Sustainability integration in the pharmaceutical industry

A case study of the Management Control from a managerial perspective

-

GM1460 Master's Degree Project in Accounting and Financial Management
Sustainability within Management Control

Authors: Ebba Carlsson, Clara Grönberg
Supervisor: Berit Hartmann
Spring 2022

Acknowledgements

First and foremost, we would like to thank our supervisor Berit Hartmann, researcher and university lecturer at Gothenburg's School of Business, Economics and Law, for her support and valuable feedback throughout the whole process. Secondly, we would like to thank all respondents for their engagement, who made this study possible. We hope that this study will give some valuable insights. Lastly, we would like to thank each other for mutual commitment and great collaboration throughout the process.

Abstract

Authors: Ebba Carlsson and Clara Grönberg
Supervisor: Berit Hartmann
Title: Sustainability integration in the pharmaceutical industry - A case study of the Management Control from a managerial perspective

Background and Problem Discussion: The importance of sustainability has increased and requires proper MCS to be able to implement sustainability strategies. Simons' levers of control is a MCS framework that has been used to understand sustainability in organizations. The framework has been argued to be inadequate on its own when it comes to understanding the relation between MCS and sustainability. Thus, the framework requires different integration dimensions to understand the type of sustainability integration within the MCSs. Sustainability integration in practice has shown to be a struggle due to complexities. Thus, to manage this issue, an employee and management perspective is demanded in research. Another field of research, in which a managerial perspective is lacking, is the literature on the pharmaceutical industry. The environmental exploitation is large within the pharmaceutical industry, where carbon emissions are larger than within the automotive industry. Thus, the industry requires larger sustainability knowledge.

Purpose: The purpose of the study is to deepen the knowledge on sustainability integration in MCS in the pharmaceutical industry from a managerial perspective, to enhance the understanding of the complexities inherent by focusing on processes and practices existing in this type of integration.

Delimitations: The study is focused on environmental sustainability, which is one of three areas within sustainability. The study is narrowed to a manufacturing function within a case company in the pharmaceutical industry, which is operating in Sweden.

Methodology: The study was conducted through a qualitative approach. Eight interviews, with different respondents in different managerial positions, were conducted in order to capture a holistic view of the sustainability integration from a perspective of individual employees.

Discussion and Conclusion: All the four levers could be detected. The belief system in the organization is strong and lays a solid platform for the other control systems. The boundary system is also strong, while the interactive and diagnostic levers are used as layers and are poorly integrated. The integration dimensions are affected by these results. A managerial position, the Sustainability Manager, is found to be strongly connected to a successful organizational integration in the belief system. Importantly, three large challenges are identified, hindering further sustainability integration into the MCS.

Further research: The influence of liquid assets in an organization where financing of sustainability is more restricted. Studies on social sustainability within the pharmaceutical industry. Lastly, studies on sustainability goals connected to the whole supply chain, as well as the other identified challenges, and how and to what extent they affect the MCS.

Keywords: Sustainability, Management Control, Sustainability Integration, Values, Top Management Team, Interaction, Decision Making, Collaboration, Pharmaceutical Industry, Levers of Control

Table of content

1. Introduction

This chapter introduces the area of the thesis and previous research on sustainability integration in MCS. Then, the purpose and research questions are presented. Lastly, important delimitations are addressed.

1.1 Background

Sustainability has become a large focus in organizations in recent years (Malik et al., 2020), thus, economic aspects are no longer the only prioritized parts of businesses. Accordingly, sustainability is a main part of strategic concerns (Quinn et al., 2014). In the context of an organization, the definition of sustainability is "Being farsighted and planning ahead [...] the ability of companies to do business in ways that minimize social and environmental harm, while maximizing business opportunities" (Nidumolu et al., 2015, p. 2). Bombiak and Marciniuk-Kluska (2018) mention that environmental aspects of sustainability are important to create stakeholder value but also to be sustainable as a company. When the authors describe the type of sustainable development that is important in organizations, they empathize that the three aspects of environmental, social and economic development are all important for businesses. Although all aspects are important, there could exist a complexity in satisfying these in practice (Hahn et al., 2010).

A combination of sustainability, in terms of environmental focus, and management control systems (further called MCS) has been found to create a balance where financial aspects and environmental aspects can be considered at the same time through environmental MCS (Guenther et al., 2016). The MCS is thus important in order to implement sustainability strategies (Roos & Guenther, 2020). Traditionally, MCSs are developed to align the organizational and behavioral constructions with the economic goals of the organization, to benefit the economic performance (Gond et al., 2012; Kober et al., 2003). However, further developments have indicated that a hybrid of financial and non-financial measurement are evenly essential for strategic and economic success (Bhimani & Langefiels-Smith, 2007). The comprehensive framework, Simons' levers of control (further called LoC), describing four levers in formal management control have in several studies been applied to understand

sustainability in organizations (Arjalíes & Mundy, 2013; Beusch et al., 2021; Rodrigue et al., 2013; Gond et al., 2012). Formal control mechanisms, hence, information-based processes and practices, have an important role in elucidating uncertainties and risks, minimize threats and embrace opportunities derived from internal dynamics and competencies (Simons et al., 2000; Simons, 2006).

Digging further into the LoC framework, research has also shown that the levers is a useful tool to handle risks, for example new regulations (Arjalíes & Mundy, 2013). The interactive lever, which is connected to communication, has been used to create collaboration that facilitate the holistic integration of strategies (Arjalíes & Mundy, 2013). Beusch et al., (2021) strengthen this by arguing that communication, through interactive lever, between different management levels and functions in the organization is eminent to facilitate sustainability integration. Beusch et al., (2021) further underline that when sustainability values are formalized into a code of conduct, or into organizational boundaries, they become part of the belief system, hence formal MCS. However, many firms seem to be lacking the diagnostic lever in the control to achieve sustainability goals, which includes budgets and measures (Arjalíes & Mundy, 2013). Thus, it can be assumed that budgets could be less relevant for sustainability strategies than for ordinary business strategies (Arjalíes & Mundy, 2013). Though, it is worth mentioning that some companies use the diagnostic lever to correct and ensure its strategic pathway (Arjalíes & Mundy, 2013; Rodrigue et al., 2013).

Although Arjalíes and Mundy (2013) provide examples of how sustainability can be expressed through the LoC, Beusch et al., (2021) mentions that the sustainability focused MCS are not enough to secure successful sustainability integration. Gond et al., (2012) argues that the control systems connected to sustainability need to be integrated into the overall business operations to enable this, and to avoid failure. This means that the organization needs to avoid decoupling of sustainability (Gond et al., 2012). Gond et al., (2012) states that, in order to achieve this, the relation between MCS and sustainability control systems (SCS) need to be defined and understood. The study of Gond et al., (2012), which builds on the LoC framework, proposes three types of integration dimensions which have the ability to hamper or facilitate sustainability integration. Thus, this thesis will dig into the field of sustainability integration into MCS, and will build on LoC framework and described integration dimensions.

1.2 Problem Discussion

Although Gond et al., (2012) emphasizes the importance of sustainability integration and avoidance of sustainability decoupling, it is evident in several recent studies that organizations struggle with this integration into strategy and operations (Gond et al., 2012; Engert et al., 2016; Battaglia et al., 2016; Lisi, 2015; Lueg and Radlach, 2016). Though, Gond et al., (2012) empathize that MCS is central to push organizations to integrate sustainability into processes and practices. To some researchers, the complexity in integrating sustainability into the MCS stems from the difficulties in practice in measuring sustainability impacts, the conflict of financial, social and environmental objectives and poor communication, and thus, a culture not encouraging sustainability (Hart and Milstein, 2003; Epstein et al., 2010; Porter and Kramer, 2011, Slack et al., 2015; Profitlich et al., 2021).

For instance, Slack et al. (2015) investigated the connection between MCS design and sustainability on an individual level in an organization. The findings revealed that some employees were poorly engaged in the CSR focus. Thus, the authors concluded that this lack of engagement could be explained by "poor communication, a perceived weak and low visibility of CSR culture, and lack of strategic alignment of CSR to business and personal objectives" (Slack et al., 2015, p.537). Slack et al., (2015) calls for future research in organizations on their MCS design and integration of sustainability from an employees and management perspective. Ghosh et al., (2019) further underline the importance of future studies to include employee and managerial perspectives, rather than only the perspective of the whole organization. Simultaneously, from the managerial perspective, the role as a Sustainability Manager (further called SM) becomes more distinguished as a consequence of organizations prioritizing sustainability (Borglund et al., 2021). Hence, the role of the SM is considered as an eminent managerial perspective to capture.

An industry that lacks a managerial literature perspective in MCS is the pharmaceutical industry (Milanesi et al., 2020). Simultaneously, the pharmaceutical industry has not been given that much recognition when it comes to sustainability, although the industry generates more carbon emissions than the automotive industry (Milanesi et al., 2020; Belkhir et al., 2019). The industry's production exploits large amounts of water, energy and material (Chaturvedi et al., 2017). Leonard and Schneider (2004) argue that pharmaceutical organizations that manage to integrate sustainability issues will benefit from increased value, and Chaturvedi et al., (2017) underline the importance of a holistic integration of

sustainability into the strategy of businesses within this industry. Chaturvedi et al., (2017) concludes in their article that "Achieving sustainability in pharmaceutical manufacturing requires a holistic approach throughout the entire product life cycle." (Chaturvedi et al., 2017, p. 1367). Milanesi et al., (2020) concludes in their literature review that most of the focus within environmental sustainability in the pharmaceutical industry has been on "cleaner production, green supply chain, green materials, and sustainable HRM" (Milanesi et al., 2020, p. 9). Milanesi et al., (2020) underlines that further knowledge from researchers within the industry is decisive for the quality of future lives. Therefore, it is argued that the industry is highly relevant to investigate further within the chosen area.

Nevertheless, there is an urge for research on sustainability integration into the MCS with practical perspectives on the level of managers and employees (Gond et al., 2012; Slack et al., 2015; Ghosh et al., 2019). Simultaneously, recent research calls for studies on the pharmaceutical industry, because of its heavy emissions, its impact on quality of life and since research lacks perspective from managerial literature (Milanesi et al., 2020; Belkhir et al., 2019). In particular, research is needed on the integration of sustainability into the business, since this is argued to benefit the organization (Chaturvedi et al., 2017). Thus, investigating the sustainability integration in the MCS in a specific organization within the pharmaceutical industry from a managerial perspective, becomes eminent.

1.3 Purpose & Research Question

The purpose of this study is to deepen the knowledge on sustainability integration in MCS in the pharmaceutical industry from a managerial perspective, to enhance the understanding of the inherent complexities by focusing on processes and practices existing in this type of integration. Complexities could be different types of obstacles to sustainability integration. However, researchers (Ferreira et al., 2010; Gond et al., 2012; Henri and Journeaut, 2010; Perez et al., 2007; Crutzen et al., 2017) are highlighting that more research within MCS and sustainability is needed, since only a few studies have targeted this area. Thus, with the aim to be able to describe the complexities and, hopefully, bring a sense of lucidity to the field of sustainability integration in MCS in a practical and managerial context, the following question will be answered:

- *How is sustainability present within the different levers of control and how is this integrated through the integration dimensions? And what challenges could obstruct the sustainability integration into MCS?*

In order to achieve the purpose and answer the research question of this thesis, a qualitative case study will be conducted, through interviews with different employees in various managerial roles in one pharmaceutical company.

1.4 Delimitations

The study involves a few delimitations, important to highlight to enhance the understanding for the reader. Hence, this study is primarily focused on the environmental aspects in sustainability. Thus, when sustainability is mentioned, environmental sustainability is addressed. It was considered vital to narrow the study as much as possible, therefore it was pertinent to focus on only one aspect of sustainability. However, one has to bear in mind that all three sustainability aspects catch a holistic perspective, where these three, environmental, social and economic, are interrelated and interdependent. Since this study aims to include employees' perceptions of sustainability, the focus of the study will naturally become more based on day-to-day processes and practices. This generates the ability to understand how well sustainability is integrated internally, rather than how well it is reported and represented externally. Further, the study was executed in an organization operating worldwide in the pharmaceutical industry. In order to narrow the scope in this global organization, it was considered decisive to concentrate the study to a specific part of the targeted case-company, thus, making the study feasible. It was decided to narrow the study to the manufacturing function of the organization. Here, a locally located function currently working on projects to make the manufacturing more sustainable was suitable to study. This function would mirror how the firm is integrating sustainability in the firm practically. Further, the case company is operating worldwide, though this study is limited to a specific function in Sweden, representing only a part of the organization. Thus, one has to bear in mind that the study can impossibly capture all dimensions of the MCS in the organization.

2. Frame of reference

This chapter is firstly describing previous research on sustainability integration in general, then sustainability integration in the MCS and LoC. Then, dimensions of integration are described. Lastly, the analysis model merging LoC and Integration Dimensions is presented.

2.1 Previous Research on Sustainability Integration

Previous studies show that firms identify the potential of profitability and competitive advantage if integrating sustainability into the business (Porter & Kramer, 2011). Recent research has been done within the area of management control in combination on how to integrate sustainability. Beusch et al., (2021), Sharma and Jaiswal (2018), and Joseph et al., (2018) show that managers who approach sustainability in different cases, have the ability to avoid the marginalization of sustainability through dialogue between different levels of management. Thus, according to these findings, managers in different positions within a firm play a vital role for the sustainability integration.

Nidumolu et al., (2015) claim that there is an increased importance of economic decision makers in business strategy, to ensure performance. Simultaneously, corporations' increasing sustainability focus on the strategic agenda is evident. According to Nidumolu et al., (2015), sustainable investments and sustainable work have the ability to reduce costs in the short-term perspective, and build a strong foundation for growth in the future. Thus, it could be argued that there exists economic incentives to leverage sustainability, to further enhance the firm's performance (Nidumolu et al., 2015). Henry et al., (2019) investigated how the Triple Bottom Line (TBL) performance was affected by the compositions of decision makers higher in the hierarchy of a firm. The authors found that the inclusion of an SM higher in the hierarchy, would improve TBL performance. Interestingly, other researchers such as Wiengarten et al., (2017) have also found a positive relationship between the role of an SM and financial performance. Thus, these findings of Henry et al., (2019), Nidumolu et al., (2015) and Wiengarten et al., (2017) strengthen that there are economic benefits of investing in sustainability, and that composition of decision makers matters, thus inclusion of a SM.

When digging further into previous research on the role of the SM, it appears that there exists a divergence of the necessity of the role regarding sustainability integration in the firm. Strand (2014) argues that the removal of the role could signify a successful integration of sustainability in the firm, thus when this state is reached no such role is needed. Nevertheless, the more integrated sustainability gets into the firm, the more diminishing importance such a role might have (Bondy et al., 2012). In contrast Borglund et al., (2021) argues that this kind of statement lacks relevance, thus the role gets more complex in tandem with growing complexity in sustainability strategies. New sustainability issues are emerging over time, thus implicating new responsibilities, making the SM highly relevant in the firm (Risi & Wickert, 2017). While researchers argue that there are great economic benefits of investing in sustainability, Profitlich et al., (2021) stress the difficulties of measurability in sustainability investments. Thus, this could hinder successful implementation and undermine the certainty of the outcome. Profitlich et al., (2021) further claim that investments in sustainability are often characterized by a time lag in outcome, which naturally makes it more volatile.

2.2 Sustainability integration through MCS

Previous research has tried to find ways in which sustainability can be integrated into business practices through MCS. However, Crutzen and Herzig (2013) underline that the understanding of how sustainability can be reinforced through the use of MCS is under-researched.

2.2.1 Management Control & Levers of Control

To briefly explain the MCS concept, MCSs is a combination of management tools used by organizations to control and steer employees' actions in order to create a way of working that will contribute to the achievement of organizational goals (Abernethy & Chua, 1996; Flamholtz et al., 1985; Malmi & Brown, 2008). Abernethy and Chua (1996) underline that the creation of the combined management controls will depend on the organizational strategy. Flamholtz et al., (1985) exemplify control systems through examples such as "plans, measurement, supervision, evaluation and feedback" (Flamholtz et al., 1985, p. 37) while Malmi and Brown (2008) also mention budgets and scorecards. To highlight the focus on sustainability in management control, and to be able to describe how sustainability strategies are supported and managed, the concept of *sustainability control systems* (SCS) is often used (Beusch et al., 2021), (where SCS is only a name for the concept, and is not its own control system). The MCS tools that are the most appropriate when it comes to complex or uncertain

contexts are LoC and Balanced Scorecard (BSC), as these facilitate the understanding of complex circumstances (Chenhall & Moers, 2015). These controls are beneficial when other aspects other than financial aspects need to be considered and managed (Chenhall & Moers, 2015). In a study made by Arjalíes and Mundy (2013), the authors investigated 40 listed companies in France in order to understand how CSR strategies are managed from a LoC perspective. The study has received positive feedback since it "consider[s] a comprehensive set of controls" (Lueg & Radlach, 2016, p.166) which is something that many studies within MCS and sustainability have overlooked (Lueg & Radlach, 2016). Thus, the LoC framework is useful in order to capture a holistic view in a complex context. This is especially useful in the pharmaceutical industry where the context of sustainability is complex, which requires the framework to comprehend several different factors. Additionally, the case company investigated (described further in the method chapter) is a large firm operating worldwide. This is a factor increasing the complexity, since it includes a large number of people controlled and managed to reach common goals of the firm.

The LoC can be described as a "framework [that] represents a strategic management tool and a theoretical framework for understanding relationships between strategy and control" (Martyn et al., 2016, p. 282). The LoC framework captures four different types of management control, however all of these are considered as formal control and formal processes (Simons, 1994). These are called boundaries, diagnostic, interactive and belief systems (Simons, 1994), and are all needed in every organization (Martyn et al., 2016). Boundary systems are used to create restrictions for employees and are based on the identification of risks, while diagnostic systems are used for measurement, monitoring and evaluation (Simons 1995a). Belief systems are the values that are formally accentuated in an organization (Simons 1995a; Martyn et al., 2016), and the interactive system is a feedback system used to create involvement and engagement while recognizing uncertainties and opportunities (Simons et al., 2000; Martyn et al., 2016). The LoC will further be described from a sustainability perspective, since they have been argued to be applicable in sustainability context in previous research.

2.2.2 Levers of Control from a sustainability perspective

Belief systems

In the study by Arjalíes and Mundy (2013), the authors provided an explanation of how the four different LoC can be used and viewed from a sustainability (CSR) perspective. Firstly,

Arjalíes and Mundy (2013) explain that the belief system often is expressed through the inclusion of long term objectives into organizational values to achieve sustainable goals, and underline the importance of the belief system in creating a base for the other three levers. Beliefs often appear through a code of conduct or other formalized sustainability values (Arjalíes & Mundy, 2013; Rodrigue et al., 2013).

Beusch et al., (2021) argues in their study that firms claiming to have a strong sustainability focus seldom formalize sustainability values into their formal belief control systems which could create obstacles to the understanding and integration of sustainability. According to Beusch et al., (2021, p. 1) "a committed CEO and strategic-level management can avoid marginalizing sustainability by communicating their beliefs about it through intensive dialogues across management levels". Thus, to formalize the control of sustainability, Beusch et al., (2021) argue that integrating it into the belief system is a robust tool for integrating sustainability in the firm.

Boundary systems

Secondly, the boundary system is, as mentioned above, based on risks and communication of restrictions (Simons, 1995a). Examples of boundary systems are audits on environmental operations to accentuate the importance of these activities, but also costs that could occur when environmental pressures are not identified and acted upon (Arjalíes & Mundy, 2013; Schaltegger and Burritt, 2010). Another example is activities used to lower the use of carbon dioxide, or the identification of organizational actions that could harm the environment (Beusch et al., 2021). Arjalíes and Mundy (2013) also mention regulation but underline that this is not enough to create the desired behaviors. Other risks need to be taken into consideration as well.

Interactive control systems

Thirdly, with interactive control systems, it is possible to create communication between different levels and groups within the organization (Arjalíes & Mundy, 2013, Tessier & Otley, 2012; Bisbe et al., 2007). The interactive control does not have to be its own system. Instead, the interactive approach can be applied to all of the other levers in order to encourage discussion and identify opportunities and risks (Arjalíes & Mundy, 2013). The interactive use of controls is connected to how interactively other controls are managed, for example through discussions and debate (Tessier & Otley, 2012; Beusch et al., 2021).

Diagnostic control systems

Lastly, Arjalíes and Mundy (2013) describe that diagnostic systems seem to be used to a smaller extent when it comes to sustainability control in comparison to ordinary management control practices. However, diagnostic control systems are often expressed through a larger focus on long term diagnostic control and also a larger focus on non-financial measurements (Arjalíes & Mundy, 2013). To manage sustainable aspects through diagnostic control, companies could also benchmark themselves against competitors (Arjalíes & Mundy, 2013) or use sustainability KPIs (Arjalíes & Mundy, 2013; Rodrigue et al., 2013). Measures such as KPIs are useful to measure to what extent regulation is conformed to (Arjalíes & Mundy, 2013). Gond et al. (2012) underline the importance of diagnostic control systems in the sustainable control systems. He argues that sustainable objectives tend to be ignored if they are not measurable. The same issue can be seen when it comes to compensation schemes when there is a conflict between sustainability and financial aspects (Arjalíes & Mundy, 2013).

2.2.3 Balance between levers

For goals to be met and strategic innovation to be achieved, the four levers of control need to be balanced (Simons 1995a; Kruis et al., 2016). Interactive and belief controls, *empowering control*, should be balanced with boundaries and diagnostic, *controlling control*, to reach an equilibrium in the MCS (Simons, 1994; 1995b). Henri (2006) and Kober et al. (2003) explain that this could mean that all of the four systems need to be managed in a manner in which diagnostic and interactive forces are applied to, and balanced, over the other two levers. Simons (1995b) underlines that the same control tool can be used in an interactive manner in one company and in a diagnostic manner in another. However, all of the levers need to be properly used and balanced (Martyn et al., 2016; Widener, 2007). Thus, previous research has described and reflected upon the concept of balance in different ways.

2.2.4 Learning in LoC

The diagnostic system can be used to create single-loop learning (Henri, 2006). Single-loop learning means that employees learn by themselves through the identification and adjustment of errors, and originates from the presence of obstacles (Dhananjaya et al., 2013).

Simons (1995b) argues that the interactive control system is crucial for organizational learning through bottom-up experimentation connected to strategic uncertainties. Hence, the

interactive system could enable the emergence and development of new strategies and implementation of intended strategies. Simons (1995b) mentions that a challenge within strategy work is to make employees educated enough to understand the desired strategy. Thus, he argues that this can be done through interactive discussion and through diagnostic formal plans. Thus, the interactive system can be used to create double-loop learning (Henri, 2006). The double-loop learning enhances and enables creativity and new thinking (Henri, 2006), enchanted discussion and makes people question the basis for implemented strategies (Simons, 1995b). Double-loop learning occurs at a higher level than single-loop learning, and originates from the questioning of existing processes and assumptions. Double-loop learning is a driver for cultural change (Dhananjaya et al., 2013). However, Simons (1995b) highlights that the process needs to be controlled simultaneously.

2.3 Dimensions of Integration

As mentioned in the background of this study, the MCSs, i.e. the LoC, that are used to control sustainability are not adequate to secure successful sustainability implementation (Beusch, et al., 2021). This is explained by the fact that MCS do not present the actual integration of sustainability (Gond et al., 2012), but only the presence of sustainability in management control. Therefore, the integration dimensions presented by Gond et al., (2012) are crucial to understand how integrated the existing sustainability management control tools are into the overall business. The study of Gond et al., (2012) investigates the process where management control systems contribute to a more profound integration of sustainability in the organization, by addressing the MCS and the SCS. Nevertheless, the paper identifies three types of dimensions of integration considering all four LoC. The sustainability integration could thus be facilitated or prevented, by the use of these dimensions of integration, describing the interrelation between social and technical aspects in the organization (Gond et al., 2012). These are referred to as *technical, cognitive* and *organizational* dimensions (Gond et al., (2012). Gond et al., (2012) encourages the use of this framework in future theoretical papers, to identify more factors affecting an organization's capability to integrate sustainability into the MCS.

Technical integration concerns the necessity of methodological practices and processes of sustainability control into the broader management control system. Gond et al., (2012) describes that if these processes for sustainability in the SCS is driven parallel with the MCS,

decisions will not be made based on the holistic information existing in the organization, thus leaving sustainability concerns behind. This type of integration is for example accounting systems, used for reporting sustainability impacts, thus there should exist a presence of a common calculability infrastructure combining economic and sustainability data and concerns. The *cognitive integration* refers to a broad approach which embodies communication platforms, easing the sharing of information, knowledge, mindsets and perspectives (Heidmann et al., 2008). Cognitive integration is a tool to circumvent the risk and existence of one-dimensional socially impaired, cognitive biases (Gond et al., 2012). The goal with these interactions are dialogues to conquer and redefine cognitive boundaries, thus, work towards a common frame of reference (Hoffman & Bazerman, 2007). Henceforth, Gond et al., (2012) recommends an overlap between managers working in different areas with i.e. control and sustainability, and this exchange of information needs to go into each individuals' knowledge (Godemann, 2008). *Organizational integration* stands for the social practice lens, the things organizations *do* and not what they *have.* Gond et al., (2012) states that this integration is in line with regards to the demand of practice perspectives in management control in research such as Ahrens and Chapman (2007), Heidmann et al., (2008) and Johnson et al., (2007). This integration focuses on the enhancement of a shared set of common practices and processes, with regards to sustainability between different groups in the organization. This should be evident, even though they might work in different systems due to different roles. Further, Gond et al., (2012) argues that by defining actors' roles and the firm's formal structure, the firm is able to reach a systematic integration, regardless of the technical integration. This definition should be in a form facilitating socialization and exchange of knowledge between SMs and other managers (Gond et al., 2012).

2.4 Analysis Model

The analysis model used is a composition of LoC and integration dimensions (see figure 1), which is inspired by the reasoning made in the article of Beusch et al., (2021). Beusch et al., (2021) describes all three integration dimensions and how they can be facilitated through different LoC. Based on the description in the article by Beusch et al., (2021), the analysis model was composed and illustrated, therefore all integration dimensions do not relate to all LoC. The analysis model was designed apriori, before the empirical study was conducted. However, the analysis model was composed to facilitate the analysis of the empirical data remaining after the thematic analysis (steps 1-5). The arrows visible in figure 1 illustrate that

the integration dimension is facilitated through the LoC, that is, the prerequisites are that for the integration dimension to exist, the connected LoC must exist. The 4 different levers of control in the figure capture the *presence* of the sustainability MCS in the firm and its balance, while the three integrations capture the *integration* of sustainability into the business. More specifically, the integration captures practices from different perspectives.

The *organizational integration* entails that all managers in an organization should have a shared responsibility and perception for sustainability, and its common processes and practices (Gond et al., 2012). Thus, this type of integration can be facilitated through the belief and boundary system by seamlessly integrating the economic and sustainability concerns in codes of conducts and other documents (Beusch et al., 2021). Hence, the organization integration occurs when all functions have responsibility for sustainability, not only a separate group (Beusch et al., 2021). The *cognitive integration*, referring to the practices and processes enabling a shared frame of reference regarding sustainability in the firm (Gond et al., 2012). The practices, dialogues and discussions leading to the understanding and exchanging of knowledge between managers can be facilitated to formalized processes in the interactive control system of the firm (Beusch et al., 2021). This cognitive integration arises when managers in different functions communicate to conquer and redefine cognitive boundaries, through the interactive control system that enables dialogue and debate (Beusch et al., 2012). Thus, the interactive control system enables cognitive integration, while the interactive control system also enables double-loop learning (mentioned in *2.3.2 Learning in control systems*). Hence, double-loop learning is connected to cognitive integration, in line with Simons (1995a). The *technical integration*, referring to the necessity of methodological processes and practices existing with regards to sustainability concerns, linked to the broader financial system, is relevant to the firm's diagnostic and interactive control system. Though, a *common calculability* has to exist between these systems and the measures (Gond et al., 2021). Technical integration occurs when these two, diagnostic and interactive control systems, incorporate sustainability measures and financial performance measures (Beusch et al., 2021). The technical integration is thus connected to single-loop and double-loop learning (Gond et al., 2012).
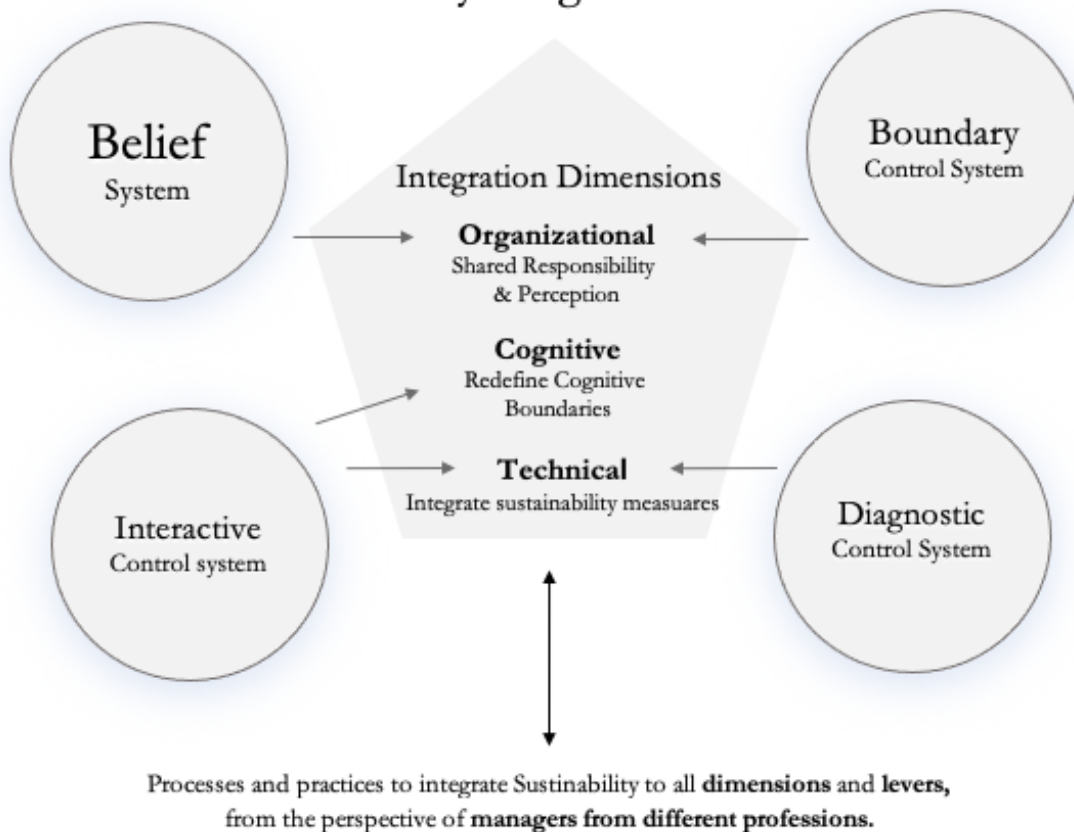
Figure 1: Analysis Model

The analysis model in figure 1 captures both LoC and the integration dimensions, and will further be used to analyze the collected data. As earlier mentioned, LoC is used with the purpose to capture the presence of the sustainability MCS, and the integration dimensions capture the integration of sustainability into the firm. As illustrated, practices and processes implemented in the company will be used to describe how the sustainability control system is designed. The model will be illustrated with implications from the analysis further in the analysis chapter, thus it will be reused further below.

3. Methodology

The methodology section firstly contains the research design, followed by the data collection. Then, the data analysis is presented, followed by imitations of the data collection and theoretical framework. Lastly, quality and ethical aspects of the study are discussed.

3.1 Research Design

The method chosen to answer the research question of this thesis was of qualitative approach, since a qualitative approach mainly is suitable in order to seek the understanding of a social phenomenon (McCusker & Gunaydin, 2015). McCusker & Gunaydin (2015) henceforth mention that a qualitative approach is best suited when the desire is to understand experiences and perceptions of a community or individuals. Since this research investigates employees about their profession and their relation to other professions, the research method must allow the collection of peoples explanations, experiences and perceptions. Thus, a qualitative research approach was considered the most appropriate. In order to reach the goal of the study and to answer the research question, a case study was considered most applicable. Case studies are suitable when practice perspectives are investigated, as well as when the study aims to investigate the complexity of a phenomenon (Yin, 2003; Patel & Davidsson, 2011), which coincides with the research idea of this thesis.

3.2 Data Collection

The primary data collected to execute the study was from semi-structured interviews with different respondents. This method was chosen since it allows the interviewee to get insight into the thoughts of the respondent, which in turn allows the interviewee to a deeper level of knowledge as well as understanding of the investigated phenomenon and situation (Gubrium & Holstein, 2001). Hence, the interview method acknowledges distinct descriptions of specific events (Patel & Davidsson, 2011). Further, interviews were considered suitable due to its ability to capture different subjective truths, which are of significance when investigating aspects such as perceptions and control mechanisms (Patel & Davidsson, 2011). The data was collected during a time period of approximately two and a half months, when all interviews were conducted.

3.3 Choice of Industry & Organization

Since this study investigates the processes and practices related to sustainability in management control, it was considered appropriate to pick one specific case company to dig into, to open up the possibility to deepen the understanding, instead of targeting several firms. The case company chosen was particularly interesting since they made large sustainability investments and had outspokenly set ambitious sustainability goals. Further the firm was a large organization operating worldwide. Thus, the firm was interesting to investigate since they had to coordinate between many different functions, which in turn could create tensions and complexities in the MCS. The chosen company was a large pharmaceutical company, operating worldwide as a group with several subsidiaries in different countries, one of them in Sweden. The Swedish manufacturing unit at the case company was further called MFS for confidentiality reasons. The company, and its industry, was interesting from a sustainable perspective since the need for medication will always exist, which might not be the case in other industries such as fashion where the products are not crucial for survival. Thus, the pharmaceutical industry was considered suitable since it is vital for global social sustainability. At the same time, the industry was making a transition into being more environmentally sustainable, according to Bengt Mattson (2020), sustainable expert at LIF, a trade association for research-based pharmaceutical industry. The targeted case-company was currently making a transition to be more environmentally sustainable, hence, to study the collaboration and relationship between the different professions in this transition became eminent and interesting.

3.3.1 Collection of respondents

The respondents for the interviews were employees having manager positions, in order to get information from employees that had a holistic view of the organization. Further, these employees had contact with each other in some way, which was considered beneficial to enable the investigation of the relations. However, it was considered crucial that at least one employee was positioned with a holistic responsibility for sustainability. The respondents are named as "respondent x", in order to keep the participants confidential. Though, the titles and the description of each respondent, as well as interview time, is generally described in table 1.

Respondent	Role	Tasks	Time (min)
Respondent 1	*Energy Manager/ Accountable Engineer*	Team leader. Monitors energy consumption, makes evaluations, and reports to the leadership team.	50
Respondent 2	*Sustainability Lead*	Focuses on environmental protection and achievement of sustainability goals, creates action on obstacles, prevents silos, and ensures and develops sustainability knowledge throughout the organization.	65
Respondent 3	*Climate Resilience Lead*	Identifies, manages and quantifies physical and transition risks associated with climate change and a low carbon economy.	45
Respondent 4	*Governmental Affairs Head*	Sustainability champion when it comes to procurement and products. Focuses on brand, and works towards external authorities and decision makers.	45
Respondent 5	*CFO & Senior Tax Director*	Main focus on tax and partnering, and chairman in two pension-funds for the organization. Partly responsible for the shared finance function.	40
Respondent 6	*Country President Nordic*	Leader of the commercial part in the Northern countries. Sets vision and path, and ensures that everyone is on the same path. Ensures talent development and attractiveness as an employer.	30
Respondent 7	*Head of Engineering Maintenance and Asset Management (EMA)*	Part of the leadership team in the manufacturing function, with responsibility over the function called EMA. Accountable for the whole investment portfolio within *engineering*. Accountable for method and strategy within *maintenance* operations. Accountable for the electricity, steam, compressed air, sewer and ventilation supply within *asset management*.	35
Respondent 8	*Finance Business Partner*	Manages two larger support functions in the MFS, manufacturing and EMA. Managers monthly accounts, budgets and financial forecasts for the MFS.	30

Table 1: Collection of respondents

3.3.2 Structure of interviews

The methodological approach in this research was to conduct semi-structured interviews to understand the contextual situation (Carollo & Guerci, 2018). Therefore, the focus during the interviews was to make sure that different predetermined themes were discussed and less focus was put on the significance of a certain structure of questions. The interviews were recorded, with the permission of the respondent, to enable the interviewee to concentrate and listen actively as well as asking follow up questions during the interview. Every interview was based on the same template of questions (Appendix). The interviews were consciously structured to allow for flexibility and openness, by asking open questions to the respondent and to follow-up with questions if needed. This was done to develop the respondents' reasoning and thoughts, not to limit the answers. This allowance for flexibility, openness and specific descriptions hence aid to the research in understanding the respondents, their perceptions, potential issues, and their description of control mechanisms. Since the interviewee and the respondent spoke Swedish as their native language, the interviews were held in Swedish. It was decided to simplify communication and understanding.

The interviews were conducted online, through Teams or Zoom, during 30-65 minutes. Both authors of this thesis were present during the interview to not miss out any important observations. However, one was leading the interview, and the other one was observing and making sure that the respondent was answering the question. If needed, the observer had the possibility to ask follow-up questions to the respondent. The digital interview is argued to be advantageous since the respondent was able to be in a calm and safe context where the respondent is comfortable. Hence, the respondent may feel more comfortable to elaborate upon thoughts. Though, the distance may restrict the interviewee to miss out important information such as body language or other impressions less visible in a digital setting. To counteract this risk, the respondent and the interviewee activated the camera, to be able to see each other's faces and expressions.

3.4 Data Analysis

3.4.1 Thematic analysis

The data analysis will follow the structure of a thematic analysis, namely a six-step method suggested by Braun & Clarke (2006). This method is suited when conducting a qualitative

study consisting of interviews. According to Marks and Yardley (2011), thematic analysis is one of the most common analysis methods when it comes to qualitative research and interviews. This is since the method allows for identification, analysis and interpretation through coding (Nowell et al., 2017). Moreover, this data analysis method was chosen because it allows a dynamic and reflecting process, where the different steps allow the researchers to go back to the raw material and reflect upon the process and results (Nowell et al., 2017). The first step, *familiarization*, is where the interviews are recorded and transcribed. Further, the transcription was made to increase the awareness of the answers collected, thus increasing the reflexivity and critical thinking. Secondly, the data was categorized as the second step, *generating initial codes*. This was done through the identification of important sections and keywords. In the document with the transcribed material, these identified aspects were highlighted. This facilitated the progress of structuring the data, and helped the understanding by focusing on the important aspects. During the coding process, the interviews were analyzed by both authors to avoid misinterpretations.

The third step, *generating themes,* was a way of structuring broader categories that several codes would fit into. Essentially, this phase was about analyzing the codes, thus, reflecting upon the relation between codes, from codes to themes, as well as if themes could be categorized into sub-themes. Themes were however partly predetermined in connection with the *analysis model* (described below in 3.4.2), hence, the third step resulted in categories based on LoC and integration dimensions. In the fourth step, the themes were *reviewed*. Thus, the codes in the themes were looked into once again to ensure that the right themes reflected the right raw data. Hence, decreasing the risk for misinterpretation and overlooking of important information of the codes and in the transcribed material. The fifth step, *defining and naming themes,* the authors were reflecting upon the essence of each theme and determining what kind of angle of the data each theme captures, in line with Braun & Clarkes' (2006) description. Braun & Clarke (2006) further underlined the importance of understanding the scope of each theme. Conclusively, the sixth step is about conducting the analysis and writing the report (Braun & Clarke, 2006), which the authors were ready for after following the steps of the thematic analysis.

3.4.2 Analysis Model

After the thematic analysis was conducted, an analysis model was developed from part of the frame of reference, which is illustrated in *2.4 analysis model, figure 1*. The analysis model

was used to illustrate the LoC and how it facilitated the integration dimensions derived from Beusch et al., (2021). The illustration of the analysis model is argued to facilitate the understanding for the reader. Thus, clarify how the analysis was conducted, and how the findings were interpreted.

3.5 Limitations of the data collection

Cassell and Symon (2014) highlight that interviews have a common underlying issue, the inherent assumptions of the interviewer and the respondent. The issue is due to the fact that individuals being interviewed have different perceptions, thus this will affect the outcome. Further, the respondent could also be affected by events prior to the interview, thus the respondents' temper could affect the outcome. However, this subjectivity and preconceptions are affecting all researchers, thus it is inevitable when conducting interviews. Being aware of this, the authors aimed to reflect upon these issues. Further, there exists a risk of misinterpretation and misunderstanding when translating interviews, since interviews were conducted in Swedish and transcribed into English. However, the risk of missing out information if the interviews were to be held in English directly, was considered as a higher risk, that was less worth taking.

Another issue addressed by Kvale (2006) is the asymmetry in power dynamics within an interview situation. This is since an interview more or less is created by a one-way dialogue, where the interviewee has a monopoly of interpretation. Therefore, it was vital for the authors to make the respondent feel as comfortable as possible during the interview. Hence, the main-questions was sent to the respondent before-hand, and the reason for asking these questions was clearly described to the respondent prior to the interview. This was to enable the respondent to feel well prepared and to establish an understanding of the interviews' agenda, without leading the respondent to specific answers. To reduce the monopoly of interpretation, the two authors read the transcribed material, and both were present during the whole data analysis, to avoid misunderstanding and misinterpretation. Though, Kvale (2006) argues that the issues of power dynamics in an interview situation do not reduce the value of conducting interviews in research. Time is a critical factor regarding qualitative studies containing interviews, since it is very time consuming. Thus, the time limit is something that could limit the representation (Patel & Davidsson, 2011). It has to be kept in mind that the study, and especially the collected data only captures a small time window of the respondents.

However, the majority of the respondents have been employed for 8-20 years, thus reflecting perceptions that have been established and developed during a long time. The Sustainability Lead was newly assigned for the role, but has been employed in the organization for 20 years.

3.6 Limitations of the theoretical framework

Not only does the data collection method have its limitations, but also the choice of theoretical framework. The LoC framework is constituting a large part of the theoretical framework, thus it is important to address the known criticism of the framework. Although the field of management control has been thoroughly investigated, the field, and the control mechanisms, are argued to behave differently based on different contingencies that affect the organization (Chenhall, 2003). Therefore, to fully rely on previous research as a basis for reality could be misleading as the organizations, and their contingencies, are under constant development. However, this study is based on a model that does not mention any best practice, but allows for different adaptations. Simons' LoC have been investigated and used by many researchers which implies that the framework is applicable in different contexts, and this framework was considered most appropriate since it has the ability to capture a holistic view of the control and when studying complexities in management control systems in firms (Beusch et al., 2021; Chenhall & Moers, 2015). Kruis et al., (2016) underline that Simons' LoC have been criticized for being unclear in terms of how *balance* should be interpreted and understood. They mention that Simons himself never has given a proper explanation of what balance means, other than the fact that the four levers need to be in balance. However, research has shown that balance could indicate that diagnostic and interactive forces need to be balanced within the other levers (Henri, 2006) but also that all levers need to be simultaneously balanced (Martyn et al., 2016; Widener, 2007). Therefore, the idea of balance will be based on what previous research has found.

The used analysis model is based on the article of Beusch et al., (2021), as described in *2.5 analysis model.* Thus, the analysis model relies on conclusions made in the article by Beusch et al., (2021), regarding how and why different integration dimensions can be facilitated through different LoC. In the analysis model applied, the reasoning behind the composition between integration dimensions and LoC, is not questioned. The fact that the model is based on another articles' reasoning may indicate a risk. Though, this risk could be considered as a limitation, however, the article by Beusch et al., (2021) is recently written, thus increasing the

relevance. Further, it was considered more robust to refer the reasoning behind the model to previous research, than to make its own discretionary guesses regarding the connection between integration dimension and LoC.

3.7 Quality of study

How to assess the quality of quantitative studies is a debated topic (Bryman & Bell, 2011). Validity is an important quality assessment in qualitative studies. Validity reveals how well observations and theoretical views coincide and also if the material can be generalized (LeCompte & Goetz, 1982, referred in Bryman & Bell, 2011). Since this study treats only one case company where the amount of interviews is limited, the generalizability and validity of the study could be affected. The case company is, however, not newly established, which indicates that the structure of the firm is stable and built during several years. This could contribute to increased generalizability. Additionally, the generalizability is enhanced since the case company is large, where different professions tend to be more defined compared to a smaller firm. As mentioned above, the transcribed material will be influenced by the analysis that is unintentionally made during the process of turning transcribed material into empirical material. Therefore, the results could be subjective and therefore they might not fully coincide with the actual observations. To manage this problem, quotes were added to the empirical material when important concerns were presented, in order to avoid misinterpretations. The empirical material was also developed and presented through different angles in order to be able to present as much of the respondents' perceptions as possible.

3.8 Ethical aspects

Four aspects could be of significance when it comes to ethics in research. One of them is *harm to participants* (Diener & Crandall, 1978, referred in Bryman & Bell, 2011). In this study, the harm that could occur would be of physical and reputational character. To avoid physical harm such as stress, the interviews were held in the language in which each respondent felt most secure and comfortable. The respondents and the organization were also held confidential to avoid harm to careers which is underlined by Diener & Crandall (1978) (referred in Bryman & Bell, 2011), as an area that could be harmed. For the same reason, no information that could reveal the identity of the organization was mentioned. *Lack of informed consent* is another aspect that needs to be considered (Diener & Crandall, 1978,

referred in Bryman & Bell, 2011). In this study, the participants are aware of the fact that they are participating and they have been informed about the process and the intended outcome. Each respondent was given the opportunity to read the interview questions before the interview. Therefore, the participant had the opportunity to drop out of the study if the questions were not appropriate. Thus, the informed consent requirement was not violated. The privacy of each respondent was respected during the whole research process, and respondents were allowed to refuse questions or leave them unanswered. Thus, the *invasion of privacy* which Diener and Crandall (1978) (referred in Bryman & Bell, 2011) mention as the third ethical aspect has been considered. The last aspect is called *deception* and means that researchers need to be honest and not mislead the participants (Diener & Crandall, 1978, referred in Bryman & Bell, 2011). In this study, the authors have been honest about their background, interest and intentions. No respondents have been misled. Based on the four ethical aspects presented above, it can be argued that the study has followed an ethical approach without violating any of the aspects.

In order to further avoid violating the ethical requirement *lack of informed consent* (Diener & Crandall, 1978, referred in Bryman & Bell, 2011) the respondents were aware of the fact that the main topic of the study was sustainability. The questions also revealed that the relation between economic aspects and sustainability aspects was of large significance. Thus, since the respondents were aware of the focus on sustainability versus short term economic benefits, the answers could possibly have been adapted to fit the focus of the study. Therefore, the interview questions can be criticized for being too revealing. The questions could have been less specific to avoid this problem. However, this would most likely have led to violation of the ethical requirement *deception* (Diener & Crandall, 1978, referred in Bryman & Bell, 2011) as the respondents would have been misled.

4. Analysis

The following section contains an analysis of the empirical material, structured in line with the analysis model (figure 1). Each section describes each LoC, one by one. The three integration dimensions are merged into each section, in line with the analysis model. This section is concluded with a short summary of the analysis.

4.1 The case company

The case company was a global science-led pharmaceutical company, focused on R&D, manufacturing and marketing of pharmaceuticals. This thesis was concentrated on operations and people in the Swedish part of the firm. More specifically, the study focused on a local manufacturing function in a mid-sized town in Sweden where the largest manufacturing unit of the firm was located. As mentioned in 3.3, the manufacturing function will further be called MFS. The organization had 16 manufacturing units globally and operated in 100 countries, but this part of the organization alone produced 40% of the total volume. The functions were further divided into 9-10 different ships called *Process Execution Teams* (PET) based on different operating activities such as pills, turbo inhalers and active substances. Each ship had its own *Safety, Health and Environment* (further called SHE) representative. The SHE representatives were supposed to act as experts in questions within their respective area. (Respondent 2 and 3)

The organization was concerned with three areas in sustainability, access to healthcare, environmental protection and ethics and transparency. The authors and the respondents will henceforth refer to only environmental protection when sustainability is mentioned. When it comes to environmental protection and sustainability, the case company had ambitious goals on what to achieve until 2025 and 2030. The goals that were supposed to be achieved in 2025 are part of *Scope 1* and *Scope 2*, which represented changes in production and imported energy, electricity, heat, and steam. For example, one of the objectives was called *Ambition Zero Carbon* and implied that the company aimed to become carbon-neutral within Scope 1 and Scope 2 until 2025. It was not until 2030 that the whole value chain, i.e. Scope 3, needed to become carbon-neutral, throughout the supply chain, in terms of buyers and end-customers' disposal. The organization also aimed to decrease its use of natural resources, and decrease the creation of waste and losses and its climate footprint. When the ambitious

goals were set in 2015, the CEO also decided that the company would set aside money with the intention to use this money fund for sustainability projects. The fund came to be called *Natural Resource Reduction Governance Group* (further called NRRGG) and was a global group which distributed money for projects within energy, CO2, waste and water. (Respondent 2 and 3)

4.2 Belief System & Organizational Integration

The organizational integration will be merged into the other subtitles and will not have its own paragraph since the purpose of this is to enable integration through proper use of MCS.

The code of ethics in the organization determined how employees work together, guide the decision making and define beliefs to foster the firms' culture. Respondent 5 thought that currently, the organization was permeated by the focus on sustainability, and that the core values always were present in daily work. The code of ethics seemed anchored in the organization, and all respondents claimed that they are well known with these. Thus, the code of ethics seems to create a strong foundation for the whole firm. Arjalíes and Mundy (2013) considered this as vital since the belief system is creating a foundation for the three other levers. Further, the beliefs were considered to appear clearly in formal documents, such as code of ethics, in line with Rodrigue et al., (2013). Respondent 2 explained that these values were integrated as an important part in the phase of recruitment. Hence, it is a priority to introduce the code of ethics early for new employees, thus this formalized process in the recruitment integrates sustainability values. Respondent 2 was at the time of the interview new to the role, Sustainability Lead, hence when the role was allocated, it was decided to place it higher in the hierarchy to make it have more impact in decision making. Thus, findings strengthen research arguing that the inclusion of the SM in the firm is highly relevant (Borglund et al., 2021). It was evident that employees in different teams always integrated a priority model whenever to take a decision when different concerns were set against each other. Respondent 2 underlined that the priority model was vital, and the importance of having a solid model with priorities for everyone to follow. The model told the employees to put safety, health and environment (SHE) first, then quality, supply and lastly costs. Further, the model was helpful and applicable in day-to-day business, according to all respondents, and was closely connected to the code of ethics (Respondent 2 and 5). Hence, the model is argued to be a vital tool to integrate sustainability and code of ethics into formal

processes. The frequent use of the priority model in decision making processes reinforces that the values in the organization actually constitutes a solid foundation (Arjalíes & Mundy, 2013). Since the belief system is clearly integrated into formalized processes, the organization is one of those actually integrating the beliefs into the formal belief system. Hence, drawing on Beusch et al., (2021), the organization has a robust tool for integration sustainability.

However, there existed compulsory education which everyone was obligated to, a process that may impact the experiences of slowness in people's mindsets. Evidence from respondent 2 and 7, these people being more "slow-adopters", were often the ones that have been hired for a longer period. Therefore, it is argued that there should exist a greater focus to educate these people to enhance the organization integration into the existing belief system, in line with Gond et al., (2012), to reach a higher level of sustainability integration. Further, this experience of slowness is a decisive reason for the new role of respondent 2. She clarified that the responsibility in her role includes sustainability-mindset in decision making, when starting new processes and new products, thus on the higher level impact the culture of the firm and make people feel accountable for sustainability. Hence, the role of the Sustainability Lead could be argued to be a part of a tool to organizational integration, to make people *do* their work with the right mindset instead of just *having* a code of ethics and priority model. Thus, drawing on Gond et al., (2012), the SM is enhancing organizational integration through the belief system. Respondent 2 explains that she recently implemented "Sustainability Champions", one person from each PET-team to enhance knowledge and information exchange between different levels and to communicate sustainability beliefs. Thus, the described structure on how to enhance and communicate sustainability through sustainability champions, employees may feel a shared responsibility and fair perception of sustainability goals, enhancing organizational integration (Gond et al., 2012). Evidently, the SM is vital to enhance the organizational integration through the belief system, a new finding in this study that might add perspective to the organizational integration dimension described by Gond et al., (2012).

Before the comprehensive sustainability goals were set in 2015, respondent 1 and 2 did not experience that the focus on sustainability was that permeated into the company.

*" The CEO went public [to the firm] and stated that we should be CO2 negative until 2025
[...], over one night sustainability suddenly became something that everyone is working very
hard to achieve" - Respondent 1*

Hence, the focus turned very quickly when new goals were committed upon. However, it
became apparent from respondent 1 and 2 that the environmental part in the priority model (E
in SHE), is not as prioritized as it could be in some people's mindset. Respondent 2, 5 and 8
admitted that there still was some type of experienced slowness in getting everyone on board
the sustainability train. Respondent 8, working in a financial function in MFS did not feel that
he had any insight into the sustainability projects going on at the local function. This
slowness in mindset and lack of insights at the financial function, reveals an absence of
organizational integration through the belief system, even though sustainability is integrated
through formal documents (Gond et al., 2012; Beusch et al., 2021). Organizational
integration occurs when all functions have a responsibility for sustainability, according to
Beusch et al., (2021), which the organization does not correspond to. Evidently from this
analysis when drawing on the analysis model, there are challenges in changing people's
mindsets and integrating sustainability to all functions. However, it is argued that, in line with
Gond et al., (2012), there exist formalized practices in the firm, to ease organizational
integration through the belief system. These are intended to enhance the shared set of
common practices in different groups, such as compulsory education, sustainability
champions, and a guiding priority model in decision making. However, this section adds
practical implications on tools used to formalize the beliefs into the belief system, and
examples of practices and processes where the organizational integration is incorporated into
research. This section on the belief system also adds new findings on the importance of the
SM role to enhance organizational integration.

4.3 Boundary control systems & Organizational integration

*The organizational integration will be merged into the other subtitles and will not have its
own paragraph since the purpose of this is to enable integration through proper use of MCS.*

4.3.1 Regulations, audits & a interactive layer

One of the regulations that the case company had to comply with was the *Good
Manufacturing Practice* (GMP) regulation, which was crucial within the pharmaceutical

industry. To facilitate the understanding and enable implementation of the GMP regulation, the regulation was applied in detail through its own *Standard Operating Procedures* (SOP). There were hundreds of SOPs, and each employee needed to follow the ones that were important for that individual and the current project. Respondent 1 further underlined that he was responsible for the fact that the employees comply with their SOPs. It is evident that these regulations are used as a boundary system within the organization, based on how the boundaries are expressed according to Arjalíes and Mundy (2013), as the GMP regulation places responsibility on each employee to follow its individual SOPs. However, since Respondent 1 is accountable for the compliance with the SOPs, it can be argued that the control system does not work as intended. Thus, drawing on Arjalíes and Mundy (2013), it is not enough to establish the desired behaviors, such as SOPs, and it could be argued that the existing process of implementation of the GMP regulation, inherently contains weaknesses and risks. This clearly indicates a finding of a large challenge to the firm, but also the industry, impacting the boundary control system, in the process of implementing heavy mandatory regulations. Since GMP tended to be hard to understand, a lot of discussions, meetings and mails were required to understand how GMP and the SOPs should be interpreted in different situations and projects. However, these discussions contribute to a higher level of interactivity within this lever, which makes it more effective. Without the clarifying communication, the boundaries connected to GMP and SOPs would most likely be hard to follow.

Similar to how GMP was interpreted and explained through SOPs, new regulations on sustainability were interpreted and explained through the SHE group. When a new regulation was introduced, the SHE group was responsible for the translation of this into understandable documents. Thus, the SHE group adds another interactive layer to the boundary control system since this group increases the awareness and communicates the restrictions. Thus, as Arjalíes and Mundy (2013) argues, there could exist interactive control in other levers, which becomes clear in the organization. These findings reveal that the interactive layers within the boundary system are very eminent, in order to manage the implementation of boundaries, a new finding discovered.

To assure that the organization followed GMP, Respondent 2 explained that external auditors frequently visited the organization in order to audit the operations. Thus, it is apparent that audits are used as a tool for monitoring. This is in line with what Arjalíes and Mundy (2013)

and Schaltegger and Burritt (2010) mention as common boundary tools. It is clear that the auditors put additional external pressure on the organization which is a useful boundary to ensure that employees act within the operational restrictions, and to highlight the importance of the environmental activities as mentioned by Arjalíes and Mundy (2013) and Schaltegger and Burritt (2010).

4.3.2 Risk identification and sustainability regulation: TCFD

Since one year back, the company had been required to follow the *Task Force for Climate related Disclosure* regulation (TCFD) since it had become mandatory in the country where the company had its headquarters. The company had followed TCFD for some years, but it was not until last year that the reporting was assessed. TCFD required that the organization report on its risks associated with sustainability and how those risks were managed. TCFD can be interpreted as another boundary system since the framework is used to identify risks, which is mentioned by Simons (1995) as a typical use of boundary control systems. Respondent 3 described that different types of risks need to be considered. For example, the organization needed to identify risks connected to the supply chain and its own factories. The risks needed to be economically quantified to create an understanding of the investments that were needed to mitigate the risks. The quantification makes the environmental risks measurable which, according to Profitlich et al., (2021), is important to prevent failure in implementation. This regulation opens up for measurability and quantification, making the sustainability investments more concrete, generating a new finding that was not discovered before. Thus, this regulation is an example where sustainability gets measurable, something that due to earlier research (Profitlich et al., 2021; Hart and Milestein, 2003) was rare. The measurability is also an important part in the integration of sustainability since it is connected to organizational integration as it is described by Gond et al., (2012). The quantification of risks makes the environmental issues more visible to employees that are less interested in sustainability. Hence, qualification and measurability could facilitate the understanding and socialization of sustainability between different groups, which is in line with organizational integration by Gond et al., (2012).

Secondly, the transition costs such as environmental taxation had to be considered, and also how much demand could change in different scenarios where sustainability was more or less prioritized. Another risk that was taken into account was how large the transition costs would

be if more environmentally friendly technologies were to be used. Thus, the risks associated with TCFD further implies that costs that could occur due to changes in the environment or regulation are important to capture, which is also underlined by Arjalíes and Mundy (2013). Thus, the TCDF framework enables the organization to proactively be aware of its risks and also to communicate those risks through a climate resilience team (further discussed below) which informs the whole organization. This makes the lever more efficient as the interactivity is increased.

The implementation of TCFD was done through the integration through risk management processes, where Respondent 3 underlined that it was handled as a financial, environmental and compliance risk. The climate resilience team included the whole chain: R&D, manufacturing, supply chain, risk, corporate affairs, global sustainability, product development, pipeline and finance where finance integrates different parts into the financial parts. Thus, the interactivity within the boundary control system is further improved through the fact that the finance team integrates the different sustainability parts into finance. Because of the large centralisation of the implementation, respondent 3 highlighted that an employee at the unit in MFS would probably not be familiar with TCFD. Therefore, the interactivity within the lever may not be sufficient (to integrate sustainability), which may indicate a poor organizational integration of the boundary system (Gond et al., 2012).

4.3.3 The NRRGG: restrictions & a diagnostic layer

Apart from regulations, the organization also had to follow the restrictions of the allocated sustainability budget. The NRRGG group allocated the money from the foundation which had accumulated a total of 100-120 million dollars since 2015. NRRGG required the receivers of the foundation to have follow up evaluations each month and to evaluate CapEx. When a request for funding from the NRRGG fund was made, the total cost and the reduction of the proposal project had to be presented. Thus, the NRRGG fund creates restrictions in terms of desired levels of achievement that need to be aimed for when sustainability projects are committed to. This could make employees strive for the greatest sustainable benefit possible. This is a useful tool to create incentives based on restrictions connected to the amount of carbon emissions that are permitted. Hence, these restrictions ensure the coexistence of economic profitability and environmental sustainable effects, thus creating economic incentives to invest in sustainability as previous research states (Henry et al., 2019;

Nidumolu et al., 2015; Wiengarten et al., 2017). Before the fund existed, the pay-off time of the investment was often limited to 1-2 years, but after the establishment of the foundation the time horizon had escalated to 7-7,5 years. Thus the fund is a tool enhancing measurements and to circumvent the problem of the time lag in outcome, described by Profitlich et al., (2021). Thus, these projects did not risk to be deprioritized by elimination of competition with other projects.

The use of activities that are supposed to decrease carbon emissions is a useful boundary system tool according to Beusch et al., (2021). This part of the boundary system is used in a diagnostic manner as it requires monthly evaluations to ensure that the project is on the right path. This strengthens the claim made by Arjalíes and Mundy (2013) and Rodrigue et al., (2013), who found that some companies use diagnostic systems to ensure its strategic pathway. Due to the extended allowed pay-off time, the boundary system is further used in a diagnostic way as it has expanded the time horizon which creates new conditions on which projects and employees are evaluated. Based on this, the NRRGG fund can be looked upon as a driver for diagnostic changes and also single-loop learning as mentioned by Henri (2006). The NRRGG fund is also connected to the long term sustainability goals for 2025 and 2030. It can therefore be argued that the fund is used as a boundary that keeps employees from acting in ways that could harm the environment. This is underlined as an important part of the boundary system by Beusch et al., (2021).

4.4 Interactive Control Systems, Cognitive & Technical Integration

The cognitive integration and the technical integration presented will be merged into the other paragraphs and will not have its own paragraph since the purpose of this is to enable integration through proper use of MCS.

4.4.1 Knowledge sharing

Respondent 2 explained about her role and its significance, and stressed the fact that for processes and practices concerning sustainability to be successful, it had to be managed equally through the organization.

"We can not have one way of working in some parts of the unit, and another way of working in another unit. Because we have, especially regarding sustainability, one emission"-
Respondent 2

A tool to manage this was the sustainability champions, who were enhancing interaction. Additionally, the firm had internal communication platforms, where information and communication could be exchanged between different levels and groups. Respondent 3 empathized that knowledge sharing inside the organization was becoming more and more enhanced. Nevertheless, these two tools are a part of the interactive control system. They could also be argued to function as tools to enhance cognitive integration. That is, they facilitate the work towards a shared frame of reference, in line with Hoffman and Bazerman (2007), thus facilitating cognitive integration (Gond et al., 2012). Nevertheless, respondents 1 and 7 experienced that these platforms and the sharing of knowledge is mainly due to personal interest and own initiatives. Respondent 8 further explained that the sharing of information could sometimes be overwhelming. Further respondent 7 thought that much of this information did not reach the manufacturing workers, nor the PET-managers. Thus, the internal platform, the tool for interactive systems enhancing cognitive integration (Gond et al., 2012), could be argued to be somehow vague and ineffective from this perspective.

4.4.2 Communication and meetings

Respondents 1 and 2 were closely connected in their daily work and had regular meetings, having a dynamic dialogue. Though respondent 7 and 8 also worked closely with respondent 2, but experienced that respondent 2 (SM) was there to push them into working even more with sustainability concerns in projects, or concerning depreciation and expenses in projects. However, there is evidence that an interactive lever exists, hence, the discussion between managers and on different levels, as described by Beusch et al., (2021). Respondent 1 and 3 had regular contact with each PET-manager, regarding the process to make the production more environmentally sustainable. Thus, these PET-managers gathered information from its production team and forwarded it to respondent 1. Similarly, sustainability champions are used to enhance communication from a lower level to managers, vice versa. These people are called *single point of contact,* by respondents which is to enhance the speed and concentration of communication. This practice increases the interactive system, however there are risks that opinions and thoughts could be left out when the information is to be

consolidated and communicated through one representative. Thus, cognitive integration (Gond et al., 2012) could be harmed by these single point of contact, while making communication more effective. However, it seems to be unclear if meetings and contact with PET-managers and sustainability champions allow for bottom-up experimentation (Simons, 1995b), and if it enhances double-loop learning on lower and manager levels (Henri, 2006). If these interactive processes would enhance the double-loop learning, bottom-up experimentation as well as cognitive integration the organization might open up for new idéas helping strategic uncertainties (Simons, 1995b; Henri, 2006; Gond et al., 2012).

In the communication with the financial function (respondent 8), respondet 1 and 2 expressed that friction does never appear, due to the external NRRGG fund assigned to sustainability projects. Hence, controllers and financial managers did not have anything to do with the budget for investments in sustainability projects. However, before this fund existed, before 2015, economic interests were in conflict with sustainability concerns, which was now eliminated. Respondent 8 also stated that the financial part of the business was not that involved in sustainability concerns and projects, which could be due to the fact that these projects are financed by the NRRGG fund. He also expressed sadness over the fact that the local financial function did not have larger insights into how finances was connected to sustainability, at least he could not see that connection in his role. Thus, it is evident that the NRRGG fund creates large financial opportunities and prevents local projects from competing with sustainability investments, but at the expense of the local connection between finance and sustainability. This is a new finding, revealing how financing from a higher level in the organization could create gaps and decoupling locally in the organization, harming the interactive system. This decoupling might preserve a level of marginalization, obstructing the sustainability integration into the MCS. Hence, as described by Beusch et al., (2021), Sharma and Jaiswal (2018) and Joseph et al., (2018), to avoid this marginalization, continuing dialogue is required between managers in different levels and positions. Moreover, this decoupling between finance and sustainability is argued to impair both the cognitive and the technical integration in the interactive control system (Gond et al., 2012).

Respondent 1 is a part of a *global group*, only consisting of different sustainability managers worldwide in the firm. This enhances knowledge sharing between different functions of the organizations, creating a formal process of interactive control systems (Arjalíes & Mundy, 2013, Tessier and Otley, 2012; Bisbe et al., 2007). However, this group consists of employees

in the same role, thus it can be argued that interactive control is created among different functions in the organization globally. Though, this group does not contribute to a cognitive integration since it does not tie together managers in different areas, thus this group may already have a shared frame of reference (Gond et al., 2012; Godemann, 2008; Hoffman & Bazerman, 2007). The interaction and meetings in a *steering group* for environmental protection, where respondent 1 and 6 are included, is argued to have characteristics leading to cognitive integration in the interactive control system (Gond et al., 2012). This is since it includes employees with different roles, enhancing the sharing of different perspectives. Hence, in line with Gond et al., (2012) this steering group is argued to be a tool in mitigating the risk for cognitive biases and one-dimensional thinking in the management of the environmental protection function of the organization.

4.4.3 Education and Learning

As mentioned by Simons (1995b) the interactive control system can be used to create organizational learning. Evident from respondents, the organization uses many different interactive systems, such as the internal platform and discussions about interpretations of boundaries and beliefs. Thus, it could be argued that this high level of interactivity could facilitate double-loop learning, in line with Henri (2006). For example, when new sustainability regulations are established, the SHE group communicates the restrictions, while interpretations are discussed among employees and groups. Therefore, the process regarding regulation interpretation and adaptation will remain dynamic, and employees will have the ability to learn from the past and adjust their behavior while questioning old procedures, in line with Dhananjaya et al., (2013). In turn, the sustainability strategy of the company will most likely follow the discussions and actions.

Respondents 1, 2, 4 and 7 agree that the organization works with sustainability education to increase the awareness of the effects of the pharmaceutical industry among employees. The education is, however, expressed through formal procedures that each employee needs to go through. However, it is unclear whether this education enhances double-loop or a deeper learning, since there is still a perceived divergence in knowledge and commitment. This, in turn, could inhibit strategic renewal towards sustainability goals such as the goals of 2025 and 2030. The manager responsible for sustainability projects experienced that double reporting occured, thus a process being time consuming. Hence, technical integration to

manage financial concerns and sustainability projects seems poor from this perspective (Gond et al., 2012), which also becomes a problem within the diagnostic lever. This interaction is occurring every month, thus this process of double reporting may be time consuming.

4.5 Diagnostic control & Technical integration

The technical integration dimension will be merged into the other subtitles and will not have its own paragraph since the purpose of this is to increase integration through proper use of MCS.

4.5.1 Goals, sustainability KPIs & evaluation

Due to the global goals that the organization aimed to achieve in 2025 and 2030, many of the evaluation routines were based on these. Respondent 6 underlined that annual goals were translated into long term goals and annual goals, where MFS had its own goals connected to the issues that were important within its unit, i.e. carbon emissions. Respondent 2 mentioned that the organization had a portfolio for environmental protection which was connected to the achievement of the goals within ambition zero carbon. Thus, it is evident that the organization manages to include some sustainability aspects into their diagnostic systems through evaluation, responsibility and feedback, in line with Simons (1995a). Another example of this is how the diagnostic layer is added to the boundary system NRRGG, which is discussed under *4.3.3 The NRRGG: restrictions & a diagnostic layer*. Based on that discussion, the organization uses the diagnostic system to keep on track with its sustainability strategy which is underlined by Arjalíes and Mundy (2013) and Rodrigue et al., (2013) to be occurring in some companies.

An example of how the sustainability goals were connected to the evaluation was that the role of respondent 1 required the respondent to monitor and observe changes in energy consumption. This required that some of the employees reported how the organization was currently working with attaining the goals, while for example the PET groups were needed in order to find the actual improvement opportunities. Respondent 3 explained that the goals often were reduction goals in percentage units. Thus, the organization manages to include sustainability in evaluation through the use of energy consumption as a KPI. Sustainability

KPIs is an important part of the diagnostic control system to integrate sustainability (Arjalíes & Mundy, 2013; Rodrigue et al., 2013), and also to monitor that regulations are followed (Arjalíes & Mundy, 2013). This is the case with the reduction goals and the energy consumption KPIs since they are based on regulations and goals that are based on potential future regulations. Respondent 1 explained that these parts and the large production units had monthly follow up meetings on these questions. According to respondent 2, the Sustainability Leads in the different regions met up and tried to adapt the objectives to new regulations and requirements, which was also done to the waste reduction area. She also underlined that the way in which the site chose to achieve its goals was up to the site or the employee, which could increase the interactivity and the possibility of double-loop learning in line with Simons (1995b) and Henri (2006). However, the organization also had a site with ambassadors that inspired and shared knowledge for example when one method was better than another. Respondent 7 also emphasized the importance of making proper design choices in an early phase to avoid large costs. The design choices had generated a new KPI called *green design*, with the aim to reduce the environmental impact. Respondent 6 underlined that the company was a KPI led company, which increases the significance of properly developed sustainability KPIs to achieve technical integration as mentioned by Gond et al., (2012).

4.5.2 Personal goals, strategy document & benchmarking

Respondent 2 and 3 underlined the importance of personal goals. Respondent 2 mentioned that there was a strategy document created by the respondent which was used as a roadmap for the entire site, and the respondent used these documents in combination with personal goals to evaluate performance. When some aspects were questioned, these were to be flagged as red. Respondent 2 described the strategy document:

"We have a strategy document, a page that describes the background of what we want to achieve, what initiatives we need to push for, what KPIs we will follow until 2025 to achieve this, and who is responsible for what part. It is like an aggregated document. [...] Apart from this, we also create a roadmap that is more detailed up until 2025." - Respondent 2

Thus, the KPIs, as well as the reduction goals, were connected to the strategy document and the roadmap, in which they were communicated to the rest of the organization together with assignment of responsibilities and initiatives. This is a clear example of how the organization

merges diagnostic and interactive levers. Hence, this increases the possibility of achieving the desired outcome and creating a situation where employees are aware of their accountabilities. This is similar to how Henri (2006) and Kober et al., (2003) describe that diagnostic and interactive levers are important to use as layers. Doubtful parts were also pointed out through red flags for everyone to see, which further increased the learning. Hence this is a new finding on how diagnostic control systems could incorporate interactive layers, creating learning.

Respondent 2 further described that the strategy document and the roadmap were presented more detailed through broken down subgoals, and underlined that the roadmap was used as support to achieve the goals in scope 1 and scope 2. Respondent 3 highlighted the importance of broken down sustainability goals, as these were important to facilitate the understanding of sustainability objectives from a team perspective or even from an individual perspective. This made it easier to comprehend who was responsible for what type of reduction. In some cases, one site could have decided to expand in the next year which created opportunities for negotiation as another site might have had to reduce its pollution on the behalf of the other site. However, respondent 8 thought that broken down goals connected to sustainability were lacking in his functions' roadmap, thus the local financial function. This could indicate that the technical integration within the diagnostic lever is inadequate as the sustainability focus seems to be driven in parallel with the rest of the MCS. This is something that needs to be handled, according to Gond et al., (2012), as it inhibits sustainability integration.

Apart from these measures, the organization also benchmarks to other firms for example when it comes to risks. This is a useful diagnostic tool according to Arjalíes and Mundy (2013). The benchmarking puts pressure on the organization to improve itself. Thus, the method might benefit the sustainability strategy through feedback in terms of comparisons that can be used to adjust actions and goals.

4.5.3 NRRGG: diagnostic characteristics & lack of interactive characteristics

Each site that had been allocated money from the NRRGG foundation was also evaluated at the end of the year. Respondent 1 underlined that if the allocated budget had not been fully used, the budget was to be reduced for the next year. The NRRGG budget was also evaluated

monthly at a local level where controllers made assessments through CapEx, deviations and comments. Respondent 1 commented that the monthly evaluations were not that decisive:

"But it is more formalities to not forget about them. [...] Actually, it becomes double accounting from my side, parly locally, but also globally, but that's no problem." - *Respondent 1*

Thus, as mentioned under *4.3.3 The NRRGG: restrictions & a diagnostic layer*, the diagnostic system is prominent in the NRRGG process. The allocated budget is evaluated both monthly and annually. However, the monthly evaluation is not as important, which may decrease the feeling of accountability that could result from properly used diagnostic control systems. Though, respondent 3 mentioned that the organization tried to find similar, or used the same, KPIs for different NRRGG projects to make the projects comparable. This made it easier to evaluate the projects on the same conditions. Thus, the organization's focus on the use of similar KPIs increases the relevance of the diagnostic control as the projects can be assessed based on the same conditions. A disadvantage to the diagnostic control, however, might be that CapEx is still mentioned as a frequently used evaluation basis. This might be inevitable but could still negatively influence the outcome of sustainability projects.

Respondent 1 described that the creation of the budgets was one of the few moments when the site communicated with finance, but that communication with controllers was more frequent as it occured each month. Apart from that, communication between the site and financial parts of the organization also occurred when projects were being written off or activated. At that point, the finance business partner (Respondent 8) was involved. Thus, the NRRGG budget process is one of few moments when site and finance actually communicate. This could mean that the interactive layer to the NRRGG process is inadequate and could require more interactivity.

4.5.4 NRRGG: an integrating process

It is evident that investments from the NRRGG fund have the ability to satisfy both sustainability and economic concerns, which coincides with Nidumolu et al., (2015) claiming that there actually exists economic incentives to leverage sustainability, which have the

ability to enhance firms performance. Though, evident from the data, if these investments are to be accomplished, measures and standardized KPIs have to be compatible with the project. Profitlich et al., (2021) argues, there exists difficulties in measurability in sustainability investments, however the NRRGG fund illustrates a finding contradicting that measurability would be a challenge. The application process was clearly developed, and allowed projects to be evaluated to fit both economic and sustainability profits. This new finding is a clear example on how to enhance sustainability investment through the diagnostic lever. However, Profitlich et al., (2021) underlines the increased uncertainty of sustainability investments, but the separation of funding in the organization mitigates this problem and allows for longer investment horizons. Thus, the NRRGG fund could be classified as an important sustainability integrating process into the MCS, which sets the sustainability projects in a higher priority than earlier. The whole process from pre- study, application, follow-up and evaluation make this process to be in the diagnostic control system. Evidently, this fund is an important basis for how the rest of the control in the investigated organization looks like.

4.5.5 Sustainability incentives

The managers that were allocated higher up in the hierarchy were being evaluated based on their achievement of goals and were also given a performance bonus based on this. The company recently decided that a part of the bonus compensation was to be determined by the managers individual reduction of climate pollution. Respondent 4 and 6 referred to this as a scorecard where the number of electric vehicles and the number of trips were crucial factors. Respondent 6 underlined that the environmental part of the scorecard was one of four areas, where the three other areas were connected to growth, products and innovative science as well as financial goals. This scorecard was still under development by a group called *Nordic Sustainability Council*, which aimed to develop the scorecard with even more sustainability aspects. The fact that the company has started to connect managers' bonuses to climate pollution measures through a scorecard implies that the diagnostic part of sustainability is becoming more apparent. This indicates that the organization has managed to include measurable sustainability parts into its diagnostic control to some extent, which is important in order to avoid ignorance of sustainability according to Gond et al. (2012), and also to enable single-loop learning as mentioned by Henri (2006). The measurable diagnostic sustainability parts could later on be combined with an interactive manner to enable double-loop learning as well. The measurability is also important to succeed with

implementation according to Profitlich et al., (2021). The scorecard also creates a possibility for managers to be evaluated on a combination of traditional and sustainability measures which could indicate a technical integration as mentioned by Gond et al., (2012) and Beusch et al., (2021). Thus, the traditional management control and management control for sustainability are not driven parallel, but in a combined scorecard. There could exist a poorly technical integration between the financial system for budgets and the system for sustainability project run at MFS, since respondent 1 experiences a slowness when to present and follow up the project with the financial business partner and controllers. Although the respondent does not think this is a bigger issue, it may be interpreted as a weakness in the technical integration.

4.6 Challenges

Conclusively, it has become apparent from interviews that there are some important industry specific characteristics which are forming great challenges for the organization in working towards a more sustainable business. They are considered vital to understand, since they form the conditions for sustainability integration into the MCS in this industry.

4.6.1 Realization of Scope 3

Respondent 3, 4, 6 and 7 were coherent regarding the challenge of the realization and implementation of Scope 3. The achievement of this goal was considered challenging since it required it to be sustainable throughout the whole supply chain, which was something considered hard to control and manage.

"The biggest challenge is to find partnership in Scope 3, the suppliers, this is indirectly emissions including the supply chain, but also the usage of our products (...) the challenge is to get them on the train."- Respondent 3

To tackle this challenge, respondent 3 considered the creation of incentives, which included making suppliers connect to the TCFD regulation, encourage transparency and create long term relations. Respondent 4 thought that responsibility would shift towards his function even more, when to achieve scope 3. Respondent 7 also highlighted the economic aspect, investments to achieve scope 3 must also be balanced with the price for pharmaceuticals, the product in the end. Hence, according to previous research, the industry evidently contributes

to heavy environmental exploitation (Chaturvedi et al., 2017; Milanesi et al., 2020; Belkhir et al., 2019), thus have many possibilities to shift into more sustainable. Previous research has also stressed that the industry needs a holistic approach throughout the entire product life cycle to be sustainable (Chaturvedi et al., 2017). This is something the case company is clearly working towards through scope 3. However, the achievement of scope 3 becomes substantial but very challenging, since it requires suppliers and buyers to change, which is complex to affect. This is clearly a new finding not discovered before the study, which impacts the possibility of integration sustainability in MCS.

4.6.2 Regulation and Legislation

The respondent thought that economic aspects and sustainability seldom came into conflict. Nevertheless, all respondents agreed that it was rather a challenge to balance sustainability and the patients' health. If these would be set against each other, which they were sometimes, the situation could become very complex. This was since a patient's well being and medicines effects were of highest priority, while comprehensive regulation such as GMP is hard to balance with sustainability projects and initiatives. Respondent 5 highlighted that there were great challenges in impacting tax legislation which currently impact the organization negatively, and disadvantages the business when sustainability investments were made in different areas. The respondent further underlined that this legislation was out of date, and that she worked hard to put pressure on these external actors, since it would bring economic interests and long-term sustainable benefits.

" Yes, one challenge is the tax legislation which supports sustainable investments. It is very outdated, it is from 30 years ago… sustainability is almost considered as something bad that disadvantages the business" - Respondent 5

Thus, there is legislation that could disadvantage the firm in some cases, which are difficult to change. Nevertheless, the industry is heavily regulated, both from a patient's health perspective and tax legislation perspective. Thus obstructs the organization from rapidly changing towards a more sustainable business. It becomes evident that there is a challenge to implement the regulations effectively through the organization, while not letting sustainability focus on the behalf of patients' health. This is considered as a new finding which affects the sustainability integration in the MCS.

4.6.3 Measurability

Respondent 2 highlighted the challenges that lots of functions and organizations were involved, and thus it was considered vital that everyone involved met at the same KPIs, and that decisions made are environmentally sustainable and justifiable in the organization. Respondent 3 had similar thoughts about the challenges in the near future.

"I think it is a bit complex to understand your own role, when talking about these 'large pieces of cake', 'What do I have to do with these in my role?'"- Respondent 3

Thus, it was challenging to continuously decompose the holistic sustainability goals, to make every employee feel accountable and responsible for these in their work and their personal goals. Hence, respondent 3 highlighted that to counteract this problem, they tried to decompose each goal to a team-level or a personal level. Respondent 8, however, experienced that sustainability KPIs were hardly reflected in the goals and scorecard in this function. Thus, the financial work he was doing was somehow decoupled from sustainability goals of scope 1, 2 & 3, and broken down subgoals were lacking in his function. Hence, as evident in previous research such as Profitlich et al., (2021), one of the greater challenges in this industry is to achieve a coherent measurability, e.g. KPIs leading to decisions that are made are environmentally sustainable and justifiable. Hence, it is evident that the challenge of measurability is true for this organization, which only confirms previous research. Though, as discussed in 4.5.3 NRRGG: diagnostic characteristics 6

4.7 Summary of Analysis

To clearly summarize the analysis, figure 2, updated analysis model with summary points, captures the practices and processes present in the sustainability control. Further, it illustrates whether the LoC and respective integration dimension are identified as poor or strong. Evidently, the discussion reveals that the code of ethics is closely anchored and integrated through formalized processes into the belief system. The belief system permeates the organization and lays a solid platform for the rest of the control system to stand on, which is vital for the rest of the levers according to Aríjales and Mundy (2013). Formalized processes and practices in which the sustainability integration becomes apparent is through the priority

model used, communication through sustainability champions, the recruiting process, and the implementation of the Sustainability Lead (the SM of the organization) on a higher level in the organization, as illustrated in figure 2. This confirms research by Beusch et al., (2021), claiming that integrating sustainability into the belief system is a robust tool, as well as these formalized processes and practices found could enhance the intensive dialogue between managers, to prevent marginalizing of sustainability. Further, it is argued that the belief system clearly facilitates organizational integration, but is very much dependent on the SM, as illustrated in figure 2.

The organization has a strong boundary control system which is revealed by the large number of formalized restriction processes such as TCFD, SOPs, (implementing the GMP regulation), NRRGG and audits (see Figure 2). Through these processes the organization manages to create a holistic picture of the restrictions and risks connected to the the sustainability and financial work through the quantification of environmental risks and organizational integration. The quantification is important for organizational integration and could thus enhance sustainability integration, confirming the research by Profitlich et al., (2021) and Gond et al., (2021). However, the integration of TCFD, regulation of sustainability risks, seems to be vague since the climate resilience team has not distributed the knowledge to employees at lower levels. Thus, the organizational integration could be argued to be poor, as shown in figure 2, since TCFD is essential in the sustainability work and thus the long-term strategy for the organization.

The overall interactive control within the organization is evident through the interactive platforms, sustainability champions, a global group, regular meetings, the SHE group and the single point of contact (see figure 2). Thus, the organization has many interactive processes that could contribute to double-loop learning, which in turn could facilitate sustainability integration into MCS through increased engagement and knowledge. However, the fact that platforms depend on individual interest risk interactive practices and cognitive integration to be deprioritized, however, the interactive platforms are considered to create a fair cognitive integration (see figure 2). Further, it is unclear whether compulsory education in sustainability leads to deeper learning, i.e double-loop learning. Further, the perceived slowness reveals that the interactive system may need enhancement and even more processes and practices facilitating sustainability integration, such as interactive education and discussions, enhancing cognitive integration as well. From the analysis, it is evident that the

NRRGG process lacks interactive layers as the process focuses only on measures and diagnostic factors such as evaluation, goals and carbon emissions. The group is also centralized, which could create marginalization of sustainability (Beusch et al., 2021) and poor cognitive integration (see figure 2). Thus, the NRRGG group is important to incorporate sustainability and create cognitive integration (see figure 2). This is important for sustainability integration into the MCS. However, the NRRGG process could become more interactive in order to create double-loop organizational learning which, in turn, could increase the understanding of the integration of the sustainability strategy. Further, the technical integration could be considered as poor, since inefficiency is apparent in the reporting process of sustainability projects (see figure 2)

In general, the diagnostic control system seems to be vague, which is coherent with the study by Arjalíes and Mundy (2013), where many firms lacked the diagnostic part in their work with sustainability. However, there are processes implemented which are characterized by a diagnostic control system. These are the process of applying and evaluating projects funded by the NRRGG group, risk and scenario analysis in line with TCFD, some smaller sustainability KPIs, bonus connected evaluation measures (scorecard), reduction goals and a strategy document and roadmap, as shown in figure 2. Though, it is apparent that the sensemaking of sustainability goals for each employee, i.e. broken down sub-goals, is one of the greater challenges in the organization. Hence, it becomes apparent that measurability in sustainability is a challenge that still is evident in some cases, partly confirming Hart and Milstein (2003), Epstein et al., (2010) and Profitlich et al., (2021). However, some part of the diagnostic system allows for measurement creating value, thus parly contradicting the earlier research. Hence, the diagnostic control system does not seem to be that comprehensive, which could be argued to inhibit sustainability integration. Though processes enhancing technical integration are evident in the scorecard. However, the technical integration seems to be poor in terms of the financial systems for budgets, and the system for sustainability projects (see figure 2). Overall, the organization seems to be balancing empowering and controlling control in line with Simons (1994; 1995b) (i.e. balancing belief systems and interactive control with boundary systems and diagnostic control) which can be seen in figure 2 where the two sides both have one strong and one poor integration. From the discussion above, it can also be said that the diagnostic and interactive controls are used as layers to the other two levers since the diagnostic and interactive controls often are combined with tools within the other two levers. This is the case, for example, when boundaries such as new

regulations are discussed and interpreted. Thus, the organization uses the diagnostic and interactive controls as described and advocated by Henri (2006) and Kober et al., (2003).
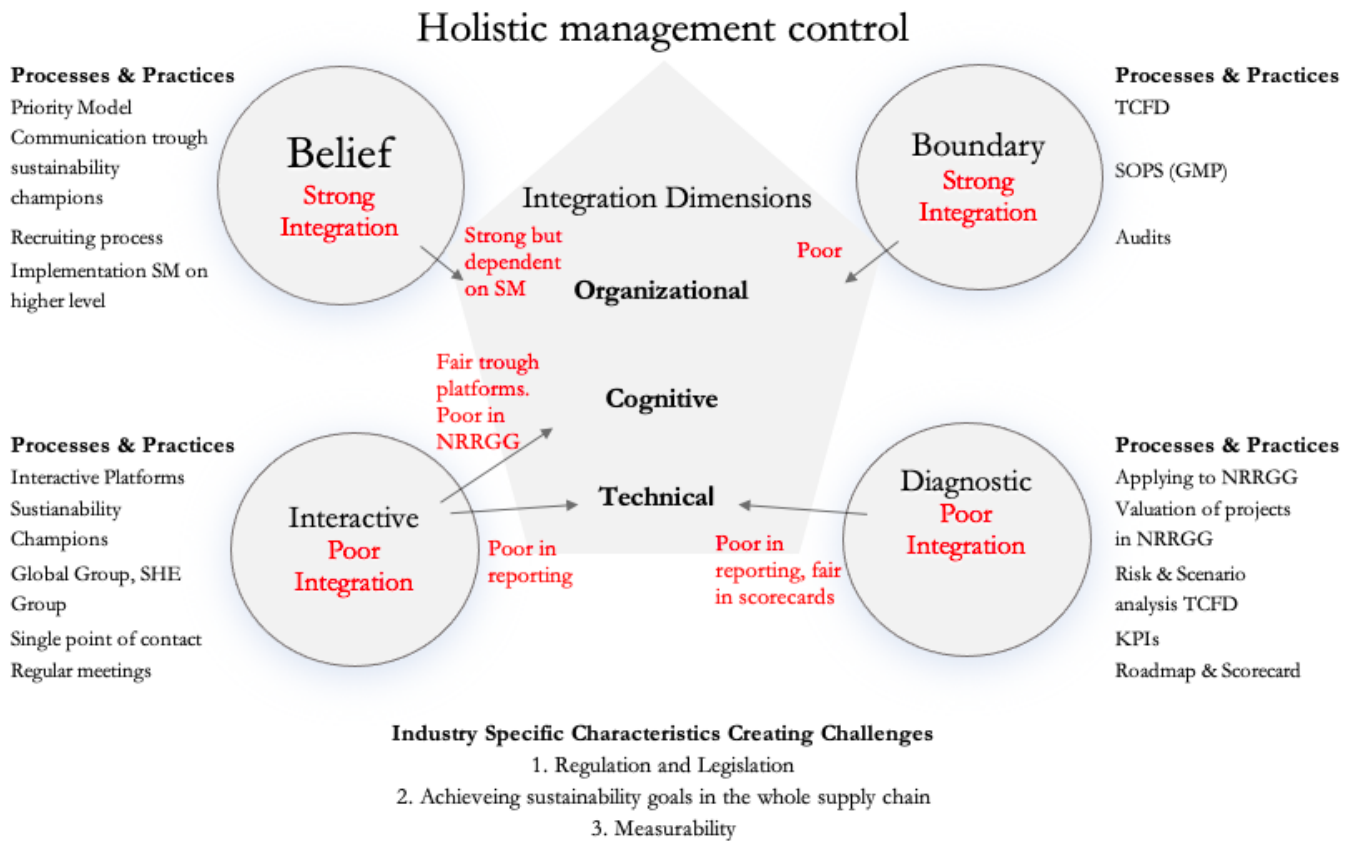

Holistic management control

Processes & Practices
Priority Model
Communication trough sustainability champions
Recruiting process
Implementation SM on higher level

Belief — Strong Integration

Integration Dimensions
Strong but dependent on SM
Organizational

Fair trough platforms. Poor in NRRGG
Cognitive

Technical

Boundary — Strong Integration
Poor

Processes & Practices
TCFD
SOPS (GMP)
Audits

Processes & Practices
Interactive Platforms
Sustainability Champions
Global Group, SHE Group
Single point of contact
Regular meetings

Interactive — Poor Integration
Poor in reporting

Poor in reporting, fair in scorecards

Diagnostic — Poor Integration

Processes & Practices
Applying to NRRGG
Valuation of projects in NRRGG
Risk & Scenario analysis TCFD
KPIs
Roadmap & Scorecard

Industry Specific Characteristics Creating Challenges
1. Regulation and Legislation
2. Achieveing sustainability goals in the whole supply chain
3. Measurability

Figure 2: Analysis Model with Summary Points

Lastly, as stated in figure 2, three larger challenges based on the characteristics for the industry are presented. These are considered important to include since they affect the sustainability integration into the MCS. The three challenges evident from the discussion were: implementation of scope 3, regulation and legislation and measurability. The challenge within scope 3 is crucial to combat the large environmental exploitation within the pharmaceutical industry, mentioned by Chaturvedi et al., (2017), Milanesi et al., (2020) and Belkhir et al., (2019). Regulation and legislation could also inhibit the industry from moving forward when it comes to sustainability, while measurability issues create obstacles in terms of decoupling of sustainability, as mentioned by Profitlich et al., (2021).

5. Conclusion, Discussion & Further Research

This final chapter summarizes the main findings of the thesis, and presents contributions to research. Lastly, recommendations for further research are presented.

5.1 Conclusions

- *Q: How is sustainability present within the different levers of control and how is this integrated through the integration dimensions? And what challenges could obstruct the sustainability integration into MCS?*

It has become apparent that the case-company uses different practices and processes in all four levers of control, to integrate sustainability into the MCS. As described in the discussion (4.0), the belief system is formalized into the control through a code of conduct which evidently confirms previous research by Beusch et al., (2021), Arjalíes and Mundy (2013) and Rodrigue et al., (2013). The belief system, however, seems to be most prominent of all four levers. Since the belief system is clearly anchored, it facilitates organizational integration through different processes and practices. Surprisingly, the role of the SM seemed to be vital for organizational integration to proceed. Moreover, the boundary system in the organization follows previous research by Arjalíes and Mundy (2013), Schaltegger and Burritt (2010) and Beusch et al., (2021) who discuss how sustainability is often integrated into the boundary system. Nevertheless, it was surprising that the boundary system included many interactive aspects enhancing organizational integration. Though, these boundaries were not clearly permeated at the lower levels in the organization. The boundary system in the NRRGG fund is creating great economic incentives to invest in sustainability projects, while also enhancing single-loop learning. The organization has created several processes and practices in the interactive control system, which are frequently used. Although, these are argued to be ineffectively managed and could thus inhibit learning, and thus hinder cognitive integration. The interactive system however, encourages a dynamic dialogue, when new regulations are to be implemented and interpreted, enhancing the double-loop learning. Nevertheless, it is doubtful if education and single point of contact communication is enhancing this type of learning, and may harm cognitive integration in the system. The NRRGG fund has many benefits, but it creates a decoupling between finance and sustainability locally, which could be argued to be an example when lack of interaction leads to marginalization of sustainability,

a concept described by Beusch et al., (2021). The diagnostic control is surprisingly more comprehensive than described by previous research of Arjalíes and Mundy (2013), and the freedom in how to achieve measurable goals is enhancing double-loop learning. However, it is coinciding with previous research that the organization is frequently using measures to benchmark against competitors, in order to make sure that they stay on the right strategic pathway (Arjalíes & Mundy, 2013). It is evident that the firm uses KPIs in the evaluation of the NRRGG fund frequently. Simultaneously, this study strengthens that measurability is challenging, especially finding coherent KPIs throughout the organization, which inhibits technical integration. Due to the large focus on the belief system and the boundary system, it can be concluded that the organization balances empowering and controlling control, in line with Simons (1994; 1995b). The organization further uses the diagnostic and interactive control systems as layers to the other two systems, which is a useful way of balancing the levers according to Henri (2006) and Kober et al., (2003). Lastly, three great challenges have been identified through this thesis, which are specific to the industry. These are considered to be crucial to understand and pay attention to, since they currently affect the possibility to integrate sustainability in the MCS. As earlier explained, these are the implementation of scope 3, regulation and legislation, and difficulties in measurability.

5.2 Discussion of conclusions

5.2.1 Discussion and contribution from analysis model

By drawing on the analysis model to the data gathered from the case company, practices and processes existing to integrate sustainability in the MCS, could be identified, Through the model, it could also be estimated if the LoC was used to integrate sustainability and if it indicated a strong or poor sustainability integration. The integration dimensions further enabled a deeper understanding of the sustainability integration, and the analysis model could thereby help to understand if the integration dimensions were strong or poor, and what factors affected this. Through the use of the analysis model, several findings have been generated to contribute to previous research. The findings on different practices and processes used in the LoC, and further how they facilitate the integration dimensions, are nuanced and deepened by this study, thus extending Arjalíes and Mundy (2013). Since Arjalíes and Mundy (2013) did a broader study on several firms, this thesis allows for a more concentrated study in only one firm. Further, the study extends and adds perspectives to research by Beusch et al., (2021)

and Gond et al., (2012) through deeper understanding of the actual integration of sustainability MCS into the overall business, which is discussed under *5.1 Conclusions*.

The thesis confirms research on how sustainability is integrated in MCS, such as mentioned by Arjalíes and Mundy (2013) and Rodrigue et al., (2013), the diagnostic control system is often used to keep on track with the sustainability strategy. The education held for employees seems, however, to be a weak tool to enhance this integration. Nevertheless, the thesis reveals extending findings to the diagnostic system, to integrate sustainability. Hence, previous studies have confirmed that there exists an issue with measurability in sustainability in the diagnostic control system (Profitlich et al., 2021; Hart and Milstein, 2003; Epstein et al., 2010). Through drawing on the analysis model, this study contributes with nuances to this claim. Accordingly, this thesis indicates that coherent KPIs and broken down sub-goals on an individual or team level, is a struggle to establish. However, when evaluating investments in sustainability, which project to invest in and which not, this case-study has revealed that there are great possibilities to measure coherently, and create economic and sustainability incentives simultaneously. These incentives created could further guide organizations to a stronger diagnostic control system, integrating sustainability, and motivate organizations to keep their long-term sustainability strategy. Moreover, the role of the SM becomes vital for organizational integration described by Gond et al., (2012), used in the analysis model. It is argued that this thesis extends the research on integration dimensions by Gond et al., (2012), meaning that a type of role mode such as the SM is eminent for the organizational integration in the belief system. Thus, this finding connects previous research between the role of the SM and previous research on sustainability integration in the MCS, that is, through this study the meaning of the role in a MCS-context could be described.

5.2.2 Discussion and contribution to perspectives on sustainability integration

Slack et al. (2015), as well as Ghosh et al., (2019), inquire new perspectives of the theoretical field in sustainability and MCS, which is generated through this study. In combination with the choice of the pharmaceutical industry, this study also contributes to the research demanded by Milanesi et al., (2020). Milanesi et al., (2020) underlined that the managerial literature perspective was missing within the pharmaceutical industry research. Ahrens and Chapman (2007), Heidmann et al., (2008) and Johnson et al., (2007), have raised a demand for research with practice perspectives in MCS. Thus, this study contributes with insights on how managers perceive sustainability integration in the MCS within the pharmaceutical

industry, from a practical perspective. The study also makes a contribution by identifying comprehensive practical challenges the industry stands in front of, which has not been clearly described in previous research.

From the analysis, contributions from a managerial perspective and how managers perceive this sustainability integration in the organization could be drawn. This thesis is strengthening the previous research on how important this type of role is, such as Borglund et al., (2021), from a practical managerial perspective. Not at least, on how important it is to incorporate the existing belief system into the organization, thus prompting the organizational integration of sustainability. Even though sustainability has been increasingly integrated into the organization over time, the relevance of the role seems to be enhanced, rather than diminished, which thus strengthens the findings of Risi and Wickerts (2017) and Borglund et al., (2021). Conversely, these findings contradict research by Strand (2014) and Bondy et al., (2012) that the role would have a diminishing significance as sustainability gets more complex in the firm.

Conclusively, the study contributes with insights on how the sustainability integration control could look like in a firm, in terms of specific practices and processes. Since the industry contributes with heavy emissions and exploits the environment, it is eminent to contribute with research on how to make the industry less polluting and more sustainable. The conclusion of the study contributes to the general knowledge on how pharmaceutical companies manage its control tools in order to integrate sustainability. This knowledge is useful primarily for the case company since it will be given the possibility to understand its sustainability integration through the perception of its employees. Additionally, it could also be useful for other companies within the pharmaceutical industry who aim to create a greater understanding of how control tools are perceived by different employees. Hence, findings in this study shed light on new pathways and inspire other firms within the industry to follow. The three largest contributions to practice is that the sustainability integration is inhibited by challenges, such as, regulations (which creates trade-off between health and sustainability), industry specific environmental issues (which creates challenges within the whole cycle) and common measurability. These challenges mirror characteristics existing in the industry, thus eminent to be aware of to proceed with the development of sustainability integration in the MCS, and to tackle further challenges in sustainability. Hence, these challenges are subject to the pharmaceutical industry in general, which contributes to the theoretical generalizability of

the study. Thus, the findings shed light on these large challenges, which are valuable to be aware of for other firms in the industry.

5.3 Limitations & further research

The fact that this study investigates sustainability creates a potential limitation in terms of the consequences of legitimacy seeking and green washing which might be hard to detect. This means that some respondents could choose to present themselves, and their organization, as more sustainable than they actually are. Thus, research making observations through a field study within this topic would be interesting for further research. The NRRGG fund decreases the generalizability of the study but also opens up for possibilities to investigate the same question in an organization where financing of sustainability projects is more restricted. In future research, a comparison between such different companies would be interesting to understand if, and how, liquid assets are crucial for sustainability.

As mentioned in the conclusions, an important aspect within the pharmaceutical industry is to integrate sustainability throughout the whole product life cycle (Chaturvedi et al., 2017). This is referred to as scope 3 within the case company and contains the supply chain, customers and users. Scope 3 is a large challenge within the company and is not fully captured in this study since the study focuses on MCS. MCS are not enough to manage and understand external challenges such as customer usage. Therefore, it would be valuable to see further research on how organizations in the pharmaceutical industry and other manufacturing industries, on how sustainability goals connected to the whole supply chain are implemented and realized. From the interviews, it also became clear that the pharmaceutical industry faces challenges when it comes to social sustainability, which was out of the scope of this study. Therefore, it would be interesting to see the same type of analysis but with focus on social sustainability rather than environmental sustainability.

The three large challenges identified in the case-company are identified, and are found to impact the sustainability integration in the MCS, and affect the industries development at large. However, there are still question marks stretching beyond the scope of this study, but interesting for further research. Thus, this thesis lays the beginning of the pathway, through identifying these challenges. Nevertheless, further research could keep digging into these industry specific challenges and further investigate in what way or to what extent they affect

the sustainability integration in MCS in detail, perhaps identifying tools to mitigate or circumvent them.

Appendix

Template for Interview Questions

1. Could you tell us about your function and your role in the organization?

2. How do you experience that you have influence to form your role?

3. What restrictions do you have in your role and your tasks that you need to stick to?

4. How is your performance and accomplishments evaluated?

5. What is your relation/connection to the management team?

6. Could you describe your contact and collaboration with other managers in your function?

7. Have you ever experienced that financial and economic concerns ever have come in conflict with sustainability concerns? In what situations?

8. What priorities are important in your role in terms of sustainability?

9. What values and priorities do you consider most important in terms of sustainability?

10. What economic concerns do you include in your decision making?

11. If you were in front of an investment decision where sustainability aspects would be vague, but the economic benefits are large, what would the reasoning look like?

12. If you would have to make a decision about an investment, but there are insecurities about the profitability, what would the reasoning look like?

13. What challenges do there exist for the investments in sustainability that the organization currently is making? Would you describe specific practices?

14. What priorities are most important in sustainability projects?

15. What is your perception of how knowledge and information is shared and exchanged in the organization?

16. When the ambiguous goals of sustainability were set, what type of change did you experience in the organization?

17. Could you describe if there are challenges in your role that makes the work with sustainability difficult?

References

Arjaliès, D., & Mundy, J. (2013). The use of management control systems to manage CSR strategy: A lever of control perspective. *Management Accounting Research,* 24(4), 284-300.

Abernethy, M., & Chua, W. (1996). A field study of control system "redesign": The impact of institutional processes on strategic choice. *Contemporary Accounting Research,* 13(2), 569.

Ahrens, T., & Chapman, C.S., 2007. Management accounting as practice. *Accounting, Organizations and Society* 32, 1–27.

Bondy, K., Moon, J., & Matten, D. (2012). An institution of corpo- rate social responsibility (CSR) in multinational corporations (MNCs): Form and implications. *Journal of Business Ethics,* 111(2), 281–299.

Borglund, T., Frostenson, M., Helin, S., & Arbin, K. (2021). The Professional Logic of Sustainability Managers: Finding Underlying Dynamics. *Journal of Business Ethics,* 2021-12-25.

Battaglia, M., Passetti, E., Bianchi, L., & Frey, M., (2016). Managing for integration: a longitudinal analysis of management control for sustainability. *J. Clean. Prod*. 136, 213–225.

Bisbe, J., Batista-Foguet, J., & Chenhall, R. (2007). Defining management accounting constructs: A methodological note on the risks of conceptual misspecification. *Accounting, Organizations and Society,* 32(7), 789-820.

Belkhir, L., & Elmeligi, A. (2019). Carbon footprint of the global pharmaceutical industry and relative impact of its major players. *Journal of Cleaner Production*, 214, 185-194.

Beusch, P., Frisk, J., Rosén, M., & Dilla, W. (2021). Management control for sustainability: Towards integrated systems. *Management Accounting Research*, 54, 100777.

Bombiak, E. & Marciniuk-Kluska, A. (2018). Green human resource management as a tool for the sustainable development of enterprises: Polish young company experience. *Sustainability (Basel, Switzerland),* 10(6), 1739.

Braun, V. & Clarke, V. (2006). Using Thematic Analysis in Psychology. *Qualitative Research in Psychology* 3.2 (2006): 77-101. Web.

Bryman, A. & Bell, E. (2011). *Business Research Methods (3rd Edition).* Oxford University Press.

Bhimani, A., & Langfield-Smit, K., (2007) "Structure, Formality and the Importance of Financial and Non-financial Information in Strategy Development and Implementation." *Management Accounting Research* 18.1: 3-31. Web.

Carollo, L., & Guerci, M. (2018). 'Activists in a Suit': Paradoxes and Metaphors in Sustainability Managers' Identity Work. *Journal of Business Ethics,* 148(2), 249-268.

Cassell, J &Symon, G. (2014) *Essential guide to qualitative methods in organizational research London*: Sage Publications.

Crutzen, N., Zvezdov, D., & Schaltegger, S. (2017). Sustainability and management control. Exploring and theorizing control patterns in large European firms. *Journal of Cleaner Production,* 143, 1291-1301.

Crutzen, N., & Herzig, C. (2013). A review of the empirical research in management control, strategy and sustainability. *In Accounting and Control for Sustainability* (Vol. 26, pp. 165-195). Emerald Group Publishing Limited.

Chenhall, R. H. (2003). Management control systems design within its organizational context: findings from contingency-based research and directions for the future". *Accounting, Organizations and Society,* 28(2-3), 127-168.

Chenhall, R., & Moers, F. (2015). The role of innovation in the evolution of management accounting and its integration into management control. *Accounting, Organizations and Society,* 47, 1-13.

Chaturvedi, U., Sharma, M., Dangayach, G., & Sarkar, P. (2017). Evolution and adoption of sustainable practices in the pharmaceutical industry: An overview with an Indian perspective. *Journal of Cleaner Production,* 168, 1358-1369.

Dhananjaya Dahanayake, N., & Gamlath, S. (2013). Learning organization dimensions of the Sri Lanka Army. *The Learning Organization*, 20(3), 195-215.

Diener, E., & Crandall, R. (1978). *Ethics in Social and Behavioral Research.* Chicago: University of Chicago Press.

Epstein, M.J., Buhovac, A.R., & Yuthas, K., (2010) Implementing sustainability: the role of leadership and organizational culture. *Strategic Finance* 91 (10), 41. Web

Engert, S., Rauter, R., & Baumgartner, R.J., (2016). Exploring the integration of corporate sustainability into strategic management: a literature review. *J. Clean. Prod.* 112, 2833–2850.

Flamholtz, E., Das, T., & Tsui, A. (1985). Toward an integrative framework of organizational control. *Accounting, Organizations and Society,* 10(1), 35-50.

Ferreira, A., Moulang, C., & Hendro, B. (2010) "Environmental Management Accounting and Innovation: An Exploratory Analysis." *Accounting, Auditing, & Accountability* 23.7: 920-48. Web.

Gond, J., Grubnic, S., Herzig, C., & Moon, J. (2012). Configuring management control systems: Theorizing the integration of strategy and sustainability. *Management Accounting Research,* 23(3), 205-223.

Guenther, E., Endrikat, J., & Guenther, T. (2016). Environmental management control systems: A conceptualization and a review of the empirical evidence. *Journal of Cleaner Production*, 136, 147-171.

Ghosh, B., Herzig, C., & Mangena, M. (2019). Controlling for sustainability strategies: Findings from research and directions for the future. *Journal of Management Control,* 30(1), 5-24.

Godemann, J. (2008) Knowledge Integration: A Key Challenge for Transdisciplinary Cooperation. *Environmental Education Research 1*4.6 : 625-41. Web.

Gubrium, J, F., & Holstein, J. (2001) *Handbook of Interview Research.* Thousand Oaks: SAGE Publications. Web.

Hahn, T., Figge, F., Pinkse, J., & Preuss, L. (2010). Trade-offs in corporate sustainability: You can't have your cake and eat it. *Business Strategy and the Environment,* 19(4), 217-229.

Henry, L., Buyl, T., & Jansen, R. (2019). Leading corporate sustainability: The role of top management team composition for triple bottom line performance. *Business Strategy and the Environment,* 28(1), 173-184.

Henri, J. (2006). Management control systems and strategy: A resource-based perspective. *Accounting, Organizations and Society,* 31(6), 529-558.

Henri, J.-F., & Journault, M., (2010). Eco-control: the influence of management control systems on environmental and economic performance. *Accounting, Organizations and Society* 35, 63–80.

Heidmann, M., Schäffer, U., & Strahringer, S., (2008). Exploring the role of man- agement accounting systems in strategic sensemaking. *Information Systems Management* 25 (3), 244–257.

Hart, S., & Milstein, M., (2003). Creating sustainable value. *Academy of Management Perspectives* 17.2 (2003): 56-69. Web.

Hoffman, A., & Bazerman, M.H., (2007). Changing practices on sustainability: understanding and overcoming the organizational and psycho- logical barriers to action. In: Sharma, S., Starik, M., Husted, B. (Eds.), *Organizations and the Sustainability Mosaic.* Edward Elgar Publishing.

Johnson, G., Langley, A., Melin, L., & Whittington, R. (2007). *Strategy as Practice: Research Directions and Resources.* Cambridge University Press, Cambridge, UK.

Joseph, J., Borland, H., Orlitzky, M., & Lindgreen, A. (2018). Seeing Versus Doing: How Businesses Manage Tensions in Pursuit of Sustainability. *Journal of Business Ethics,* 164(2), 349-370.

Kruis, A., Speklé, R., & Widener, S. (2016). The Levers of Control Framework: An exploratory analysis of balance. *Management Accounting Research,* 32, 27-44.

Kvale, S. (2006). Dominance Through Interviews and Dialogues. *Qualitative Inquiry* 12.3 : 480-500. Web.

Kober, R., Ng, J., & Paul, B. (2003). CHANGE IN STRATEGY AND MCS: A MATCH OVER TIME? *Advances in Accounting,* 20, 199-232.

LeCompte, M. D., & Goetz, J. P. (1982). 'Problems of Reliability and Validity in Ethnographic Research', *Review of Educational Research*, 52: 31–60.

Lueg, R., & Radlach, R. (2016). Managing sustainable development with management control systems: A literature review. *European Management Journal*, 34(2), 158-171.

Lisi, I.E., (2015). Translating environmental motivations into performance: the role of environmental performance measurement systems. *Manag. Account. Res.* 29, 27–44.

Leonard, T. & Schneider, J. (2004) Integrated sustainability in the pharmaceutical industry. *International Journal for Sustainable Business,* Vol. 11, Issue 5

Malik, S., Cao, Y., Mughal, Y., Kundi, G., Mughal, M., & Ramayah, T. (2020). Pathways towards sustainability in organizations: Empirical evidence on the role of green human resource management practices and green intellectual capital. *Sustainability (Basel, Switzerland),* 12(8), 3228.

Mattson, B. (28th October, 2020) *Hållbar utveckling i läkemedelsbranschen- Mer än bara miljö.* Det forskande läkemedelsföretagen. Retrieved 2022-03-08 from https://www.mynewsdesk.com/se/lif/news/haallbar-utveckling-i-laekemedelsbranschen-mer-aen-bara-miljoe-413796

Marks, D.F., & Yardley, L. (2011). Content & Thematic Analysis, In *Research Methods for Clinical and Health Psychology* (56-59). Sage Publications.

Martyn, P., Sweeney, B., & Curtis, E. (2016). Strategy and control: 25 years of empirical use of Simons' Levers of Control framework. *Journal of Accounting & Organizational Change,* 12(3), 281-324.

Malmi, T., & Brown, D. (2008). Management control systems as a package—Opportunities, challenges and research directions. *Management Accounting Research,* 19(4), 287-300.

McCusker, K., & Gunaydin, S. (2015). Research Using Qualitative, Quantitative or Mixed Methods and Choice Based on the Research. *Perfusion 30.7* 537-42. Web.

Milanesi, M., Runfola, A., & Guercini, S. (2020). Pharmaceutical industry riding the wave of sustainability: Review and opportunities for future research. *Journal of Cleaner Production*, 261, 121204.

Nidumolu, R., Simmons P. J., & Yosie, T. F. (2015). *Sustainability and the CFO: Challenges, Opportunities and Next Practices.* Corporate Eco Forum and World Environment Center. Retrieved 2022-02-24 from https://www.corporateecoforum.com/wp-content/uploads/2015/04/CFO_and_Sustainability_Apr-2015.pdf

Nowell, L., Norris, J., White, D. & Moules, N. (2017) Thematic Analysis. *International Journal of Qualitative Methods* 16.1 (2017): 1-13. Web.

Porter, M, E. & Kramer, M, R. (2011) The big idea: Creating shared value. *Harvard Business review.* 89.1, 2 (2011): *Harvard Business Review,* 2011-01-01, Vol.89 (1, 2). Web.

Profitlich, M., Bouzzine, Y., & Lueg, R. (2021). The Relationship between CFO Compensation and Corporate Sustainability: An Empirical Examination of German Listed Firms. *Sustainability (Basel, Switzerland)* 13.21 (2021): 12299. Web.

Pérez, A., Ruiz, E., & Carrasco Fenech, F. (2007) "Environmental Management Systems as an Embedding Mechanism: A Research Note." *Accounting, Auditing, & Accountability* 20.3: 403-22. Web.

Patel, R. & Davidsson B. (2011) *Forskningsmetodikens grunder- Att planera, genomföra och rapportera en undersökning*, Studentlitteratur AB, Lund, Sverige.

Quinn, F., Ewing, E. & Sellberg, M. (2014). The CFO and the Sustainability Reporting Chain. *Financial Executive*. (Spring). ss. 95-99

Rodrigue, M., Magnan, M., & Boulianne, E. (2013). Stakeholders' influence on environmental strategy and performance indicators: A managerial perspective. *Management Accounting Research,* 24(4), 301-316.

Risi, D., & Wickert, C. (2017). Reconsidering the symmetry between institutionalization and professionalization: The case of cor- porate social responsibility managers. *Journal of Management Studies*, 54(5), 613–646.

Roos, N., & Guenther, E. (2020). Sustainability management control systems in higher education institutions from measurement to management. International Journal of Sustainability in Higher Education, 21(1), 144-160.

Simons, R. (1994). How New Top Managers Use Control Systems as Levers of Strategic Renewal. *Strategic Management Journal,* March 1994, Vol.15(3), pp.169-189

Simons, R. (1995a). Control in an age of empowerment. *Harvard business review*. Business Credit. Vol.97(6), pp.27-32

Simons, R. (1995b). *Levers of control: How managers use innovative control systems to drive strategic renewal.* Boston, Mass.: Harvard Business School Press.

Simons, R., Dávila, A & Kaplan R, S. (2000) *Performance Measurement & Control Systems for Implementing Strategy. Upper Saddle River,* N.J.: Prentice Hall. Print.

Simons, R., (2006). *Levers of Organization Design: How Managers Use Accountability Systems for Greater Performance and Commitment*. Harvard Business School Press, Boston.

Slack, R., Corlett, S., & Morris, R. (2015). Exploring Employee Engagement with (Corporate) Social Responsibility: A Social Exchange Perspective on Organizational Participation. *Journal of Business Ethics,* 127(3), 537-548.

Schaltegger, S., & Burritt, R. (2010). Sustainability accounting for companies: Catchphrase or decision support for business leaders? *Journal of World Business* : JWB, 45(4), 375-384.

Strand, R. (2014). Strategic Leadership of Corporate Sustainability. *Journal of Business Ethics*, 123(4), 687-706.

Sharma, G., & Jaiswal, A. (2018). Unsustainability of Sustainability: Cognitive Frames and Tensions in Bottom of the Pyramid Projects. *Journal of Business Ethics*, 148(2), 291-307.

Tessier, S., & Otley, D. (2012). A conceptual development of Simons' Levers of Control framework. *Management Accounting Research*, 23(3), 171-185.

Widener, S. (2007). An empirical analysis of the levers of control framework. *Accounting, Organizations and Society*, 32(7), 757-788.

Wiengarten, F., Lo, C., & Lam, J. (2017). How does sustainability leadership affect firm performance? The choices associated with appointing a chief officer of corporate social responsibility. *Journal of Business Ethics,* 140(3), 477–493.

Yin, R. K. (2003). *Case study research: Design and methods (3rd ed., Applied social research methods series, 5).* Thousand Oaks: Sage Publications.