The interplay of sustainability reporting and management control – an exploration of ways for dovetailing to develop reporting beyond accountability

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Abstract

Purpose – Companies must no longer just report on corporate sustainability (CS) performance but also demonstrate that they are aligning their strategies with sustainability. However, suitable management control systems (MCS) are required to implement a sustainability strategy. Thereby, sustainability reporting (SR) can also be employed for control purposes. On the other hand, existing MCS can be used to develop SR that goes beyond accountability. Accordingly, this paper explores how this interplay can be designed.

Design/methodology/approach – For the study, 20 semi-structured interviews were conducted with persons from ATX and DAX companies. Since the interplay should be examined from a holistic control perspective, the authors used the MCS package of Malmi and Brown as an analysis framework.

Findings – Nowadays, merely focusing on reporting is too narrow a view. It is therefore not surprising that the investigation was able to reveal various possible linkages between MCS and SR that span the full range of the MCS package of Malmi and Brown.

Research limitations/implications – Future research should also consider non-listed companies to investigate potential differences and take a closer look at the proposed reciprocal nature of the interplay.

Practical implications – The findings expand the knowledge of how companies can use SR for control purposes and how existing MCS can help develop a reporting that goes beyond accountability.

Originality/value – The study contributes by highlighting the potential of SR to control CS performance from a holistic MCS perspective and likewise the impact of existing MCS on reporting. In addition, different theoretical perspectives are used to explain why the interplay can be designed differently in practice.

Keywords Corporate sustainability, Expert interviews, Listed companies, Management control systems, Sustainability reporting

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1. Motivation and research questions

Since the turn of the millennium, reporting that goes beyond the financial bottom line by also taking into account the organizations' ecological and social performance has become an increasingly widespread practice among all types of companies, but especially among large listed ones (KPMG, 2022). The reasons and motives for reporting are manifold, ranging from gaining competitive advantages to accountability and legitimacy considerations to simply fulfilling legal non-financial disclosure requirements (Herzig and Schaltegger, 2006; Buhr, 2007). Another reason is that capital market-oriented companies are ever more confronted with a capital market that is interested in their commitment and performance in corporate sustainability (CS). Literature suggests that capital market participants now tend to focus on sustainability information that can be straightforwardly translated in terms of costs or risk (Reimsbach *et al.*, 2020). Consequently, proactive communication of decent CS performance through sustainability reporting (SR), among many other benefits, can provide better access to capital for publicly traded companies (e.g. Cheng *et al.*, 2014; Gholami *et al.*, 2023). Aside from investors, other stakeholders like customers or employees are also looking for information not only about the status quo but also how the company is developing strategies and taking actions to improve its CS performance (Rodrigue *et al.*, 2013; Silva *et al.*, 2019).

Accordingly, to be successful in the long-term companies must not only report on their current CS performance but also demonstrate that they are aligning their business models and strategies toward sustainability. There is evidence that companies, to varying degrees, are already incorporating sustainability issues into their missions, visions, value statements, or strategic documents (e.g. Baral and Pokharel, 2017; Wardhani and Rahadian, 2021), thereby formulating and documenting a pathway to sustainable transformation of their business models.

However, management control (MC) literature suggests that formulating the vision or strategy is just one side of the coin, and that managing the implementation is the other (Merchant and Van Der Stede, 2017). Consequently, companies that have recognized the importance of improving CS performance for long-term success and have developed a strategy to do this, require management control systems (MCS) that facilitate the implementation of sustainability strategies to transform their business and improve CS performance (Riccaboni and Leone, 2010; Crutzen *et al.*, 2017). Thereby, the essential role of MCS in fostering CS is suggested in many studies. It has been shown that companies can draw on a wide range of instruments and mechanisms, ranging from controlling via corporate culture, incentive systems and administrative measures to cybernetic controls and planning (Malmi and Brown, 2008; Lueg and Radlach, 2016). However, to create a holistic or integrative control approach, existing MCS must be aligned with sustainability controls and not implemented in isolation from them (Beusch *et al.*, 2022).

A few studies also address the question of what role SR can play in managing CS performance (Maas *et al.*, 2016; Traxler *et al.*, 2020). While a sustainability report can be viewed as the disclosure of information gathered through the sustainability accounting system, the entire reporting process encompasses much more than just the report, which often functions primarily as an external communication medium. In addition to accountability, reporting can also meet internal information needs and thus provide the basis for decision-making and consequently contribute to improving CS performance (Hahn and Kühnen, 2013; Joshi and Li, 2016; Maas *et al.*, 2016). In this way, sustainability information can be used for planning or controlling, for example, the usage of resources or the reduction of emissions. In addition, the reporting process itself can help to create sustainability awareness and thus anchor sustainability issues in the corporate culture (Adams and McNicholas, 2007; Eccles and Serafeim, 2013; Maas *et al.*, 2016).

Therefore, companies that employ different MC instruments and mechanisms to implement their sustainability strategy can also use the control possibilities provided by reporting. Exploiting the potential of reporting for control purposes also makes sense given the costs incurred by SR and the associated effects on current financial and operational performance (Buallay, 2019). However, it is important to consider not only how reporting can be used to manage CS performance, but also that the MCS in place can have a significant impact on reporting by acting as a preconditions, drivers, or barriers. (Traxler *et al.*, 2020). For example, a corporate culture that incorporates values and beliefs that prioritize sustainability can have a positive effect on reporting (e.g. Herremans and Nazari, 2016; Rezaee, 2017). Accordingly, companies should also take into consideration this side of the interplay when striving for a well-developed linkage between reporting and MCS, especially considering that there is to be an integration of sustainability MCS and traditional ones (Beusch *et al.*, 2022). Existing MCS can help to develop a reporting that goes beyond accountability and thus also counter the criticism regarding an insufficient linkage between SR and corporate strategy (Burritt and Schaltegger, 2010).

However, the demand for a pronounced dovetailing of SR and organizational control mechanisms and instruments to tap the control potential of reporting on the one hand and to further develop SR on the other hand immediately begs the question of which influences are conceivable and how they can be exploited. Although there are now numerous studies that investigate how MCS can be employed to increase CS performance and a large variety of publications exploring SR from different perspectives, we still know very little about the interplay of SR and MCS (Adams and Frost, 2008; Contrafatto and Burns, 2013; Maas *et al.*, 2016; Traxler *et al.*, 2020; Hsiao *et al.*, 2022). The few studies that are dedicated to this topic do so mostly in a selective way, i.e. they consider selected linkages between individual control types and reporting and do not investigate a holistic control approach. Given this limited understanding, our study aims to show, on the one hand, whether and how existing MCS in corporate practice affect reporting and, on the other hand, whether and what control effect SR has.

RQ. What is the interplay between sustainability reporting and management control systems?

RQA. What influence do management control instruments and mechanisms have on sustainability reporting?

RQB. What influence does sustainability reporting have on existing management control instruments and mechanisms?

Our study sought to answer these questions by interviewing 20 experts from Austrian and German listed companies (LC), as SR is a practice well-institutionalized in publicly traded companies due to prevailing conditions such as legal regulations and capital market pressure. This, in turn, suggests that the respondents in these companies should have experience in gathering and reporting non-financial information. In addition, LC also have particularly high incentives to align their companies towards sustainability to be successful in the long term. Accordingly, LC should not only have extensive experience in reporting but also know how to implement a sustainability strategy with an appropriate MCS. The wide-spread MCS package of Malmi and Brown (2008) was used as a conceptual framework to structure the interview guideline and the subsequent data analysis. This enables us to examine a broad variety of MC including cultural controls, planning, cybernetic controls, reward and compensation and administrative controls. Our study thus contributes to providing insights into the interplay of SR and MCS, drawing on a holistic approach of MCS.

The remainder of the paper is organized as follows: Section 2 *Background and theoretical discourse on sustainability reporting and control* provides the conceptual basis and introduces different theoretical perspectives which suggest how MCS could influence SR and vice versa. Section 3 *Methodology and sample* describes the chosen research strategy and method –

structured expert interviews – as well as the sample. In section 4 *Results* the findings from the interviews will be presented. This is followed by section 5 *Discussion*. Finally, in section 6 *Conclusion, limitations and further research*, a conclusion is presented, as well as limitations and directions for further research are addressed.

2. Background and theoretical discourse on sustainability reporting and control

2.1 Background on sustainability reporting and control

According to the Global Reporting Initiative (GRI), the publisher of the most widely used SR framework, SR is *"[. . .] an organization's practice of publishing information on its economic, environmental, and social impacts"* (GRI, n.d.). Therefore, it can compensate for the deficits of conventional accounting, namely the failure to take sustainability issues into account (Burritt and Schaltegger, 2010). However, SR cannot be reduced solely to the disclosure of sustainability information. Beyond satisfying external accountability demands, SR supports internal information needs, facilitates decision-making and thus can be used for controlling and enhancing CS performance (Hahn and Kühnen, 2013; Joshi and Li, 2016; Maas *et al.*, 2016).

Companies usually have various controls in place to align individuals' behavior with corporate goals (Malmi and Brown, 2008; Merchant and Van Der Stede, 2017). While in the past, MC literature was focused on traditional corporate objectives such as increasing profitability or growth (Anthony, 1965; Merchant, 1985; Simons, 1995), attention is now increasingly shifting to how companies can exploit MCS to foster their contributions to SD (Lueg and Radlach, 2016). Consequently, various approaches to control CS performance, encompassing different types of control, are explored or developed: from the incorporation of sustainability aspects within an organization's strategy (e.g. Gonda *et al.*, 2012) to the integration of sustainability measures in specific cybernetic control systems such as the balanced scorecard (e.g. Hansen and Schaltegger, 2016) or embedding sustainability issues in the organization's culture (e.g. Linnenluecke and Griffiths, 2010), to the effects of corporate governance structure on the organization's sustainability performance (e.g. Naciti, 2019), to name but a few.

However, literature on traditional MCS suggests that the investigation should be done by considering the different control types as a package rather than in isolation (Chenhall, 2003; Malmi and Brown, 2008), although it does not deny that this is a complex undertaking (e.g. Grabner and Moers, 2013; Mahmoudian *et al.*, 2022). Accordingly, it is hardly surprising that studies regarding the management of CS performance also follow this package approach and show how the different types of control interact (e.g. Riccaboni and Leone, 2010; Arjalies and Mundy, 2013; Ditillo and Lisi, 2016; Sundin and Brown, 2017).

In the literature, several approaches to classifying MCS can be identified. A widely used framework is the MCS package by Malmi and Brown (2008), which follows a holistic perspective and differentiates between cultural controls, planning, cybernetic controls, reward and compensation and administrative controls (see Table 1). It covers formal and informal controls as well as institutional and processual elements and consolidates other present MCS approaches. Thus, it can be considered – besides the conceptual model of Broadbent and Laughlin (2009) – as the broadest MCS understanding to date (Günther *et al.*, 2016).

Although many studies have been able to show, that each of the five types of control can be used to manage CS performance or what interactions are possible, to date our understanding of the effect of MCS on SR and vice versa is still very limited (Maas *et al.*, 2016; Traxler *et al.*, 2020; Hsiao *et al.*, 2022). Most of the few available studies devoted to this interplay of controlling and reporting focus only on individual types of control rather than on a holistic view. Nevertheless, they have already been able to provide evidence of positive effects from the interplay (Traxler *et al.*, 2020).

For example, there is literature that suggests that a corporate culture that incorporates values and beliefs that create space for sustainability can have a positive impact on reporting

Cultural controls	Malmi and Brown (2008) define cultural controls by referring to Flamholtz (1983) 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, 1983, p. 158)
Planning	Planning can be understood as *"ex ante form of control"* (Flamholtz *et al.*, 1985, p. 39). According to Malmi and Brown (2008), it encompasses setting the goals, developing standards or actions that are required to achieve those goals, and enabling coordination by adjusting the goals set across the organization
Cybernetic controls	Malmi and Brown (2008) describe cybernetic controls by referring to Green and Welsh (1988) as *"a process in which a feedback loop is represented by using standards of performance, measuring system performance, comparing that performance to standards, feeding back information about unwanted variances in the systems, and modifying the system's comportment"* (Green and Welsh, 1988, p. 289)
Reward and compensation	The control element reward and compensation builds on *"motivating and increasing the performance of individuals and groups through attaching rewards to control effort direction, effort duration, and effort intensity"* (Malmi and Brown, 2008, p. 292)
Administrative controls	Malmi and Brown define administrative controls by referring to Simons (1987) as *"[. . .] those that direct employee behaviour through the organizing of individuals (organisation design and structure), the monitoring of behaviour and who employees are made accountable to for their behaviour (governance); and through the process of specifying how tasks or behaviours are to be performed or not performed (policies and procedures)"* (Malmi and Brown, 2008, p. 292)

Source(s): Table created by author

Table 1. MCS framework according to Malmi and Brown (2008)

(e.g. Herremans and Nazari, 2016; Rezaee, 2017), and conversely, that engagement with SR can promote awareness of sustainability and thus lead to a change in corporate culture (e.g. Eccles and Serafeim, 2013; Maas *et al.*, 2016). Such positive effects, which suggest an appropriate linking of SR with the MCS, can also be identified for planning (e.g. Arjalies and Mundy, 2013; Palmer and Flanagan, 2016; Hosoda, 2021), cybernetic controls (e.g. de Villiers *et al.*, 2016; Mio *et al.*, 2016; Shabana and Ravlin, 2016), incentive systems (e.g. Oliver *et al.*, 2016; Tamimi and Sebastianelli, 2017; Hu and Loh, 2018) and administrative measures (e.g. Frostenson and Helin, 2017; Laine *et al.*, 2017; Blackburn *et al.*, 2018).

Nevertheless, most studies do not approach the issue of the interplay between MCS and SR from a holistic perspective and thus do not take up the package idea of Malmi and Brown (2008). The few studies that take up this package thinking either do so with a focus on environmental sustainability, do not include the individual control types in their studies in a balanced way, or focus only on specific institutions (e.g. Adams and Frost, 2008; Kerr *et al.*, 2015; Mahmoudian *et al.*, 2022). Considering that more and more companies are publishing sustainability reports (KPMG, 2022), either voluntarily or due to the expansion of sustainability disclosure obligations (e.g. CSRD), and consequently a lot of information is collected, and many employees and departments are involved in the reporting process, there is great potential here. The holistic linking of MCS and SR can bring great benefits. By systematically dovetailing various control instruments or mechanisms with reporting, it is possible to develop a reporting whose benefits go far beyond accountability.

2.2 Theoretical perspectives on sustainability reporting and control

From a theoretical point of view, the distinction in SR between an external or accountability perspective and an internal or control perspective suggests that there will be different drivers or motives for linking SR and MC or the design of the interplay. To understand these differences and the associated roles that instruments or mechanisms used in the context of CS can play within organizations, Hansen and Schaltegger (2016) introduced a classification that distinguishes between an instrumental, a social/political and a normative perspective. The instrumental perspective focuses on the contribution of CS performance to conventional corporate objectives (Hansen and Schaltegger, 2016), a rational notion that can be found, for example, in the strategic branch of stakeholder theory (Donaldson and Preston, 1995). Stakeholders can influence organizations and their actions in various ways, depending on the power they have (Mitchell *et al.*, 1997; Neu *et al.*, 1998). Hence, from a strategic perspective, expanding the shareholder focus and considering a wider range of powerful stakeholders is crucial for an organization's success (Freeman *et al.*, 2004).

Given their dispersed ownership structure, LC are confronted with many different stakeholders and therefore a wide range of information needs (Khan *et al.*, 2013). SR can contribute to satisfying these needs and hence provide transparency for organizations' CS performance (Hahn and Kühnen, 2013). In addition to publishing information, companies must also implement proper control mechanisms to ensure that the expectations of the stakeholders, particularly the strategically relevant ones, are reflected in the actions taken (Durden, 2008; Özsözgün Caliskan, 2014; Lueg and Radlach, 2016). Otherwise, companies run the risk of SR being perceived as a public relations practice that does not positively affect CS performance (Durden, 2008).

Dispersed ownership structure is also a driver or motive for SR according to a further instrumental theoretical perspective, principal-agency theory. In line with principal-agency theory, a dispersed ownership structure leads to high information asymmetries between a LC and its shareholders (Brammer and Pavelin, 2008; Hahn and Kühnen, 2013). Signaling the company's contributions to SD by publishing a sustainability report can reduce such information asymmetries and lower investors' costs of screening, which in turn can lead to better access to capital (Albers and Günther, 2011; Gholami *et al.*, 2023). This is particularly relevant considering that investors are increasingly incorporating the sustainability commitment of companies into their decisions (Reimsbach *et al.*, 2020).

Hence, from an instrumental perspective, one might expect that the SR and MCS of LC are linked because they want to improve their CS performance to achieve conventional corporate objectives and ensure long-term success. Therefore, they are willing to create a well-developed interplay encompassing a whole range of different control types to exploit the full potential of SR rather than simply using it as a communication tool without any significant impact on CS performance. In contrast to the instrumental perspective, which reflects on CS from a functionalistic point of view, the social/political perspective considers how organizations deal with society's expectations (Hansen and Schaltegger, 2016). While stakeholder theory emphasizes different stakeholders and their importance for a firm's success (Freeman *et al.*, 2004), legitimacy theory focuses on society's expectations at large. Companies must demonstrate that their actions are in line with the prevailing social norms, beliefs and values. If a substantial gap between the actions and the expectations occurs, legitimacy is threatened . SR can be seen as an instrument to reduce this gap or to show that the company's actions are congruent with societal expectations to gain, maintain, or defend legitimacy (Suchman, 1995; Hahn and Kühnen, 2013; Comyns and Figge, 2015). LC are under particular pressure to demonstrate this congruence since they face more public awareness and are often subject to strong regulatory pressure (Gallo and Jones Christensen, 2011; Khan *et al.*, 2013).

The rapid diffusion of the publication of environmental and social information can also be explained from an institutional perspective or through isomorphic mechanisms (Shabana *et al.*, 2017). Neo-institutional theory differentiates between three mechanisms – coercive, mimetic and normative isomorphism – that will result in homogeneity within an organizational field (DiMaggio and Powell, 1983). Thereby, the institutional approach suggests that the change or alignment in reporting behavior is motivated by companies' efforts to respond to the prevailing pressure in order to gain or maintain legitimacy (DiMaggio and Powell, 1983; Larrinaga-González, 2007).

If one assumes, as the social/political perspective proposes, that companies mainly use SR to shape society's expectations or to adapt to them for the sake of legitimation (Bravo *et al.*, 2012), then one will expect that the interplay between SR and MCS is not particularly developed. Companies are not interested in SR as a useful instrument to enhance CS performance, but they do appreciate it as a valuable tool to react to society's expectations. Therefore, SR and MCS are only linked to the extent that is necessary to create the impression that the company undertakes reasonable efforts to control and improve CS performance. Companies will consequently selectively use only control instruments or mechanisms that are necessary to achieve this impression or to fulfill institutional requirements, such as legal obligations.

In contrast, the normative perspective regards the consideration of sustainability issues to a satisfactory extent as a moral obligation (Hansen and Schaltegger, 2016). Unlike the strategic branch of stakeholder theory which stresses rational considerations behind a company's stakeholder management, normative stakeholder theory is based on philosophical or moral considerations (Donaldson and Preston, 1995). Accordingly, companies should not only focus on strategically relevant stakeholders but consider all stakeholders that have morally grounded claims, no matter whether this approach contributes to the achievement of traditional corporate objectives or not (Hasnas, 1998; Sundin *et al.*, 2010).

Consequently, under the normative view, one might assume that the interplay between SR and MCS is well-developed, since organizations accept the need to contribute to SD as given and, therefore, want to exploit the full potential of SR regarding the improvement of CS performance.

3. Methodology and sample

3.1 Research strategy

To answer the outlined research questions, we used a qualitative research approach by conducting 20 in-depth semi-structured expert interviews. Since research exploring the interplay of SR and MCS is still at an early stage (Maas *et al.*, 2016; Traxler *et al.*, 2020; Hsiao *et al.*, 2022), expert interviews are a reasonable method to access the research field in an explorative way (Bogner *et al.*, 2009). Using a semi-structured interview guideline allowed us to gain more flexibility during the interviews to get a close view in the areas of interest and to identify new issues which might have an impact on the research questions (Brinkmann, 2013; Qu and Dumay 2011).

3.2 Sample selection

As research objects, we selected companies listed on the Austrian ATX and the German DAX. In LC, SR is a well-institutionalized practice, and many of these companies have long-standing experience gathering and publishing sustainability information (KPMG, 2022). Furthermore, capital market-oriented companies have particularly high incentives to align their business models toward sustainability, as investors are increasingly demanding this. Accordingly, LC should not only have extensive experience in reporting, but also know what options are available for managing CS performance.

Variations in corporate social responsibility (CSR) or CS can often be traced back to differing institutional framework conditions. The two chosen countries share important commonalities concerning CSR or CS, such as the legal framework conditions or the prevailing approach to CSR (Matten and Moon, 2008; Directive 2014/95/EU). Of the companies listed on the two indexes in the year 2017, 10 listed on each the ATX and on the

DAX took part in our study, yielding 21 persons who are actively involved in SR by virtue of their function or position as interview partners (see Table 2). In most cases, the interviewees were working in sustainability management, corporate communication, or the investor relation department. Hence, they can be viewed as experts on the relevant topic.

The companies included represent a wide range of industries, including the automotive industry, energy supply industry, plant engineering and financial institutions.

3.3 Data collection and analysis

The interviews, with a length between 30 and 90 min, took place in the summer of 2017. To enhance the credibility of the study (Lincoln and Guba, 1985; Patton, 2002; Eriksson and Kovalainen, 2008), all interviews were recorded and transcribed. In line with our research questions, the interview guide asked how cultural controls, planning, cybernetic controls, reward and compensation and administrative controls affect SR and vice versa (see Appendix).

Data analysis was conducted using an abductive approach based on both deductive categories from the literature and inductive subcategories that emerged from the data (Dubois and Gadde, 2002). Thus, the five control types proposed by Malmi and Brown (2008) served both to construct the interview guide and as deductive categories for data analysis. The assignment of the text passages to the different control types was done – in terms of our research questions – in both possible directions. Within these categories, a further differentiation was made by means of an inductive procedure, i.e. subcategories were developed directly from the text material. In the following, the results of the interviews are presented along with the deductive categorization. The inductive categories, on the other hand, provide the structure within the individual control types and the two research questions. Finally, the findings obtained are summarized in Table 3 also following this structure (see Section 5. Discussion).

4. Results [1]

4.1 Cultural controls

Concerning the question of how corporate culture affects SR (RQA), the interviews yield a clear picture: in all 20 companies, the interviewees stated that a control effect of cultural aspects on SR is likely. The sustainability report is seen as a summary or reflection of corporate culture (4A), especially of the basic values (2, 5), beliefs, and principles that prevail in a company (2, 11–20). Values and norms already anchored in the corporate culture are

Company	Interview partner	Index	Company	Interview partner	Index
C1	1	DAX	C11	11	DAX
C2	2	ATX	C12	12	DAX
C3	3	DAX	C13	13	ATX
C4	4A	ATX	C14	14	DAX
	4B		C15	15	ATX
C5	5	ATX	C16	16	DAX
C6	6	DAX	C17	17	ATX
C7	7	ATX	C18	18	ATX
C8	8	DAX	C19	19	ATX
C9	9	ATX	C20	20	DAX
C10	10	DAX			

Source(s): Table created by author

Table 2.
Overview interviewees

Table 3. Clustered key findings using the Malmi and Brown (2008) MCS framework

Cultural controls RQA (MCS – SR)	RQB (SR – MCS)
• SR is a reflection of corporate culture, including basic values, beliefs, norms and principles • Corporate culture influences the type of SR and the topics included • Changes in corporate culture lead to changes in SR	• SR positively influences beliefs, values and norms of the organization • SR increases the awareness for sustainability issues among employees and top management • SR changes the attitude and behavior towards sustainability-related topics among employees • SR leads to increased pride for sustainability engagement of the company and consequently to more commitment to and identification with the company • *Voices not suggesting influence: Corporate culture should not be able to be changed by SR; awareness-raising via SR cannot work*

Planning		Cybernetic controls		Reward and compensation	
RQA (MCS – SR)	RQB (SR – MCS)	RQA (MCS – SR)	RQB (SR – MCS)	RQA (MCS – SR)	RQB (SR – MCS)
• Strategic direction influences SR • New goals lead to changes in the content of reporting • *Voices not suggesting influence: SR is only a summary of corporate or sustainability goals*	• SR has an impact on goal setting • SR is used as a communication and control instrument for goal implementation • *Voices not suggesting influence: Strategic decisions are influenced by sustainability management as a whole, but not by SR itself*	• Existing accounting data is used for SR • Used KPIs influence the content of SR	• SR leads to the collection of additional data and evaluations • Because of SR, specific indices, rankings and indicators are becoming more relevant • SR leads to the use of new information systems	• Only few companies have linked reward systems to SR • *Voices not suggesting influence: It is explicitly stated several times that no effects of the incentive and reward systems on SR are identified*	• Target agreements are defined in the course of SR

Administrative controls RQA (MCS – SR)	RQB (SR – MCS)
• Departments, responsible employees or teams influence the content of SR • Engaging internal and external stakeholders affects SR • Internal communication has an impact on SR • Management or decision-makers of a company influence SR • The commitment of the board of directors has a major influence on SR	• SR contributes to changes or optimizations in the company, including organizational systems, processes, structures and responsibilities • SR leads to establishing sustainability departments or sustainability committees • SR has an effect on the contents of company meetings • SR is used as an internal communication tool • *Voices not suggesting influence: SR cannot serve as an internal communication tool, because the primary target group are external stakeholders*

Source(s): Table created by author

reported on (6, 8, 9). The important role of corporate culture for SR is perfectly described by the following statement of interviewee 16:

> First of all, I think the prerequisite for this is that I have a culture in which I give a certain space to the topic of sustainability, so to say. Otherwise, you will not be able to reach anyone anywhere with the sustainability report. That is the case with us. We say that our culture is an open culture and the issue of sustainability in all its facets plays a role for us.

Corporate culture, therefore, acts as the basis for SR and influences the type of reporting and the topics that are included in the sustainability report (17). It strengthens organizational learning (16, 17) and thus leads to a common view in the company of how comprehensive the sustainability report should be developed (20). Moreover, changes in corporate culture also lead to changes in SR (3) and by having a look at previous sustainability reports, the change process or development of corporate culture becomes visible (7).

Many interviewees also qualified the impact of SR on corporate culture (RQB) as significant and positive (12–19). Respondents stated that SR positively influences organization's beliefs, values and norms (12, 14, 18) and can demonstrate what sustainability means to the organization (14, 18). In terms of creating a shared vision or understanding of sustainability, two interviewees mentioned that employees' understanding of sustainability is improved through reporting, with the sustainability report itself demonstrating why the topic has a high priority in the company and is thus an integral part of daily work (3, 16). However, the cultural effect that was most frequently mentioned is the increase in awareness of sustainability issues among employees (11–16, 18, 19) and even among top management (1), which is reflected by the following statement:

> The topics that we deal with in the sustainability report and the way we address these topics have an internal impetus, which in turn affects one or the other employee. (12)

The change of awareness is also described by interviewee 14:

> But now you can already see that through the fact that we are making the sustainability report, specific internal employees [. . .] are getting more sensitive and are looking at where it refers to my area of responsibility and what we need to change [. . .].

Consequently, a change in the specific attitude and behavior toward sustainability-related topics (15) can increase employee motivation (8, 19). Moreover, employees are proud of the sustainability engagement in their company (3), they feel more committed to their company (8) and would rather identify with a company that addresses sustainability issues (18).

However, some interviewees are quite skeptical about the effects of SR on corporate culture. In their view, the sustainability report merely represents a summary of sustainability activities and does not influence corporate culture (2, 10). Instead, corporate culture should be solid enough not to be changed by a report (4, 10). The report and the processes required for it must be aligned with the strategy and not the other way around. The following quote from respondent 9 illustrates this aspect:

> [. . .] it is important to me that the reporting is also authentic. And it would not be a good sign if you only say just based on the report, okay, we have to think towards sustainability now and have to act socially and ecologically. So that's either anchored in the company, in the strategy or in the culture, and you can report on it. I think the other way around it is very difficult.

In addition, one person (20) mentioned that the main target groups for a sustainability report are the capital market and related critical stakeholders. Consequently, it is difficult to sensitize employees through the report in such a case.

> If I want to sensitize employees, I have to consider what is the best format [. . .]. But direct awareness-raising among employees cannot work via this channel [. . .]. (20)

4.2 Planning

When asked about the impact of planning on SR (RQA), some respondents want to identify one, while others do not share this view. Especially at a strategic level, some respondents see an influence on SR (11, 13, 17, 19). For instance, the strategic orientation of the company can influence the topics of the sustainability report (17), as explained by one respondent (2):

> If a company is changing the business strategy, this has an influence on SR; on the sustainability strategy and then on reporting.

So, strategically relevant topics are presented more frequently in the sustainability report. Changes in the planning processes or goal setting also lead to changes in SR (7, 9, 10, 14). If new goals are set, this leads to changes in the reporting content (1, 10). However, some persons see no effect of goal setting on reporting, or say that for them, simply summarizing the goals set in the report is not a control effect (2, 4B, 13, 17, 18), as illustrated by the statement of interviewee 2:

> [. . .] of course we have long-term goals and they have been set. Sustainability reporting is only a summary of these sustainable goals or long-term, general goals of the company. I can’t really see an impact.

In addition, most respondents recognized an effect of SR on planning (RQB). Overall, these companies already (partially) integrate the sustainability report into their strategic planning or are thinking about including the report in the future (11–16, 18, 19). Some of the interviewees indicated a concrete impact of the sustainability report on goal setting (12, 13, 14, 17, 18, 19). For example, new goals are set and then communicated to employees (12, 13, 15, 16, 18). The sustainability report is also used as a control instrument to drive the implementation of the goals (3, 5).

Two respondents stated that the strategic decisions of a company can be influenced by sustainability management as a whole, but not by the reporting itself (3).

> When asked whether the sustainability report has an impact on the company’s strategy, I would say that the sustainability report as an instrument itself has not, but the entire process of sustainability management. [. . .]. It is the process and not the report itself. The report is part of the management process. (17)

This shows that some companies take a strategy-oriented approach to reporting. In contrast, the report itself may be disconnected from the corporate strategy or processes if it is used more as a reputational tool or external communication medium, resulting in insufficient integration (11, 14, 16).

4.3 Cybernetic controls

As with planning, an effect of cybernetic controls (RQA) on SR was perceived by most of the interviewees. Commonly, data that is already collected for (management) accounting purposes is also used and deduced for SR (14, 16, 19). In companies where management accounting is involved in the preparation of the sustainability report, the impact of this involvement on reporting can be identified. For example, performance management indicates when certain targets have not been achieved. In addition, regular updates of key performance indicators (KPIs) also result in changes to the content of the sustainability report itself (2, 4A, 7).

Also, most of the interviewees see an effect of SR on cybernetic controls (RQB), especially since reporting requires additional data and evaluations, and thus existing information systems and evaluation tools need to be adapted (13, 18). Sustainability is a very broad field with many different dimensions. Accordingly, it is hardly surprising that indicators that have not been measured before are coming into focus because of reporting. Due to the SR, indices, rankings and specific indicators, such as those required by the GRI guidelines, are becoming increasingly important (11, 12, 15, 17, 20), which suggests a reporting-driven approach to SR. However, as a result new information systems need to be introduced (8), such as integrated data solutions, which are becoming more and more important for the use of sustainability-related data (13, 14, 16, 17). Basically, it can be said that the performance measurement and monitoring of non-financial performance indicators has gained in importance because of reporting (1), which is underlined by the following statements:

> Actually [. . .] in my opinion, the non-financial information is now on a similar level to the financial information. (7)

> [. . .] concerning the impetus effect of this discussion and also the scope of implementation; what will be done with it in the end, how has risk management changed, how have the information systems been improved to optimize internal monitoring; there is an incredible number of examples. (12)

However, some of the respondents do not see any impact of SR on management accounting or the cybernetic systems used, or do not have a clear opinion in this regard. The reason for this is that management accounting in these companies is focused on financial information. Non-financial information for SR is prepared and provided by other departments. However, it is assumed that management accounting will play a more important role in reporting in the future (2, 3, 5, 10).

4.4 Reward and compensation

Regarding the question of how reward and compensation systems affect SR (RQA), the results indicate only a subordinate role. Respondents believe that reward systems can be used to encourage the implementation of sustainability goals in general, which in turn affects SR (1, 5, 7, 8, 9). The following quote reflects this:

> So, incentive and reward systems can have an impact on the achievement of goals, and of course, if these are specific sustainability goals. The bottom line is to focus attention and effort on certain issues. (9)

To date, a few companies have linked reward systems to SR (2, 12, 16, 17). One challenge or limitation in linking is that often only those employees who are actively involved in the reporting process benefit from the incentives and rewards (16). However, several interviewees explicitly state that they see no impact (3, 4, 6, 10).

When asked if any effects of SR on incentive and reward systems could be identified, such as linking sustainability goals from the sustainability report to rewards and compensation (RQB), most interviewees could not identify a link in their respective companies (5, 7–11, 13, 15, 18, 19, 20). However, some interviewees mentioned that individual target agreements are set for individual departments, employees, or managers as part of the reporting process and are linked to individual compensation, which can create an incentive for organizational members to fully address the issue (12, 14, 16, 17).

Of all 5 MC types, reward and compensation is the one where the respondents see the least effects or interactions.

4.5 Administrative controls

Of all the MC types studied, interviewees see the greatest linkage in administrative controls. When asked about the impact of administrative controls on SR (RQA), all interviewees can identify an impact. Individual departments, as well as involved, responsible employees, influence the reporting to some degree. The influence ranges from determining the content to the wording of certain texts (11, 12, 13, 15, 16, 19). Moreover, the engagement of internal as well as external stakeholders affects SR. New improvement suggestions for sustainability activities and a lively exchange among the members of the organization are becoming increasingly important for the positive development of SR (4A, 6, 8, 12, 13, 15, 17, 19). In this context, the importance of internal communication mechanisms is highlighted, for example to base reporting on internal agreements and discussions (13, 14, 15, 20). In company 15, an annual stakeholder council has been installed to enhance the SR process:

> [. . .] reporting is one thing but what is happening before and after is more important. We have, among other things, an annual stakeholder council where approximately half of the participants are employees whom we invite to different topics from different areas. [. . .] there are many interfaces to employees in-house on these topics, which we try to integrate as best as possible and which we also need as multipliers.

Furthermore, a company's management or decision-makers play a crucial role. Management influences reporting by making suggestions for changes, regularly giving feedback to individual employees, and finally releasing the report (11–20). It also has become clear that the commitment of the board of directors has a major influence on SR by deciding how much budget is available for reporting (1, 2, 5, 7, 8, 9). One participant (9) describes this as follows:

> Well, if the board does not back this and support it accordingly, then the topic has poor chances of really gaining attention in the company. So, it is very important that this is exemplified top-down by the board on the one hand, but also is demanded on the other hand.

Regarding the question how SR effects administrative controls (RQB), most of respondents note a control effect. In the sense of a continuous improvement or learning process, SR can lead to changes or optimizations in the company. Particularly in the initial phase of reporting, adaptations in the organizationalor operational structure may be necessary, since systems, processes, structures, or responsibilities must be introduced or adapted (3, 7, 9, 10). In most of the companies studied, a dedicated sustainability management or an independent department was installed, or separate sustainability committees were formed, because of SR:

> [. . .] we have a sustainability management committee [. . .]. It was definitely a result of sustainability reporting or the requirement for sustainability reporting [. . .] (14)

In addition, SR can influence the content of company meetings or internal communication in general (11, 13–19). Interviewee 17 summarizes this succinctly:

> The sustainability report is always the basis [. . .]. We take measures [. . .] and we then report on this in the sustainability report, which serves as a template for all further communication measures. It is like the Bible we read from. Everything that is communicated on this issue within the group, internally and externally, is based on the sustainability report. That is its central function.

However, some companies are skeptical about using SR as an internal communication tool because they assume that the primary target audience of the report is external stakeholders (12, 14, 17, 20). Still others, however, see no impact of reporting on administrative controls at all (1, 2).

5. Discussion

Using an exploratory approach, the aim of our study was to investigate how companies establish a link between SR and MCS and whether this is based on a holistic approach to control, encompassing a wide range of control instruments and mechanisms, or whether this is done selectively.

The interviews revealed that the companies investigated have begun to exploit the potential of SR for control purposes as well as that the MC in use have a significant impact on SR. The dovetailing could be shown for all five control types, again supporting the package idea already used in other studies which focus on CS performance management (Riccaboni and Leone, 2010; Arjalies and Mundy, 2013; Ditillo and Lisi, 2016; Sundin and Brown, 2017; Mahmoudian *et al.*, 2022). Table 3 summarizes the key findings, clustered along the Malmi and Brown (2008) MCS framework and both research questions.

With respect to cultural controls, the interviews show that a control effect of cultural aspects on SR is obvious. A culture which provides space for sustainability issues is considered a prerequisite to reach any significant control effect, which has also been discussed by Amran *et al.* (2014) and Herremans and Nazari (2016). Thus, corporate culture has an impact on the type of reporting (Shabana and Ravlin, 2016; Gunarathne and Senaratne, 2017). Change processes in corporate culture are addressed in sustainability reports and, thus, also change the report contents. Taking up the package idea, it is therefore particularly important that companies establish a corporate culture in which values and beliefs that are important for sustainability have a place, as this can have a positive impact on reporting. However, it is essential that the culture is not only documented on paper but can be felt by all employees to achieve the greatest possible authenticity. If the topic of sustainability is given a high priority in the vision or mission statement on paper, but this is not reflected in the actions taken, this can also undermine other control measures.

Many interviewees also see a positive effect of SR on corporate culture. Especially increased awareness for sustainability issues among employees and management are seen positively (Eccles and Șerafeim, 2013; Maas *et al.*, 2016), which might in turn lead to increased employee motivation (Özsözgün Caliskan, 2014) or the creation of identity and pride (Adams and Frost, 2008; Wildowicz-Giegiel, 2014; Frostenson and Helin, 2017). The question of whether to publish a sustainability report is therefore not only a question of publicity, but can also have significant control effects, which in turn can increase CS performance. However, there are also more restrained voices that consider the influence of reporting on culture to be rather unlikely or even undesirable since a corporate culture should be sufficiently robust not to be changed by reporting.

From a theoretical or conceptual point of view, our findings suggest that an authentic anchoring of sustainability aspects in the corporate culture lays the foundation for reporting to go beyond a mere reaction to societal expectations or the fulfillment of legal obligations. If this space is not created in the culture, companies will at least not be able to exploit the full potential of SR. Consequently, for example, existing expectations of strategically relevant stakeholders regarding CS performance may not be adequately met. In addition, there is a risk that reporting will be perceived or dismissed as a pure PR instrument without any relevant control effect.

Literature examining the effects of planning on SR suggests that there is a positive influence (Traxler *et al.*, 2020), whereas the interviews give a more ambivalent picture. At the strategic level, some interviewees see an influence in the sense that a change in the strategic orientation will lead to a change in reporting as well. There is a wide consensus that the defined corporate strategy should be reflected in the sustainability report. On the one hand, this can signal to the strategically relevant stakeholders which path the company has taken or will take toward a sustainable transformation; on the other hand, it also makes sense from a legitimacy perspective, since it shows that the company's actions are in line with societal expectations. It is striking that the respondents see an influence on strategic and long-term planning and less on short-term planning. From a critical perspective, this could be an indication that companies do not appreciate planning for its instrumental value, but rather to ensure legitimacy. Long-term goals, such as achieving CO_2-neutral production by 2040, documented in a sustainability report, create the impression that the company is aligning its business model with sustainability. However, if there are no concrete, binding short-term goals that make it possible to understand how this is to be achieved, it becomes difficult to evaluate the actual commitment. Critical voices among the interviewees indicate that internal strategic decisions do not have a significant impact on SR and that the sustainability report only covers the outlined strategic direction and the goals set, as a summary.

Findings that SR may help companies to include sustainability issues in planning (Klovienė and Speziale, 2014; Lozano *et al.*, 2016) are partly supported by our results, as the investigated companies have already started to integrate the sustainability report into their strategic planning or have the intention of doing so in future. However, there is still room for improvement in this regard. Companies that use the sustainability report mainly as an external communication tool run the risk of decoupling the report from the rest of their business processes. Comprehensive integration could prevent the reporting from being stigmatized by stakeholders as façade building or greenwashing due to decoupling.

Most of the interviewees see an effect of cybernetic controls on SR. Our results show that adequate information systems and meaningful KPIs seem to be a requirement for SR, which has already been stated by prior literature (Bouten and Hoozée, 2013; Contrafatto and Burns, 2013; Garcia *et al.*, 2016; Herremans and Nazari, 2016). Moreover, interviewees also see an effect in the other direction: External information demands from sustainability indices, rankings, or indicators of the GRI guidelines can be seen as triggers for organizational changes regarding the data collection processes, indicators or metrics (Adams and McNicholas, 2007; Klovienė and Speziale, 2014; Lozano *et al.*, 2016) as well as the integration of sustainability-related data into the organizational information systems.

From a theoretical perspective, the pressure elicited by external institutional actors causes isomorphic mechanisms that will lead to homogeneity within the field. The emergence of the GRI and the diffusion of their SR guidelines (KPMG, 2022) as well as the regulations that govern the non-financial disclosure practice of corporations (e.g. Directive 2014/95/EU; ASIC, 2019) make it necessary to implement data collection systems that provide the required information in a satisfactory way. Since LC face the same or similar reporting needs and challenges, we can expect that over time there will be convergence in terms of information captured, at least in those areas where regulation standardizes.

Of all 5 MC types, reward and compensation is the one our respondents see the least effects or interactions with. Literature also pays little attention to this topic (Traxler *et al.*, 2020). Although interviewees share the opinion that reward and compensation systems can be used to promote CS, only few companies have created such a link. Critical voices questioned the meaningfulness of monetary incentives in the context of SR altogether and thus consider the issue from a viewpoint that is more in line with a stewardship approach. Stewardship theory assumes that actions are not always characterized by individualistic and self-interested considerations, but by collective and prosocial ones. (Davis *et al.*, 1997). According to this theory, decisions for or against certain sustainability measures are not made based on a monetary incentive, but of moral considerations or their added societal value. The interviewees who question monetary incentives emphasize that voluntariness is particularly important in the context of sustainability. Individuals who hold this opinion take a more normative stance when it comes to sustainability engagement and do not see a calculated motive at the forefront. In contrast, agency theory suggests that a properly designed reward and compensation system that takes sustainability aspects into account can help align the individual interests of managers with the interests of shareholders and/or other stakeholders, and thus improve CS performance if required sustainability efforts and individual interests diverge (Hu and Loh, 2018).

Our findings regarding administrative controls are two-fold: On the one hand, and in line with the literature (Traxler *et al.*, 2020), administrative controls positively influence the quality of the sustainability report and have an effect on the reporting process itself. In particular, the importance of strong stakeholder engagement for the SR process and quality was emphasized (Adams and Frost, 2008; Stubbs and Higgins, 2014; Wildowicz-Giegiel, 2014; Kerr *et al.*, 2015; de Villiers *et al.*, 2016; Herremans and Nazari, 2016; Mio *et al.*, 2016; Thijssens *et al.*, 2016; Blackburn *et al.*, 2018; Kaur and Lodhia, 2018). Moreover, our respondents stated that the involvement of top management in the reporting process was of great importance, which has also been shown by other studies (Nazari *et al.*, 2015; Thoradeniya *et al.*, 2015; Herremans and Nazari, 2016; Frostenson and Helin, 2017; Gunarathne and Senaratne, 2017; Rezaee, 2017; Garcia-Meca and Pucheta-Martinez, 2018). Although we found that the commitment of the board has a strong influence on SR, there were no mentions of the structure or diversity of the board, as in the study of Nekhili *et al.* (2017). On the other hand, SR changes procedures like meetings and workshops (as shown in Adams and McNicholas, 2007) as well as communication and collaboration between teams, which was also found by de Villiers *et al.* (2016), among others. In contrast to the literature, the interviews revealed that SR does not greatly encourage the establishment of new guidelines, compliance requirements or codes of conduct (Adams and McNicholas, 2007; Durden, 2008; Thijssens *et al.*, 2016; Laine *et al.*, 2017).

Although we investigated the linkages of MCS and SR by assigning them to our research questions, for some of the revealed connections the interplays are characterized by a reciprocal nature. That applies to the engagement of stakeholders, for example, where specific companies installed a stakeholder council because of SR (RQB) and vice versa the installed stakeholder council influences the content or the quality of the sustainability report (RQA). This finding is also in line with the findings and conceptual framework of Traxler *et al.* (2020).

The already well-developed linkage of administrative controls and SR might be driven by rational considerations as well as by socially or politically grounded motives. Prior studies suggest that administrative controls can be used for a wide range of control mechanisms to foster CS performance (Lueg and Radlach, 2016). Hence, it seems plausible that companies would value them as efficient and effective tools to reach their set objectives. However, companies might also use them for reasons of legitimation. Some administrative controls, such as the institution of a stakeholder council or the establishment of a sustainability committee, are visible actions that can be a proper response to prevailing expectations and thus support companies' efforts to achieve or maintain legitimacy. However, if such administrative measures are not reinforced or supported by other control instruments or mechanisms, they may not be effective. For example, it would be of little use to set up a stakeholder council staffed with knowledgeable persons, but not to give any further consideration to the advice given.

6. Conclusion, limitations and further research

Our results reflect that corporate practice has recognized that SR cannot be used solely for accountability purposes but can also be exploited to improve sustainability performance. This is particularly evident when respondents reflect on the internal impact of reporting. They pointed out that it is not the sustainability report itself, but the entire sustainability management that makes a difference in CS performance. However, this requires dovetailing between reporting and MCS. It is not surprising, therefore, that with the help of the interviews, we were able to identify various opportunities for interplays that included the full range of Malmi and Brown's (2008) MCS framework. The linkages are often already well-developed, as they map the package idea and consequently are grounded in several types of control. This, in turn, suggests that the instrumental or strategic benefits of a well-developed interplay are recognized by companies.

Naturally, our study has some limitations. The main limitation is the choice of the sample. Although it is reasonable to choose LC as research objective due to the experiences these companies have, exactly this fact might lead to one-sided results. As these companies' main reasons for doing SR could be the legal obligations or the pressure of (powerful) stakeholders, one could assume that companies that are not legally bound to publish a sustainability report have different reasons to do so and, hence, there might also be differences in how MCS affect SR and vice versa. Therefore, future studies should also consider non-LC to determine whether there is a different kind of interplay or not. Furthermore, there is a need for quantitative investigations, which might produce generalizable results. In addition, further research should more closely study the proposed reciprocal nature of such interplays to shed light on this issue.

Note

1. The reference to the specific interview partners is given in brackets.

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Appendix
Interview guide

Effects of sustainability reporting on management control

(1) Can effects on the corporate culture be identified?

(2) Can effects on the planning and budgeting process be identified?

(3) Can effects on management accounting be identified?

(4) Can effects on incentive and reward systems be identified?

(5) Can effects on administrative processes (e.g. organizational structure, corporate governance, etc.) in the company be identified?

(6) What other influences/impacts of sustainability reporting can be identified within the company?

Influence of control instruments and mechanisms on sustainability reporting

(1) Can effects of the corporate culture on the sustainability report be identified (e.g. are standards and core values reflected in the sustainability report)?

(2) Can effects of the planning and budgeting process on sustainability reporting be identified?

(3) Can effects of management accounting on sustainability reporting be identified?

(4) Can impacts of incentive and reward systems on sustainability reporting be identified?

(5) Can effects of administrative processes (e.g. organizational structure, corporate governance, etc.) on sustainability reporting be identified?

(6) Which other internal influences have an impact on sustainability reporting?

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