014) point out that cost reduction works as a driver. Appolloni *et al.* (2014) writes that cost may be a driver for cost reduction and a barrier for investment on GP. Mosgaard (2015) reports that green choices in e.g. travel can lead to cost reduction while investment in recycled paper would increase costs. However, it is important to take into account that cost reduction is not straightforward either; a mitigating activity leads to another, substituting activity. The alternative activities, such as teleconferencing including building the facilities for it, have an additional environmental impact and costs. This issue is not focused in the current literature.

The findings emphasize that the lack top-management support is a significant barrier to the implementation of low carbon NPR procurement. The role of management is much discussed in the earlier research (e.g. de Boer *et al.*, 2003; Haake & Seuring, 2009; Mosgaard *et al.*, 2013) and there is a consensus that the neglect of NPR procurement when green initiatives are

concerned is due to a lack of top management interest. Moreover, according to Mosgaard's (2015) findings, the top management has a vital role in driving change and sustaining GP practices and related social norms. Category managers perceived top management support as an essential factor for including CF into the selection criteria and for prioritizing qualitative criteria over cost. The necessity of country and line of business managers to support change process was also recognized as a crucial driving factor.

The results of this study show that no LCP strategies exist, which may be caused by a less ambitious climate strategy. Mosgaard (2015) argues that aligned strategies drive GP, but only if they are understood, accepted and applied in practice. Cox *et al.*'s (2005) findings demonstrate that there are only moderate (if any) strategies for NPR procurement. They argue that this is due to the maturity of the procurement function and to companies' incapability to control and develop the competence of other company functions regarding procurement activities. Similarly, Johnsen *et al.* (2014) points out, that procurement strategies need to be aligned with corporate strategies. Therefore, the new environmental strategy should have a clear climate goal. Then, the climate strategy can be integrated and aligned with procurement strategies, and clear targets should be set. However, an efficient climate strategy requires reliable measurement and a correct understanding of the company's scope 3 GHG emissions (Downie & Stubbs, 2012). Therefore, before establishing a climate strategy, Novo Nordisk first needs to overcome measurement challenges.

Finally, findings about communication disclosed that there is only little communication and collaboration between different business units or departments regarding NPR procurement. Corporate sustainability is based on the collaboration and aligned efforts between multiple departments (Handfield *et al.*, 1997), LCP requires prior understanding of CF (Correia *et al.*, 2014) and internal customers have the decision-making mandate (Cox *et al.*, 2005). In the literature, less emphasis is given to communication. Haake and Seuring (2009) argue that NPR procurement involves less communication automatically. However, they do link communication with external actors. Mosgaard (2015) highlight the importance of communication and collaboration with stakeholders, to support not only understanding but learning of the green procurement. As the prior understanding of CM and CF is essential for successful LCP, a way to increase awareness is to improve communication and collaboration.

## 6.2 What are the Perceived Challenges by Category Managers in the Implementation of LCP in the Context of NPR Procurement?

The perceived challenges by category managers to implement LCP in the context of NPR procurement are reflected upon and analyzed and the three main causes discussed below. The novelty of the research field and the scarcity of prior studies creating a link between LCP and NPR procurement also revealed a gap between the existing theories and the empirical study at hand in terms of global approach and regional differences.

The findings of this case study clearly indicate that the main challenge for Novo Nordisk to implement low carbon NPR procurement is perceived to be the lack of top management interest. Without support from the top, change in processes and behaviors is difficult to implement. As discussed earlier, this finding is widely supported by other researchers in the field' (Haake & Seuring, 2009; Mosgaard *et al.*, 2013; Mosgaard, 2015). Furthermore, the importance of the management's support is recognized as essential for changing the

employees actual purchasing activities (Mosgaard *et al.*, 2015). Change in the behavior of the end customers requires support from the respective managers so that the internal customers can be aligned with agreed priorities. Prioritizing at a local level, on the other hand, is essential for changing the purchasing activities conducted by internal customers successfully.

Another fundamental issue perceived by the category managers is the lack of reliable measurement and evaluation of the environmental performance of the company and its suppliers and supplier's products. First, to prioritize LCP principles in procurement decisions, clear targets and strategies should be set. In the literature, scholars argue that inappropriate measures will lead to CM, targets and strategies that are unsuccessful (Downie & Stubbs, 2012). Second, the findings in this study also reveal that despite the fact that the travel category has reporting as one of the selection criteria for strategic suppliers, there are no tools for evaluation or assessment of the impact of the choice made. Therefore, the development of the company's GHG emissions cannot be measured. The challenge in evaluating suppliers and products came to prominence. Mosgaard's (2015) findings underline the issue of assessment, and the findings in this study highlight the assessment issue regarding LCP. For the company to integrate LCP in its NPR procurement practices, the ability to evaluate and follow the development was considered essential. The possibility to evaluate and to track development, is connected with supplier commitment and the capacity to evaluate and track their own products' environmental performance. The possibility for evaluation would be interesting to investigate further, perhaps in the form of case studies about the *best practices* that companies use to track low carbon performance in the context of NPR procurement.

The findings of this study link the lack of management interest with the measurement challenges: it was pointed out that without reliable measurements and possibilities to track development, the company will have difficulties in prioritizing low carbon alternatives. Without reliable measurements, it is problematic to justify the inclusion of additional selection criteria and integrate carbon reduction into procurement strategies. Downie and Stubbs (2012) findings document that the companies struggles with generating reliable GHG emissions measurements and reporting of scope 3 emissions. Findings in this study indicated, that the lack of reliable data and measurement, conversely, is partly connected with the multiregional approach that a global company like Novo Nordisk has. A MNC has a large number of suppliers and internal customers, which leads to regional differences. The results of this study reveal that regional differences are seen as one of the main challenges in implementing LCP in the context of NPR procurement. The issue has been left in the shadow, and not many studies have focused on researching how company size influences the implementation of LCP. Appolloni *et al.* (2014) point out that there is a need to study GP more from the perspective of small and medium-sized companies. The complexity of the implementation increases with the magnitude of the business field: the number of key actors, namely suppliers and end customers increases. The issue of regional differences related to data availability, departmental motivations, capacities, and resources as well as external environmental orientation was reported. The findings of this study shed light on the influence of globalization, and the problematic nature of different cultures, capacities and resources in each country.

### 6.3 How can Novo Nordisk Implement Low Carbon Initiative in its NPR Procurement Process?

The last part of the discussion deals with the implementation of the low carbon sustainability initiative in Novo Nordisk's NPR procurement practices and the highlighted challenges

identified can be seen in figure 8. Organizational culture is essential for companies because of its impact on the company's performance (Cameron & Green, 2009), and thus it has a fundamental role in changing the way companies perform. Practical discussion about the main suggestions how change could be implemented is provided. As there are no previous studies particularly about how sustainability initiatives should be implemented in NPR procurement, the findings here are discussed in the context of literature and theory of change management and literature from related fields.

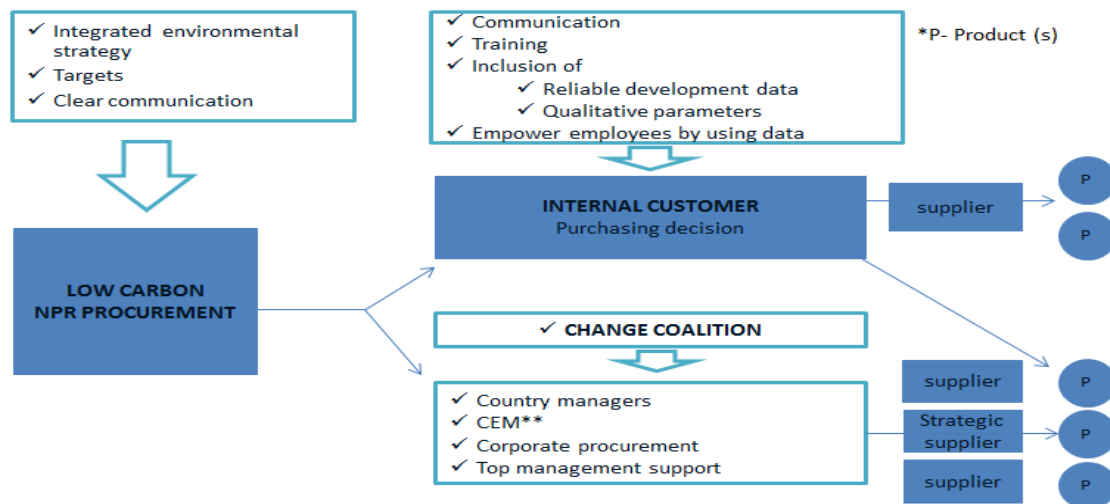


Figure 8 How can low carbon NPR procurement be implemented in Novo Nordisk

The findings indicate that Novo Nordisk's corporate culture is written on the Novo Nordisk Way, which directs the company to operate in a responsible way. Thus, the TBL business principle is an essential part of the decision-making in the company, and the corporate culture at large supports LCP principles. In the theory, a prerequisite for any change is that the driving forces are greater than the resisting forces of that change (Cameron & Green, 2009). Novo Nordisk should first determine which factors are resisting the change and address their change initiative to deal with those resisting factors. The results are in line with earlier research according to which top management support is a significant factor influencing the implementation of sustainability initiatives (e.g. Ronnenberg *et al.*, 2011) and NPR procurement (e.g. Haake & Seuring, 2009). The findings in this study also show that the large number of internal customers from different professions, cultures and countries creates different preferences and resources for employees to implement LCP. Therefore, the link between internal and external factors' influence on the implementation of LCP in the context of NPR procurement and change management has been established. The findings reveal – with the support of the literature – that it is essential for successful implementation that the management's attention is caught and its support received.

The findings of this study also conclude that insufficient communication, collaboration, and education regarding LCP predominate in Novo Nordisk. The first phase of the change process is to *unfreeze* the current culture and to deactivate the behavior of implementation (Ronnenberg *et al.*, 2011). This deactivation can be done by training and communicating, by raising employees' awareness, and by providing the incentives for changing the current practices. Mosgaard's (2015) research supports the idea that the successful implementation of green NPR procurement activities needs to be learned. Therefore, communication and collaboration between departments and business units needs to be established. It was discovered that there is no department with the mandate and willingness to drive change in the company. The lack of a change agent may be caused because of the lack of resources and



the desire of corporate procurement to lead change as was discovered in empirics. Importantly, a powerful coalition with the correct titles, information, and expertise combined with good reputation and relationships is essential for successful change (Kotter, 1995). The executive management should initiate change in Novo Nordisk by setting clear targets and communicating the importance of climate action for the company. In the empirical study, the role of country managers in the changing coalition was found to be very important, which agrees with the results presented by Mosgaard (2015). She argues that the implementation of green NPR procurement requires collaboration between managers and environmental coordinators, to not only understand GP but support learning the new practices. The role of corporate procurement as a centralized change agent could be established and supported by the change coalition.

As discussed earlier, no LCP related strategies have been established or carbon targets set. As in Kotter's (1995) stage model, the second part of the change process is to implement the change by creating clear targets, vision and communication around it (Kotter, 1995). Therefore, climate strategy should be aligned with procurement strategies, and clear communication about climate strategy and the new climate targets should be established. As Benn *et al.* (2014, 220) argue, the change strategy obtained to achieve sustainability needs to be "situational and connected to and driven by organization's strategy". Moreover, clear targets require reliable GHG emission measurements, transparency and a quality of data that is not currently available. The literature emphasizes that strategies and targets based on unreliable data lead to incorrect optimization of processes and thus may have harmful effects on the company (Downie & Stubbs, 2012). Therefore, Novo Nordisk needs to overcome the measurement challenges first. Measurement challenges, on the other hand, are not only dependent on the company but on external factors as well. Therefore, external factors, such as reporting guidelines, supplier commitment, and overall data availability, need to be developed. Finally, employees should be encouraged to make decisions based not only on cost but also on integrating GHG emission parameters into decision-making and performance evaluations. Novo Nordisk should increase the awareness of low carbon alternatives, and change the purchasing behavior starting with the most material categories. This should be followed by communication about the development.

As Novo Nordisk is in the process of implementing LCP in their NPR procurement process, they should consider the last phase of the change process in advance. The last phase of the change is refreeze, where the learned new behaviors are anchored within the organization (Kotter, 1995). Clear communication of the achieved results is required to ensure that the new behavior and values remain within the organization. The findings emphasize that change should be implemented in each category individually. Each category has its characteristics and concerns some internal customers. However, the fundamental change towards climate goals should be taken comprehensively into account and be supported by more specific smaller steps in the final change process. In the literature, findings suggest that a significant obstacle for a successful change is employees overwhelmed by multiple simultaneous change projects (Booz & Company, 2013). The survey also indicated the lack of an anchoring of the change. Therefore, Novo Nordisk should start incremental change process category by category, from the most strategic spend category, namely travel, and anchoring the change in affiliates.

After discussion of the results related to the earlier studies and research, next and the final chapter is conclusions. Conclusions revisits the aim of the study, presents key findings and provides suggestions for further research.

## 7. Conclusions

The aim of this thesis was to first bridge the link between LCP and NPR procurement by exploring how internal and external factors influence the implementation of low carbon NPR procurement, then to analyze the challenges regarding implementation perceived by the category managers, and finally to analyze how low carbon initiative could be implemented.

As the global debate has evolved from *whether* to *how* companies could integrate sustainability into their practices, urgency to assess and evaluate the most material actions has increased. In addition, debate around climate change has increased the importance of the role of the private sector and stakeholder expectations for companies. Companies are urged to shift their focus from only considering their scope 1 and 2 emissions to taking into account a wider scope of environmental impact and to including scope 3 emissions into their reduction strategies. In the case of Novo Nordisk, the assessment of environmental impacts revealed that the company's environmental impacts came from their supply chain. Thus, to reach new climate ambition, the company is facing the challenge of reducing their CF in their material function of NPR procurement. So far, NPR procurement has been left in the shadow, and it has been left out from sustainability agendas.

The findings confirmed that for the implementation of LCP in context of NPR procurement, internal factors tend to act as barriers and external factors mainly act as drivers. Besides, the idea was supported that the same factor can act as both a driver or a barrier. A current key barrier was identified to be the lack of top management support, which is otherwise essential for the successful implementation. Therefore, top management's support also functions as a key driver. The category managers' perceived challenges can be divided into three main causes that are all interrelated: the lack of a strategic approach, the regional differences and the challenge in integrating CM into NPR procurement activities. First, the lack of management support results in cost being the key parameter for making procurement decisions. Qualitative parameters, such as CF, are not evaluated in performance evaluations and are thus problematic to prioritize. Moreover, the large number of suppliers and end customers that have decision making power are located in several regions, each with individual cultures, resources and capacities, and this increases the complexity of NPR procurement. Finally, the lack of data availability and methodological issues prevent companies from providing reliable measures regarding their CF. Therefore, it is difficult to verify the materiality of NPR procurement regarding carbon reduction and establish clear strategies and targets. Successful companies need to understand the environment they operate in, and in the time of globalization, constant change is required. Successful change may be accomplished through change management, and the findings of this study indicated that for Novo Nordisk to change NPR procurement activities, establishment of strong coalition including affiliates and supported by top management, clear communication and targets, as well as stakeholder collaboration is required.

As a descriptive single case study describing the factors influencing and the challenges perceived in the implementation of low carbon NPR procurement, the fundamental challenge in this research appeared to be reliable measurements; however, methodologies were not studied in this project. Therefore, an interesting area for further exploration is studying the different methodologies used in calculation, data collection and performance evaluations. Also, regional differences and how the gap between regions could be covered are topics that could be investigated further. As the research field is novel, there is a clear demand for future research on low carbon NPR procurement.

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## PERSONAL COMMUNICATION

Dam Madsen, Peter

Category director, corporate procurement, Novo Nordisk A/S Copenhagen, Denmark

- a) 1<sup>st</sup> interview: 02<sup>nd</sup> May, 2015, face-to-face interview

Fogh Larsen, Lotte



Category manager, Meetings and Event's, corporate procurement, Novo Nordisk A/S  
Copenhagen, Denmark

- a) 1<sup>st</sup> interview: 28<sup>th</sup> of February, 2015, face-to-face interview

Kiss, Anya

Category manager, Travel, corporate procurement, Novo Nordisk A/S Copenhagen, Denmark

- a) 1<sup>st</sup> interview: 28<sup>th</sup> of February, 2015, face-to-face interview
- b) 2<sup>nd</sup> interview; 1<sup>st</sup> of May, 2015, face-to-face interview

Liltrop, Jens

Category manager, Travel, corporate procurement, Novo Nordisk A/S Copenhagen, Denmark

- a) 1<sup>st</sup> interview: 28<sup>th</sup> of February, 2015, face-to-face interview

Lomholt, Ane

Category manager, office supply, corporate procurement, Novo Nordisk A/S Copenhagen,  
Denmark

- a) 1<sup>st</sup> interview: 28<sup>th</sup> of February, 2015, face-to-face interview
- b) 2<sup>nd</sup> interview; 2<sup>nd</sup> of May, 2015, face-to-face interview

# Appendix

## Appendix 1: Examples of activity data and emission factors (source GHG emission protocol, 2011, 68)

Examples of activity data	Examples of emission factors
<ul style="list-style-type: none"> <li>• Liters of fuel consumed</li> <li>• Kilowatt-hours of electricity consumed</li> <li>• Kilograms of material consumed</li> <li>• Kilometers of distance traveled</li> <li>• Hours of time operated</li> <li>• Square meters of area occupied</li> <li>• Kilograms of waste generated</li> <li>• Kilograms of product sold</li> <li>• Quantity of money spent</li> </ul>	<ul style="list-style-type: none"> <li>• kg CO<sub>2</sub> emitted per liter of fuel consumed</li> <li>• kg CO<sub>2</sub> emitted per kWh of electricity consumed</li> <li>• kg PFC emitted per kg of material consumed</li> <li>• t CO<sub>2</sub> emitted per kilometer traveled</li> <li>• kg SF<sub>6</sub> emitted per hour of time operated</li> <li>• g N<sub>2</sub>O emitted per square meter of area</li> <li>• g CH<sub>4</sub> emitted per kg of waste generated</li> <li>• kg HFC emitted per kg of product sold</li> <li>• kg CO<sub>2</sub> emitted per unit of currency spent</li> </ul>

## Appendix 2: First interviews. Consistency of each indirect spend category and data

Category	Interviewee	Position	Interview date
Travel	Anya Kiss	Category manager	28.2.2015
Travel	Jens Liltorp	Category director	28.2.2015
Meetings and Event's	Lotte Fogh Larsen	Category manager	28.2.2015
Office Supply	Ane Lomholt	Category manager	28.2.2015

Interview guide:

Travel:

Please explain the consistency of following categories. Explain what kind of activities, services and products and/or materials these categories include:

- Car Leasing: Car Insurance, Fleet Management, Fuel Cards, Leasing, Maintenance?
- Business Travel: Air Travel , Airline Fees, Airline Others, Airline Tickets?
- Ground Transportation: Coaches, limousine, rail, rental car, taxi, hotel /accommodation?
- Travel Agencies: Booking and Issuing Of Travel Services, Project Management, travel Related Consultancy Services, Travel Related IT Systems, and Online Booking Tools

Credit cards:

- How travel spend is divided in credit card spend?

Meetings and Event's

- Convention and Trade Show Management: Convention and Trade Show Management, Exhibitions
- Event Planning and Meeting Management: Event Planning and Meeting Management
- Handling of Healthcare Professionals: Handling of Healthcare Professionals
- Meetings & Event Specific IT&AV: Meetings & Event Specific IT&AV
- Production Services: Production Services

#### Office supply

- Furniture: Furniture (For Office, Meeting Room, Canteen, Reception Etc.), Laboratory Furniture, Storage Furniture, Storage Systems & Maintenance?
- Office Consumables: Bags & Suitcases, Boards, Presents (Gifts, Flowers, Wine Etc., Office Supplies?
- Printed matter: Business cards Etc., Printed matter (non promotional)?
- Signs and Printed Matters: Flags, Graphical Products (with NN logo), Labels, Signs, Signs and Printed Matters, White Goods (Purchase and maintenance)?

### Appendix 3: Second interviews. Perceived challenges to implement change within each indirect spend category studied in NPR procurement

Category	Interviewee	Position	Interview date	Transcript sent out(first/last version)
Travel	Anya Kiss	Category manager	01.05.2015	10.05.2015
Meetings and Event's	Peter Dam Madsen	Director	02.05 .2015	10.05.2015
Office Supply	Ane Lomholt	Category manager	02.05.2015	10.05.2015

#### Interview Questions:

##### Warm-up

- What is your professional background and how long you have worked with Novo Nordisk

##### Sustainability

- How do you see Novo Nordisk's Triple Bottom Line (TBL) business principle to being implemented in indirect spend procurement process specific for your spend category?
- What is the current strategy for your specific procurement category?
  - o Does current strategy include environmental considerations?
  - o If yes, what?
- If not, would there be challenges to integrating carbon thinking into current procurement practices?
- How would you see the integration of carbon thinking in your specific procurement strategy to create value for Novo Nordisk?
- How would you see to the existing process to be needed to change to be able to integrate the low carbon procurement principles into processes?

- What challenges would you see to make these changes?

#### Procurement - current practices and tools

- Organizational structure – please, explain briefly how is procurement process of your specific category is arranged?
  - o Is the procurement process centralized or de-centralized?
- How do you collaborate with company's internal stakeholders?
  - o Do you have guidelines/ training for internal customers to make their purchasing decisions respect to Travel/Office Supply/Meeting's and Event?
- How do you conduct initial supplier's pre-selection?
  - o What are the key criteria's you are using for the supplier selection?
  - o What procedures are used (survey, audit, etc.)?
  - o Would you see challenges or need to include more selection criteria's in the supplier selection process?
  - o Could selection criteria included in the formal agreements such as (standard, supplier EMS certified, ecolabels, code of conduct?)
  - o What kind of supplier contracts do you have?
  - o What kind of collaboration activities do you have with the suppliers?
  - o How would you think suppliers would react for the increased selection criteria?
- Data collection and transparency:
  - o How would you see that information regarding spend data could be improved and what would you see as challenges to do so?
- What do you see as a challenge when measuring GHG emissions in you specific spend category?

#### Regulatory:

- What are the regulations that are impacting in the Travel/Office Supply/Meeting's and Event's category management?

#### What kind of challenges would you see in implementing following actions:

##### Travel:

How would you see the implementation of following “new guidelines” to be received among internal customers? What Challenges and drivers you would see these methods would create – cultural and structural?

##### Travel

- What are the challenges to instruct employees to choose low carbon choice. i.e. instead of flight, whenever it is possible advising employees to take the train, bus, etc.
- What are the challenges to encourage employees to use LYNC and teleconference instead of traveling
- What are the challenges to encourage employees to use direct flights
- What are the challenges to introducing the participant quota for conferences

- There are some barriers to the use of low carbon options i.e. electric cars can't be used by sales force due the nature of the need. (relatively short use of mileages compared to possibilities to recharge and the need to drive from one place to another.)

#### Cars

- How would you see the implementation of following “hypothetical guidelines” to be received by internal customers? What Challenges and drivers you would see these methods would create – cultural and structural?

#### Meetings and Events:

How would you see the implementation of following “hypothetical guidelines” to be received by internal customers? What Challenges and drivers you would see these methods would create – cultural and structural?

- What are challenges to encourage employees to re-consider /evaluate the need of event's
- What are challenges to train or create guidelines for the internal employees that are arranging the meetings to integrate carbon considerations into decision-making process? Decisions regarding factors such as place, venue, management, accommodation.

#### Office Supply

How would you see the implementation of following “hypothetical guidelines” to be received among internal customers? What Challenges and drivers you would see these methods would create – cultural and structural?

- What are the challenges to using/ procure only recycled or FSC?
- What are the challenges to reduce paper use and shift towards paperless office?
- What are the challenges to procure of environmentally friendly products e.g. energy-efficient machines?
- What are the challenges too for Novo Nordisk to only procure environmental friendly produced furniture?
- What are the challenges to increasing the user volume and encourage people to use recycling warehouse?
- What are the challenges to procure only local products e.g. office furniture?

Is there something else related to the topic that was not discussed but you would like to bring up?

## Appendix 4. Overview of total impacts (Novo Nordisk, 2014, 20)

EUR million	Water use	GHGs	Air pollution	Total	% of total
Novo Nordisk operations	7	21	1	29	13%
Tier 1	10	58	12	80	36%
Tier 2	3	23	1	27	12%
Tier 3	14	69	4	87	39%
<b>Total</b>	<b>34</b>	<b>171</b>	<b>18</b>	<b>223</b>	<b>100%</b>

## Appendix 5. Spend categorization overview (Source: Novo Nordisk, Internal file, 2015)

Spend													
Direct spend							Indirect spend						
Devices	Distribution	Energy	Maintenance	Packaging	Pharmaceuticals	Undefined	Travel	Company, consultancy and other services	Production equipment and services	Marketing	Facility management and property	Clinical and laboratory services	Unclassified
							Meetings and events	Distribution	Office supplies and print	IT & Telecommunication			

## Appendix 6. Travel: Consistency and categorization

Novo Nordisk L3	New categories
Airline Fees	Flight
Airline Others	Flight
Airline Tickets	Flight
Travel	Flight
Travel (From Meeting & Events)	Flight
Coaches	Ground Transport
Ground Transportation	Ground Transport
Limousine	Ground Transport
Rail	Ground Transport
Rental Car	Ground Transport
Taxi	Ground Transport
Booking and Issuing Of Travel Services	Travel services
Travel Agencies	Travel services
Travel Related Consultancy Services	Travel services
Hotel/Accommodation	Hotel/Accommodation
Hotel (From Meeting & Events)	Hotel/Accommodation

## Appendix 7. Meetings and Event's: Consistency and categorization

<b>Novo Nordisk L3</b>	<b>New categories</b>
Convention and Trade Show Management	<i>Conventions</i>
Exhibition	<i>Conventions</i>
AV/IT (Event Planning and Meeting Management)	<i>AV/IT</i>
Meetings & Event Specific IT&AV	<i>AV/IT</i>
Handling of Healthcare Professionals	<i>Handling of HP</i>
Materials (Event Planning and Meeting Management)	<i>Materials &amp; production</i>
Production services	<i>Materials &amp; production</i>
Management fee (Event Planning and Meeting Management)	<i>Fee's and misc.</i>
Other cost	<i>Fee's and misc.</i>
Conference & Banqueting (Event Planning and Meeting Management)	<i>Conference &amp; Banqueting</i>
Transfers	<i>Transfers</i>

## Appendix 8. Office supply: Consistency and categorization

<b>Novo Nordisk L3</b>	<b>New categories</b>
Furniture	<i>Furniture</i>
Furniture (For Office, Meeting Room, Canteen, Reception Etc.)	<i>Furniture</i>
Laboratory Furniture	<i>Furniture</i>
Storage Furniture	<i>Furniture</i>
Storage Systems & Maintenance	<i>Furniture</i>
Boards	<i>Furniture</i>
Bags & Suitcases	<i>Textile products</i>
Flags	<i>Textile products</i>
Office Consumables	<i>Mixed misc.</i>
Presents (Gifts, Flowers, Wine Etc.)	<i>Mixed misc.</i>
Office Supplies	<i>Paper products</i>
Business cards Etc.	<i>Paper products</i>
Printed matter (non promotional)	<i>Paper products</i>
Graphical Products (with NN logo)	<i>Paper products</i>
Labels	<i>Paper products</i>
Marketing Print (from Marketing)	<i>Paper products</i>
Print (from Marketing)	<i>Paper products</i>
Signs	<i>Metal products</i>
Signs and Printed Matters	<i>Metal products</i>
White Goods (Purchase and maintenance)	<i>Metal products</i>
Print Management Companies (from Marketing)	<i>Marketing services</i>
Printing Companies (from Marketing)	<i>Marketing services</i>

Appendix 9: Figure 2. Scope 1, 2, 3 GHG protocol emissions  
(Source: GHG protocol, 2011)

