How to use management control systems to embed sustainability in the corporate culture?

Whitepaper

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EXTENDED ABSTRACT[1]

Introduction

Both sustainability and Management Control Systems (MCS) are topics that have been extensively discussed in the literature for quite some time. However, MCS focusing on sustainability are often identified as an area for further research opportunities. We have found some conceptual studies regarding the design of MCS aimed at sustainability (Arjaliès, Mundy, 2013, Lueg, Radlach, 2016, Maas, Schaltegger & Crutzen, 2016), and several empirical studies on this topic (Ligonie, 2021, Ditillo, Lisi, 2016, Narayanan, Boyce, 2019, Arjaliès, Mundy, 2013). However, numerous studies confirm the need for further empirical research in this field (Gond et al., 2012, Hartmann, Perego & Young, 2013, De Villiers, Venter & Hsiao, 2016, Ditillo, Lisi, 2016, Sundin, Brown, 2017, Latan et al., 2018, Ligonie, 2021, Joshi, Li, 2016). Furthermore, in a systematic literature review, Traxler et al. (2020) reveal that current literature lacks empirical, theory-guided, and critical analyses. According to our knowledge, our research is the only empirical study comparing and analyzing the MCS from different perspectives of diverse companies that focus on sustainability.

This need for further empirical research on the topic of MCS and sustainability led us to pose the following research question:

How are MCS focusing on the creation of sustainable value designed in practice?

Extant accounting and control literature commonly views management controls as a means to direct an organization towards strategic and operational goals (Ferreira and Otley, 2009; Gond et al., 2012; Langfield-Smith, 1997; Ouchi, 1977; Simons, 1995; Tucker et al., 2009). This traditional view defines MCS through its cybernetic and processual nature. In our study, we define MCS more holistically as “systems, rules, practices, values, and other activities management put in place in order to direct employee behavior” (Malmi, Brown, 2008, p. 290).

Our findings show that sustainability is a crucial element in the organization's culture of a sustainable business model and that MCS entail essential tools to embed sustainability in the organization's culture.

Methods

We engaged twenty companies based on purposive sampling to enable this exploratory qualitative analysis. The most crucial criterion for selecting these companies was an active focus on the creation of sustainable value so that the objects to be investigated fall within the scope of this research.

The research design involved data triangulation (Modell, 2005) through reliance on a multiplicity of informants and data sources (Flick, 2002, Patton, 2002). Data were collected using various evidential sources: public business reports, semi-structured interviews, direct observation during site visits, and internal documents of the companies. In total, we conducted 53 interviews across the twenty selected organizations.

Data were analyzed through a theory-building process using the open, axial, and selective coding stages of Grounded Theory (GT) (Strauss, Corbin, 1990).

Results

Due to our GT approach, we did not choose a particular control system but split the control elements into cultural and non-cultural controls well reflected by social and technical controls (Gerdin, 2020).

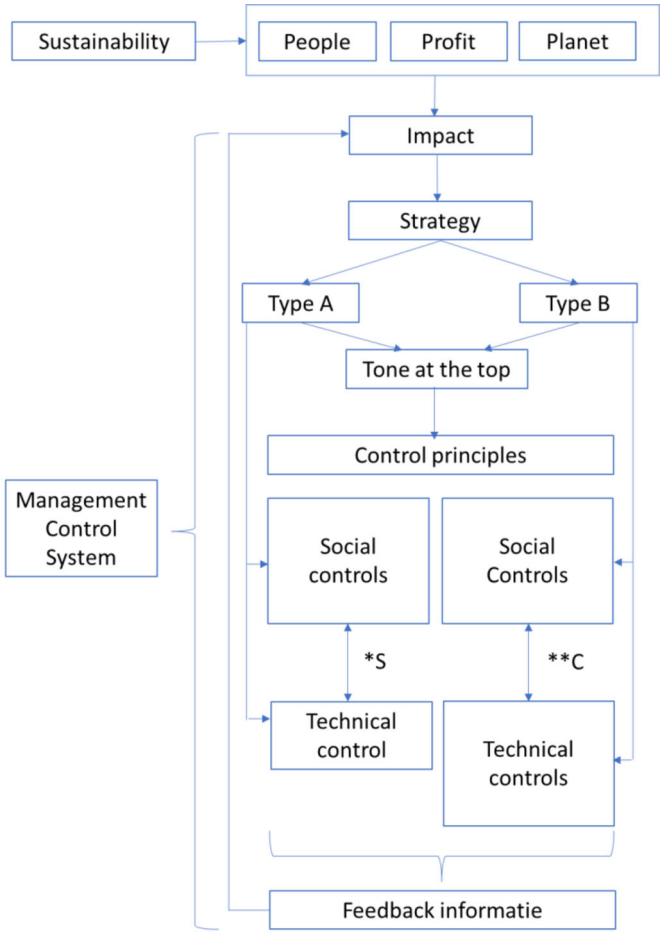
[1] This whitepaper starts with an extended abstract, which is submitted to the New Business Models Conference to be held 23 and 24 June in Rome, Italy and is during publication date of this whitepaper still under review.

Social controls typically imply that managers seek to more *indirectly* influence subordinates' behavior through shaping their mindset in the hope that they will internalize the values and beliefs of the organization and act accordingly (Abernethy, Dekker & Schulz, 2015, Simons, 1995). Examples of social controls include the use of vision, mission, and strategy statements (Merchant and Van der Stede, 2017; Simons, 1995), employee socialization (Abernethy and Brownell, 1997; Bedford and Malmi, 2015) and employee selection processes (Abernethy et al., 2015; Campbell, 2012; Merchant and Van der Stede, 2017; Ouchi, 1979).

In contrast, technical control seeks to influence employee behavior *directly*. As put by Kärreman and Alvesson (2004, p. 152), for example, such MCS work primarily "with plans, arrangements, and systems focusing on behavior and/or measurable outputs." Hence, technical types of MCS have primarily been associated with the use of behavior controls such as rules and routines (Gerdin, 2005; Kreutzer et al., 2016; Ouchi, 1979), and output controls such as the use of PMSs, budgets, and employee incentive systems (see e.g. Grabner, 2014; Merchant and Van der Stede, 2017; Simons, 1995).

Figure 1 represents an overview of our empirical findings regarding MCS focusing on sustainability. Sustainability is defined as striving to balance economic, ecological, and social value according to the Triple P concept (planet, people, profit) of Elkington (1994). These values are not limited to the organization itself, but concern the impact of the organization's products over the whole value chain. The value creation of the three P's over the whole value chain is incorporated into the organization's strategy.

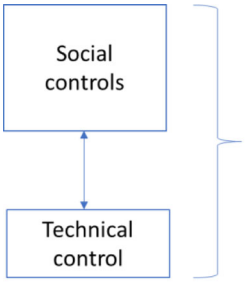
In our findings, a distinction became apparent between companies established for a sustainable purpose, further called Type A, and companies in a transition towards a sustainable business model, further called Type B. For both types of companies, support from the top (the CEO in particular) is considered crucial for successfully implementing a sustainable business model. However, we recognized different patterns regarding embedding sustainability in the cultures of Type A and Type B organizations and the interdependencies of social and technical controls in this respect. Social controls play an essential role for both Type A and Type B organizations, be it with different accents. For Type A, sustainable values are to a significant part internalized in the organization, which means that Type A can rely on these values in their control structure. For Type B, sustainable values are internalized in the organization to a lesser extent, and social controls are essential tools to internalize these values in a significant part of the organization.



*S = Social and technical controls are **S**ubstitutes
C = Social and technical controls are **Complements

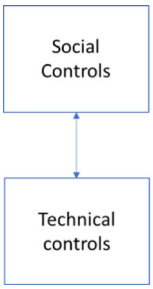
Figure 1: Overview of MCS for Type A and Type B companies.

For Type A companies, social and technical control function as substitutes. Here, MCS mainly focus on social controls. These MCS rely on shared sustainable values as a control mechanism, substituting technical controls. For Type B companies, social and technical controls are complementary to each other. Social controls focus on embedding a sustainable culture in the organization and are supported by technical controls to direct employees' behavior in the sustainable direction and enhance the process of embedding sustainability in the culture. These MCS focus on embedding shared sustainable value in the organization and cannot yet rely on shared values as the leading social control mechanism without the support of technical controls as complements to social controls.



Type A can rely mainly on social controls, since sustainability is embedded in the culture

Figure 2a: Type A Culture and control



Type B needs both social and technical controls to embed sustainablity in the culture

Figure 2b: Type B Culture and control

Discussion

Our study indicates that to facilitate the transition to a sustainable business model, a strong focus of MCS on embedding a sustainable culture in the organization is crucial. Although this conclusion is not congruent with current literature, our findings do not seem to contradict most studies and confirm several findings of current literature. Our analysis shows that social and technical controls play a crucial role in this process, in line with Ditillo and Lisi (2016) and illustrates not only that social controls increase the effectiveness of technical controls confirming several studies (Durden, 2008; Norris and O'Dwyer, 2004; Tregidga et al., 2014) but also points out that social controls alone are not sufficient and need to be supported by technical controls, aligning with Laguir et al. (2019) and Narayanan and Boyce (2019). However, our main argument, that MCS focus on embedding a sustainable culture in the organization using both social and technical controls, is not commonly found in literature. What we do found is significant attention in literature for diagnostic controls and sustainability (Guenther et al., 2016). The main focus of most studies is on one specific control element (for example see Guenther et al. (2016)) or on an existing control framework (Laguir et al., 2019; Narayanan and Boyce, 2019), however, limits their conclusions to the boundaries of the particular control element or framework. These limits explain Traxler et al.'s (2020) findings of their systematic literature review on the topic that the existing literature does not go beyond an instrumental and functionalistic perspective instead of our more holistic approach. We argue that our GT approach, combined with a wide variety of sustainable companies in our selection being interviewed from different angles, allows this study to reveal our main argument.

Conclusions

This study explores the impact of sustainability orientation on the design of MCS. Our results provide in-depth and nuanced insights into these particular MCS. They suggest that these MCS are essential enablers to embed sustainability in the organization's culture to transition to a sustainable business model.

This study contributes to the literature in several ways. In general terms, it provides new insights into the way companies design MCS focusing on sustainability, answering a call for more management accounting research in this area (Gond et al., 2012, Hartmann, Perego & Young, 2013, De Villiers, Venter & Hsiao, 2016, Ditillo, Lisi, 2016, Sundin, Brown, 2017, Latan et al., 2018, Ligonie, 2021, Joshi, Li, 2016). In particular, it shows that MCS focussing on corporate sustainability are designed to embed sustainability in the corporate culture and explains how these MCS are enacted in practice and understood in empirical settings regarding this process. It also extends the theoretical conceptualization of control elements focussing on culture (Ouchi, 1979, Simons, 1995, Merchant, Van der Stede, 2017). It does so by making a clear distinction between cultural control, which relies on shared sustainable values (Ouchi, 1979) and cultural control, which intends to internalize shared sustainable values (Simons, 1995, Merchant, Van der Stede, 2017).

To conclude, this study created some fruitful insights in the complexities of MCS for sustainability and culture. As research advances, certainly more fine-grained classifications, descriptions, and dimensions of these MCS can be developed. Future research can verify the effectiveness of identified patterns based on a quantitative research approach. We also see performing longitudinal case studies on the development of both MCS of Type A and Type B companies as fruitful future research possibilities. In addition, fascinating new insights can emerge involving more blue-collar employees in the study. Also, the potential role of Accounting and Control, including the accounting system, regarding diagnostic control mechanisms could be further analyzed.

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Keywords
Management Control Systems
Corporate sustainability
Culture
Social Controls
Technical Controls
Interdependencies

Abstract
Little is known about the role of organizational culture regarding management control systems (MCS) that focus on corporate sustainability. To enhance our understanding of this phenomenon, this study of MCS shows how social and technical forms of control can be used to embed sustainability in the corporate culture. When companies are founded with a sustainable purpose, then sustainability is at the core of their endeavors. In these cases, social controls have the main focus and have a substitutive role to technical controls. In contrast, social and technical controls are complementary to effectively embed sustainability in the culture for companies transitioning to sustainability. We empirically inform our study with a multiple exploratory case-study design[2], using interviews, desk research, and observations, investigating a variety of twenty companies in The Netherlands that aim for corporate sustainability. In this paper, we respond to the need in literature for further empirical research regarding the design of MCS aimed at sustainability, and the role of culture in particular. We also contribute to the discussion in the literature about complementarity versus substitution of controls. Besides contributing to the academic literature, we believe this paper can also help practitioners design MCS to create sustainable value for their organization.

1. Introduction

Both sustainability and MCS are topics that have been extensively discussed in the literature for quite some time. However, MCS focusing on sustainability or multiple value creation are often identified as an area for further research opportunities. We have found some conceptual studies regarding the design of MCS aimed at sustainability (Arjaliès and Mundy, 2013; Lueg and Radlach, 2016; Maas et al., 2016), and several empirical studies on this topic (Arjaliès and Mundy, 2013; Ditillo and Lisi, 2016; Ligonie, 2021; Narayanan and Boyce, 2019). However, numerous studies confirm the need for further empirical research in this field (De Villiers et al., 2016; Ditillo and Lisi, 2016; Gond et al., 2012; Hartmann et al., 2013; Joshi and Li, 2016; Latan et al., 2018; Ligonie, 2021; Sundin and Brown, 2017). Traxler et al. (2020) reveal in a systematic literature review on the topic that current literature is lacking empirical, theory guided and critical analyses. According to our knowledge, our research is the only study comparing and analyzing the MCS from different perspectives of diverse companies that focus on sustainability. We found one study that adopts an exploratory qualitative approach in 17 large Western European firms to examine the existence of specific elements of a broad management control package aimed at sustainability (Crutzen et al., 2017). However, their data collection is based on interviews with sustainability managers only, not considering the point of view of accountants, top managers, or managers in other business functions.

Our study responds to the need for further empirical research on this theme to advance the theory on MCS aimed at sustainability. With our holistic approach, we show the interactions between a

[2] In literature, a variety of definitions for case-studies are used. Often a case-study is associated with an in-depth or longitudinal approach (Mortelmans, 2020). Our study is a qualitative analysis, using 20 cases in an exploratory way. To avoid misunderstanding about the interpretation of our case-study design, we labeled our study as an exploratory case-study.

variety of relevant control elements rather than focusing on an instrumental and therefore functionalistic perspective which is found in the existing body of literature (Traxler et al., 2020). It also extends the theoretical conceptualization of control elements focusing on culture (Merchant and Van der Stede, 2017; Ouchi, 1979; Simons, 1995) and sustainability. Previous research has shown that when sustainability exists without shared purposes, understandings, ways of doing, or actions with other practices, decoupling occurs, and practices are hardly altered (Durden, 2008; Norris and O'Dwyer, 2004; Tregidga et al., 2014), making culture a crucial element in corporate sustainability. Our study contributes to these findings by clarifying how management control can impact the internalization of sustainable shared purposes, rules, and shared understandings. This research also deals with interdependencies between social and technical controls. In our research, we found that similar technical and social controls are complementary for some companies, while acting as substitutes for others. By discussing this paradox, we contribute to the current discussion in the literature about complementarity and substitution of controls (Abernethy et al., 2015; Bedford et al., 2016; De Jong et al., 2014; Gerdin et al., 2019; Gerdin, 2020; Kreutzer et al., 2016; Lourenço, 2016; Malmi et al., 2020).

Furthermore, the study provides tools for practitioners to use MCS to support the transformation of organizational practices that can contribute to sustainable development through processes that facilitate innovation, communication, reporting, and the identification of threats and opportunities.

This need for further empirical research on the topic of MCS and sustainability led us to pose the following research question:

How are MCS focusing on the creation of sustainable value designed in practice?

In our research, we argue that companies with a strategic focus on corporate sustainability have designed their MCS to embed sustainability in their culture, in which social and technical controls play a complementary and a substitutive role.

Extant accounting and control literature commonly view management controls as a means to direct an organization towards strategic and operational goals (Ferreira and Otley, 2009; Gond et al., 2012; Langfield-Smith, 1997; Ouchi, 1977; Simons, 1995; Tucker et al., 2009). This traditional view defines MCS through its cybernetic and processual nature. In our study, we define MCS as “systems, rules, practices, values, and other activities management put in place in order to direct employee behavior” (Malmi and Brown, 2008, p. 290). Although we will not use a particular control framework or package as a theoretical basis, we will use management control concepts currently known in literature to analyze our data, drawing on the observation that, in real-life, organizations tend to employ large and complex combinations of different controls (Malmi and Brown, 2008). This also answers the call from Guenther et al. (2016), who summarized current empirical research on environmental MCS by means of an integrative literature review, to examine different control elements simultaneously instead of focusing on particular elements of environmental MCS.

Sustainable value creation is a concept open for many interpretations and often seen as a clichéd term. Based on our findings, we have defined sustainable value creation as finding a balance between creating ecological-, social- and economic value (Jonker and Faber, 2019), referring to the Triple Bottom Line approach that comprises these three pillars of sustainability (Carroll, 1979; Elkington, 1994). According to this definition, companies are challenged to behave in an environmentally sustainable and socially responsible manner while maintaining and improving shareholder value. Along similar lines, Schaltegger et al. (2017) define corporate sustainability as a business approach that is designed to shape the environmental, social, and economic effects of a company in such a way that, first, results in the sustainable development of the company and,

second, provides an essential contribution toward the sustainable development of the economy and society.

It is not our intention to open Pandora's box by including culture in our findings. In our research, culture refers to organizational culture and is defined as "the set of values, beliefs and social norms which tend to be shared by its members and, in turn, influence their thoughts and actions" (Flamholtz et al., 1985, p. 158). Subsequently, this view of culture is adopted by a range of accounting-related research (Birnberg and Snodgrass, 1988; Dent, 1991; Pratt and Beaulieu, 1992). Our findings show that most of our selected companies indicate that sustainability is an important element in their culture and that control elements and concepts are important tools to embed sustainability in their organization's culture. In our findings, we will focus on these control elements and concepts, and in our discussion section, we reflect how these elements and concepts are crucial to embed sustainability in the organization's culture either in a complementary or substitutive way.

The remainder of the paper is organized as follows. In the ensuing sections, we will briefly outline current literature about the role of control elements and culture, MCS focusing on sustainability, and interdependencies of control elements. After that, we explain how the empirical data were collected and analyzed. Finally, we present the empirical findings and discuss how they augment extant understandings of MCS literature as described in the theory section.

2. Theory

Our analysis shows that embedding sustainability in the culture plays a dominant role in the design of MCS, and making the distinction between social and technical control (Gerdin, 2020) appeared to be suitable to further analyze and discuss this finding. Also, the complementary and substitutive roles of control (Grabner and Moers, 2013) are relevant in our analysis. Therefore, in this theoretical section we will discuss relevant control elements and concepts concerning culture, motivating and defining social an technical controls, which will be used in our analysis. This will be followed by reviewing current literature about the role of social and technical controls in MCS focusing on sustainability, including the current debate about the complementary versus the substitutive role of control elements and concepts. This facilitates our discussion section, where we reflect on our findings to the theory described in this section. In this way, we use current literature to provide new insights into our findings.

2.1 Control elements and concepts focusing on culture

In the literature we found several control mechanisms which focus on the culture of an organization. Belief systems refer to statements communicating the fundamental values and premises for action of the firm (Schein, 2010; Simons, 1995). Merchant and Van der Stede (2017) define cultural controls as controls that shape the shared traditions, norms, beliefs, values, ideologies, attitudes, and ways of behaving in an organization and mention codes of conduct, group based rewards, intra-organizational transfers, physical arrangements and tone at the top for effecting cultural controls. Since Ouchi's groundbreaking work in the 1970s on clan controls (Ouchi, 1979), management control literature has emphasized the importance of organizational culture (Bititci et al., 2006; Lebas and Weigenstein, 1986). Parallel to Merchant and Van der Stede's (2017) cultural controls, clan controls utilize socialization between employees to align their interests and values with those of the organization (Wilkins and Ouchi, 1983). Jaeger and Baliga (1985) describe this process as employees internalizing the organization's norms, values, objectives, and "ways of doing things" to the extent where employees become morally committed to them (Harris and Ogbonna, 2011). Giddens (1984) refers to the process of internalizing the organization's norms, values, objectives as institutionalization. Malmi and Brown (2008) express cultural controls as communication of values

and visions, recruitment and socialization of employees, and guidelines and procedures. Malmi and Brown (2008) further divide cultural controls into value-based controls (Simons, 1995), symbol-based controls (Schein, 2010), and clan controls (Ouchi, 1979).

A common understanding of cultural controls is that they all seem to focus on a shared belief of values and norms. However, we also determine differences between the various concepts of cultural control. Simons's (1995) belief system is more conceptual in its nature, whereas Merchant and Van der Stede's (2017) indicate explicit tools for internalizing shared values. Malmi and Brown (2008) include guidelines and procedures in cultural controls, while Merchant and Van der Stede (2017) view guidelines and procedures as part of action controls.

After analyzing our data, we concluded that MCS focusing on creating sustainable value aim to embed sustainability in the organization's culture. We did not choose a particular control system but decided to split the control elements into cultural and non-cultural controls, where elements of the above mentioned frameworks were used to specify and further theorize our findings.

The distinction between cultural and non-cultural controls is well reflected by the distinction between social and technical controls (Gerdin, 2020) and is used in our analysis.

Social controls typically imply that managers seek to more *indirectly* influence subordinates' behavior through shaping their mindset in the hope that they will internalize the values and beliefs of the organization and act in accordance with these (Abernethy et al., 2015; Simons, 1995). Examples of social controls include the use of vision, mission, and strategy statements (Merchant and Van der Stede, 2017; Simons, 1995), employee socialization (Abernethy and Brownell, 1997; Bedford and Malmi, 2015) and employee selection processes (Abernethy et al., 2015; Campbell, 2012; Merchant and Van der Stede, 2017; Ouchi, 1979).

In contrast, technical forms of control seek to influence employee behavior more *directly*. As put by Kärreman and Alvesson (2004, p. 152), for example, such MCS work primarily "with plans, arrangements, and systems focusing on behavior and/or measurable outputs." Hence, technical types of MCS have primarily been associated with the use of behavior controls such as rules and routines (Gerdin, 2005; Kreutzer et al., 2016; Ouchi, 1979), and output controls such as the use of PMSs, budgets, and employee incentive systems (see e.g. Grabner, 2014; Merchant and Van der Stede, 2017; Simons, 1995).

Tessier and Otley's (2012) model considers managers to have social controls (those that appeal to employee emotions, such as values, beliefs, norms, and symbols) and technical controls (those that consider rules, procedures, and standards that govern day-to-day decision-making) at their disposal.

In the next section we will review the current literature on the role of social versus technical controls regarding MCS focusing on sustainability

2.2 The role of social and technical controls in MCS focusing on sustainability

In literature, ambiguity seems to exist about the role of social and technical controls in MCS focusing on sustainability.

We analyzed two literature reviews in the field of MCS related to sustainability. In their integrative literature review, Guenther et al. (2016) reviewed the knowledge gained by empirical studies (case studies and quantitative surveys) focusing on environmental MCS (EMCS) using the Malmi and Brown (2008) framework to indicate EMCS elements examined in 35 empirical studies. The outcome shows that in all 35 studies, cybernetic controls were examined, followed by administrative controls (21 studies), planning (19 studies), reward and compensation (14 studies), and cultural controls (13

studies). One of their conclusions is that, as research on EMCS is still in its infancy, the field appears fairly unorganized and lacks clarity and consensus in several regards. CEO commitment, design and measurement properties influence the use of environmental management controls and the presence of powerful agents or environmental champions are some of the outlined empirical regularities related to EMCS. As indicated by the outcome of their study, there is a main focus on cybernetic controls. And although there are 13 studies which include cultural controls in their findings, only one single case-study (Morsing and Oswald, 2009) emphasizes the importance of organizational culture in the context of sustainability management controls. More recently, Traxler et al. (2020) performed a systematic exploratory literature review based on the Malmi and Brown (2008) framework comparable to the literature review of Guenther et al. (2016). They reviewed 53 papers on the interplay between sustainability reporting and management control. Their outcome shows that in 37 studies, administrative controls were addressed, followed by planning and cybernetic controls (both 30 studies), cultural controls (28 studies) and reward and compensation (8 studies). In the 28 papers addressing cultural controls, a predominantly positive relationship is shown between cultural controls and sustainability reporting. Furthermore, they reveal that in line with an instrumental perspective, sustainability reporting also has a positive influence on corporate culture in terms of changing the communication of the vision, building a common language and values, triggering learning processes and leading to higher loyalty and trust among employees. Comparing the two literature reviews, the focus on the role of cultural control in relation to sustainability seems to increase in literature over time. However, administrative controls, planning and cybernetic controls retain the most attention.

Reviewing two individual empirical studies, which also used the management control framework of Malmi and Brown (2008), we also determined ambiguity regarding the role of culture in MCS focusing on sustainability. Crutzen et al. (2017) identify two distinct approaches in management control for sustainability: a focus on either formal or informal approaches, while Svensson and Funck (2019) show the importance of cultural control and long-range planning for communicating circular values and spreading a culture based on circular principles using a combination of formal and informal controls.

Ditillo and Lisi (2016) investigated how the integration of Sustainability Control Systems (SCS) with the more traditional MCS are affected by a managerial sustainability orientation. They suggest that, while a company's sustainability orientation represents the key trigger in explaining variations in SCSs' integration, important enablers facilitating the integration process relate to organizational arrangements, stakeholders' engagement processes, availability of financial and personnel resources, and a shared definition of key sustainability performance indicators supported by a suitable technological infrastructure to measure them. This seems to indicate that both social as well as technical controls are needed for an integrated SCS.

This is in line with Narayanan and Boyce (2019), who used the levers of control (LOC) framework of Simons (1995) to examine the role of MCS in organizational change towards sustainability. Their findings indicate that strategic discourses of sustainability, conveyed through belief systems alone, are insufficient for deep-seated change. More far-reaching change requires this to be accompanied by changes in boundary controls and interactive use of sustainability-related data, and supported by diagnostic measurement of sustainability performance. Clearer links are needed between strategic priorities in relation to sustainability and the MCS.

In a similar vein, Laguir et al. (2019) used Simons' (1994) formal levers of control framework and more informal processes to examine how organizations implement and manage corporate social responsibility (CSR) activities through MCS. One of their conclusions is that the use of social controls

is hindered by a lack of clear strategic CSR objectives and action plans, a lack of global standards and measurement processes for CSR, and a lack of time and financial resources, indicating that social controls are only effective when supported by technical controls.

On the other hand, previous research has shown that when sustainability exists without sharing purpose or understanding, decoupling occurs and practices are hardly altered (Durden, 2008; Norris and O'Dwyer, 2004; Tregidga et al., 2014). This suggests that technical controls are only effective to realize the transition to a sustainable business model when supported by social controls.

Although the role of social and technical controls in MCS focusing on sustainability in literature is diverse, in the majority of the cases, interdependencies between social and technical controls seem to exist. In the next section, we will further zoom in on these interdependencies between social and technical controls.

2.3 Interdependencies of control elements and the complementary and substitutive roles of control regarding sustainability

Grabner and Moers (2013) and others (e.g. Bedford et al., 2016) argue that MCS comprise of several interdependent control forms. While the traditional view on such interdependencies was often built on a substitution logic (Chenhall, 2003; Govindarajan, 1984; Ouchi, 1977; Ouchi, 1979), recent research has found that MCS may also act as complements (e.g. Bedford et al., 2016; De Jong et al., 2014), at least under certain contextual conditions (e.g. Abernethy et al., 2015; Gerdin et al., 2019; Kreutzer et al., 2016).

We do not assume any ex-ante interdependencies between the different control elements. Instead, we propose to view the MC package of a given organization as containing the complete set of MC practices regarding sustainability, thus mirroring the organization's control environment in this respect. We will search for interdependencies between the determined control elements in our analysis. The two types of interdependencies between MC practices, i.e., complements and substitutes, are defined by Grabner & Moers (2013) as follows:

MC practices are complements when the benefits of one MC practice increase with the use of (some) other MC practice (and vice versa).

MC practices are substitutes when the benefits of one MC practice decrease with the use of (some) other MC practice (and vice versa).

The literature is ambiguous about the interdependencies of controls regarding sustainability. Some authors indicate a substitutive role regarding these interdependencies. Crutzen et al. (2017) consider formal controls and cultural controls as substitutes, since they conclude that sustainable management control in leading European companies tends to focus on either formally-established or culturally dominated management control. In a similar vein, Dimes and Villiers (2020) provide evidence that different types of control systems are used to embed integrated thinking, showing in general a dominance of social controls over technical controls, referring to "informal cultural, personnel, and action controls, if they are internally consistent and hence functional, form a substitute for the need to adopt more formal control systems" (Sandelin, 2008 p. 339). Social controls act in many situations as a substitute for more formal technical controls and procedures (Norris and O'Dwyer, 2004; Sandelin, 2008).

In contrast, Svensson and Funck (2019) challenge these results by showing that cultural control may be complemented by formal control and vice versa. On the one hand, they conclude that culture without formal control may commit employees but fail to reveal whether operations align with the

business model. On the other hand, they argue that formal control without the appropriate culture may reveal organizational performance but fail to create commitment regarding sustainable results. Mundy (2010) discusses how a good balance between control systems can facilitate creative dynamic tension within organizations but also how insufficient attention to one control can lead to imbalances overall. In the same vein, Riccaboni and Leone (2010) demonstrate in their study about implementing sustainable strategies through MCS that due to these tensions, informal and formal control systems need to complement and support one another. Studies in values-led organizations have also shown social controls to be used extensively to drive the strategic agenda (Morsing and Oswald, 2009; Norris and O'Dwyer, 2004), indicating that broader definitions of success and performance may require the use of different control systems, indicating a more complementary relation between different control types.

3. Research method

3.1 Grounded Theory

This research is based upon Grounded Theory (GT), where theory is built from empirical data. Strauss & Corbin (1990, p. 23) state, "One does not begin with a theory, then prove it. Rather, one begins with an area of study and what is relevant to that area is allowed to emerge." According to Beuving & De Vries (2015; p. 60) "in its most radical formulation, GT presents a purely inductive procedure, in which theory is built from empirical data only: no prior familiarity with theoretical debates is necessary." However, Beuving & De Vries (2015; p. 60) also argue that "it would be naive, and also an insult to the hard work of our colleagues who went before us, to ignore the fruits of their work (commonly referred to as 'the literature')." In our research, we have approached the data with the sensitizing concepts of "management control systems" and "sustainable value creation". In line with GT we have not chosen particular MCS or a preset definition of multiple value creation, but these concepts indicate a direction for our research and makes it sensitive to themes or concepts that help the researcher answer the main research question.

3.2 Choice of cases

To enable an exploratory qualitative analysis, we sought to engage twenty selected companies based on purposive sampling. The most crucial criterion for selecting these companies was an active focus on multiple value creation so that the objects to be investigated fall within the scope of this research. In order to determine whether a company is expected to be sensitive for MCS aiming for multiple value creation, at least two of the criteria below must be met:

- The presence of a sustainability manager
- The integrated report, which shows that sustainability plays a vital role in the company's strategy
- High ranking on Sustainability indices (e.g., the Dow Jones Sustainability Index).
- Winning sustainability prizes/sustainability awards.

However, even if a company meets all the four criteria, it is not guaranteed that this company focuses on multiple value creation. Greenwashing is a common practice regarding sustainability (Boiral, 2013). Therefore, in addition to the criteria mentioned above, preliminary exploratory discussions with the (potential) interviewees were held to determine the intentions and actual focus regarding sustainability.

The anonymized sample selection is presented in table 1:

Company	Sector	Revenue (€)	Employees	Shareholder
1	Food	100 mln – 1 bln	100 – 1k	Private Owned
2	Manufacturing	1 bln – 10 bln	10k – 100k	Listed
3	Agriculture	1 bln – 10 bln	10k – 100k	Private Owned
4	Food	10 mln – 100 mln	100 – 1k	Private Owned
5	Agriculture	10 bln – 100 bln	10k – 100k	Private Owned
6	Manufacturing	1 bln – 10 bln	1k-10k	Listed
7	Logistics	1 bln – 10 bln	10k – 100k	State Owned
8	Manufacturing	1 bln – 10 bln	10k – 100k	Listed
9	Food	100 mln – 1 bln	100 – 1k	Listed
10	Agriculture	100 mln – 1 bln	1k-10k	Private Owned
11	Manufacturing	100 mln – 1 bln	1k-10k	Private Owned
12	Manufacturing	1 bln – 10 bln	1k-10k	State Owned
13	Real Estate	100 mln – 1 bln	100 – 1k	Listed
14	Service	1 bln – 10 bln	10k – 100k	Listed
15	Financial Services	1 bln – 10 bln	10k – 100k	Cooperative
16	Service	1 bln – 10 bln	1k-10k	Association
17	Financial Services	1 bln – 10 bln	10k – 100k	Listed
18	Financial Services	1 bln – 10 bln	1k-10k	Listed
19	Manufacturing	1 mln – 10 mln	1-10	Private Owned
20	Manufacturing	10 mln – 100 mln	100 – 1k	Private Owned

Table 1: Characteristics of the 20 selected companies.

All the 20 sample companies are Dutch, of which the majority operates internationally.

3.3 Data collection

The research design involved data triangulation (Modell, 2005) through reliance on a multiplicity of informants and data sources (Flick, 2002; Patton, 2002). The collection of data from a wide spectrum of sources enhances data reliability and, thus, our ability to understand and interpret our findings (Denzin, 2012; Fusch and Ness, 2015). Specifically, data were collected using various evidential sources: public business reports, semi-structured interviews, direct observation carried out during site visits, and internal documents of the companies. The analysis of documents spanned from the financial and sustainability reports, budget and reporting statements, to policy and strategy documents. Interviews were administered to managers and other organizational members at different hierarchical levels and across departments. In total, we conducted 53 interviews across the twenty selected organizations. Interviewees were selected to cover at least the following perspectives:

- How is sustainability incorporated in the strategy of the organization? For this perspective, interviewees were selected who were involved in strategy setting of the company, most often a board member.
- How is sustainability incorporated in the business processes of the organization? For this perspective, interviewees were selected who were involved in incorporating sustainability in the business processes, most often the sustainability manager or a business manager.
- How is sustainability accounted for and monitored? For this perspective, interviewees were selected who were responsible for the accounting and monitoring process of sustainability, most often an accounting manager or the sustainability manager.

For some companies, two perspectives were combined into one interview. For every perspective, a separate interview guide was developed. An overview of the interview guides can be found in appendix 1. The interview guides are partly based on interview guides of existing studies in our research field. A summary of the interviews conducted is shown in appendix 2. Particular function descriptions are adjusted to a regular representative alternative function description to guarantee anonymity. When we refer in our findings to interviewee x from company y, it is indicated as “Int x, Coy y”.

3.4 Data analysis

Data were analyzed through a theory-building process. Several iterations of open coding (Strauss and Corbin, 1990) led to the emergence of the control practices aiming for sustainability. The open coding process resulted in 2,153 selected fragments and 155 open codes. The open codes were created to represent the meaning of the selected fragments, taken from the perspective of the sensitizing concepts "management control systems" and "sustainable value creation", not using a preset code book with theoretical control elements. We grouped the codes and fragments of the open coding process during the axial coding process in 7 relevant code groups covering 67 codes and 1,240 fragments. A code group in the axial coding group consists of codes and fragments of the open coding process with a common control theme. Theorization of the code groups was ultimately developed via the selective coding process. In the selective coding process, other coding iterations were performed to categorize previous findings with respect to the social and technical control elements and focus on the interdependencies between these control elements. In doing so, the analysis builts on Nicolini's (2009) method of "zooming in" on the local accomplishment of practices, where attention was drawn onto doings and sayings, artifacts and goals driving the accomplishment of practices, and "zooming out" by focusing on practice interconnections. In every next step of the coding process, greater attention was dedicated to how and why sustainability control tools were developed, what activities they engendered, how they were used to further share sustainability, if and how sustainability was integrated into organizational control tools. This analysis was presented in a narrative account and discussed with specialized management control researchers as a validity check. Using member checking (Lukka and Modell, 2010), our analysis was presented to and discussed with 14 of the 20 sample companies to further validate our findings. Additional information from these validation checks were also included in our analysis. Since all these 14 companies (representing 70% of our dataset) confirmed our findings and conclusions as presented to them, we did not validate our findings and conclusions to the remaining 6 companies. We used dedicated qualitative research software (ATLAS.ti version 9) to accommodate the three coding processes.

4. Empirical findings

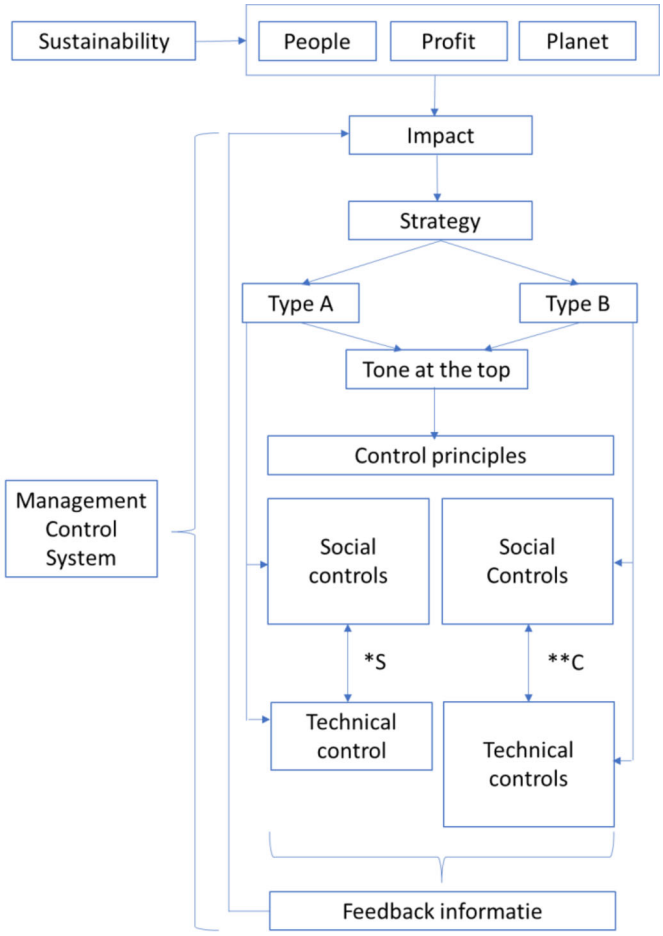
Figure 1 represents an overview of our empirical findings regarding MCS focusing on sustainability. Sustainability is defined as striving to balance economic, ecological, and social value according to the Triple P concept (planet, people, profit) of Elkington (1994). These values are not limited to the organization itself, but concern the impact of the products and services of the organization over the whole value chain. The value creation of the three P’s over the whole value chain is incorporated into the strategy of the organization.

In our findings, a distinction became apparent between companies established for a sustainable purpose, henceforth called Type A, and companies in a transition process towards sustainability, henceforth called Type B. For both types of companies, support from the top (the CEO in particular) is considered crucial for a successful implementation of a sustainable strategy. However, we recognized different patterns regarding embedding sustainability in the culture of Type A and Type B

organizations and the interdependencies of social and technical controls in this respect. Social controls play an important role for both Type A as well as Type B organizations, be it with different accents. For Type A, sustainable values are a major part internalized in the organization, which means that Type A can rely on these values in their control structure. For Type B, sustainable values are internalized in the organization to a lesser extent, and social controls are important tools to internalize these values in the major part of the organization.

Since Type A organizations can rely on the internalized sustainable values in the organization, technical controls function as substitutes for technical controls. For Type B organizations, which cannot (yet) rely on internalized sustainable values, technical controls are essential and also complementary to social controls to embed the sustainable values in the culture of the organization. This also explains why technical controls play a more important role at Type B organizations than at Type A organizations. The output of the control system provides feedback information about the realized impact on economic, social and ecological value in the whole value chain. This feedback information is used to assess and/or adjust the current strategy.

In section 4.1 till 4.4, figure 1 will be explained and motivated in detail, and supported with empirical evidence.



*S = Social and technical controls are **S**ubstitutes
C = Social and technical controls are **Complements

Figure 1: Overview of MCS for Type A and Type B companies.

4.1 Sustainability and culture

During the interviews, one of the opening questions asked was to describe sustainability and the meaning of this concept for the organization. The main pattern recognized in the answers is that although companies often use sustainability as a container concept, it can be seen as striving to balance economic, ecological, and social value according to the Triple P concept (planet, people, profit) of Elkington (1994). As expressed by Int 1, Coy 10:

"For me, sustainability is ….how do we create value in the areas of livability, the environment and financially."

Although we determined this as the primary definition of sustainability, we recognized a difference between Type A and Type B. While Type B aims to balance the three values, Type A focuses more on one particular ecological or social value element, whereas economic value functions more as a means than an end. Explained by Int 1, Coy 4, as follows:

"Uhhm, yes, good question, for us is sustainability, if you look at it completely to the core, for example why we created ourselves is to ensure that the farmers at the end of the journey, so the farmers in Ghana and Ivory Coast, where we get the beans, that they can earn a fair living. And we do that from a CO2 perspective, that we are in any case neutral in this, but above all, that farmers can earn a fair living from it."

While striving for ecological value by being carbon neutral, the main focus is on creating a livable income for the farmer as a particular social value element.

In both cases, whether sustainability is a balance over the three P's or focused more on one particular element, the main pattern recognized in the results is that management control focuses on embedding sustainability in the organization's culture. The first indication for this argument became apparent by analyzing the output of the axial coding process and was later confirmed by the qualitative analysis in the selective coding process. We grouped the codes and fragments of the open coding process during the axial coding process in code groups. A code group in the axial coding group consists of codes and fragments of the open coding process with a common control theme. The outcome of this axial coding process is summarized in table 2:

Code group	# open codes	# fragments
Cultural control elements	42	531
Quantitative control parameters	4	269
Tone at the top	3	177
HR control elements	8	113
Qualitative control parameters	4	59
Formal controls	4	54
Incentive systems	2	37

Table 2: Summary of axial coding process

The table states that 531 selected fragments are control elements related to culture, which is the majority of the selected fragments. We realize that we cannot draw firm conclusions based on this quantitative analysis due to our qualitative approach. However, we consider this a first indication that control elements related to culture play a significant role in management control focused on sustainability, which will be further analyzed and confirmed in our following qualitative analysis.

Note that the code groups are not defined based on theoretical control concepts yet, but represent the nature of the fragments based on GT. Theorizing of these code groups will occur during the

selective coding process, elaborated in section 4.2, 4.3, and 4.4. An example of an open code as part of the code group “cultural control elements” is “inspire employees”. An example of a fragment coded as “inspire employees” is:

“Hence the Sustainable Thursdays. Those are the main pressure points where we invite Herman Wijffels [former CEO of the Rabobank and chair of the Dutch Social Economic Council(SER)] or Klaas van Egmond [professor geosciences] or Jan Jonker or Rotmans [both professor sustainability] or Maxima [Queen of the Netherlands] to tell inspiring stories here. Those are our Sustainable Thursdays.” (Int 1, Coy 1)

Respondents often refer to the embeddedness of sustainability in the organization's culture as the company's DNA. As Int 1, Coy 8 puts it:

"And for both of them [two members of the board], you cannot separate sustainability. It is part of the culture. It is part of the DNA. You do not separate it as a separate topic."

Again, we determined a distinction between Type A and Type B organizations on how sustainability is embedded in the culture. Although we recognize that culture is difficult to measure, an indication for the extent to which sustainability is anchored in the culture is the degree of embedding awareness and beliefs in the organization. Is sustainability only embedded in the veins of (top) management, or are employees working on an assembly line in the factory also conscious and aware of these beliefs? For Type A, we found evidence that sustainability has a strong anchor in the whole organization, as Int 1, Coy 1 explained:

"Dream, dance, deliver starts with a shared dream. So, I just want to say that whether it's core value approach, or mission approach, vision approach, leadership approach, sustainability flower approach, brand, that is all deeply rooted in the DNA of this club."

So, "dream" refers to a shared dream or purpose. Coy 1’s main slogan reflects this shared dream("where ecology meets economy"), supported by their core values "healthy, organic, fair". "Dance" is about working together, not only within the organization but also in the supply chain, creating a better life for their suppliers (farmers) and increasing the fertility of the soil, instead of pushing and bargaining for the lowest price possible. "Deliver" relates to their diagnostic control mechanism using the balanced scorecard as control tool. The "Dream" element is the starting point and is integrated into the "Dance" and "Deliver" elements.

This concept of the 3Ds is relatively complex when comparing this to a classical one-dimensional diagnostic control mechanism. Therefore, the next question is to what extent is this concept of the 3Ds understood and applied for all employees in the organization and not only for (top) management? Int 1 of Coy 1 commented as follows:

"The follow-up question I often get, yes, that works for white-collar but not for blue-collar, and we have 200 blue-collar men in the warehouse, in thermal clothing on the forklift. It does not work for them? Well bullshit, it works even better for them! You can wake them up every night, and they can tell you everything about our 3Ds. "

For Type B, sustainability is also often seen as a vital element in the culture, supported by the following quote of Int 1, Coy 2:

"It [sustainability] really is in the capillaries of our company. This is a bit of who we are."

However, one of the issues for Type B companies is how to reach all the employees in the organization regarding sustainable beliefs, explained by Int 1, Coy 2 as follows:

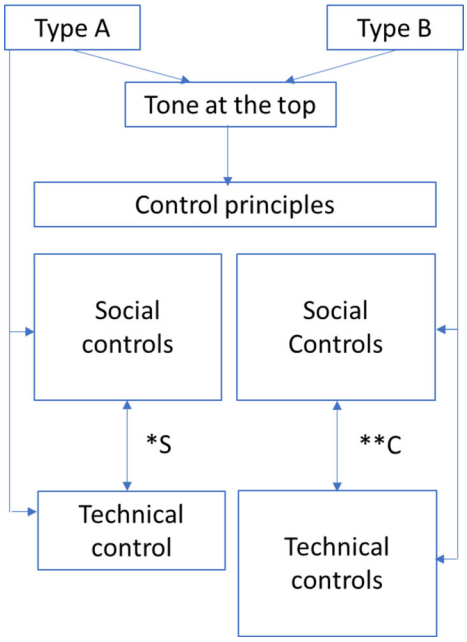
"The people here in this building, yes they know me by now. I go on stage and then I find myself waving again: sustainability, sustainability. But that salesman in the Philippines, how do I reach him, you know? And that product designer in Shanghai in the R&D campus there. And how do you get to all those people, so how do I get my sermons on the scene. That's difficult. This is just visibility, then our CEO can shout it once and then it starts playing again. But what does it mean concretely for those people?"

We view the above-described difference between Type A and Type B companies regarding the embeddedness of sustainability in the organization's culture as a pattern in our dataset. Within Type A companies, sustainability is well spread in the culture of the whole organization, while for Type B companies, sustainability is in the veins of a particular part of the organization (e.g., management or the sustainability department) and to a lesser extent in other parts of the organization.

We also determined a distinction in the use of control elements between Type A and Type B organizations. The emphasis within Type A is on social control elements and, to a lesser extent, on technical control elements. For Type B, both social as technical controls play a significant role in the control structure. We argue that social and technical controls are substitutes for Type A, while these controls are more complementary for Type B. We will further elaborate on this in the following section.

4.2. Social and technical controls

In our selective coding process, we translated the code groups and corresponding open codes and fragments into theoretical control concepts, also looking for patterns and interdependencies between the theoretical control concepts. Interdependencies between social and technical controls are different for Type A and for Type B organizations (see figure 2).



*S = Social and technical controls are **S**ubstitutes
C = Social and technical controls are **Complements

Figure 2: Interdependencies between social and technical controls in relation to Type A and Type B organizations

The following social and technical control concepts were the most appropriate to categorize the code groups and corresponding open codes and fragments:

Control concept	Definition
Social controls	
Tone at the top	"..management can shape culture by setting the proper tone at the top. Their statements should be consistent with the type of culture they are trying to create, and, importantly, their actions and behaviors should be consistent with their statements." (Merchant and Van der Stede, 2017, p. 100)
Employee socialization	Socialization refers to how individuals internalize the organization's values, beliefs, expected behaviors, and social norms (Chatman, 1991; Louis, 1980). Mentoring, and orientation and induction programs can be used to acclimatize new managers to acceptable behaviors and norms (Chatman, 1991; Kraus et al., 2017). Similarly, social events and functions, as well as training and development processes, may be used to encourage greater social cohesion and identification with organizational values and objectives (Chatman, 1991; Harrison and Carroll, 1991).
Selection of personnel	Search, evaluation, and recruitment of employees according to a set of criteria, such as value alignment (Chatman, 1991; Harrison and Carroll, 1991)
Interactive controls	Regular involvement in subordinate activities by management to encourage debate, creative behaviors and address strategic uncertainties (Bisbe et al., 2007; Simons, 1995)
Clan control	Reliance on shared values, norms and beliefs to direct work activities (Ouchi, 1979; Schein, 2010). It captures the effects of informal processes that result in employees accumulating values and basic assumptions infused within the organization's symbols, rituals, language, and social structures (Schein, 2010).
Technical controls	
Diagnostic controls	Monitoring activity through deviations from preset standards of performance (Simons, 1995)
Policies & Procedures	Statements defining acceptable or unacceptable domains of activity (Simons, 1995). Rules and procedures specifying the means of conducting work activities (Daft and Macintosh, 1984)
Incentive systems	Performance-contingent rewards and incentives (Fisher, 1995; Shields and Young, 1993)

Table 3 Control concepts used to analyze the data

We translated the code groups and corresponding open codes and fragments into theoretical control concepts in our selective coding process in an inductive way. We used the management control constructs from Bedford and Malmi's (2015) as the basis for our categorization and adjusted and added control constructs or elements if needed. For example "Tone at the top" (Merchant and Van der Stede, 2017) was added, since this control element appeared relevant in our empirical data as control element, but is not recognized as separate management control construct by Bedford and Malmi (2015). We choose for Bedford and Malmi (2015) as the basis for fleshing out the control concepts, as it builds upon a broad understanding of MCS and conveys the idea of MCS as a package. Their management control constructs encapsulate a relatively broad conceptualization of control, while retaining core elements and comparability with frameworks already established in the literature, such as the Malmi and Brown (2008) framework as discussed in section 2.2. In the next section, we explain our analysis regarding the above control concepts. We will also discuss similarities and differences between Type A and Type B organizations.

4.3 Social controls

4.3.1. Tone at the top

We determined a consistent pattern in the tone at the top for both type A and type B organizations. Without any exceptions, all the organizations indicate that explicit support from the top, particularly the CEO, is crucial to creating and executing a sustainable strategy, Int 1, Coy 7*:*

"And also when I [Director QHSE] am in the Executive Board meeting and someone looks a bit sour [when I suggest a sustainable proposal], he [the CEO] is the first to jump in, like yes guys, we really need to do this…."

In the majority of the cases, the CEO is the driving force behind a sustainable strategy, Int 2, Coy 20.

"Yes, well there we have a very special board with our CEO. Because in that respect she [the CEO] is of course a kind of avant la lettre sustainability, which is nice that you can do that, precisely because the CEO has such an incredibly clear picture of it, that it is really a Coy 20 thing."

This is consistent with several other studies in this field (Adams and McNicholas, 2007; Dimes and de Villiers, 2020; Knauer and Serafeim, 2014). Within some companies though, the CEO is not the driving force but is inspired by employees from the organization to make sustainability a critical element of the organization's strategy, Int 1, Coy 11:

"And the CEO and the CFO have also tested this. We have sat with them a number of times about what is important and what is not important and such. In the end we presented it [the sustainability plan] to the management team of "Hey how do you look at that?". Well, they actually embraced all of that. They were also very happy with it…."

However, in both cases, the CEO explicitly supports creating and executing a sustainable strategy. This need for support from the top can be explained by the position of the sustainability manager in the organization, which is positioned as a central or corporate function with no direct business responsibility. Sustainability managers state that it is crucial to have support from top management to convince or enforce business managers to make this significant shift, Int 3, Coy 10.

"And it has to come from the top. If it doesn't, it will never work"

Type A organizations do not have a separate sustainability manager or department since this function is integrated in the organization. Within Type A organizations, the CEO is the driving force behind a sustainable strategy, integrating a sustainable culture in the whole organization at the establishment of the firm. This is in line with Merchant and Van der Stede (2017) who argue that "the

best chance to create a strong culture, however, seems to be early in an organization's life when a founder can imbue the organization with a distinctive culture" (p. 102).

Statements expressing support from top management need to be consistent with the type of culture that top management wants to create, but importantly, their actions and behaviors should also be consistent with their statements (Merchant and Van der Stede, 2017). Respondents often refer to this as "practice what you preach", or "walk the talk", Int 1, Coy 15:

"Practice what you preach, internal business operations are extremely important in that perspective….very ugly trash cans, where we need to separate everything."

In contrast to the attitude towards sustainability experienced by the CEO, the CFO usually has less focus on sustainability. This is in line with the findings of Wilmhurst and Frost (2001). However, we recognized a tendency that non-financial value becomes more and more important also for the CFO, Int 2, Coy 3.

"Yes, no for sure. So certainly our CFO….Certainly with a number of initiatives that we are also developing in the context of sustainability, so to speak. Costs will arise before the benefits. Where a CFO traditionally very strongly focusses on financial returns, sure we look at that. But we [the finance department] also look for long term value. And some returns are less financial, but more social."

Also here, the influence of the tone at the top is experienced. In most cases, we encounter that the finance department still focuses on financial value only, which is influenced by the directions given by the CFO, Int 3 (Chief Accountant), Coy 2:

"If you [the CFO] say to me: you have a target to also report the sustainability aspects in a good way, yes, then you also initiate me to do that because I am judged on that. And I also know that it will become part of my job. And that also gives me the incentive to tackle those aspects. If I were to do it now, I really don't have the capacity for it. Because we are not set up for that. And I'm not judged or rewarded for it"

We conclude that although for Type A and Type B, the CEO plays a different role regarding a sustainable strategy, their role is crucial in both situations. Type A CEO's set a sustainable culture and strategy during establishing the organization and infecting all new hires with a sustainable mindset. On the other hand, support from Type B CEOs is crucial to empower the sustainability manager in forcing business managers to shift towards a multiple value creation mindset.

4.3.2 Employee socialization

Socialization refers to how individuals internalize the organization's values, beliefs, expected behaviors, and social norms (Chatman, 1991; Louis, 1980). We found two central themes in this process:

- Spreading sustainable knowledge

- Inspire employees to be sustainable

Ad Spreading sustainable knowledge

Spreading sustainable knowledge is an important control element for both Type A as Type B companies. According to Chatman (1991) training and development processes can encourage greater social cohesion and identification with organizational values and objectives. Merchant (2017) approaches training more as a tool to inform and educate employees to perform their job better. Although both elements appeared to be relevant in our data, we found that an educational purpose

is a powerful tool for Type B companies. To make the transition to a sustainable business, most of the employees need to significantly change their way of working and thinking within Type B organizations. This counts for the procurement department, R&D, production, sales etc. These changes make most of the jobs much more complicated, and often employees lack the knowledge to realize these changes in their daily work (see also Ligonie, 2021), as expressed by Int 1, Coy 17:

“But it [sustainability] has not yet been made concrete enough for the business, which makes it almost impossible for account managers to really work with it.”

This is also an example to show how different control elements can be interdependent. In this example, only incorporating diagnostic controls will not be very effective. After all, if you set a specific target, it will be challenging to realize if the employee does not have the appropriate knowledge. So in that particular case, training the employee as a control element is complementary to diagnostic controls. On the other hand, the same Int 1, Coy 17 also declared:

“Yes, especially because we are only at the beginning of that entire turn towards a purpose-driven organization. In the end, you may need a lot less KPIs on it to make that turn and to really get it through in the organization and that customers also see this”

Based on this quote, it can be argued that once an organization is entirely transitioned to a purpose-driven organization, it can suffice with fewer diagnostic controls. Here, KPI’s are initially used to make that turn, indicating that KPI’s play a role in embedding sustainability in the culture of the organization.

Ad Inspire employees to be sustainable

Induction programs can also be seen as a training tool to inform and educate employees (see also Merchant and Van der Stede, 2017), but we found that companies use induction programs primarily to acclimatize and inspire new employees to acceptable behaviors and norms (see also Chatman, 1991; Kraus et al., 2017). Int 1, Coy 8:

“It's also part of the onboarding trainings for any new staff. There is a session dedicated to share sustainability as part of the strategy. Why it's important and that. So is part of every new employees onboarding. There is a specific sustainability training.”

A similar process was recognized when one member of our research team arrived at Coy 6 to conduct the research interviews. Before passing the entrance gate, Coy 6 obligated him to watch a 2-minute introduction video about safety procedures. So this control element influences the behavior of own staff and the behavior of external visitors.

Other activities in this respect vary between organizing sustainable challenges, lunch meetings, inviting inspiring sustainable speakers, and using sustainability champions or ambassadors. In a seminal article on radical military innovations, Schon (1963) introduced the role of a champion. He contended that to overcome the indifference and resistance that major technologic change provokes, a champion is required to identify the idea as his or her own and promote the idea actively and vigorously through informal networks. In our findings, these sustainability champions enthuse for and infect colleagues to spread sustainability as wildfire throughout the organization, supported by the following quote of Int 1, Coy 17:

“We once started with a number of account managers who were really intrinsically motivated to express this [sustainable] philosophy. That was the green 20. We have now grown to the G40 [G for green] and are already at G60….and this [G60] as a real ambassador network grows. Because people

get more and more affinity with it and become familiar with it and also feel more confident talking about it with customers, I just see it growing."

These champions or ambassadors are also used to educate and instruct their colleagues regarding sustainable behavior, as explained by Int 1, Coy 2:

"No, not officially, but I do have Sustainability Champions, I call them. In all countries, in fact all market organizations….who do not officially have that [sustainability] in their title….they are pulling sustainability into those countries. So they instruct sales."

Although not the same, the role of these sustainability champions in our findings shows significant parallels with the role as meant by Schon (1963). In our findings, their role is also informal and important regarding a significant change accompanied by resistance. We found two other studies that state that the presence of powerful agents for sustainability or environmental champions seem to play a powerful role (Bouten and Hoozée, 2013; Contrafatto and Burns, 2013). Schon (1963, p.84) goes even further and states that "the new idea either finds a champion or dies".

Another critical element to internalize sustainable values is that employees need to recognize and experience sustainability in their organization. Often, these elements are seemingly insignificant regarding direct impact but are essential to internalize sustainable values. We found examples of waste separation via clearly visible garbage bins, a healthy company restaurant, carpets made of fishing nets, furniture via product as a service principle etc. We argue that these elements have two functions. First, it creates awareness within the organization. Second, it is a crucial element regarding internal credibility. If the CEO emphasizes sustainability, but employees do not see this coming back in their daily activities, this can jeopardize the credibility of the CEO's message. Employees expect consistency in this respect, which becomes evident with the following quote of Int 2, Coy 10:

"If we talk about it more from the operational side, I really feel involvement of employees, but unfortunately expressed via a lot of frustration and points of irritation. People come to me and say: Yes, I think it's really bad that we have carton coffee cups and why do we do waste separation, while the cleaning lady puts it together and in our building here we have to keep the lights on from the architect and we accept that."

In this respect, tone at the top and employee socialization are complementary control elements, also reflected by Merchant and Van Der Stede (2017) stating that the actions and behaviors of top management should be consistent with their statements.

Overall, we conclude that employee socialization plays a pivotal role in internalizing sustainable values, beliefs, and expected behavior. Comparing Type A and Type B organizations, we found that employee socialization is integrated into the organization for Type A and is a separate function driven by the sustainability department within Type B.

4.3.3 Employee selection

As indicated by Chatman (1991) and Harrison and Carroll (1991), search, evaluation, and recruitment of employees can also be used for value alignment, with which it can play a role in embedding sustainability in the culture of the organization. In this respect, we have determined several patterns in our dataset, in which we found differences between Type A and Type B companies and diverse patterns between Type A companies.

Within Type A companies, we found two different approaches regarding recruiting new employees. In one approach, living sustainability is a firm selection criterium, explained by Int 1, Coy 9:

“Well actually I was very busy with, do they [applicants] understand why vegetarian is so important. Do they understand what our mission is? Sometimes they already went wrong there.”

In this case, aligning values is a crucial selection criterion. Int 1, Coy 9 also declared that

“the most important thing is not to hire bad apples, and a crucial element in filtering out bad apples is to check the applicant’s passion for sustainability.”

This contrasts with the application procedure at Coy 1, which we also classified as a Type A company. In their application procedure, an applicant does not necessarily need to have a sustainable passion or background. Instead, they argue that once we hire a new employee, the organization will infect this employee with the organization’s sustainable culture within a short timeframe, which becomes apparent with the following quote of Int 2, Coy 1:

“I think we hired a new facility manager 1.5 years ago, who came from a completely different industry. And it's funny to see that, within a relatively short period of time, he has started to think completely differently about materials and about the stuff that he is going to buy.”

Although the selection approach of new hires is significantly different regarding sustainability between Coy 1 and Coy 9, they have one aspect in common. At both companies, new employees need to comply with the sustainable values of the organization. Coy 9 is selecting new employees on that aspect before the gate, and Coy 1 is infecting new employees with their values right after the gate.

For Type B companies, we recognized a different pattern. In most cases, sustainable values play a role in the selection procedure but are not decisive, Int 2, Coy 18:

“We try to select external managers whose investment policy also contains sustainable elements, because that is not yet the case for many managers.”

Type A and Type B organizations have a common understanding of the impact of a sustainable strategy on the attractiveness of talented graduates. They all confirm that talented graduates often have a strong desire to work for companies with a sustainable purpose. Int 2, Coy 5 states:

“especially if you look at our marketing department, we currently have many young people working there, that generation also finds it [sustainability] increasingly important, if they come to apply for a job with us, they will certainly critically question how active we are in this. So from us it is not counted as a requirement, but rather the other way around”

During our interviews, we experienced that being attractive in the labor market plays a role in being a sustainable company, although we do not view this as the main driver. So from that perspective, it is not an internal control mechanism to influence behavior but can be viewed as an external force to influence internal behavior.

To summarize, we determined different approaches regarding sustainability as a selection criterion for new personnel. Within Type A, it varies between sustainability as a crucial selection criterion or not being relevant during the application procedure. In the second case, the company trusts in infecting new employees with the sustainability virus by their own sustainable culture. For Type B organizations sustainable values play a role in the selection procedure but are not decisive. Nevertheless, a commonly recognized pattern is that all companies consider sustainability a relevant element to be attractive in the labor market for talented graduates.

4.3.4 Interactive controls

Interactive controls are processes about regular involvement in subordinate activities by management to encourage debate, creative behaviors and address strategic uncertainties (Bisbe et al., 2007; Simons, 1995). We determined this behavior in subordinate activities by management for both Type A as Type B organizations, but in a different approach. Type A organizations actively involve employees in this process, Int 1, Coy 4:

"I think that is also quite special, where everyone, if necessary, is flown in once a year, also from other countries to discuss the strategy together and to be critically about it."

Sustainability is not a separate item in this process, but an integrated part of these strategic discussions, but for Type B, for the interactive process regarding sustainability mainly the sustainability department is involved in this process by top management, Int 1, Coy 2:

"So we do that every other year, so this year, we're doing that workshop. And the other year a survey of hundreds of people, that's done somewhere in my team [sustainability], and we analyze the results. And that's where the materiality matrix comes in. And as soon as topics emerge that we have overlooked, we will make adjustments. For example, the plastic was not in our strategy, but now we have a commitment on that."

As explained in section 3.1, Type B companies are striving to balance economic, ecological and social value, compared to Type A companies that are more single purpose-driven. For most Type B companies, interactive controls are not limited to subordinate activities but use the materiality matrix to also include the interests of stakeholders outside the organization in the strategy. The following citation in the annual report of Coy 8 explains this process:

"In the Materiality matrix 2019, the topics have been aligned with the new strategy, so a number of topic names have changed, or topics have been combined or split."

Within some companies though, we question the impact of the materiality matrix on the strategy, based on the following question and answer:

Interviewer: "…you told a little bit about the materiality matrix, is that the main driver to choose the 5 themes or what is the main driver for choosing the 5 themes?"

Int 2, Coy 2: "Yeau, uhh, those 5 themes, in fact, they came from our CEO, and I think he was more daring than we were about sustainability, because when we did the materiality matrix, we saw that circularity was increasing, we saw this social impact of life was increasing and we were proposing different targets and we have to really make one strategy and, but that these five themes would really become the company strategy, he kind of even surprised us. He said, no we are going to do it like this."

In this case, the CEO's vision seems to be more influential than the materiality matrix regarding the integration of sustainability in the strategy.

We conclude that for Type A organizations, management involves the majority of the employees in an integrated process of reflecting on the strategy. For Type B organizations, input to challenge the strategy on sustainable issues and development mainly comes from the sustainability department, where the materiality matrix functions as a directive tool to set priorities, whereas within some companies, the CEO plays a dominant role in setting the sustainable strategic direction.

4.3.5 Clan Control

Clan control relies on shared values, norms, and beliefs to direct work activities (Ouchi, 1979; Schein, 2010). It captures the effects of informal processes that result in employees accumulating values and basic assumptions infused within the organization's symbols, rituals, language, and social structures (Schein, 2010). Clan control has a solid interdependent relation to employee socialization. Reliance on shared values, norms, and beliefs to direct work activities can only be effective when the relevant values, norms, and beliefs are internalized within a significant part of the organization. Notably, Type B organizations seem to face challenges in internalizing sustainable beliefs throughout the whole organization, Int 1, Coy 2:

“The people here in this building [head office], yes they know me [sustainability manager] by now. I go on stage and then I'm standing there waving again: sustainability, sustainability! But how do I reach that salesman in the Philippines, you know? And that product designer in Shanghai in the R&D campus there? And how do you get all those people involved….”

Therefore, it is not surprising that we found clan control not (yet) a significant control mechanism for Type B companies. Instead, for Type A companies, where sustainable values are internalized in the major part of the organization, clan control is a powerful control element to encourage mutual monitoring; a powerful form of group pressure on individuals who deviate from group norms and values (Merchant and Van der Stede, 2017). For example, the following quote is from Int 2, Coy 9, where Coy 9 is selling meat substitutes intending to disrupt the meat processing industry:

“Once we had this lady, who really has a golden heart, I would hire her again straight away. But she had meat on her bread during lunch. And then she was plainly addressed by colleagues, and that really turned into a big riot.”

We did find a few examples of these corrective actions between colleagues for Type B companies, Int 1, Coy 2:

“We have a plastic-free pantry in Dubai. So that kitchen should not contain one time, single use plastic, that is prohibited. The moment someone sees it, everything is thrown away. And there are sometimes really colleagues who function as police officers.”

However, we cannot characterize this as a pattern, but we see this as an exception. On the other hand, it is not inconceivable that clan control is a potential effective control mechanism for Type B organizations, since they emphasize on employee socialization to internalize sustainable values.

We, therefore, conclude that clan control is a significant control element for Type A organizations but is of inconsiderable influence in Type B organizations. The influence of clan control at Type B organizations might increase over time when sustainable norms and values are integrated into the major part of the organization.

4.4. Technical controls

4.4.1 Diagnostic controls

A diagnostic control mechanism is monitoring activity through deviations from preset performance standards (Simons, 1995). We recognized a distinction between Type A and Type B organizations regarding the use of diagnostic controls. Type B organizations have a strong focus on diagnostic controls, explained as follows by Int 4, Coy 6:

“And look that is, to measure is to know. And with measuring, I think you influence behavior and you also influence behavior by making information available.”

This quote also shows that diagnostic controls lead to increased awareness and help to internalize sustainable values. Here, diagnostic controls can therefore be seen as complementary to social controls to internalize sustainable values. This is also reflected in the following quote, Int 1, Coy 17:

“Interviewer: Those sustainable KPIs you just mentioned, how does that affect the behavior of employees in your organization?

Int 1, Coy 17: That helps tremendously with the ideas and understanding, also in discussions with customers about it [sustainability], that stimulates insanely.”

On the other hand, once sustainable values are internalized, we noticed at the same Coy 17 that diagnostic controls might shift from complementary to substitutional to social controls, as explained in section 4.3.2. However, the majority of the Type B companies retain diagnostic controls, also when internalizing sustainable values is maturing, explained by Int 1, Coy 2:

“You have to make it measurable. If you want to be credible…., then you have to show progress. If you can't measure, then make sure you can measure it. Otherwise you cannot commit yourself”

Another notable element of this quote is the reference to commitment. Commitment in this quote means a promise to the external stakeholders. Here, diagnostic controls are not only used internally but also to commit to the outside world, Int 1, Coy 2:

“Then we have zero waste to landfill. So we promise the world that we will no longer send manufacturing waste to landfill”

Promising the outside world to be sustainable by setting clear targets creates additional pressure to achieve these goals and is complementary to internally used diagnostic controls. This is also confirmed by Int 1, Coy 2:

“Interviewer: The fact that you communicated those goals to the outside world, does that create additional pressure?

Int 1, Coy 2: “That creates a lot of pressure! Look, when the CEO is on stage, he is not going to say: yes we actually had zero waste, since we realized 95% of our goal.… it failed for him. He has been shouting to the outside world for years: we are going to zero waste. He can't get away with that missed 5 percent. He is very strict about that.“

The CEO making this commitment to the outside world enhances the power of this type of diagnostic control, making the tone at the top also complementary to diagnostic controls.

At Type A organizations, the use of diagnostic controls is less decisive. Although diagnostic controls are applied, measuring performance is often a combination of quantitative and qualitative measures. We argue that since sustainable values are more internalized at Type A than at Type B organizations, diagnostic controls are less needed at Type A than at Type B companies. Therefore, we argue that for Type A companies, diagnostic controls are substitutionary to social controls. Using social controls, and clan control in particular, as primary control element as a substitute for diagnostic controls, was first mentioned in Ouchi’s (1979) seminal article.

We also experience differences in the purpose of measuring and quantifying sustainable results. In addtion to directing employees, or embedding sustainability in the culture, showing quantifiable sustainable results are also used for transparency reasons to stakeholders, to show their sustainable impact, as Int 1, Coy 1 explains:

“Sustainability without transparency is no sustainability.”

Initially, we concluded that, in this case, the purpose for measuring is not control-related. In hindsight, we argue that this type of measuring composes two control elements:

First, since these results and related impact are only measured on a consolidated company level and not cascaded down to the departmental or employee level, specific departments or employees cannot be held responsible for these results, as is usually the case when applying diagnostic controls. However, these results show to what extent the collective organization succeeded in realizing strategic goals and to what extent corrective actions are needed. Although these corrective actions cannot directly be pinpointed to specific departments or employees, the employees, especially at Type A companies, are very much involved in the organization's purpose and feel responsible for taking the necessary actions to contribute to realizing the company goals. At Coy 4, employees define themselves how they contribute to the overall company KPI's, which they define as impact KPI's and at the end of the year, every employee needs to explain how he or she performed regarding impact, Int 1:

"Interviewer: But you have to think for yourself in your own job, how can I contribute to those impact KPIs? So you define that at the beginning of the year and at the end of the year you have a conversation with your manager about how that worked out. Do I have to see it this way?

Int 1: Yes, that is your impact profile. Yes, and you will be judged on that at the end of the year. Yes, that's right."

In addition to this collective way of performance measurement, making results transparent to stakeholders can also be interpreted as an interactive control mechanism, notably in combination with the use of the materiality matrix. Using the materiality matrix, KPI's are prioritized in close cooperation with stakeholders. We determined that these top KPIs are often translated into the company's strategy and communicated via the annual report. We consider the reporting on these KPI's an opportunity for management to interactively discuss the results with the relevant stakeholders to reflect on the strategy of the company.

Another element of diagnostic controls is periodicity. The main pattern we recognized in our dataset, both for Type A as for Type B, is that they internally report sustainable KPI's quarterly while reporting financial KPIs every month, Int 4, Coy 13:

"Look, we have it [sustainability] in our quarterly report and CSR plays a major role in our annual report. We do have monthly reporting, but that is very operational and there we do not include this type of [sustainable] data.

The main reason for this difference was that reporting on sustainable KPIs is more time-consuming since it is primarily a manual process and is not as standardized as the financials. In only one case, Coy 6, we determined an exception on this pattern. Only within this company, financial and non-financial KPI's were reported in the same standardized way in one information system, Int 4:

"Int 4: So the whole reporting process [of sustainable KPI's] is equal to finance in terms of deadlines, in terms of the system.

Interviewer: Also in terms of periodicity?

Int 4: Yes. Every month, within a few days."

The reporting process of Coy 6 is organized and communicated uniquely. Coy 6 formed a team of an employee of the finance department (Int 4, Global Sustainability Controller) and an employee from the sustainable department (int 3, Global Environmental Advisor). These two employees have visited

most material business units all over the world as a team and instructed and learned the business units how to report on the sustainable KPIs. In this process, the global environmental advisor was focusing on elements of employee socialization, while the global sustainability controller was focusing on the implementation of procedures to get the diagnostic controls in place, Int 3, Coy 6:

“But that is also the strength of the two of us. I mean, XXXX [Int 4] who actually does more procedural matters and of course I know how it works from a content point of view. I'm more or less a scientist in disguise.”

Within this company, the sustainability department and the finance department complement each other in implementing diagnostic controls. In the majority of the other companies, the sustainability department is responsible for reporting the sustainable KPIs while the finance department is reporting the financial KPIs. In these cases, integration of the numbers only occurs in the annual report.

The last element we explored regarding diagnostic controls is the extent to which integrated standards or frameworks (e.g., IIRC, GRI, SASB) are used to set sustainable KPIs. The majority of the companies see these standards as a tool to define an initial set of KPI’s but are often customized or complemented with their own created, company-specific KPI’s, In 2, Coy 6:

“Yes, you try to align with common standards as much as possible. For some this does not work and then you have to define it yourself.”

We also found that in the majority of the companies, making sustainable KPI’s measurable is not seen as a significant stumbling block. This is in line with the findings of Narayanan and Boyce (2019), who indicate that sustainable diagnostic measures, *per se*, are often relatively easy to develop and record. However, we determined that the process of collecting reliable and consistent information is more often a challenge, Int. 2, Coy 14:

“Many [sustainable] things are easily measurable that simply come from the systems, but some of the non-financials are more difficult to measure because it is not actually recorded at the source. And then you can have a very nice reporting system, which nicely adds up all the input from the regions, but when you take closer look on how the region gets to that input, maybe it is coming from ten different sources.”

Overall, we argue that diagnostic controls play a crucial element in the controlling process of creating sustainable value. Type B organizations emphasize more on diagnostic controls than Type A organizations. For Type B organizations, diagnostic controls complement social controls. Instead, for Type A organizations, diagnostic controls can be seen more as substitutes to social controls.

4.4.2 Policies and Procedures

Policies consist of statements defining acceptable or unacceptable domains of activity, also called boundary systems (Simons, 1995) In addition, rules and procedures specify the means of conducting work activities (Daft and Macintosh, 1984). We found that policies and procedures play a significant role at Type B organizations, Int 1, Coy 2:

“Well, we have certain policies, for example, the sustainable design policy, which simply prescribes how products must comply from a sustainability perspective.”

Policies and procedures are of less influence at Type A organizations, Int 2, Coy 1:

“We have a powernap room with five beds in it, where you can take a powernap….shouldn’t there be no rules for that?....it will take care of itself [via social pressure, clan control]. It doesn't make any sense to set rules about it.”

Within this company, rules do not seem to add any additional value. A few sentences later, Int 2 confirms that creating rules on these activities creates rigidity in the organization.

As explained in section 4.3.2, controlling sustainability affects employees' behavior in the organization and influences the behavior of employees outside the organization over the whole value chain. Also, we found that Type A is making less use of policies and procedures to influence behavior in the value chain than Type B organizations. Type A organizations try to influence behavior mainly through intensive co-operation and less based on policies and procedures, Int 2, Coy 4:

“Yes, you want to do it together, the idea of the system is that we know it's there and we know the root cause isn't because people want to hurt their kids, they [in this case the suppliers of Coy 4] don’t want to exploit them. But they have no other option in most cases. So we want to look for solutions together.”

Instead, Type B organizations rely more on formal procedures to direct behavior in the value chain, Int 1, Coy 2:

“And also how we deal with suppliers, how we deal with customers. That is all prescribed via codes of conduct, how we approach life socially as a company. This is all formally documented in policies and all audited by our external auditor.”

Type A and Type B organizations are forced to have policies and procedures in place in one particular element. Most of the companies issue an integrated or sustainable report, including assurance from their external auditor. In that case, auditors force companies to work according to specific policies and procedures to process their sustainable data. The employees of these companies also learn from the knowledge of the auditor, Int 1, Coy 4:

“It keeps us sharp, because our auditor provides assurance at those thirteen KPIs. As a result of this assurance, we have learned to make our traceability process foolproof.”

In this case, the role of the auditor is two-fold, it forces employees to work according to a particular policy (technical controls) to process data, but the auditor is also transferring knowledge to employees (social controls) on how to design this process.

In general, we argue that Type B organizations rely more on policies and procedures than Type A organizations.

4.4.3 Incentive systems

Incentive systems can be defined as performance-contingent rewards and incentives to influence behavior (Fisher, 1995; Shields and Young, 1993). We found that in general Type A organizations do not have a bonus structure in place, while the majority of the Type B organizations do have a bonus structure regarding sustainable results in place, although mainly at top management level. A few companies also use performance-contingent rewards at lower management levels to stimulate sustainable behavior, Int 3, Coy 5:

“We now have it in the bonuses, not only from the top management, but also the layer below top management….if it [sustainability] is not part of governance, the reports, the bonuses, the objectives, then it will not happen. People act very much according to how they are being judged.”

We found that typically at Type A companies, the salary level is not considered a motivational factor, but more a disqualifier when it is not well arranged, Int 1, Coy 1:

“Primary and secondary working conditions. Then it is about salary and whether or not a company car. Well we say: you do not derive any energy from that, it is only a disqualifier if it is not properly arranged.”

At Coy 4, we found that employees are motivated more by the purpose of the organization (get rid of modern slavery and child labor), and are willing to sacrifice their salary level to be employed by Coy 4, Int 1:

“we generally employ people who have a sustainable mindset, who consider it important what happens at the back of the chain. But I understand the question you're asking, you attract a good CFO from a listed company, how does that fit with uhh, he didn't come for the money, I can tell you that. We don't pay for that in that regard. You can generally see that we pay slightly below the market”

We conclude that Type A organizations are not motivated by performance-contingent rewards to contribute to the organization’s sustainable goals. However, for Type B organizations, performance-contingent rewards play a role in that respect, although mainly applied at top management level.

4.5 Summary of our findings

In the following table, we summarize our findings:

	Type A organizations	Type B organizations
Social controls		
Tone at the top	CEO as driving culture carrier	CEO crucial to empower sustainability
Employee socialization	Integrated in the organization	A separate function, driven by the sustainability department
Selection of personnel	Crucial that new employees adapt to the sustainable norms and values, not necessarily via the application procedure	Not decisive
Interactive controls	Involvement of the majority of the employees, dominated by the CEO's vision	Driven by the sustainability department supported by the materiality matrix
Clan control	Significant control element	Of inconsiderable influence
Technical controls		
Diagnostic controls	Substitutes to social controls	Used to directly influence the behavior of employees, but also to embed sustainability in the culture of the organization
Policies and procedures	Of relatively less influence	Reliance on policies and procedures
Incentive systems	Not considered a motivator	Mainly a tool for top management

Table 4: Summary of findings

The interdependencies between social and technical controls, as well as their importance are visible in figure 2.

5. Discussion

In this section, we explore in greater detail some of the issues revealed by the findings as they relate to the specific aim of this study.

5.1 Management control and sustainability

As explained in section 2.2 there is ambiguity in literature about the role of social and technical controls regarding MCS and sustainability. Our study indicates that in order to facilitate the transition to a sustainable business model, a strong focus of MCS on embedding a sustainable culture in the organization is crucial. Although this conclusion is not congruent with current literature, our findings do not seem to contradict most studies and confirm several findings of current literature. Our analysis shows that social and technical controls play a crucial role in this process, in line with Ditillo and Lisi (2016) and illustrates not only that social controls increase the effectiveness of technical controls confirming several studies (Durden, 2008; Norris and O'Dwyer, 2004; Tregidga et al., 2014)

but also points out that social controls alone are not sufficient and need to be supported by technical controls, aligning with Laguir et al. (2019) and Narayanan and Boyce (2019). Some particular patterns, like CEO commitment and the use of environmental champions (Guenther et al., 2016), are also recognized in our findings. However, our main argument, that MCS focus on embedding a sustainable culture in the organization by using both social as technical controls, is not commonly found in literature. We argue that our GT approach, in combination with a wide variety of sustainable companies in our selection being interviewed from different angles, allows this study to reveal this conclusion. Several studies include regular companies in their selection (instead of companies focusing on corporate sustainability) to explain the process of sustainable controls (Arjaliès and Mundy, 2013), which often results in explaining the hurdles to implement a MCS focusing on sustainable value. What we do found is significant attention in literature for diagnostic controls in relation to sustainability (Guenther et al., 2016). Most other studies focus either on one specific control element (for examples see Guenther et al. (2016)) or on an existing control framework (Laguir et al., 2019; Narayanan and Boyce, 2019), which limits their conclusions to the boundaries of the particular control element or framework. These limits explain Traxler et al.'s (2020) findings of their systematic literature review on the topic that the existing body of literature does not go beyond an instrumental and therefore functionalistic perspective instead of our more holistic approach. The often used LOC of Simons (1994) include the role of culture in their belief systems. Belief systems communicate the basic values and premises for action of the firm via statements, but do not comprise the often elusive processes of employee socialization. This becomes apparent in the study of Narayanan and Boyce (2019), who used the LOC of Simons (1995) to examine the role of MCS in organizational change towards sustainability. Their findings indicate that although MCS are not irrelevant, they do not play a transformative role in enabling deep-seated organizational change towards sustainability. This contrasts our findings that the different elements of a management control package and their interdependencies are crucial to enable this deep-seated organizational change towards sustainability.

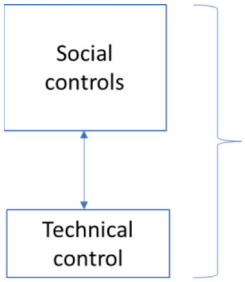
The role of culture regarding sustainability is interlinked with the concept of integrated thinking referring to a deeply embedded organizational mindset to disperse and maintain the concept of sustainability (Al-Htaybat and von Alberti-Alhtaybat, 2018) and implies a robust system that permeates all layers of the organization, and impacts on all strategic and operational goals and processes (Oliver et al., 2016). Current literature about integrated reporting often debates if integrated reporting leads to integrated thinking or vice versa (Dumay and Dai, 2017; Perego et al., 2016). We argue that integrated thinking and integrated reporting are contemporary processes both contributing to embed sustainability in the organizational mindset, concluding that the discussion if integrated reporting leads to integrated thinking or vice versa seems not relevant. What is relevant though is the question how integrated thinking is enacted in practice and understood in empirical settings. Little has been written about integrated thinking in an empirical setting (Al-Htaybat and von Alberti-Alhtaybat, 2018). This is in line with our findings that planning and cybernetic controls retain the most attention in literature referring more to integrated reporting than integrating thinking. Our study contributes to this lacuna through investigating and outlining how elements of integrated thinking can be embedded in the organization via social and technical controls.

5.2 Cultural controls

In our theoretical section, we reviewed different interpretations of cultural controls. In these different interpretations, we found two separate streams of cultural controls. One stream focuses on the process of internalizing values and beliefs in the organization. Simons' (1995) belief systems refer to statements communicating the basic values. Merchant and Van der Stede (2017) identify specific tools for this process (e.g., codes of conduct, group-based awards, tone at the top). Here, cultural

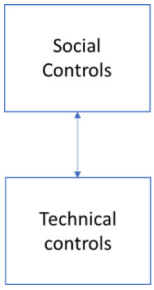
controls are a means to an end to embed culture in the organization. The other stream assumes that the company values and beliefs are internalized, relying on culture itself as a control element. Ouchi's (1979) clan controls utilize socialization between employees to align their interests and values with those of the organization, assuming that most employees embrace the company values and beliefs set by management. Malmi and Brown (2008) state that culture as part of MCS packages influences employee behavior by the established values, beliefs, and social norms. Here, cultural controls are a means to an end to influence employees' behavior.

When comparing these two streams of cultural controls with our findings, we determined a parallel distinction between Type A and Type B organizations. Within Type A organizations, sustainable values and beliefs are internalized, making culture an active control element. Our findings confirm that clan control is a significant control element for Type A organizations. Employee socialization to embed the sustainable culture in the organization is also a vital control element but is integrated into the normal business processes. For Type B organizations, sustainable values and beliefs are not yet internalized in the entire organization. In that situation, it is not sufficient to rely on culture as the central control element, supported by our finding that clan control is of inconsiderable influence. Employee socialization to embed culture in the organization has a strong focus and is a separate function led by the sustainability department.



Type A can rely mainly on social controls, since sustainability is embedded in the culture

Figure 3a: Type A Culture and control



Type B needs both social and technical controls to embed sustainablity in the culture

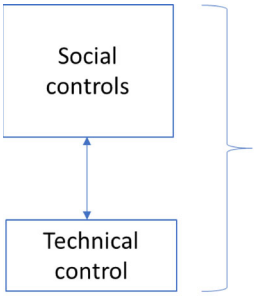
Figure 3b: Type B Culture and control

In the theoretical control concepts of the tables 3 and 4, employee socialization is the only control concept that explicitly uses control to embed culture in the organization. Clan control is the only control concept using culture itself as a control element. However, if we look at the three other social control elements of tables 3 and 4 (tone at the top, selection of personnel, interactive controls), we conclude that at least tone at the top is also a crucial element to embed sustainability in the culture of the organization. For Type A companies, as a standalone control tool, with the CEO as driving culture carrier. For Type B companies, the CEO empowers the sustainability department to use employee socialization effectively. Here, tone at the top and employee socialization complement each other in embedding sustainability in the culture. Merchant (2017) also classifies tone at the top as a cultural control mechanism. Selection of personnel is often used to identify candidates with the necessary skills and competencies (Merchant and Van der Stede, 2017), but they can also be used to select those whose preferences, beliefs, and values align with the organization (Gottschalg and Zollo, 2007). In the latter case, personnel selection can also be classified as a cultural control comparable to employee socialization. In our findings, selection of personnel is not a significant control element, but if it plays a control role, its focus is mainly on the cultural part. For interactive controls, we do not have direct indications that these controls are used to embed culture in the organization. However, for Type A organizations, we argue that involving the majority of employees in the strategy process, with a dominant role of the CEO, interactive controls also play a role in embedding the sustainable vision of the CEO in the organization. Overall, we conclude that most of the social controls focus either on embedding sustainability in the organization's culture or on using culture itself as a control

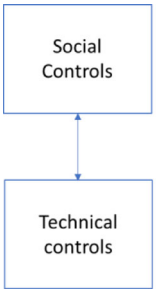
element. When we consider the technical controls, we found that in particular diagnostic controls also lead to increased awareness and help to internalize sustainable values. Therefore, we argue that diagnostic controls also contribute to embed sustainability in the culture of the organization, concluding that the division between social and technical control is not that clear as described in section 2. According to Gerdin (2020) social controls focus on the internalization of values and beliefs of the organization, whereas technical controls seek to influence employee behavior more directly. In our study it becomes apparent that also technical controls contribute to the internalization of values and beliefs of the organization. This is in line with the findings of Traxler et al. (2020), stating that sustainability reporting has a positive influence on corporate culture in terms of changing the communication of the vision, building a common language and values, triggering learning processes and leading to higher loyalty and trust among employees.

5.3 Interdependencies between social and technical controls

In the general management accounting literature, not particularly focusing on sustainability, it is often claimed that the internalization of shared beliefs and values obviates the need for an extensive bureaucratic apparatus of explicit rules and formalized systems of accountability to govern behavior (Alvesson and Lindkvist, 1993), referring to substitution of controls. In later studies, the co-existence of traditional bureaucratic structures with those mechanisms oriented towards the normative and ideational spheres of individual conduct appears to be a far more prevalent occurrence (Bedford and Malmi, 2015). Bedford and Malmi (2015) define this as hybrid control models where multiple seemingly conflicting control types (e.g. social and technical controls) intermesh, referring to complementarity of controls. We conclude that social controls and technical controls aiming for sustainable value are substitutes for Type A organizations and more complementary for Type B organizations.



Type A: Technical controls are substitutes for social controls resulting in less use of technical controls



Type B: Social and technical controls are complementary to each other

Figure 4a: Type A Interdependencies

Figure 4b: Type B Interdependencies

Our findings seemingly confirm both these two visions of substitution versus complementarity of social and technical controls (Gerdin, 2020). In the case of Type A organizations, sustainable values and beliefs are internalized in the whole organization, using culture itself as a control element, which obviates the need for extensive use of additional technical controls confirming Alvesson and Lindkvist (1993). In the case of Type B organizations, cultural controls are a means to an end to embed culture in the organization and co-exist with technical controls to direct employees in the sustainable direction. Here, technical controls also enhance the embedding of sustainability in the culture of the organization, in line with the hybrid model of Bedford and Malmi (2015). When we take a closer look at the clustering of management control constructs of the hybrid model of Bedford and Malmi (2015), it appears that the hybrid model scores the highest on measurement (e.g. diagnostic controls) as well as all socio-ideological controls (e.g. belief systems). This indicates the contemporary use of technical controls and social controls. The companies using the hybrid model in Bedford and Malmi's (2015) study consist of contextual attributes of administrative technology (high

outcome measurability and task programmability), large size, and mature age. Most of our Type B companies are large and mature aged and seem to have no significant complications in outcome measurability and task programmability, confirming the context constructs of the hybrid management control construct of Bedford and Malmi (2015). Type A companies in our dataset are of smaller size and relatively young of age and seem to fit within the context construct of a simple management control construct of Bedford and Malmi (2015). This simple management control construct is characterized as largely informal, with centralized power. We recognize these elements also for Type A companies in our findings, with a strong reliance on social (informal) controls combined with the dominant position of the CEO. However, the simple management control construct of Bedford and Malmi (2015) exhibits the lowest emphasis on socio-ideological mechanisms indicating low reliance on clan control (Ouchi, 1979). A potential explanation is that early-stage firms do not have a long and stable membership necessary to develop the kind of thick social understandings and intense commitment to collective values required for clan formation (Alvesson and Lindkvist, 1993). This contradicts our findings, where Type A companies have developed a deep commitment to collective sustainable values without long membership with their employees. This can be explained by our finding that employees are attracted to sustainable companies by their mission and vision, whereby there is less need for a long process to develop an intense commitment to the company's values to create clan formation. This explanation only counts for Type A organizations since they are established for a sustainable purpose and attract employees with a sustainable mindset from the start of their existence. Although Type B organizations also attract employees searching for purpose in their working environment, most employees are hired before transitioning to a sustainable purpose, and these employees will not necessarily embrace sustainable values. Type A organizations in our dataset are relatively small and young aged compared to Type B organizations. Therefore it would be interesting to understand the impact on the control process when Type A companies mature and grow, since as firms mature, they tend to adopt more bureaucratic control structures (Bedford and Malmi, 2015) resulting in social and technical controls becoming more and more complementary instead of substitutes. That is in line with Bedford and Malmi's (2015) findings suggesting that socio-ideological mechanisms are more likely to exhibit a complementary relationship with bureaucratic controls rather than act as substitutes as is commonly assumed in the literature (Alvesson and Kärreman, 2004).

When zooming in on the use of the different technical control elements for Type B companies, we determined an emphasis on diagnostic controls and policies and procedures and, to a less extent, on incentive systems. This contradicts Guenther et al. (2016), who argue that, ideally, environmental MCS are embedded within corresponding reward systems to incentivize environmentally-oriented behavior. Based on our findings, a potential explanation is that diagnostic controls and policies and procedures enhance the value internalization process, being complementary to social controls, whereas incentive systems focus more on extrinsic motivation. That is also in line with our argument that MCS that create sustainability value focus on embedding a sustainable culture in the organization, aiming to stimulate intrinsic rather than extrinsic motivation. A recent report of the Executive Remuneration Research Centre of the Vlerick Business School (Baeten, 2021) concludes that there is no correlation between incentive systems based on sustainability criteria and sustainable results. Baeten (2021) argues that this is due to the current maturity of companies to determine sustainability criteria, lacking a clear sustainability strategy and related measurement system to clearly link to incentive systems.

5.4 The role of finance and accounting systems

Our findings show that the finance function does not play a significant role in the integrated reporting and controlling process. This process is in most companies led by the sustainability

department and separated from the regular financial reporting process led by the finance function. The sustainability reporting process is mainly a manual exercise, leading to quarterly reports. The only exception in our findings is Coy 6, where this process is a joint effort between finance and sustainability and incorporated in the standardized reporting tools. These general findings are in line with Ascani et al. (2021) who performed a structured literature review about the role of management accountants in sustainability accounting and reporting.

When comparing the sustainable reporting and the financial reporting process, the financial reporting process is highly automated and supported by standardized reporting tools, instead of the manual sustainable reporting process. A recognized argument in our findings for this difference in reporting processes is that the sustainability reporting process is still work in progress and needs to be further developed, also due to the inability of the accounting system to manage this process (see also Dimes and De Villiers (2020) and Rodríguez-Gutiérrez et al. (2019)). It can be argued that the finance function and the sustainability function should co-operate to integrate the financial and sustainable reporting process, for example, to increase the efficiency of the process and reliability of the data. This is in line with Dimes and De Villiers (2020), who argue that there is an increasing recognition that good integration of lateral functions, in particular the finance function, could enable integrated thinking. What is also often mentioned by our participants as a bottleneck is that there is no existing mainstream accounting system currently available to deal with this issue, which is also recognized by Stroehle and Rama Murthy (2019). Despite the mentioned complications in this reporting process, the companies of our sample manage to create sustainable value. It would be interesting to investigate the added value of investing in a sophisticated reporting system from that perspective. Next to more effective use of diagnostic controls, another reason to invest in a sustainable reporting system is to comply with legal obligations like the Corporate Sustainability Reporting Directive (European Commission, 2021) recently adopted by the EU Commission.

5.5 Validity of methods and findings

The most crucial criterion for selecting our case-companies is an active focus on multiple value creation. However, we did not analyze the effectiveness of the management control mechanism and related multiple value creation. Therefore, our findings do not indicate which management control package or control elements are the most effective for creating multiple values but only show how companies use management control packages or control elements to focus on multiple value creation. However, we consider this valuable since empirical knowledge on this topic is limited. Primarily, since we used a diverse set of companies, many different insights were analyzed for different companies. This increases the practical relevance of our findings, covering a wide area of companies from different sectors, sizes, and ownership. On the other hand, the diversity of our dataset also complicates the comparability of the different companies. Therefore, we cannot draw firm conclusions based on recognized patterns inherent to qualitative research.

In our findings, we made a distinction between Type A and Type B companies. We identified four from the twenty companies as Type A (Coy 1, 4, 9, 19). As indicated in Table 1, these Type A companies are relatively small compared to the other companies. These Type A companies are also relatively young of age. It can be argued that the control characteristics of Type A companies (with a relatively strong focus on social controls) are specific for small and young aged companies. On the other hand, our Type A companies have a specific pattern focusing on a single social or environmental problem, which makes them distinctive not only to Type B companies but also to regular small and young aged companies. Therefore we decided to identify these four companies as a separate group. Type A companies represent 20% of our population, but we have not determined whether this percentage represents the whole population of companies focusing on sustainability.

We expect that the percentage of Type A companies, compared to regular companies in general, will be low. Based on this expectation, the relevance of analyzing Type A as a separate typology can be questioned. However, due to increasing pressure on industries and sectors to become more sustainable, we expect this percentage to grow and become more relevant over time. We expect new companies to jump into sustainable business opportunities to disrupt a regular industry and become the new market leaders of the future, of which a company like Tesla is a good example.

Our analysis is based on 53 interviews and internal and external documents of the companies in our dataset. This implies that we have conducted three interviews for 13 companies and two interviews for 7 companies. It can be argued that two or three interviews are not representative regarding the analyzed companies. In our research approach, we do not intend to include a full representation in our analysis. Our goal is to create valuable insights into one particular element of the selected companies, namely the element of management control focusing on multiple value creation. For that reason, it was crucial in our research approach to select the appropriate people, whereas we considered the number of interviewees of less relevance.

6. Conclusions

This study contributes to the literature in several ways. In general terms, it provides in-depth and nuanced insights into the way companies design MCS focusing on multiple value creation, answering a call for more management accounting research in this area (De Villiers et al., 2016; Ditillo and Lisi, 2016; Gond et al., 2012; Hartmann et al., 2013; Joshi and Li, 2016; Latan et al., 2018; Ligonie, 2021; Sundin and Brown, 2017). In particular, it shows that MCS focusing on corporate sustainability are designed to embed sustainability in the corporate culture and explains how these MCS are enacted in practice and understood in empirical settings regarding this process. It also extends the theoretical conceptualization of control elements focusing on culture (Merchant and Van der Stede, 2017; Ouchi, 1979; Simons, 1995). It does so by making a clear distinction between cultural control, which relies on shared sustainable values (Ouchi, 1979) and cultural control, which intends to internalize shared sustainable values (Merchant and Van der Stede, 2017; Simons, 1995). The general understanding in literature is that only social controls focus on culture as control element (Merchant and Van der Stede, 2017; Simons, 1995). But our study shows that technical controls can contribute as well to the process of internalizing shared sustainable values. Due to our GT approach resulting in a more holistic approach, our study shows the interactions between a variety of relevant control elements rather than focusing on an instrumental and therefore functionalistic perspective which is found in the existing body of literature (Traxler et al., 2020). With this approach, it also contributes to the current discussion in the literature about interdependencies between controls (e.g. Abernethy et al., 2015; Gerdin et al., 2019; Kreutzer et al., 2016), providing evidence that social and technical controls can be built on a substitution logic (Chenhall, 2003; Govindarajan, 1984; Ouchi, 1977; Ouchi, 1979) but also act as complements (Bedford et al., 2016; De Jong et al., 2014), depending on certain contextual conditions. We identified two types of companies in this respect. Type A companies that are founded for a sustainable purpose and companies that are in a transition process towards sustainability, called Type B companies. For Type A companies, social and technical control function as substitutes. Here, MCS mainly focus on social controls, with significant elements of clan control (Ouchi, 1979; Schein, 2010). These MCS rely on shared sustainable values as a control mechanism, substituting technical controls. For Type B companies, social and technical controls are complementary to each other. Social controls focus on embedding a sustainable culture in the organization and are supported by technical controls to direct employees' behavior in the sustainable direction and enhance the process of embedding sustainability in the culture. These MCS focus on embedding shared sustainable value in the organization, and cannot yet rely on shared values as the

leading social control mechanism without the support of technical controls as complements to social controls.

This study also has important managerial implications. It provides accountants and other practitioners with rich insights on examples and challenges of MCS focusing on multiple value creation. These insights are precious given, on the one hand, the paucity of empirical evidence on the topic and, on the other hand, the ever-escalating pressures companies are facing concerning the sustainability agenda and upcoming legal requirements. In particular, by highlighting the importance of various forms of control elements, our analysis reveals that different interdependent control elements are needed to deploy a sustainability strategy. In this respect, our in-depth description of how Type A and B companies design MCS will provide helpful guidance to practitioners faced with the challenge to design a MCS focusing on sustainability.

A limitation of this study is that due to the COVID-19 pandemic we were able to only physically visit a few companies, whereas most of the conducted interviews were held online. Therefore we had limited possibilities to collect and analyze field notes. Although we believe that additional fieldnotes could have contributed to our findings, we do not anticipate that these fieldnotes would have fundamentally changed our conclusions. Another limitation of our findings is that all our selected companies are Dutch. Since culture plays an essential role in our findings, this study could lead to other outcomes when performed in other countries.

To conclude, this study created some fruitful insights in the complexities of MCS for sustainability and culture. As research advances, certainly more fine-grained classifications, descriptions, and dimensions of these MCS can be developed. Future research can verify the effectiveness of identified patterns based on a quantitative research approach. We also see performing longitudinal case studies on the development of both MCS of Type A and Type B companies as useful future research possibilities. In addition, fascinating new insights can emerge involving more blue-collar employees in the study. Also, the potential role of Accounting and Control, including the accounting system, regarding diagnostic control mechanisms could be further analyzed.

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Appendix 1 Overview of the interview guides

Interview guide 1: Strategy

Main questions: How is sustainability incorporated in the strategy of the organization?

1) What is included/definition in/of the term sustainability?
   - what is excluded?
   - what kind of value is created?

2) How and why is sustainability incorporated in the your strategy?
   - what does this sustainable strategy entail?
   - how does that fit into your overall strategy?
   - what was the trigger to include sustainability into your strategy (board of directors, supervisory board, society, legal, risk etc.)?
   - to what extent are financial interests playing a role?
   - what do you want to achieve?
   - how is this (sustainable) strategy communicated to employees?
   - is this based on a risk analysis, which focuses on both sustainability risks and opportunities?
   - if so, are non-financial risks also quantified?

3) What are important sustainable initiatives/results? (Ditillo and Lisi, 2016)
   - How will this be measured?

4) What difficulties/problems do you encounter when implementing sustainability in your strategy? (Ditillo and Lisi, 2016)
   - how do you take into account different interests and wicked problems (e.g. opposing value types)?
   - do you experience problems with measuring sustainability?
   - how do you deal with this?

5) How is/are sustainability (goals) being managed? (Hartmann et al., 2013)
   - what are your main goals?
   - how are these goals communicated to the organization?
   - Are departments/employees held responsible for achieving these goals, if so how??
   - how strictly are these goals handled (loose vs tight control)?

6) How does this affect the behavior of management and employees?(Sundin and Brown, 2017)
   - how can this be made visible?

7) Is there a mechanism by which the correctness/relevance of the strategy is verfied?
   - is this formal or informal process?
   - does this mechanism lead to adjustments of the strategy?

8) What do you expect from the accounting & control department in the field of sustainability? (Hartmann and Maas, 2010; Hartmann et al., 2013)

9) Is there something else you'd like to add regarding this interview (Ditillo and Lisi, 2016)

Interview guide 2: Sustainability

Main question: How is sustainability incorporated into the processes of your organization?

1) What is included/definition in/of the term sustainability?
   - what is excluded?
   - what kind of value is created?

2) What is the opinion of the board about sustainability? (De Villiers et al., 2014; Latan et al., 2018)

3) How is sustainability incorporated into (the business processes of) your organization? (Ditillo and Lisi, 2016)
   - is there a sustainability manager and what is his or her role?
   - are departments/employees well informed about the sustainability goals?
   - to what extent is sustainability part of your culture and how is that visible (separation of garbage / role model of the board etc)?
   - is sustainability a criterium for hiring employees?
   - is personnel being educated regarding sustainability?

4) What problems/difficulties are you facing incorporating sustainability into your business processes? (Ditillo and Lisi, 2016)
   - is there any resistance?
   - is er a lack of knowledge?

5) What should be changed to better incorporate sustainability into the business processes?

6) Do you have concrete sustainability targets/KPI's? (Ditillo and Lisi, 2016; Latan et al., 2018; Maas et al., 2016)
   - if so, how are these being determined?
   - what are those targets and can you show them to me?
   - are these targets derived from strategy?
   - are these targets quantitative (monetized or not) and/or qualitative?
   - are targets being analysed against actuals on a regular basis?
   - how does this process works? (reports, meetings (on what level)?
   - are targets based on a risks analysis?

7) To what extent and how are managers made responsible for sustainable KPI's? (Ditillo and Lisi, 2016)

8) What do you expect from the accounting & control department regarding sustainability? (Hartmann and Maas, 2010; Hartmann et al., 2013)

9) Is there something else you'd like to add regarding this interview? (Ditillo and Lisi, 2016)

Interview guide 3: Accounting & Control

Main question: How is sustainability recorded/analyzed and managed in order to realize the associated strategic goals?

1) What is included/definition in/of the term sustainability?
   - what is excluded?
   - what kind of value is created?

2) What does the CFO think of sustainability? (De Villiers et al., 2014)

3) To what extent is accounting & control involved in monitoring sustainable goals? (Hartmann et al., 2013; Maas et al., 2016)
   - what is their involvement in setting targets with regard to sustainability?
   - what is their involvement in the analysis of actuals versus targets?
   - what is their involvement of the resulting actions for improvement?
   - how strictly are these goals applied?
   - what is their involvement in a possible risk analysis in the field of sustainability?

4) To what extent is sustainability part of the regular internal (monthly) reporting process? (De Villiers et al., 2014; Ditillo and Lisi, 2016; Maas et al., 2016)

5) Do you use existing standards/frameworks/objectives for your internal sustainability reporting (eg IIRC, GRI, SDG)?
   - if not, is there another way reporting is standardized (e.g. a reporting manual)

6) Which bottlenecks do you encounter with (internal) integrated reporting? (Ditillo and Lisi, 2016)
   - Are there problems with obtaining the correct information, for example due to inadequacy of your management information system?
   - how is reliability guaranteed?
   - Are there any problems with measurability?
   - is there a lack of knowledge about sustainability (reporting)?

7) What do you think should be done differently to improve the process of (internal) integrated reporting?

8) To what extent does your external (sustainability) report differ from your internal sustainability report? (De Villiers et al., 2014; Sundin and Brown, 2017)
   - if this is different, what are the differences?
   - what is the reason for these differences?

9) Is there something else you'd like to add regarding this interview? (Ditillo and Lisi, 2016)

Appendix 2 Summary of the conducted interviews

Int X, Coy Y	Function Interviewee	Duration (min)
Int 1, Coy 1	CEO	120
Int 2, Coy 1	HR Manager	50
Int 1, Coy 2	Head of Sustainability	105
Int 2, Coy 2	VP of Sustainability	35
Int 3, Coy 2	Chief Accountant	50
Int 1, Coy 3	Head of Corporate Developement	30
Int 2, Coy 3	Finance Director	60
Int 3, Coy 3	Sustainability Manager	60
Int 1, Coy 4	Finance Lead	90
Int 2, Coy 4	Content Producer	60
Int 1, Coy 5	Corporate Director Sustainability	45
Int 2, Coy 5	Category/brand controller	50
Int 3, Coy 5	Director corporate accounting & reporting	60
Int 1&2, Coy 6	Global Environmental Advisor; Global Sustainability Controller	70
Int 3, Coy 6	Global Commercial & Business Development Director	60
Int 4&5, Coy 6	Global Head of Reporting & Control; Global Finance Director	60
Int 1, Coy 7	Director Sustainability	70
Int 2, Coy 7	Program Manager Sustainability	60
Int 1, Coy 8	Sustainability Performance and Reporting Manager	60
Int 2, Coy 8	Director Accounting	60
Int 3, Coy 8	Project Director Integrated Reporting	40
Int 1, Coy 9	CEO	90
Int 2, Coy 9	COO	80
Int 1, Coy 10	Sustainability Manager	60
Int 2, Coy 10	CTO	60
Int 3, Coy 10	Director Accounting & Business Control	60
Int 1, Coy 11	Sustainability Manager	60
Int 2, Coy 11	Corporate Controller	70
Int 1, Coy 12	Concern Controller	50
Int 2, Coy 12	Coordinator CSR Policy	70
Int 3, Coy 12	Advisor Innovation and Strategy	60
Int 1&2, Coy 13	Group CSR Manager; CFO	60
Int 3, Coy 13	Director Investor Relations & Corporate Development	60
Int 4, Coy 13	Group Controller	50
Int 1, Coy 14	Director of Corporate Engagement	70
Int 2, Coy 14	Director Group Reporting & Accounting	70
Int 3&4, Coy 14	Global director Corporate development; Senior Manager Corporate Strategy	60
Int 1, Coy 15	Business Director	50
Int 2&3, Coy 15	Senior IFRS Consultant; Integrated Reporting Consultant	60
Int 4, Coy 15	Manager Safety & Prevention	70
Int 1, Coy 16	Manager Consolidation & Reporting	60
Int 2, Coy 16	Senior Advisor CSR	60
Int 1, Coy 17	Senior Managing Director, Sector Advisory and Sustainable Finance	40
Int 2, Coy 17	Sustainability Lead	60

Int 3, Coy 17	Head Sector Advisory	50
Int 1, Coy 18	Sustainability Manager	60
Int 2, Coy 18	Senior Portfolio Manager	70
Int 3, Coy 18	IFRS Reporting policies	60
Int 1, Coy 19	CEO	90
Int 2, Coy 19	Customer Service & Finance	30
Int 1, Coy 20	CEO	50
Int 2, Coy 20	Strategic business developer	50
Int 3, Coy 20	Global Finance & IT Manager	60
Total	53 interviews / 58 interviewees	3,245