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# Innovating For the Planet

*A qualitative study on how the balance between the controlling and enabling nature of management control systems impacts organizations' sustainable innovation work.*

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## Abstract

Climate change is becoming increasingly important for organizations to take action against. Therefore, there is a need for new innovations regarding sustainability. This thesis investigates how the balance between controlling and enabling usages of management control systems (MCSs) impacts an organization's sustainable innovation work. The study is conducted within one case organization in the agricultural industry through eight semi-structured interviews along with data collected through document analysis. Mundy's (2010) framework, consisting of five factors that influence the balance between the dual usage of MCSs, is the main theory used when analyzing the empirical findings. The thesis suggests that MCSs positively impact the integration of sustainability in sustainability-related innovation projects and that the organization prioritizes diagnostic systems in the attainment of sustainability objectives in this type of work. Furthermore, the study demonstrates how the balance between controlling and enabling utilization of MCSs may be especially complex to attain in sustainability-related innovation work, as sustainability objectives seem to benefit from a controlling usage of MCSs, whereas innovation is seen to need more enabling MCSs.

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**Keywords:** Management control systems, Balance in management control systems Sustainability, Innovation, Sustainable innovation

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# 1. Introduction

## 1.1 Problem Background and Purpose

*“Climate change is the single greatest threat to a sustainable future but, at the same time, addressing the climate challenge presents a golden opportunity to promote prosperity, security, and a brighter future for all.”*

(Ban Ki-Moon, Former Secretary-General of the UN, 2014)

To avoid severe and irreversible impacts of climate change, the increasing average global temperature must be kept well below 2°C (UNFCCC, 2015). Consequently, to counteract the warming climate, the UN calls for greater ambition and actions through innovative solutions extending across all industries (UN, 2023). Notably, the agricultural sector, which generates between 19-29% of global greenhouse gas emissions, faces a unique responsibility in this regard as it is expected to expand food production by 70% by 2050 (Worldbank, 2021). Therefore, the agricultural industry is specifically compelled to adopt new and improved sustainable practices in order to feed the growing population while simultaneously reducing its environmental impact.

In order to more extensively materialize sustainability-related innovation, organizations need to implement new strategic and innovative projects at corporate levels, in order to ensure that the required change is implemented and achieved. An effective way for managers and organizations to successfully attain their organizational objectives is through the utilization of management control systems (MCSs) (Simons, 1995). MCSs help organizations through a dual mission i) by regulating and managing the accomplishment of organizational objectives and ii) by allowing employees to explore opportunities (Mundy, 2010). Specifically, research shows that MCSs can be helpful in the integration of sustainability strategies, and can give organizations a push toward fulfilling their sustainability objectives (Arjaliès and Mundy, 2013; Gond et al., 2012; Beusch et al., 2022). However, regarding innovation, there are contrasting views on the impact of MCSs on innovation processes. One stream of research posits that MCSs hinder innovation from taking place by stifling creativity, decreasing intrinsic motivation, and reducing employee autonomy (Amabile, 1998; Damanpour, 1991; Davila, et al., 2009; Tushman and O'Reilly, 1997). Contrarily, the other literature stream show that MCSs

can be enacted to foster innovation by increasing employee motivation and by providing guidance, and that control and innovation can coexist (Barros and Ferreira, 2021; Bisbe and Otley, 2004; McCarthy and Gordon, 2011; Simons, 1995). However, there have been limited studies conducted on MCSs' impact on the intersection of sustainability-innovation (Ferreira et al., 2010). The limited research in combination with the highlighted critical importance of new solutions for the environment prompts a captivating research field, specifically within the agricultural industry due to its particular need for this type of sustainability-driven innovation.

Given the intriguing research path, the present thesis aims to investigate MCSs' role in the intersection between innovation and sustainability through the theoretical lens of the balance between controlling and enabling utilization. Specifically, our research question is the following:

*How does the balance between the controlling and enabling nature of management control systems impact organizations' sustainability-innovation work?*

## 1.2 Contributions

In order to answer our research question, a qualitative single case study consisting of eight in-depth interviews has been conducted within an agricultural cooperative that has a specific focus on sustainable innovation. Further, through the application of the framework by Mundy (2010), we have investigated how the balance of the dual utilizations of MCSs impacts our case company's sustainability-driven innovation work. Our findings show that managers and employees have a similar view on the positive impact of the case company's control systems on sustainability, but differ in their outlook on the systems' impact on their innovation work.

Following our findings, our study contributes to the accounting literature in two main ways. Our first contribution aligns with previous research and shows how MCSs effectivize the implementation of sustainability strategies and efficiently align organizational practices with external and internal sustainability demands in sustainability-related innovation work. In addition, our study offers a new perspective from that of previous research by demonstrating that organizations acknowledge the value of diagnostic systems as well as prioritize their usage in the integration and attainment of sustainability objectives.

Secondly, our findings indicate that MCSs can be seen to both hinder and foster innovation in our case company, adding nuance to both streams of previous research. Overall, innovation practices have been seen to benefit from the usage of more enabling MCSs, as this enhances employees' sense of autonomy and creativity, which are needed for innovation to occur. Further, it was found that the attainment of sustainability objectives benefits from a controlling usage of MCSs in the sustainability-innovation work. This highlights the intricacy of obtaining an advantageous governance of sustainability objectives, while simultaneously creating an enabling environment for innovation. Therefore, our study further contributes to the academic literature by demonstrating the complexity of achieving a balance within the intersection of sustainability and innovation.

### 1.3 Delimitations

Three main delimitations have been made. First, our research limits the scope to only considering the sustainability-driven innovation projects and strategies at an organizational level within the chosen case cooperative, and not throughout the supply chain such as the farmers' operations. Secondly, the concept of innovation will be treated in a holistic manner, thus including both the generation of novel ideas as well as the implementation and execution of them. Additionally, the notion of innovation will include all types of innovation and will not be detailed down to, for example, product or process innovation. Thirdly, when discussing the concept of sustainability, only the environmental component is considered. This includes elements of environmental impact such as CO<sub>2</sub> emissions and excludes other factors such as social and economic aspects.

## 2. Literature Review and Method Theory

As the objective of this study is to research how the balance between the controlling and enabling nature of MCSs impacts organizations' sustainability-innovation work, our domain consists of two parts. The first stream of research is connected to MCSs' impact on innovation and the second to MCSs' impact on sustainability. Lastly, the theoretical perspective and framework section encompass research on the concept of balance in MCSs.

## 2.1 MCSs' Impact on Innovation

Management control systems refer to an organization's "*information-based routines and procedures that managers use to maintain or alter patterns in organizational activities*" (Simons, 1995, p. 5). One of the more prominent theories in this field of research is Simons' four levers of control (LOC) (Martyn et al., 2016), which categorizes MCSs into four key processes; belief systems, boundary systems, diagnostic systems, and interactive systems (Simons, 1995). These systems are enacted in order to help organizations achieve their strategic goals and control company activities (Simons, 1995). Further, Mundy (2010) elaborates on Simons' LOC by highlighting that MCSs serve two interdependent and complementary functions; i) to regulate and manage the accomplishment of organizational objectives (controlling usage) and ii) to allow employees to explore opportunities (enabling usage). Additionally, Mundy (2010) emphasizes that these dual roles entail a need for balance between controlling and enabling utilization, which will be further discussed in the theoretical perspective section.

Concerning innovation, there has been an ongoing discussion in accounting research on MCSs' impact on innovation. One side views MCSs as a hindrance to innovation, while the other, on the contrary, claims MCSs to be a supportive element of it (Davila et al. 2009). In the following section, we will examine these two opposing literature streams in order to present a holistic perspective on the views of MCSs' influence on innovation.

### 2.1.1 MCSs as Hindering Innovation

Innovation is associated with flexibility and autonomy. It involves taking advantage of unexpected opportunities, ambiguous outputs, and novel relationships (Davila et al. 2009). Innovation processes are also connected to higher levels of uncertainty and, therefore, entail acceptance of possible failure and added risk (Barros and Ferreira, 2019). Additionally, in a business setting, creative thinking and innovation efforts require expertise, creative thinking skills, and employee motivation (Amabile, 1998).

In contrast to this, MCSs have in the accounting literature traditionally been described as consisting of the opposite elements compared to what innovation needs to prosper (Barros and Ferreira, 2019; Davila et al., 2009). Control tools are designed to eliminate variation, create

stability, and ensure that organizational performance is aligned with predetermined objectives, and have, therefore, been viewed as hindering innovation (Davila et al., 2009). In addition, MCSs tend to accentuate execution instead of exploration (Davila et al., 2009), which results in the stifling of organizational creativity and employee dissatisfaction (Cardinal, 2001). Amabile (1998) further adds to this view by positing that MCSs can negatively impact employee motivation and creativity, which are important factors for innovation to occur. In a business setting, intrinsic motivation is the primary driver of creativity which leads to innovation, whereas extrinsic motivation tends to have the opposite effect. When managers utilize MCSs to increase extrinsic motivation, such as by offering extrinsic rewards, they risk hindering innovation. Therefore, systems of controls can lead to the development of extrinsic motivation and hindrance of intrinsic motivation, resulting in MCSs effectively “*killing creativity*” (Amabile, 1998, p.1) and, in turn, harming innovation (Amabile, 1998). Similarly, Damanpour’s (1991) meta-analysis of the relationship between innovation and possible determinants reports control as detrimental to innovation efforts. Further, in instances when work conditions become increasingly complex, control systems for innovation should not remain rigid and formal. This, as it reduces employee autonomy in decision-making, and the organization, therefore, risks suppressing the judgment of employees who have a true understanding of the organization’s vision and objectives (Tushman and O'Reilly, 1997). This stream of research thus argues for innovation to be disassociated from formal management control systems, as it has a harmful impact (Barros and Ferreira, 2019; Davila et al., 2009).

### 2.1.2 MCSs as Fostering Innovation

However, another stream of literature identifies that MCSs can help organizations become more innovative. Simons (1995) has laid a foundation for this research, and shows, through a combination of his four levers of control, that MCSs can drive innovation. Simons (1995) means that, for instance, by creating an encouraging environment for employees through belief systems, managers can leverage the control systems to enable employees to, for example, dare to explore new ideas. In addition, Simons (1995) highlights the importance of the interactive systems of MCSs in order to foster innovation. Overall, Simons’ (1995) research concludes that companies can use these systems to become more innovative.

Connected to Simons’ LOC, the different levers can have different effects on an organization’s innovation. In McCarthy and Gordon’s study (2011), they show how belief and interactive



systems “*generate or enhance exploration*” (p. 254), which is an essential part of innovation. In addition, boundary and diagnostic systems “*generate or enhance exploitation*” (p. 254), which refers to when an organization improves existing operations or products. Therefore, all four control levers can be seen to have positive implications for different types of innovation in an organization. Adding to this, the LOC can have different roles in the integration of an organization’s innovation, as well as different functions across various stages and facets of innovation (Chenhall and Moers, 2015). Similarly, managers may not need to decide between either controlling employees or enabling innovation, since a coexistence of control and innovation is possible (Barros and Ferreira, 2021).

Touching on specifically formal MCSs, they can be important to innovation and long-term performance (Bisbe and Otley, 2004). In their study, Bisbe and Otley (2004) show that low-innovative firms are helped by control systems since innovation is increased through the providence of guidance, the stimulus of initiatives, and the provision of autonomy. As such, Bisbe and Otley (2004) press “*the considerable importance of formal MCSs in the pursuit of innovation*” (p. 730), and that MCSs are vital for the long-term performance of a company.

The above research shows an opposite view compared to the first perspective’s outlook on MCSs as hindering innovation. It indicates that MCSs can foster innovation in different manners by, for instance, creating an encouraging environment and clear guidance for employees. These opposing streams indicate a complex relationship between MCSs’ impact on organizational innovation.

## 2.2 MCSs’ Impact on Sustainability

The research in the section above discusses MCSs’ impact on innovation, and the following literature will examine MCSs’ impact on sustainability in order to provide academic background to our research covering the intersection of MCSs’ impact on sustainability-innovation.

The current accounting literature on MCSs and sustainability suggests that organizations are increasingly recognizing the importance of sustainability in their accounting practices (Beusch et al., 2022; Gond et al., 2012). For instance, many organizations have embraced sustainability discourse in their reporting (Gond et al., 2012). In relation to this, MCSs can help the

integration of sustainability practices and objectives into organizations' broader corporate strategies (Arjaliès and Mundy, 2013; Beusch et al., 2022; Gond et al., 2012). As MCSs are central in shaping organizational activities "*they can, if used appropriately, push organizations in the direction of sustainability*" (Gond et al., 2012, p. 206). Additionally, in order for efforts to become lasting regarding the integration of sustainability and strategy, these attempts need to be reflected within formal control systems (Gond and Herrbach, 2006). Further, Gond et al. (2012) show in their study, through the examination of diagnostic and interactive systems, that a high level of technical, organizational, and cognitive integration between MCSs and sustainability control systems is favorable. Beusch et al. (2022) further contribute to Gond et al.'s (2012) research by including the remaining two aspects of Simons' LOC; belief and boundary systems. This is of importance since belief and boundary systems are components of an organization's value systems, which, in turn, are substantial means of enhancing organizational objectives and practices (Beusch et al., 2022). Therefore, their research combined emphasizes that all four of Simons' LOC can be leveraged to effectively integrate sustainability into corporate strategy (Beusch et al., 2022; Gond et al., 2012).

Further adding to this point, Arjaliès and Mundy (2013) show that Simons' LOC can play a central role as a facilitator when merging organizations' corporate social responsibility (CSR) objectives into organizational strategies, which includes sustainability. For instance, belief systems can transmit purpose and encourage employees to explore CSR-related opportunities, and boundary systems, which define organizational limits, can help the alignment of overall organizational objectives. Regarding the integration of the diagnostic system, although it plays a vital role in the management of CSR strategy, it is found to not be prioritized to the same extent as the other levers by the managers (Arjaliès and Mundy, 2013).

Connected to diagnostic control systems playing a lesser part in the integration of sustainability objectives, studies show that the usage of control systems is viewed to differ from a traditional application of MCSs when connected to sustainability (Gond et al., 2012). Traditional MCSs, which mainly refer to diagnostic systems, are more oriented to an organization's economic goals, and are viewed by managers to be "*limited [...] in addressing environmental and social issues as well as in their interrelationships with financial issues*" (Gond et al., 2012, p. 208). Further, managers may find it difficult to measure sustainability and the financial and environmental objectives may conflict (Beusch et al., 2022). In addition, managers believe that

informal rather than formal controls are easier to use in sustainability-related behavior (Crutzen et al., 2017).

In addition to the literature on sustainability and MCSs, there has been limited research conducted on MCSs' impact on the intersection between sustainability and innovation, and there is a call for further research on the interlinkage, especially in a qualitative case approach (Ferreira et al., 2010). One study looking at the effect of sustainability control on innovation is Ferreira et al. (2010). Their study shows how environmental management accounting (EMA) can have positive effects such as increasing innovation. For example, organizations can benefit from using EMA, since it can help the "*identification of new opportunities and improvements in reputation and decision making*" (p. 940). However, EMA is found to not affect product innovation, even though previous research has suggested that EMA could lead to product innovation (Hansen and Mowen, 2005), leading to opposite conclusions. This highlights the complexity of the domain, with results showing environmental accounting being both effective and ineffective regarding sustainability-related innovation in this study.

## 2.3 Theoretical Perspective and Framework

The previous literature examined above has reviewed MCSs' role in innovation and sustainability respectively. Since our research aims to look at MCSs' impact on the intersection through the theoretical lens of the balance between controlling and enabling utilization, the final part will examine current accounting literature regarding the concept of balance within MCS. Additionally, we will present the framework developed by Mundy (2010), which will be used to analyze our findings in later sections.

### 2.3.1 The Concept of Balance and Its Generation of Dynamic Tensions

As aforementioned, MCSs serve two interdependent and complementary functions. Firstly, MCSs are utilized to regulate and manage the accomplishment of organizational objectives. Secondly, they allow employees to explore opportunities. These dual roles entail a challenging balance between enforcing actions that align with the organizational goals while simultaneously granting employees autonomy to make their own decisions (Mundy, 2010).

Further, according to Simons (1995), the levers of control together create “*dynamic tension between opportunistic innovation and predictable goal achievement that is essential for positive growth*” (Simons, 1995, p. 153). These dynamic tensions, in turn, enhance performance through the development of fundamental organizational capabilities, such as innovativeness (Henri, 2006). In addition, an imbalance between the levers can lead to unforeseen consequences. For instance, inadequate use of diagnostic systems can lead to a lack of focus, whereas excessive use can stifle innovation (Henri, 2006). The notion of balance is thus an essential but implicit element in the LOC framework (Mundy, 2010).

Furthermore, Mundy (2010) highlights that creating and maintaining this balance is a challenging task for organizations for several reasons. Managers are, for example, confronted with numerous complex decisions that inhibit them from determining the ideal balance in advance. In addition, managers tend to employ MCSs in a more controlling manner, which curtails employees’ autonomy in their work. This inclination towards coercive use is problematic because it may stifle innovative behaviors which are essential for long-term sustained success. Moreover, an organization’s inability to balance the dual uses of MCSs is linked to suboptimal usage of resources, volatility, and inferior performance. In contrast, the balance between the LOC provides the essential conditions for advantageous dynamic tensions to materialize (Mundy, 2010).

### 2.3.2 Mundy’s Five Factors

As seen, Mundy’s study (2010) provides a comprehensive view of the concept of balance in regard to MCSs. Therefore, we will apply her framework to further research the elements that influence organizations’ ability to balance the dual utilization of MCSs. Mundy (2010) identifies five factors that influence the ability to attain balance: i) Internal consistency, ii) Logical progression, iii) Dominance / Historical tendency, iv) Suppression, and v) Relations between interactive processes and the remaining levers of control. The five factors will now be discussed in further detail.

#### 2.3.2.1 Internal Consistency

Internal consistency refers to organizations’ ability to convey a coherent and unified message communicated consistently through all four levers of control. Without internal consistency, employees will have a limited sense of common objectives and may undertake to conform

controls and values to their individual preferences. The existence of internal consistency is most easily detected through the examination of belief systems along with verification that they are manifested in the other levers of control. This, as an organization's vision and objectives enable a consistent approach to organizational activities (Mundy, 2010).

#### 2.3.2.2 Logical Progression

Logical progression is the order in which the four levers of control are utilized. Various orders are a natural part of the organization's life cycle and can be of special importance for organizations undergoing change. Interactive processes should then be utilized early on, in order to enable new ideas to be challenged prior to their implementation. If interactive processes are utilized after the other levers, senior managers may be tempted to solicit support for their ideas and set them in motion, thereby hindering any further discussion. Thus, change is more likely to yield the intended results if interactive processes are initiated before the diagnostic and boundary systems are rooted in the organization (Mundy, 2010).

#### 2.3.2.3 Dominance / Historical Tendency

Dominance occurs when one or more of the levers consistently dictate the use of the remaining levers, regardless of particular organizational circumstances. For instance, if diagnostic processes are given too much emphasis, it may inhibit innovation and, in turn, affect long-term performance. In addition, the dominance of sole levers is partially contingent on historical tendencies toward particular patterns of either controlling or enabling uses of the levers. In addition, belief systems play an especially crucial role in maintaining an organization's key priorities (Mundy, 2010).

#### 2.3.2.4 Suppression

The opposite aspect of dominance is suppression which refers to when certain levers of control are not used or are purposely restricted. It plays an equally important role in shaping the balance between the dual usage. Suppression can arise unintentionally from time pressure and intentionally from political acts. The likelihood of suppression is reduced when managers encourage employees to participate in decision-making (Mundy, 2010).

#### 2.3.2.5 Relations between Interactive Processes and the Remaining Levers of Control

Lastly, the interactive processes play a vital role in achieving and preserving a balance among the remaining levers of control. Interactive processes allow the other levers to be actualized and play a determining role in the shaping of interrelations among all four of them. The specific mechanisms that managers use to mobilize interactive processes and their consequences on the remaining levers suggest a unique capacity for every organization. This capability is, however, difficult to manage and change (Mundy, 2010).

***Table 1: Summary of the five factors impacting the balance of MCSs.***

| <b>Factor</b>                                                                  | <b>Definition</b>                                                                                                                                                                                               |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| i) Internal Consistency                                                        | An organization's ability to communicate a coherent and unified message consistently through all four levers of control.                                                                                        |
| ii) Logical Progression                                                        | The order in which the four levers of control are utilized.                                                                                                                                                     |
| iii) Dominance / Historical Tendency                                           | One or more of the levers consistently dictate the use of the remaining levers. Partially contingent on historical tendencies towards particular patterns of either controlling or enabling uses of the levers. |
| iv) Suppression                                                                | Certain levers of control are not used or are purposely restricted.                                                                                                                                             |
| v) Relations between Interactive Processes and the Remaining Levers of Control | Interactive processes allow the other levers to be actualized, and play a determining role in the shaping of interrelations among all four of them.                                                             |

## 2.4 Research Gap and Research Question

As aforementioned, there is limited studies on MCSs' impact on the intersection between sustainability-innovation, which highlights a literature gap and a need for further academic contributions. In addition, as described by Mundy (2010), several studies highlight the crucial role of balance in utilizing MCSs, yet lack elaboration on its nature and underpinnings. This

has led us to conduct research within this gap between MCSs and sustainability-innovation through the examination of MCSs' balance and its underlying dynamics. More specifically, our research intends to answer the following:

*How does the balance between the controlling versus enabling nature of management control systems impact organizations' sustainability-innovation work?*

### 3. Method

#### 3.1 Research Design and Approach

The objective of this study is to examine MCSs' impact on the intersection between sustainability and innovation. For this purpose, we have chosen the method of a qualitative research design conducted through a single case study. The choice of qualitative design was made since a qualitative methodology is especially well suited for studies that aim to investigate and understand the role of accounting in certain social and organizational contexts (Lee and Humphrey, 2006). Further, the research has been conducted through a single case study. Focusing on one subject enables the research to be performed in more depth (Gibb Dyer and Wilkins, 1991; Siggelkow 2007), which has been beneficial as we wanted to closely examine a company's sustainability-innovation work. In addition, our study aims to achieve “*analytical generalizability*” (Power and Gendron, 2015, p. 158) meaning “*generalizable to theoretical propositions and not to populations or universes*” (Yin, 1989, p. 21, cited in Power and Gendron, 2015, p. 158). Hence, our study intends to contribute to previous research through the potential applicability of the findings to other particular organizational contexts, and not deduce definitive conclusions that can be generalized in any organizational setting. Taking this into consideration, a single-case study approach has been the preferred option for our research.

Moreover, an abductive approach has been applied throughout our research. Abductive reasoning in a qualitative setting entails interactively changing the theory, such as the literature review and research question, as more empirical findings are gathered and analyzed, and this aligns with the concept of “*matching*” as theorized by Dubois and Gadde (2002). The iterative process has allowed us to leverage unexpected and captivating research paths as time, data

collection and analysis progressed, in line with Eisenhardt's (1989) description: "*Creative insights often arise from the juxtaposition of contradictory or paradoxical evidence [...] The process of reconciling these contradictions forces individuals to reframe perceptions into a new gestalt*" (p. 546). For instance, following our initial meetings with the chosen case company, we observed the presence of underlying tensions related to the balance of MCSs within the case company's sustainability-innovation work, which shaped our research question. Ultimately, the related flexibility of this approach has resulted in an increased understanding of our chosen research domain as well as our case company.

Furthermore, the objective of the study has been the determining factor in the choice of our theoretical framework. As aforementioned, the balance in Simons' LOC is of essential importance (Mundy, 2010). In accordance with the observed complexity in the case company, we maintain that Mundy's (2010) framework is well suited for our purpose of examining MCSs' role in the intersection and has enabled us to conduct a nuanced analysis of our empirical data. This, as it offers an extensive exposition of the balance between the four levers as well as an emphasis on its underlying influences.

Regarding the application of Simons' LOC and Mundy's Five Factor framework in our findings and analysis section, we acknowledge that there could be different categorizations of some observed items in the case company. This, as the systems and factors have some overlapping tendencies as well as some aspects that are harder to identify. To exemplify one of these overlaps, there are monthly meetings between managers and employees which could potentially serve as a component of the diagnostic system due to their observed reporting nature. However, since the meetings are the primary communicative channel within the case firm, we chose to categorize them as part of the interactive systems. When encountering other similar overlaps during the application of the frameworks, we have thus categorized the items based on a more holistic view. Moreover, an example of items that are difficult to identify is the underlying reasons for the suppression factor. This, given that managers might suppress factors subconsciously or might be unwilling to elaborate, and employees may be unaware of the causes. As such, when faced with a lack of information regarding underlying causes in the five factors, we have chosen to be more descriptive. We acknowledge that there might be different applications of the frameworks, but maintain that we have applied them closely to their theoretical meaning.



## 3.2 Case Firm Selection

From the outset, our intention was to write about sustainability-innovation and MCSs, and due to the identified problem background regarding the agricultural sector, this type of case company was of particular interest to us. After initial research, we identified an organization that communicated its innovation strategy regarding sustainability in a way that matched our research intention, and we were able to secure a connection through an acquaintance. The organization has initiated several projects, processes, and strategies that relate to sustainability-related innovation. These projects span from incorporating sustainability into existing innovation projects, such as product development, to launching new initiatives solely dedicated to sustainability. All of these projects will be considered part of the intersection of sustainability and innovation work. The projects make the organization especially well-suited for the objective of our study and our identified literature gap. In short, our selected case firm is an agricultural cooperation operating in Sweden, and will henceforth be referred to as “AgCoop”.

## 3.3 Primary Data

### 3.3.1 Semi-structured Interviews

Our primary data collection has been conducted with the help of semi-structured interviews with our case company AgCoop. The interviewees have been selected based on their relevance connected to our research question in terms of their position in the company and related experience within this field. This corresponds, with one exception, to employees and managers working with sustainability and innovation. The respondents have had various positions such as managers, board members, and employees, and work in different divisions. The choice of both different positions and different divisions has been made in order to receive a nuanced perspective within the company. In addition, we contacted the majority of our interviews individually and not based on recommendations from previous interviews, in order to avoid a bias effect due to similar people recommended (Emerson, 2015).

Semi-structured interviews are a common qualitative method used to efficiently collect insightful information (Lee & Humphrey, 2006). Semi-structured interviews consist of preparing an interview guide encompassing different themes and questions, with the ability to probe into certain areas in order to receive more elaborate responses and dive deeper into

perspectives that might not have been originally considered (Qu and Dumay, 2011). Thus, we prepared a guided script of interview questions ahead of the interviews (appendix 1), but were able to adapt the questions based on the flow of the discussion. This interview guide was not sent out to interviewees beforehand, in order for their initial reactions and responses to be captured and more unfiltered.

In total, eight interviews have been held with various people in the organization, both physically and online depending on the interviewees' preferences (appendix 2). After these eight interviews, we noticed repetitiveness in the respondents and had plenty of material to analyze our findings appropriately within the scope of our research. Therefore, we chose to not conduct more interviews. However, given that AgCoop is a large company, a more extensive study could have been beneficial in order to receive more information from additional parts of the organization.

### 3.3.2 Interview Context

In adherence with the GDPR, all interviewees were sent out a GDPR form that was signed before the interview was conducted. Further, the interviews were all recorded and were held in Swedish given that this was the interviewees' native language, with answers later translated into English. We wanted the answers to be as informative as possible, and avoid losing knowledge or depth in answers due to language difficulties or a less mature English vocabulary. Lastly, the general interview structure was similar between interviews in order to have comparability between interviews. However, more specific and different questions were asked as our research matured and our research question was finalized. For instance, we focused more on the balance between MCSs' dual usages in the later interviews. Moreover, some questions were adapted based on the seniority of the person interviewed, as well as in what area of the company the person was based.

## 3.4 Secondary Data

Our secondary data of AgCoop has been based on document analysis. The documents looked at were primarily their sustainability and annual report as well as the information provided on their website. These were used to gain an understanding of the case company and see what organizational aspects they externally presented to be of more essence in order to ask more

specific questions regarding, for example, their external communication related to sustainability-innovation strategies. Moreover, it was used as a complement to the interviews, in that we first attained more descriptive information about the company as a whole as well as their MCSs, such as information regarding their environmental code of conduct. The document analysis, therefore, enabled us to utilize the interviews to gain a deeper knowledge of how the control systems impacted their work.

## 4. Empirical Findings and Analysis

### 4.1 Introduction to AgCoop and their Sustainability-Innovation

AgCoop is structured into different divisions that operate in various agricultural markets. In turn, each division is composed of multiple subsidiaries that own various brands. These brands produce, for example, commodities like dairy and machines, that are eventually sold to end-consumers in, for instance, grocery stores or to B2B customers. Further, AgCoop is a cooperative owned by thousands of farmers operating in the value chain. Therefore, the farmers both act as business partners, in the form of suppliers and buyers, as well as the owners, with the possibility of receiving dividends and the right to vote on specific matters (AgCoop's Website, 2023).

In connection to AgCoop's organizational innovation, innovation constitutes one of the four core pillars of their organizational model for viable agriculture. Each year, X million SEK is invested in research and development for future agriculture, bioenergy, and food (AgCoop's Website, 2023). Moreover, the organizational innovation process is structured such that each business unit has its own R&D team who bear the main responsibility for innovation and development in their respective division. In addition, the innovation process is managed on a corporate level through a central R&D group, whose main purpose is to manage and coordinate the innovation work between the different units.

Furthermore, AgCoop has the organizational sustainability objective of creating and sustaining conditions for increased production while simultaneously reducing the organization's climate impact by X% every ten years. This, in order to reach climate neutrality by 2050, in accordance

with the 2015 Paris Agreement. In order to achieve this objective, AgCoop communicates a need to enhance and reform its current practices. The organization has thus initiated several projects, processes, and strategies connected to sustainability-related innovation. As aforementioned, the projects range from incorporating sustainability into existing innovation projects to introducing new initiatives exclusively dedicated to sustainability. In addition, the organization externally and internally communicates an identified “innovation gap”, which highlights the strategic need to cultivate new, innovative sustainability-related solutions within all of their markets. Closing this innovation gap will allow the organization to attain its aforementioned goal of reaching climate neutrality by 2050 (AgCoop’s Sustainability Report, 2023; AgCoop’s Website, 2023).

In order to analyze AgCoop in more detail connected to our research question, we will apply Mundy’s framework as described in the theoretical framework section of this paper. However, given that Mundy’s framework is based on Simon’s LOC, we will begin the following section with a categorization of our findings based on the different levers, in order to properly apply Mundy (2010) in the latter part.

## 4.2 AgCoop’s Identified Four Levers of Control

### 4.2.1 Belief Systems

Belief systems are a form of control that takes place in an organization's values, missions, and purposes that drive the company’s actions (Simons, 1995). In AgCoop, we have found that belief systems are characterized by an ambition for sustainability, a purpose to generate financial returns for the owners, and a contrasting view of their culture for innovation.

Regarding sustainability, there is a belief system that encompasses the organization in many different ways. For instance, AgCoop has a slogan that is printed on all their packaging, with a message of high quality and sustainable food:

“We speak a lot about [our slogan] and how we have a responsibility for each step of the value chain and to other stakeholders. [...] We have a slogan that drives us to become the best agricultural cooperative in the world.”

(Board member A)

AgCoop's slogan is internally communicated in order to drive the employees to reach the organization's ambition of becoming a leading agricultural cooperative in the world, especially regarding sustainability. The slogan creates additional internal awareness since it is also noticeable as embossed on physical objects at their office, such as coffee cups and wallpapers. Moreover, the slogan is also externally communicated and can be seen in their annual reports, printed on AgCoop's packaging, and in their advertisements. Additionally, when they speak of their customers, the interviewees highlight external expectations from customers to receive sustainable offerings, given that AgCoop has marketed their company as a leading player in sustainable agricultural products. As multiple people in AgCoop explain, the slogan is a promise made to their customers of the company's values to be sustainable. Therefore, the slogan's message works to align AgCoop's external communication and offerings to its customers with its internal mission to become a sustainable role model.

Furthermore, AgCoop's promise to its customers connects to its business strategy of being focused on creating sustainable products rather than producing a cheaper alternative. As one manager explains:

“When customers choose our products, it is not due to, for example, the flavor of flour, but rather the values we have built into them, for example by making sure everything is greenly financed, that we work with sustainable farming, and that everything has its origin in Sweden.”

(Manager C)

This further shows how the external communication to their customers is connected to their belief system of being a company for the environment.

Other parts of their belief systems also reflect a focus on sustainability. This can partly be seen in sustainability playing a role when they, for example, make investments, evaluate products, and recruit new personnel. As such, sustainability is a fundamental part of the organization, and from all interviews, both managers and employees had a positive idea of AgCoop's sustainability work by stating, for example, that it strengthens their motivation as they can help

make a positive impact. Therefore, AgCoop seems to have created a unified ambition and culture concerning sustainability. To exemplify:

“Our sustainability work is something very positive and I think it engages more or less our entire workforce. We see a fantastic commitment in the entire organization, and everyone wants to contribute to reaching the goals we have set.”

(Manager C)

“Since [AgCoop] has a very high sustainability profile, I think everyone in all parts of [AgCoop] feels that we are working towards something positive for the world, which is highly rewarding and makes me excited to go to work.”

(Employee C)

Found from all interviews is that there seems to be a culture of sustainability-related focus that drives behaviors and motivation of employees, and it is observable in their slogan, competitive positioning (by going for sustainability rather than low-cost), advertisements, tangible objects, recruitment, and internal pride.

Moreover, regarding how much AgCoop has a culture of innovation, there seem to be mixed ideas. As previously mentioned, innovation is one of AgCoop’s four core pillars of its organizational model, showing an emphasis on innovation as a belief system. Similarly, management seems to view AgCoop as a company where innovation is an important value, due to larger investments into R&D and missions like closing the aforementioned sustainability innovation gap. One manager touches upon both of these aspects:

“We have become a much more innovation-driven company in recent years. We have had a number of big investments in our R&D department with different projects. [...] We communicate that we need to close the innovation gap and that I think contributes to us creating an innovative engagement.”

(Manager A)

From this side, there is a perception from managers that AgCoop is an innovative company and that its culture supports it. On the other hand, employees at AgCoop generally had

differentiating views. To exemplify, employee A stated that *“there are a few larger initiatives, but I would say that there is a general fear of actually daring to make investments.”* This was echoed when interviewing the other employees, with all stating that they were not always granted the freedom they wanted and that they felt as though it was not encouraged to take many initiatives. Some employees attributed this to a risk-minimizing culture, where the importance mostly lies in meeting predetermined quotas, which they thought had a discouraging effect on the experimentation of new ideas. Connected to this, management also emphasized a mission of generating financial returns for their owners:

“An extremely important part of our mission is to give returns on our members' capital and to increase the profitability of our members' farms.”

(Manager B)

This was highlighted in interviews with both management and employees, with management framing the mission of delivering dividends as a main purpose of AgCoop, whereas employees described it as being an underlying reason for a risk-minimizing culture.

#### 4.2.2 Boundary Systems

Boundary systems consist of rules that guide employee and organizational behavior. They serve as boundaries of what are acceptable actions and act to minimize risks (Simons, 1995). Our findings show that there are environmental codes of conduct, policies, and legal compliance due to green bonds and bank loans that AgCoop is bound by.

AgCoop has an extensive code of conduct touching six different areas, where the environmental part is the first, encompassing farming, products, resources, and production. All employees at AgCoop are educated in the code of conduct, and certain groups are given additional competency development throughout their careers. There are routine check-ups a number of times per year in all divisions in order to ensure that the climate work conducted is aligned with their code of conduct. In addition, for specific key environmental issues and areas, additional policies and guidelines have been created, to which the employees need to adhere (AgCoop's Website, 2023; AgCoop's Annual Report, 2022). Although codes of conduct and policies are clearly stated in AgCoop's external documents, the interviewees do not mention these as driving their work much. As one manager puts it:

“We have built a strong brand over time and had other external recognitions and awards. This builds strong internal pride and commitment and creates a clear direction in ways you will never be able to do with policies, documents, or board decisions.”

(Manager A)

Thus, it seems as though it is, for example, AgCoop’s belief system that might be what more actively guides employees, such as the internal pride mentioned in the section above. Although employees and managers do not mention the codes of conduct and policies as contributing factors to the decisions they take, the fact that they exist with regular check-ups can still show what is not acceptable behavior and guide decisions indirectly in that way.

Innovation is not one of the six areas that are touched upon in AgCoop’s code of conduct, meaning that there is no code of conduct in place for this area. Instead, from our findings, the emphasis on generating financial returns for the owners might be an implicit system that minimizes risk, which will be touched upon more in the diagnostic systems section below.

Further, there is external pressure for AgCoop to adhere to rules related to their green bonds and green bank loans. AgCoop has introduced new green financing with billions of SEK in order to strive for fewer CO<sub>2</sub> emissions in the agricultural landscape, which encompass X% of their total financing. As explained by a manager:

“We want to be the most sustainable agriculture company in the world, and a great way to get there is by making sure our financing is well aligned with that goal.”

(Manager B)

With the implementation of green bonds and loans, the money may only go to specific environmental projects and AgCoop, therefore, has certain guidelines they need to report and adhere to, which drive their day-to-day work. For example, AgCoop cannot invest in certain production techniques depending on their environmental impacts. One manager describes the green financing’s impact on their work in this way:



“Our financial institutions only accept that we behave and invest in certain ways. If people invest in this type of operation, they expect us to deliver and not stray from what is promised. For the X billion SEK, we [legally] need to earmark certain projects and investments.”

(Manager B)

What this means is that their everyday financial work is bound by the laws and guidelines that surround their green bonds and loans. Since they began green financing a couple of years ago, a percentage of their financial work is therefore guided by the legal compliance necessary for these green bonds and loans to be, in fact, marked as environmental.

#### 4.2.3 Diagnostic Systems

Diagnostic systems provide information to managers to monitor progress toward achieving strategic goals (Simons, 1995). In AgCoop, the design of their diagnostic systems is, within the intersection of innovation and sustainability, based on the organization’s sustainability objectives, competitive positioning, and green financing.

Since AgCoop has taken a strategic position as a leading player within sustainable agricultural products, sustainability metrics have during the last 10 years gained considerable importance. Each division’s innovation team is required to present green Key Performance Indicators (KPIs) every quarter, which are adapted to the specific business area and product offerings, and include measurements such as CO<sub>2</sub> reductions per unit. The quarterly tracking of green KPIs in the innovation projects is paired with monthly meetings between the employees in the divisions and the central innovation group, where financial KPIs are also evaluated. During these monthly meetings, the managers within the central innovation group review the results, analyze the underlying reasons for the outcomes, and strategize on the measures that the divisions’ innovation teams ought to undertake moving forward.

Another reason for AgCoop’s many KPIs is due to their green financing, which constitutes a large percentage of their total financing. Following this are external demands to fulfill certain requirements, which encourages closer tracking of results. As one manager describes it:

“We really utilize green KPIs and track our key green figures closely. Many of them are approved in conjunction with our collaborating financial institutions, which means we have to ensure to always attain the set targets.”

(Manager B)

An additional way that their sustainability focus shows in the diagnostic system is in their incentive structure. At the group level in AgCoop, the incentive systems consist of 75% financial metrics, as well as 25% personal metrics, which now include sustainability targets (AgCoop Annual Report, 2022). This has been done in order to “*better align the individual efforts with company objectives and reward the sustainability work [AgCoop’s] employees do.*” (Manager B).

It can thus be concluded that AgCoop utilizes a comprehensive diagnostic system in terms of KPIs, reporting systems, and bonus systems, designed with a special focus on sustainability objectives and their related measurements. This design and utilization of the diagnostic system have had several implications on the intersection between sustainability and innovation. Most employees and managers express appreciation for the use of sustainability-related KPIs in their innovation work:

“I think the sustainability aspect of it all is strengthened by the use of KPIs and metrics. It ensures a necessary focus and follow-up on those elements, and since we use clearer targets it becomes easier to evaluate the results.”

(Employee C)

The above quote represents a general consensus found from all interviews, in that the utilization of green KPIs has had a positive effect on their sustainability work as it helps ensure a necessary focus on these dimensions and scientific-based guidelines of improvement.

However, our findings indicate that the managers and employees have different views on the diagnostics systems’ impact on the innovation process. In general, the managers viewed the diagnostic systems as being helpful in the innovation process. They expressed that the system ensures prioritization and alignment of the different divisions’ processes. Additionally, the

managers thought that the systems were adequately adapted to the different stages of the innovation process and therefore avoided stifling the work. As described by a manager:

“I think we are good at keeping the measurements quite broad in the beginning. We do not want to go in too early and kill ideas and creativity through heavy administration and so on.”

(Manager A)

The employees expressed contrasting views. According to them, AgCoop’s measuring systems were not designed to fully support the innovation processes. Instead, they felt that the diagnostic systems had a tendency to not incorporate measures that are of special relevance to innovation, such as the “number of ideas generated”, and instead emphasized regular attainment of financial and sustainability controls. As one employee explained:

“Our organization leans more towards the controlling approach in the usage of KPIs, so I think we would benefit from the utilization of softer and empowering ones. You have to try a lot of different things to succeed [with innovation projects], which I believe can be hard to understand sometimes in this big of an organization where management constantly works to minimize the risks.”

(Employee A)

To summarize, the managers felt that the utilization of diagnostic systems was fostering the innovation processes. They emphasized that the systems were advantageous in guiding and aligning the employees’ work, ensuring that the processes were on track to attain the set goals, and reducing the risks of the organization wasting time and resources on unsuccessful projects. Employees, on the other hand, expressed that the comprehensive measuring of non-innovative related metrics could be hindering the innovation process and have a stifling effect on creativity. This, as it sometimes discouraged them from exploring new ideas, taking the necessary risks that innovative projects require, and reducing their experienced sense of autonomy in the process as a whole.

#### 4.2.4 Interactive Systems

Interactive systems allow for ongoing dialogue and feedback between managers and employees. It includes regular meetings and communication channels between employees and managers (Simons, 1995). The main communication regarding sustainability-innovation between the managers at the group level and the employees in the different divisions occurs through, as aforementioned, monthly meetings between the group-level central R&D team and the innovation project managers in each division. The primary goal of these meetings is for the group level to follow up on the set KPIs and support the divisions' innovation work. As explained by one manager:

“The central innovation group’s purpose is to support and drive the culture of innovation in the organization as a whole. We work in close consultation with the different business units in order to provide help and support.”

(Manager C)

The central innovation group has been created to ensure adequate translation of the strategic innovation agenda into the different business areas. Several managers point out that this is of utmost importance in a large organization operating across diverse markets with a financial obligation to its owners. It also helps ensure legal compliance through consistent follow-ups regarding the agreements with external parties in connection to AgCoop’s green financing.

However, our findings indicate that the managers and employees have contrasting views on what impact these meetings have in supporting and driving organizational sustainability-innovation. The managers describe the communication channel as characterized by a mutual relationship, where the group-level team works as a support function to the different divisions. The employees, on the other hand, depict the design and impact of the monthly meetings differently. They describe the relationship between the divisions and the central R&D group as more one-way, where the meetings mainly consist of reporting and check-ins rather than idea discussions and support. As one employee explains:

“We do not get as much support from the central R&D group as we would have liked. The relationship is one-way, we just report to them.”

(Employee B)

The employees highlight that these types of meetings are beneficial for the sustainability side in a similar manner as with the diagnostic systems. The meetings drive an emphasis on the sustainability aspects of the innovation work, and the consistent check-ins help with the prioritization of sustainability-related elements. However, employees simultaneously highlight that the design of these meetings is experienced to be harmful to the innovation process. Employees express a wish of being able to communicate ideas upward in their meetings but mean that the way the interactive channel is currently structured may not accommodate this. Therefore, they feel that they have been given less autonomy in their innovation work than they would like. Instead, they experience a more prioritized focus on the financial and sustainability-related KPIs that makes them cautious to take financial risks.

***Table 2: Summary of findings structured in accordance with Simon's LOC.***

| <b>Lever of Control</b> | <b>Examples</b>                                                                                         |
|-------------------------|---------------------------------------------------------------------------------------------------------|
| Belief Systems          | Slogan, physical objects, values, and recruiting.                                                       |
| Boundary Systems        | Environmental codes of conduct and regulations in accordance with green financing.                      |
| Diagnostic Systems      | Green KPIs, internal and external green reporting, and incentive programs with green aspects.           |
| Interactive Systems     | Monthly meetings between the central R&D group and the innovation employees in the different divisions. |

### 4.3 Mundy's Five Factors

In this section, an analysis of the empirical findings will be carried out with the objective to investigate MCSs' role in the intersection between innovation and sustainability through the theoretical lens of the balance between controlling and enabling utilization. The findings and analysis will be structured in accordance with the framework developed by Mundy (2010), as described in our theoretical framework section.

### 4.3.1 Internal Consistency

Mundy (2010) emphasizes that internal consistency is an important factor in underpinning a balance in MCSs as it ensures cohesion between the employees' work and the organizational objectives. It is most easily detected through an outline of the belief systems and verifying that the other three levers mirror the identified elements. Upon analyzing AgCoop's belief system, it is identified that they have ambitious values connected to AgCoop's environmental impact. This organizational norm is manifested through various means, like the organization's slogan and the wording on tangible office objects.

Further, these norms are also mirrored in the other levers, which indicates internal consistency within the four levers of control at AgCoop. It is, for example, visible in their diagnostic systems through the utilization of green KPIs and integration of sustainability metrics in their bonus systems. Additionally, it is identified in their boundary systems through, for instance, environmental codes of conduct and in the interactive systems in the shape of monthly meetings dedicated to sustainability-innovation follow-ups.

Moreover, several interviews have expressed that this internal consistency can most likely have played a facilitating role in the company's strategic positioning as a leading player in sustainable agricultural products. As explained by one interviewee:

“We want the consumers to feel confident that the products uphold our values of hard work and positive environmental impact. And that's a lot easier to achieve when everyone who works [for AgCoop] is truly passionate [about these values].”

(Board Member A)

The culture of environmental ambition has also been advantageous for AgCoop in facilitating adherence to new legal environmental regulations in conjunction with the introduction of their green financing since employees are motivated to adapt toward them. To clarify:

“Of course, [new regulations] are an administrative challenge, but it truly helps that our employees are aware of the good reasons and impacts that come from employing them. It helps keep people motivated even when there are challenges and change ahead.”

(Manager B)

The enabling character of the belief system can be analyzed to have helped employees handle the increasingly controlling aspects of the boundary and diagnostic systems. This, as the employees' sense of pride regarding the company's operations has helped sustain their motivation when, for example, dealing with the challenges of sustainability-related organizational change. The internal consistency regarding environmental ambition can thus be viewed as strengthening the balance between the controlling and enabling usages of the four levers in AgCoop.

Moreover, regarding the culture of innovation at AgCoop, our findings indicate some internal inconsistencies. On the one hand, related to the belief systems, the group level has implemented communication tools such as the innovation gap to highlight the importance of innovation in relation to sustainability. Additionally, the company spends a significant amount of funds on innovative investments and has named innovation as one of its four core pillars. This can be viewed as strengthening the innovation culture at AgCoop. On the other hand, this innovative focus is not experienced to be fully mirrored in the diagnostic systems, as the employees express that measurements and KPIs are not designed to fully support the innovation process. This, as the organization's emphasis on financial and sustainability metrics, coupled with an expectancy to prioritize financial returns to shareholders, may lead to a risk-averse mindset and diminish employee autonomy. Consequently, this may have an impact on the promotion of organizational innovation. Thus, this implies an internal inconsistency within the frame of sustainability-innovation which induces an imbalance between the dual usages of MCSs.

#### 4.3.2 Logical Progression

Logical progression refers to the order in which the four LOC is used (Mundy, 2010). From our findings, it can be concluded that diagnostic systems are utilized before other systems. AgCoop has, as aforementioned, an extensive diagnostic system due to its need to follow external regulations as well as an internal goal to become a leading sustainable organization. This diagnostic system consists of measurements and KPIs that employees report to managers every month, which AgCoop, in turn, utilizes to report in their external reports annually. Our findings show that it is of importance for the company that sustainability aspects are accurately and frequently measured in sustainability-innovation projects.

Identified in the belief systems, it seems as though AgCoop has managed to build a culture of sustainability that motivates its personnel. However, all interviewed employees have expressed frustration regarding the feeling that, although they are motivated to drive new sustainability-related innovation projects, they experience that the opportunity is not always given to them. Instead, they mean that their managers tend to prioritize the attainment of the targeted measures each month, for example:

“I see a strong will from everyone in my department to drive the innovation in [AgCoop]. We want to do better and drive new projects, and to actually be the best in the world [regarding sustainability]. [...] the financial stuff and reporting just tend to trump it.”

(Employee C)

From this, it can be found that the diagnostic systems seem to be utilized before their belief systems, given that employees have the motivation to innovate regarding sustainability, but need to adhere to the diagnostic systems first.

In regard to AgCoop's interactive systems, they seem to be designed in a more controlling fashion with a focus on the diagnostic parts over the interactive parts. This is seen in, for example, the more one-way reporting structure. Relating to this, Mundy describes in her framework (2010) how for change to occur, which in this scope can be viewed as the development of new initiatives, then interactive systems need to be an early part of the organization's logical progression. As she explains, “*Change is more likely to lead to desired outcomes if interactive processes are mobilized before diagnostic and boundary processes become ‘hard-wired’ [...].*” (p. 514). However, the findings suggest that the diagnostic processes happen before the interactive and belief systems. Regarding boundary systems, the green financing rules and environmental codes of conduct seem to be established in the organization, but other boundary systems do not seem to have a large impact on employees and management.

To summarize, AgCoop's levers of control order seem to be that the diagnostic systems take place before the interactive and belief systems, leading to an imbalance. Additionally, innovation is more likely to occur if the interactive processes are utilized before the diagnostic



ones and, therefore, AgCoop's current logical progression could partly be an underlying reason for the employees' and managers' differentiating views on how much innovation is taking place.

#### 4.3.3 Dominance / Historical Tendency

Dominance occurs when one or more of the levers consistently dictate the use of the remaining levers. It is also partially contingent on historical tendencies towards particular patterns of either controlling or enabling uses of the levers (Mundy, 2010). Within the frame of sustainability-related innovation, AgCoop's belief and diagnostic systems can be analyzed to play a role in determining the shape of the other levers.

Firstly, in terms of belief systems, AgCoop's organizational identity related to sustainable branding can be analyzed to have an impact on the other levers. It can be seen to affect boundary systems in, for instance, driving the implementation of green financing. This, as the managers perceive green bonds and loans as additional means of attaining the strategic positioning of being recognized as a foremost company in sustainable agriculture. Furthermore, this sustainability commitment can also be viewed in AgCoop's emphasis on sustainability-related measurements in the diagnostic systems.

Secondly, the diagnostic system can also be analyzed to be a dominant lever. For instance, the utilization of different measurements and KPIs has impacted the shape of the interactive processes since the employees describe that the monthly meetings are mainly used as a channel to report to the group level. Connected to this, there has been a historical tendency towards a pattern of controlling usages of MCSs, especially in the diagnostic system. As described by an employee:

“If you look 10 years back, we did not have any form of ‘softer’ controls. It was all numbers and mostly financial ones, and I think the managers wanted to check to make sure that we were on track to reach our division's targets.”

(Employee B)

The historical tendency is also shown in the present day, since, as aforementioned, employees feel that the diagnostic systems are used more to regulate and manage the accomplishment of organizational objectives. Further, our findings suggest that the tendency for controlling rather

than enabling usages of MCSs partly stems from the underlying organizational norm of prioritizing financial returns to shareholders. One manager touches upon this:

“It is important to remember that we always have to generate positive results. [...] At the end of the day, I have a pressure to make sure the divisions deliver.”

(Manager A)

This experienced prioritization may lead to an added need for managers to control their different divisions and reinforces an inclination to minimize financial risks. For example, Manager A further expresses an appreciation for controlling usages of diagnostic systems, as it “*gives great oversight into the divisions’ work*”.

Further, Mundy (2010) explains that if diagnostic processes are given too much emphasis, it may inhibit innovation and, in turn, affect long-term performance. This aligns with the employees’ previously expressed view that extensive control may be stifling to the innovation process. Within the intersection of sustainability and innovation, this may therefore imply that AgCoop’s dominant diagnostic system and the historical tendency for the controlling usage of diagnostic systems could lead to an imbalance between the dual usages of MCSs.

#### 4.3.4 Suppression

Suppression occurs when one or multiple of the four levers of control are not used in an organization or are restricted in some sense. To create a balance between the levers, suppression is therefore harmful (Mundy, 2010). From our findings, we have identified attributes in all four control systems. For example, there is a mission statement in the belief system, codes of conduct in the boundary system, different KPIs in the diagnostic system, and monthly meetings in the interactive system. However, what can be noted in the interactive systems, is that the communication upstream seems to be somewhat limited for employees since they do not feel that there is a proper channel for them to communicate ideas or alike. As Mundy (2010) explains: “*Suppression is less likely when managers encourage employees to bring their local knowledge into the decision-making process*” (p. 515). This means that there is a risk of suppression taking place since managers do not seem to actively seek out employee knowledge given the somewhat limited interactive processes, leading to an imbalance between the levers and the controlling and enabling utilizations of MCSs.

#### 4.3.5 Relations between Interactive Processes and the Remaining Levers of Control

Mundy (2010) emphasizes that interactive processes allow the other levers to be actualized and play a determining role in the shaping of interrelations among all four of them. As seen, although there are interactive systems in place, they are not experienced to have the supportive function for employees to receive the help they wish for in their sustainability-related innovation work. This, in turn, affects the remaining levers of control in AgCoop, as shown in the dominance, logical progression, suppression, and internal consistency part.

The interactive system has mostly been perceived as one-way communication, where employees mainly report back to management. This has created a more controlling utilization of MCSs, as seen in the dominance part. Further, the historical tendency for controlling approaches can have led to the reporting mechanisms being prioritized over enabling utilizations. In addition, the logical progression allows for diagnostic systems to be practiced before the interactive and belief systems. The identified progression may reinforce this controlling utilization which has, in turn, been perceived as disadvantageous for innovation.

Moreover, the imbalance in the relationship between the interactive processes and the remaining levers of control can be identified in how interactive systems seem to be somewhat suppressed. Although we cannot conclude whether it is conscious suppression, the findings show that there are fewer interactive systems that employees can utilize than there are diagnostic, boundary, and belief systems in place, which further shows a suppressing tendency that impacts the balance between the dual utilizations of MCSs.

Lastly, the absence of proper two-way interactive communication channels could also be a contributing reason to the identified internal inconsistency. Given that employees feel that they do not have an appropriate place to voice their views on how the diagnostic systems hinder their innovation work, it is reasonable to assume that this is a cause of why there are differences in opinions and explains why management perceives the MCSs to have a supportive function while employees disagree. This is also reflected in their belief systems since managers and employees have differentiating views on AgCoop's culture of innovation.

## 5. Discussion

In the following section, we will discuss our findings in relation to the previously reviewed accounting literature. The first part will examine MCSs' impact on sustainability within the frame of innovation, which includes both how MCSs have been leveraged in AgCoop in the integration of sustainability objectives in innovation work, as well as the managers' perspective on the utilization of the systems in regard to sustainability. Further, the second part will discuss MCSs' impact on innovation in sustainability-innovation and the balance of MCSs' impact on this intersection.

### 5.1 MCSs' Impact on Sustainability within the Frame of Innovation

Firstly, previous research shows that MCSs have a positive impact on actualizing organizational sustainability efforts. This, as MCSs help integrate sustainability agendas into the company's ordinary objectives (Arjaliès and Mundy, 2013; Beusch et al., 2022; Gond et al., 2012). The literature emphasizes that a high level of integration between MCSs and sustainability is beneficial in obtaining sustainability objectives and that all four levers can play a role in the integration of sustainability into corporate strategy (Arjaliès and Mundy, 2013; Beusch et al., 2022; Gond et al., 2012). The findings from our study are aligned with previous research. As seen in AgCoop, sustainability-related targets have been integrated into the organization's ordinary objectives. In particular, belief systems and diagnostic systems are helping AgCoop to integrate the company's sustainability goals. To exemplify, AgCoop's slogan in their belief system motivates employees to contribute to a sustainable planet, and their diagnostic system in the form of, extensive sustainability reporting and the incorporation of sustainability metrics in the bonus systems, ensures that a sustainability focus becomes a central part of their work. The integration of sustainability elements in AgCoop's MCSs has therefore enhanced the overall actualization of AgCoop's sustainability efforts. Further, this norm and drive for sustainability have translated into their innovation work. Here, it is observable in their extensive use of sustainability-related metrics in innovation projects and monthly meetings dedicated to analyzing these. Moreover, employees and managers in AgCoop all express gratitude towards the systems in place for sustainability in their innovation work, as they help guide and further motivate their work. This shows, in turn, that MCSs have had a positive impact on integrating sustainability in innovation work as well. Our findings, therefore, confirm the literature's stance on MCSs positively integrating sustainability and adds

further perspective in regard to innovation work. Consequently, our study suggests that other similar cooperatives can advantageously use MCSs to integrate sustainability in innovation projects in order to accomplish their sustainability objectives.

Moreover, the previous research describes how traditional MCSs, mainly referring to diagnostic systems, have been seen to play a lesser role in the integration of sustainability objectives (Arjaliès and Mundy, 2013). The research highlights that managers tend to find diagnostic systems limited in addressing environmental issues (Gond et al., 2012), and believe informal controls are easier to use than formal controls regarding sustainability (Crutzen et al., 2017). Similarly, we have found in AgCoop that the sustainability objectives have benefitted from informal controls such as an environmental culture in the belief systems. However, our findings in AgCoop also showcase a discrepancy between the previous literature regarding managers' views on the utilization of sustainability-related MCSs. In AgCoop, we have found that there has been a multitude of diagnostic sustainability measures applied in a similar way as financial ones, in innovation projects. Furthermore, managers and employees both express that diagnostic systems are effective in addressing environmental objectives, different from what Gond et al. (2012) express. As such, in AgCoop, we have found that the diagnostic systems play an important role in the actualization and attainment of sustainability objectives and are highly prioritized by managers, unlike the findings in Arjaliès and Mundy's study (2013). Managers also seem to find it easy to utilize formal control in regard to sustainability, adding another view to Crutzen et. al.'s study (2017). One reason for our contrasting views in this area of research could be due to the newly added regulations connected to their green financing, which consequently may make the utilization of diagnostic systems more efficient in ensuring adherence to sustainability regulations.

Our findings entail a new academic perspective on MCSs and sustainability within the frame of innovation. Firstly, organizations may use MCSs in order to effectively integrate sustainability objectives in their sustainability-innovation work. Secondly, there is reason to acknowledge that managers and organizations view diagnostic systems as having an impact on sustainability objectives. The traditional usage of MCSs should, therefore, not be academically viewed as less prioritized when organizations incorporate and actualize sustainability efforts, and may be especially important in academic contexts researching industries that are required or choose to adhere to environmental regulations.

## 5.2 The Balance of MCSs' Impact on Sustainability-Innovation

Firstly, prior research has found conflicting views on MCSs' impact on innovation. One stream posits that it has a harmful effect on innovation through the stifling of creativity, decreasing intrinsic motivation, and reducing employee autonomy (Amabile, 1998; Tushman and O'Reilly, 1997). The other side claims that it can have a positive effect through, for instance, the creation of guidance and motivating cultures (Simons, 1995; McCarthy and Gordon, 2011; Bisbe and Otley, 2004). Our study presents support for both of the two streams.

Firstly, our findings show that the employees in AgCoop experience that MCSs can have a hindering effect on the innovation process. Aligned with the arguments of the first literature stream (Amabile, 1998, Cardinal, 2001; Damanpour, 1991; Tushman and O'Reilly, 1997;), the employees express that, for instance, the extensive usage of diagnostic systems has a restrictive effect on their sense of autonomy and creativity, which are important characteristics in the innovation process. Secondly, the employees simultaneously confirm the other stream of research which reasons that MCSs have a fostering impact on innovation (Barros and Ferreira, 2021; Bisbe and Otley, 2004; McCarthy and Gordon, 2011; Simons, 1995). For example, the employees at AgCoop express appreciation for especially the belief systems by highlighting the benefit of gaining increased motivation to implement new innovative projects related to sustainability. Nonetheless, from a holistic point of view, our findings suggest that the current MCSs governing the sustainability-innovation projects are experienced by the employees as having a more hindering effect on innovation in comparison to fostering. In addition, employees at AgCoop expressed a wish for more enabling usage of MCSs within innovation in order for it to have a positive impact on their sustainability-related innovation work, such as being given more opportunities to explore new projects. Instead, they felt that the MCSs were used too controllingly within the intersection, as the aim was seen to mostly regulate and manage the attainment of organizational targets.

In contrast to innovation, the sustainability element in the intersection has been seen to benefit from more controlling usage of MCSs in AgCoop. This, as it has allowed AgCoop to effectivize the implementation of its sustainability strategies and efficiently align its organizational practices with AgCoop's sustainability objectives. For instance, it has helped ensure legal

compliance related to their green financing, correct external reporting, and efficient handling of their own environmental goals, like yearly reduction of CO<sub>2</sub> emissions.

Further, Mundy (2010) posits that the balance between the controlling and enabling nature of MCSs is of essence within Simons' LOC in order to generate dynamic tensions. Additionally, she highlights that it is challenging for managers to attain the balance for several reasons, such as a general inclination in organizations towards the controlling utilization of MCSs rather than the enabling. In alignment with Mundy's (2010) research, the managers at AgCoop tend to lean towards a more controlling utilization of MCSs in sustainability-innovation projects. This tendency is seen to both derive from the beneficial effects control has on attaining sustainability objectives as well as from an emphasis on risk-minimization, which stems from the prioritization of financial returns to owners. In turn, this controlling inclination results in employees experiencing a lack of enabling systems in their innovation work. Consequently, this imbalance within MCSs can reduce the organization's ability to generate dynamic tensions that enhance performance through the development of fundamental organizational capabilities, such as innovativeness (Henri, 2006). This highlights possible ramifications arising from a lack of balance in MCSs, which, as demonstrated by our study, is complex to attain in the researched intersection due to the dual utilizations' contrasting effects on sustainability-innovation.

Our study contributes to the academic literature on MCSs and sustainability-related innovation by showcasing the complexity of the area and, in turn, the awareness that is needed when designing control systems for sustainability-innovation. This, as our results show that the sustainability aspect has benefitted from a more controlling usage of MCSs, whereas the controlling manner of MCSs has simultaneously had an unfavorable impact on the innovation element. Instead, the innovative nature has seen to benefit from an enabling utilization. These contrasting effects of the dual usages show how it might be challenging to reach an optimal balance between the enabling and controlling usages of MCSs within sustainability-innovation, and that MCSs can, therefore, have different impacts on innovation and sustainability in these projects.

## 6. Conclusion

### 6.1 Summary

The agricultural sector has a dual responsibility to reduce its environmental impact whilst increasing its production to sustain a growing world population (Worldbank, 2023). Therefore, there is an evident need for new sustainable initiatives within this industry. Through in-depth interviews, document analysis, and the application of Mundy's (2010) framework, our study investigates how AgCoop, an agricultural cooperative, utilizes MCSs to try to drive sustainability-related innovation work. Our findings include an overall organizational perspective of MCSs positively impacting sustainability, whereas there are differentiating views on MCSs' effect on driving innovation. Further, our study contributes to the existing literature within this domain in two ways. First, we confirm previous research by highlighting MCSs' facilitating role in the integration of sustainability objectives in the setting of innovation. Moreover, we contribute with another perspective on sustainability, in that organizations and managers view diagnostic systems as having an important role in incorporating sustainability into sustainability-innovation work. Secondly, our findings further nuance previous research on MCSs' impact on innovation, as our study presents evidence for both the hindering and fostering stream of literature. Further, within the intersection of sustainability and innovation, our findings highlight how attaining the balance between enabling and controlling usages of MCSs is especially complex. This, as the innovation element shows a need for enabling practices whilst the sustainability aspect simultaneously benefits from more controlling usages. To conclude, our study provides further context on how MCSs impact organizations' sustainability-driven innovation work.

### 6.2 Limitations and Suggestions for Future Research

Our findings are not without limitations. To begin with, the ability to observe the managers' and employees' daily operations in terms of dialogue, internal meetings, and other processes has been somewhat restricted. As a result, the utilization of MCSs within the context of sustainability-related innovation is not fully observed in practice but rather described through in-depth interviews supported by secondary data in the form of AgCoop's external communication. This implies that certain influencing factors, such as the underlying reasons for the suppression of levers, may have been omitted from the study. Further, given the



agricultural industry's specific relationship to the environment as well as the limited scope of our study to a single organization, the findings should not be generalized to all industries.

Following this, we encourage future research within the field of MCSs' impact on sustainability-innovation to be conducted in more agricultural organizations and other industries, to grant a more holistic view of the implications found. This is especially relevant given the limited research previously conducted in this intersection in combination with the urgent need for new sustainable solutions in all industries. Furthermore, as we decided to delimit the concept of sustainability to purely relate to environmental effects, we encourage future research within its related elements, such as social and economic sustainability. In a similar manner, we support future research within more narrow areas of innovation, for example, product innovation, in order to gain a more detailed view of how certain stages of the innovation process are impacted by the balance of MCSs within the frame of sustainability. Lastly, our study concludes that the balance between MCSs' controlling and enabling nature may be challenging to attain due to its contrasting impacts on the intersection, and we, therefore, encourage further research regarding specifically *how* organizations may attain this balance.

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## 8. Appendix

### *Appendix 1: Interview guide extract*

The following interview guide has been translated from Swedish to English.

#### *Introductory*

- Introduction to our thesis and chosen research area.
- Introduction to the interviewee: position in the company and operating division.
- Have you been involved in designing the control tools at AgCoop? Encompassing both innovation and sustainability.

#### *MCSs and innovation*

- Is there a culture for innovation at AgCoop? If yes, in what ways do you see it?
- How is the innovation work prioritized?
- Do you feel the control systems in place are appropriate for your innovation work?
- How does AgCoop make sure that the work you do aligns with AgCoop's innovation strategies?

#### *MCSs and sustainability*

- Is there a culture for sustainability at AgCoop? If yes, in what ways do you see it?
- How is the sustainability work prioritized?
- Do you feel the control systems in place are appropriate for your sustainability work?
- How does AgCoop make sure that the work you do aligns with AgCoop's sustainability objectives?

#### *MCSs regarding both sustainability and innovation*

- What do you feel mainly drives your work for sustainable innovation?
- How motivated are you to work on new sustainability-related innovation?
- What are the main internal communication channels regarding sustainability-innovation? Describe their structure.
- How do you experience the balance between soft and hard controls?
- Do you experience the control systems to have a positive or negative impact on your sustainability-related innovation work?

***Appendix 2: Summary of interview information conducted within AgCoop***

| <b>Date</b> | <b>Position</b> | <b>Setting</b> | <b>Length (minutes)</b> |
|-------------|-----------------|----------------|-------------------------|
| 9/2/23      | Board Member A  | Physical       | 51:20                   |
| 10/2/23     | Manager A       | Phone          | 38:02                   |
| 28/3/23     | Employee A      | Video call     | 33:10                   |
| 30/3/23     | Manager B       | Physical       | 49:57                   |
| 3/4/23      | Manager C       | Video call     | 48:13                   |
| 14/4/23     | Employee B      | Video call     | 40:48                   |
| 17/4/23     | Employee C      | Video call     | 54:29                   |
| 18/4/23     | Manager A       | Phone          | 31:34                   |