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Management Control for Sustainability – Accounting for sustainable futures from within and beyond the firm's borders

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Forward

Note that this manuscript is a working and living document. Not all compilation papers are finished and therefore any highlighted areas will be addressed at a later stage of the PhD project.

Abstract

The sustainability discourse is increasingly pertinent for all aspects of business and life. Particularly, the expansion of complex, multi-governance architectures places growing pressures on firms to respond to various socio-political-environmental challenges. Resultantly, there has been a move away from the disclosure studies that once typified social and environmental accounting research, towards the operational aspects of sustainability management accounting and control. This move is deemed necessary to know precisely what firms *are actually doing* regarding sustainability issues, rather than what they *are seen to be doing* from a legitimacy stance.

In research terms, the operationalisation of sustainability management control within firms suffers from fragmentation in terms of definition, boundary and analytical scope. As a systems concept, sustainability can be viewed as the responsibility of *every member of society.* Nevertheless, extant sustainability control studies focus on managerialist perspectives. Moreover, they often utilise functionalist frameworks which are arguably limited in explaining sustainability phenomena due to their focus on the intra-organisational context, among others. Consequently, much remains to be known about how the processes for sustainability control are shaped in practice and particularly, *what management control for sustainability is.* This has the intent of not only informing future theoretical and conceptual development from within the sustainability management control field, but also helping practitioners in their understanding of how precisely to control for sustainability as a secondary contribution. This is considered significantly important given that organisations often find it difficult to internalise sustainability into their daily operational practices due to not only the wealth of external pressures placed on the firm, but also the variety of sustainability tools available on the market to achieve such aims.

Based on various conceptual and empirical papers that explore the processes of sustainability management control in practice, the findings of this thesis are grounded in negative ontological reasoning by defining management control for sustainability based on what it is not.

First, management control for sustainability is not based on coercive design characteristics. It is not based on unilateral control over employees. Rather, management control for sustainability regards the management of processes by people, in addition to the management of people by formalised system design. It requires employee autonomy and involvement.

Second, management control for sustainability is not confined to the firm. It is not merely an intra-organisational phenomenon. Management control for sustainability regards incorporating external concerns in the design and use of sustainability control systems (SCS) as a domain theory. It is based on accountability in terms of broader societal relationships *and* internal performance measures. Thus, management control for sustainability

regards bridging managerial and critical positions for more accurate theorisations relatable to the sustainability discourse.

Third, management control for sustainability does not focus on *either* design *or* use. Focusing on one analytical aspect gives an incomplete picture of the development of SCS in practice. This is because sustainability control is subject to more rapid paces of development in terms of legislative, regulative and societal pressures than other dimensions that the organisation needs to control for. Therefore, management control for sustainability requires scholars to address the interrelationship between design and use.

Overall, the thesis presents the SCS as embracing a temporality that is not currently embraced in extant management control system frameworks. Particularly, it recognises a governance approach in conceptualisations of the SCS where *all* organisational actors – not only managers – are responsible for the sustainable management of operational processes. To this end, corporate and individual accountability is constructed through the SCS as an analytical tool. Here, improved sustainable control regards not only the use of formalised control instruments designed from the top (i.e. control over), but also responsive, flexible solutions by employees at the operational level (i.e. control in situ). These in situ responses, however, are not only the result of organisational value systems, but also from individual values borne from the extra-organisational context. Consequently, the findings of this thesis are considered especially important for organisations that should recognise the values of individual employees as important for the sustainable management of processes on a daily basis, in addition to the corporate values which guide sustainability programmes internally within the firm.

Keywords: accountability; control over; control in situ; corporate governance; individual values; social and environmental accounting; sustainability control system; sustainability management control

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ABBREVIATIONS

CSR	Corporate Social Responsibility
EMS	Environmental Management System
MAC	Management Accounting and Control
MCS	Management Control System
SCS	Sustainable Control System
SDGs	Sustainable Development Goals
SEA	Social and Environmental Accounting

GLOSSARY

Management Control System	The 'systems, rules, practices, values and other activities management puts in place in order to direct employ behaviour' (Malmi & Brown, 2008: 290).
Social control	An umbrella term, which includes both formal and informal aspects, based on the norms and values that guide employees in their daily work. Regarding environmental management accounting & control, it reflects: 1) knowledge about environmental issues; 2) commitment to environmental issues; 3) communication via interaction, dialogue and transparency of environmental issues; 4) a corporate culture that fosters education, training and awareness of environmental issues; and, 5) the availability of resources (Johnstone 2018a).
Sustainability control system	The dynamic constellation of management accounting tools that connect organisational strategy with operations in a given context by providing information and direction, as well as monitoring and motivating employees to continually develop sustainable practices and procedures for future improved performance (Johnstone, 2019b).
Sustainability management accounting	'The generation, analysis and use of financial and non-financial information … [to] achieve sustainable business' (Bennett & James 1998, 33).
Sustainability management control	The management of processes as well as people to improve sustainable performance over time and space.

1 INTRODUCTION

Recent decades have seen a shift within organisations from a principle focus on financial profit, to incorporate wider social and environmental issues. This is not only a reflection of changes in societal concerns, but also of increasing legislation and regulation. Particularly, the arrival of sustainable development as a concept in 1987, alongside other regulative and legislative forces (e.g. IPCC, 1988; UNCED, 1992; the Kyoto Protocol, 1997; the Millennial Development Goals, 2000 etc.), have brought associated accounting and accountability challenges for firms in terms of temporality, scope, responsibility and performance measures. These challenges have recently furthered via the arrival of the international sustainable development goals (SDGs) and Agenda 2030 in 2016, which aim to end poverty and promote a just, equitable world. As a result, organisations are required to strategically act in the interests of not only current stakeholders, but also future and potentially unforeseen ones, whilst positioned in complex multi-governance architectures. Relatedly, they are required to managed both present and potential social and environmental impacts where the scope of organisational duty does not end at firm or generational borders. This gives rise to various technical challenges and commensuration issues when accounting for social and environmental issues (see Lisi 2015; Unerman & Chapman 2014). Consequently, there has been the critique that the simplification of sustainability into corporate accounting systems has been a deliberate attempt to promote corporate aims, rather than affecting a true sustainable change (Gray 2010).

Traditionally, social and environmental accounting (SEA) scholars have suffered from what Brown and Dillard (2013) term 'disclosure-scleroris', often framed from a legitimacy perspective (Stolowy & Paugam 2018). Here, the relationship between corporate sustainability disclosure and performance is based on what external constituents 'collectively perceive' about the organisation (Deegan 2014, 249). Nevertheless, the ability of social and environmental disclosures to truly represent internal corporate social responsibility (CSR) practices has been questioned (e.g. Ball et al., 2000; Cho et al., 2015; Michelon et al., 2015). This is because they may be viewed as communication techniques representative of what firms *are seen to be doing*, rather than what they *are actually doing* in terms of operational sustainable improvements (Johnstone, 2018a).

Following from this initial focus on disclosure, there have been a growing number of studies which explore the relationship between (particularly) environmental and financial performance from an internal, management accounting and control (MAC) stance. These studies address the question of whether it pays to be green in operational terms which moves beyond legitimacy perspectives by asserting sustainability performance as a controllable, firm-level phenomenon. Nevertheless, the findings remain mixed. While some find that sustainability improvements lead to economic savings under certain conditions (Henri & Journeault 2010), others suggest that sustainability and financial efficiencies are independent variables which co-exist (Figge & Hahn 2013). Generally, however, there is the viewpoint that environmental – and arguably social – improvements drive improvements in corporate value.

More recently, there has been an expansion of studies looking into sustainability control systems (SCS) as a domain theory. In this stream, the focus remains on the design characteristics of SCS in terms of corporate strategy (e.g. Arjaliès & Mundy 2013; Rodrigue et al. 2013), rather than the day-to-day use of SCS by operators (Wijethilake et al., 2018). Here, many studies adopt mainstream functionalist management control system (MCS) frameworks to frame or explain SCS findings (e.g. Arjaliès and Mundy 2013; Rodrigue et al. 2013). Arguably, however, this asserts a managerial approach to control which minimises the role of corporate actors beyond managerial tiers in the system development process.

One of the risks with top-down approaches to control is that the views and perspectives of other employees are not considered in the SCS development process. Nevertheless, only a handful of studies focus on the behavioural implications of SCS design (see Albelda 2011). While Norris and O'Dwyer (2004) find that informal design characteristics (e.g. shared values and beliefs) are more suitable for socially responsive decision-making, Sundin and Brown (2017) suggest that formal controls (e.g. the design and use of environmental targets) are necessary for aligning employee behaviour.

Another risk from this top-down approach is the implication that top managers are those best equipped to make sustainable decisions. However, evidence suggests that in practice, this may not always be the case. For example, Riccaboni and Leone (2010) find that decentralised structures for implementing sustainability are necessary for sustainable solutions to be adapted to local realities. Moreover, Gond et al. (2012, 211-212) comment that a sustainable strategy can emerge from the creation of a sustainability

department or entrepreneurial actors who 'trigger change within the organisation'. There is also the view that individual change agents (Fraser 2012) or workplace activists (Ball 2007) are instrumental for driving forward corporate accounting systems in the social and environmental arena. To this end, recent studies – either implicitly or explicitly – have indicated that effective sustainability management requires more engagement from individual employees beyond managerial tiers in daily work tasks (see Sundin & Brown 2017; Won Kim & Matsumura 2017; Johnstone, 2018a). This, consequently, infers that effective management control for sustainability not only regards the management of people through formalised SCS design, but *also* the ***management of processes*** by general employees for sustainable futures that extend beyond the firm.

Overall, it appears that a managerial focus on system design and the adoption of functionalist MCS frameworks in extant sustainability MAC research do not capture organisational realities for the development process of SCS. Particularly, there remains limited understanding regarding how SCS can improve employee attitudes for more effective decision-making, thus 'taking corporate sustainability beyond the business case' (Albelda 2011, 81; see also Ghosh et al. 2019). To this end, more needs to be known about the 'practices of sustainability management control' from empirical evidence (Maas et al. 2016; Crutzen et al. 2017, 2018). However, research into sustainability control at the operational level is considered at a 'nascent stage' (Ghosh et al., 2019) and is proposed as as requiring theoretical and conceptual development (see Guenther et al. 2016). Particularly, there has been the call to develop a 'broader', but 'well-structured' definition of sustainability management control (Schaltegger, 2011 19) that moves beyond a focus on cybernetics (Crutzen et al. 2017) and the managerialist implications inherent in formalised control system design.

1.1 Overall aim and research questions

This compilation thesis aims to explore *what management control for sustainability is*. It goes beyond functionalist perceptions of control as primarily a hierarchical or managerially constructed phenomenon by suggesting that SCS are developed in a more complex interplay between the actors and processes within the firm. Through exploring the processes of how management control for sustainability develops in practice, it becomes possible to

draw out the key features of sustainability control. This, consequently, contributes to the research stream by offering some preliminary understandings which help theorise the SCS as a domain theory.

As an overview, Figure 1 presents the papers to be included in this compilation thesis. While the papers are briefly overviewed in the following paragraphs, Chapter 3 *"Methodological Considerations"* and Chapter 5 *"Preliminary Conclusions & Contributions"* look at them in more detail.

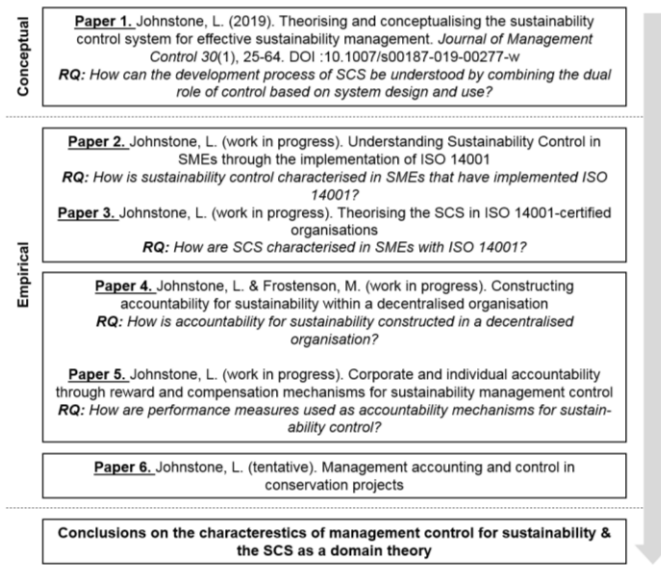

Figure 1. Outline of compilation papers in relation to research aim

First, Paper 1 presents a theoretical framework of sustainability control to guide future research. This is based on realising the merits of both managerial and critical positions in the academic construction of the SCS, as well as the necessity of capturing both system design and use as interrelated phenomenon for the development process of SCS. Particularly, Paper 1 expands on the notion of accounting as a social practice whereby the values and opinions of individual general employees, beyond managerial tiers are also necessary for the effective (re)design process of SCS.

Thereafter, the four empirical papers are composed of two contexts (SMEs & MNCs).[1] The use of multiple contexts is primarily motivated by the desire to generalise about the what management control for sustainability is, beyond restricting any understandings to a specific empirical context.

The first context regards SMEs that have implemented ISO 14001 and involves two papers. Paper 2 applies the framework of sustainability control established in Paper 1 empirically through a cross-case analysis of those responsible for the ISO 14001 implementation process in SMEs (i.e. auditors and individuals within the firms). This paper focuses on the *broad type and nature of control* for the development process of SCS. It finds that a formalised approach to control is preferred by the SMEs, suggesting that EMS results in the formalisation of work practices and a standardised approach to SCS development. However, it also recognises the validity in engaging employees through both formal and informal means as important for the (re)design process of SCS and sustainable futures that extend beyond the firm. Meanwhile, Paper 3 elaborates more specifically on what the SCS actually looks like in the empirical context of ISO 14001-certified SMEs. This takes an inductive approach where the SCS is theorised from the empirical findings, rather than utilising extant MCS frameworks. In contrast to Paper 2 which looks at the broad type and nature of control, Paper 3 focuses on the *particular control typologies and their constellation* in SMEs that have implemented ISO 14001. Currently, the findings of this paper are not at a stage to be discussed here as further work is required.

The second context looks at how sustainability issues are integrated into corporate accounting systems in large, international firms founded upon an internal accountability perspective. Here, the focus is on accountability in terms of both the design of organisational structures and performance metrics for effective sustainable control. While Paper 4 looks at *internal accountability mechanisms in terms of organisational structures* within a decentralised case organisation, Paper 5 is orientated towards *performance measures and outcomes (i.e. calculative accounts) as mechanisms for sustainability control.* Particularly, Paper 4 finds that both formalised structures and personal engagement are necessary for the construction of sustainable accounts in the decentralised case organisation. This paper extends previous accountability research by looking in more detail at the internal accountability context and the interplay between structural and personal

[1] There may also be a third context (i.e. a charity conservation project) added at a later stage.

discourses in the construction of sustainable accounts. It also presents the individualising effects of socialising forms of accountability as a key finding. Meanwhile, Paper 5 focuses on results-based accounts within a large, international logistics firm. Although the findings are currently under development, this paper is proposed as contributing to a better understanding of reward and compensation mechanisms in terms of intrinsic and extrinsic motivations for sustainability performance as an understudied empirical phenomenon (see e.g. Crutzen et al., 2017).

By looking at how management control for sustainability develops in practice, it is possible to contribute to the overarching aim of what management control for sustainability is. Fundamentally, this is not just a descriptive issue but, through the empirical findings, this PhD project is able to provide some explanations as to why SCS develop the way they do. This, consequently, will not only yield contributions to the development in understandings of the SCS as a domain theory, but will also be useful for professionals in different empirical contexts who are looking to improve their sustainability performance through the management of sustainable processes.

1.2 Thesis outline

This initial chapter has introduced the reader to a very broad overview of the content of this thesis project. The following chapters, however, go into more detail on the theoretical background, problematisation and concepts that inform this research. This has the aim of contextualising how SCS have been understood in the literature and why such understandings may be considered problematic for the true operationalisation of sustainability performance. Consequently, the thesis is structured as follows.

Chapter 2 provides a background on sustainability MAC. This is achieved by taking an in-depth look into publications in the stream. It first begins with an overview of the literature, positioning sustainability MAC into its broader academic bases. This is followed by a more detailed look into the specific SCS control typologies and the use of MCS frameworks for sustainability MAC research. Consequently, Chapter 2 builds upon gaps in the literature regarding the theorisations and conceptualisations of the SCS, thus motivating the need for this thesis. Next, Chapter 3 presents the methodological considerations. This chapter outlines philosophical positions as well as the details of the methodological approach. Thereafter, Chapter 4 includes three of the five compilation papers for review at this half-way

seminar (i.e. Papers 1, 2 & 4).[2] Finally, Chapter 5 offers some preliminary conclusions in relation to the overall PhD to establish what management control for sustainability is. Particularly, it provides some suggestions regarding how SCS can be theorised from the empirical evidence before highlighting the general and specific contributions of the research in more detail.

[2] Although one is already published, the other two papers for review at the half-way seminar are currently in progress and require feedback. Meanwhile, Papers 3 and 5 are not ready for feedback at this stage.

2. BACKGROUND

This chapter is orientated around theorising the sustainability control system (SCS) as an academic construction by reviewing literature in the sustainability management accounting and control (MAC) field. This helps position the SCS into its broader context, as well as allows a preliminary analysis of what has – and has not – been done in the area. The chapter first begins with an overview which positions sustainability MAC research into its broader academic context. This follows with a section that helps define and position the elements of sustainability MAC of interest to this thesis. Thereafter, a more detailed overview of the various control typologies present in extant constructions of the SCS is provided. This summarises previous empirical work to help frame the SCS as characteristically distinct from management control system (MCS) frameworks in terms of their form and use (see e.g. Schaltegger 2011; Guenther et al. 2016) and the problematisation that results from that, motivating the need for this research project.

2.1 Positioning sustainability management accounting and control into its broader research context

As an emerging field of interest (see Soderstrom et al. 2017), sustainability MAC research is subject to multiple understandings and a lack of theoretical application (Guenther et al. 2016). For example, only a handful of empirical studies overtly apply theoretical frameworks to explain or frame their findings. Rather, the focus in the stream is on the exploration of key concepts or discrete controls.[3] As such, it is important to overview the development of sustainability MAC in terms of its scholarly context to inform a baseline understanding of what has and has not been done.

Sustainability MAC research can be viewed as a sub-stream within various overarching fields of interest. Not only can it be captured within the broader MAC field, it also contains general elements of interest to financial accounting and auditing research and is of particular interest to the developing social and environmental accounting (SEA) field. As such, this section provides a very brief overview of the historical trajectory of 'sustainability MAC' research to its current state-of-the-art, emerging as a seemingly 'new' field of interest in the 21st century (see Soderstrom et al. 2017). This builds

[3] These points are a reflection of a systematic review of articles published in the top ABS-ranked accounting journals over a 10-year period between 2006 and 2016.

upon the preliminary discussion in Chapter 1 regarding how sustainability accounting research has typically been presented.

The broader field of social and environmental accounting was borne in the socio–enviro–political movement of the 1970s, which was arguably the result of increasing governmental and social pressures on organisations due to the initiation of the environmental movement in the 1960s (see e.g. Carson 1962/2002). During this time, however, there was a focus on financial accounting calculations and management accounting decision-making to improve organisational outcomes in terms of primarily financial performance (see e.g. Corbin 1973). Here, a legitimacy perspective was evident whereby corporate (particularly) environmental performance was tied to disclosure effects (e.g. Ingram & Frazier 1980). Moreover, there was a focus on a 'command and control' approach to environmental management with its roots in neoclassical economic theory (e.g. Ullman 1976). This was founded on the operationalisation of social and environmental accounting as an intra-organisational phenomenon (see Epstein et al. 1976). Nevertheless, the complexity in quantifying social and environmental dimensions into corporate accounting systems was also recognised during this period. To this end, various authors asserted that there should be flexibility and adaptive approaches in social and environmental accounting practice which could not follow traditional neoclassical standards (Dierkes & Preston 1977).

Moving into the 1980s, the emergence of sustainable development (Brundtland, 1987) meant that social and environmental management moved higher onto the corporate agenda. In accounting research, stakeholder theories were used to legitimise social and environmental improvements in terms of salient claims (see Johnstone 2018b for an overview). This meant a subtle move from firm-centric concerns, to those based on competing stakes in the assessment made by firms of the approach they would take in sustainability 'management'. However, this management still rested chiefly on corporate social *reporting* (see Gray et al. 1988). While neoclassical motives for voluntary disclosure continued into this era (Belkaoui & Karpik 1989), others questioned the utility of disclosures in determining the true environmental or social performance of firms (e.g. Wiseman 1982). Consequently, there was a rise in studies which recognised accounting as a social and institutionalised practice (Hopwood 1990). Here, the practices of firms were contingent on meeting external demands as well as internal aims.

The 1990s saw a rise in studies that aimed to prove the relationship between better (particularly) environmental performance and improved economic outcomes. This period was characterised by a rapid growth of research into SEA, which also drew with it more critical scholars. This has continued into the new millennial where the SEA field has moved into different directions and expanded exponentially.

On the one hand, and particularly for sustainability MAC research, the managerial focus remained. This area of research attention can be viewed as a return to legitimising social and environmental accounts in terms of performance metrics based on external pressures. This, arguably, had positive effects on disclosure quality. Here, the interface between capitalism and environmentalism was embraced through the development of financial and non-financial systems based on combined monetary and physical – tangible and intangible – units (see Bennett & James 1998; Bartolemeo *et al.* 2000; Jasch, 2003; Burritt & Saka, 2006), as well as composite indices (see Gasparatos, El-Haram & Horner, 2009). This expanded in scope to include natural capital accounting areas such as carbon (e.g. Bebbington & Larrinaga-Gonzalez, 2008), waste (e.g. Duncan & Thomson, 1998), biodiversity (e.g. Jones & Solomon 2013) and water (e.g. Christ & Burritt 2017) that sought to position organisational control as part of broader social and environmental effects. Based on combined monetary-physical units of measurement which extend beyond the firms' boundaries, costing attempts such as input-output analysis (Jasch, 2003), lifecycle costing (Bebbington *et al.* 2001), activities-based costing (Kreuze and Newell, 1994) and flow-cost accounting (Jasch, 2008) were adopted.

On the other hand, the same period gave rise to increasing criticisms regarding the ability of corporate accounting systems to truly account for sustainability. Intensified debate between managerial and critical theorists characterised this era. Particularly, accounting for the intergenerational aspect of sustainability in estimation and calculation attempts was considered problematic. There was the issue regarding how accounting actually represents reality in terms of where to 'draw the line' (see Hines 1998). To this end, criticists suggested that there are ontological restrictions on social and environmental accounting given that it is based on estimations and social constructions of reality (see Jasch 2003). This is especially notable when it comes to defining the non-tangible, qualitative aspects of control and costing (e.g. Milne 1996) associated with meeting the demands of the sustainability discourse.

Consequently, in order to bridge perspectives and framings, from the 1990s onwards, there has been a notable rise in institutional theories to frame social and environmental accounting research into their broader extra-organisational context (e.g. Ball & Craig 2010; Higgins & Larrinaga, 2014; Qian, Burritt, & Monroe, 2011; Crutzen et al. 2018). Such positions present internal accounting systems in terms of their external regulative forces whereby sustainability becomes a corporate strategy based on institutional norms (see e.g. Moore 2013; Contrafatto 2014), governance frameworks (see e.g. Corvellec, Zapata & Campos 2018; Coffey 2018) or accountability perspectives (see e.g. Baker & Schaltegger 2015; Denedo, Thomson & Yonekura 2017).

The plurality of concepts and theoretical approaches which emerged during the 1990s and early 2000s has continued to the present day.[4] As such, management control for sustainability has come to mean many things depending on which perspective one adopts. While criticists argue that giving a non-quantifiable entity a measure is arbitrary, and that the simplification of environmental sustainability dimensions into organisational accounting systems has been a deliberate, unrealistic attempt to support corporate aims (e.g. Gray, Owens & Adams 1996; Gray 2010), managerialists considered it self-evident that firms strive to incorporate such concerns (e.g. Burritt 2012; Burritt & Schaltegger, 2010). Yet, for the sustainability MAC stream, much research has been positivistic in nature (see Deegan 2017). This has developed from its early neoclassical origins and focus on disclosure towards developing operational efficiencies through improved MAC tools. As such, a managerial perspective dominates sustainability MAC research. This is based on the intra-generational and organisational dimensions of control. However, as evidenced, increasing research has been produced in terms of broadened accountability and responsibility frameworks as sustainability accounting research becomes central (Parker 2014). To this end, critical perspectives are on the rise within sustainability MAC research and various scholars now adopt a 'middle of the road' approach (see Deegan 2017).

[4] Note that – as previously stated – often overt theoretical perspectives are often lacking in the stream. However, the theoretical frameworks and concepts that are used are varied.

2.2 Defining sustainability management accounting and control

Before moving into the representations of the SCS, it is necessary to define what sustainability MAC is based on extant research. This is essential as it overviews how key concepts and terms are understood for the purpose of this PhD project in terms of their analytical framing. Thus, this section serves as a reference point to be supplemented with the glossary as needed. It concludes by presenting the definition of SCS and analytical frame that guides this thesis.

Various scholars recognise the fragmented nature in defining sustainability management accounting *and* control, and the need for more studies to help theorise the field from within (Guenther et al. 2016; Lueg & Radlach 2016). This 'definition problem' is arguably down to various reasons which are elaborated on in terms of how sustainability MAC is defined in this thesis.

First, social and environmental elements are often presented as distinct in terms of research agendas and theoretical frameworks. This has given rise to further sub-streams of studies that look at *either* social *or* environmental MAC. Particularly, studies into 'environmental' management control prove popular (e.g. Pondeville et al. 2013; Henri & Journeault 2010¸ Christ, Burritt & Varsei 2016). This is perhaps because environmental elements are easier to quantify as well as because the environmental issue preceded the social one in terms of the stream's historical trajectory. Nevertheless, for the purpose of this research, the distinctions between social and environmental elements are not considered when reviewing the literature. This is because sustainability as a discourse embraces social and environmental elements, in addition to economic concerns. Thus, works on social *and* environmental accounting and systems are drawn from to help theorise the SCS. Particularly, while various empirical studies may not overtly refer to the SCS, they are utilised because they contain analytical elements that help theoretically frame the SCS as an academic construction.

Second, there is a reliance on mainstream MAC definitions which are inherently functionalist in nature. Management accounting has been defined as 'the generation, analysis and use of financial and non-financial information … [to] achieve sustainable business' (Bennett & James 1998, 33). This, arguably, is used by managers to make decisions as well as stakeholders to assess the company's performance (see Christ et al. 2016). Particularly, management accounting information for sustainability can be achieved through formal tools such as lifecycle assessment (see Guenther et al. 2016). It can also be achieved via informal means such as discussions

between managers and employees (see Pondeville et al. 2013). Meanwhile, management control is typically presented in terms of directing organisations towards meeting strategic and operational aims (see Ouchi 1977; Ferreira & Otley 2009). Particularly, there has been a focus on Simons' (1995) definition as the 'formal, information-based systems' which help managers implement strategy within the sustainability stream (see e.g. Arjaliès & Mundy 2013). This inadvertently assumes that the bureaucratic management of people rather than processes underlies sustainability control.

Accordingly, mainstream definitions for MAC can be considered limited in explaining sustainability phenomena. This is because sustainability – as a systems concept – is increasingly considered the responsibility of everyone, not only managers (Johnstone 2018a, 2018b, 2019b). Moreover, an emphasis on the intra-organisational context does not account for the dynamic relationship between field and firm (Martyn et al. 2016). To this end, Wijethilake et al. (2017: 573) suggest that SCS 'help corporations to specify and communicate sustainability objectives, monitor sustainability performance through feedback and controls, *and* motivate employees to participate in sustainability projects and practices by rewarding and appraising their sustainability achievements' (emphases added). This definition particularly embraces the former criticism of a managerial emphasis by suggesting that the system not only guides employee behaviour, but also encourages employee involvement in the development of sustainability processes and outcomes. Nevertheless, the temporal horizon of sustainability performance is missing (see Guenther et al. 2016).

Third, scholars often appear to use different terms when referring to the same thing. For example, while Figge and Hahn (2013) and Bouten and Hoozée (2013) discuss 'environment-related management accounting', Christ and Burritt (2013) use 'environmental management accounting'. Meanwhile, while Gond et al. (2012) explore 'sustainability control systems', and Bebbington and Thomson (2013) talk about 'sustainability management control systems'. These provide only a few examples, but evidently there is little consistency in the terms adopted by academics within the stream.

Guenther et al. (2016) aim to address this 'definition' issue by conducting a systematic review of the literature, supplemented by an invisible college of key scholars in the field which aims to improve understandings of the key concepts. Particularly, the invisible college is a method which aims to collect responses from eminent scholars in the field in order to provide a consolidated interpretation of the topic (see Crane 1969), in this case the SCS as a

domain theory. The findings are presented through a positioning framework which differentiates between the focus of control as strategic or operational, as well as the time horizon (intra or inter-generational) and the scope (intra or extra-organisational). Through this framework, some examples are given.

To detail, Guenther et al. (2016) suggest that management systems rest at the firm-environment interface, influencing corporate strategy based on an assessment of organisational, institutional and stakeholder agendas. These systems consequently affect the design of internal operational elements which regard the management accounting tools that support decision making (e.g. life-cycle assessment, material flow cost accounting). However, the interface of strategic and operational elements is manifested through the control system. Here, Guenther et al. suggest that the SCS embraces elements of both management accounting *and* control by providing information and defining techniques to improve sustainability performance (see also Henri and Journeault 2010). They explicate that accounting instruments are not enough in themselves to constitute the SCS. Rather, the SCS influences the practices of actors within organisations (Ahrens & Chapman, 2007) in addition to supporting strategy (Langfield-Smith, 1997). Nevertheless, Guenther et al. (2016) highlight an important characteristic of the SCS which differentiates it from MCS[5]; namely, the extra-organisational and inter-generational horizons of sustainable performance (see Figure 2 below).

[5] Indeed, Broadbent and Laughlin (2009) do offer an extra-organisational dimension in their conceptual MCS framework. However, as far as I am aware, this has not yet been applied in the sustainability MAC stream. It also neglects the temporal aspect, even if implicit.

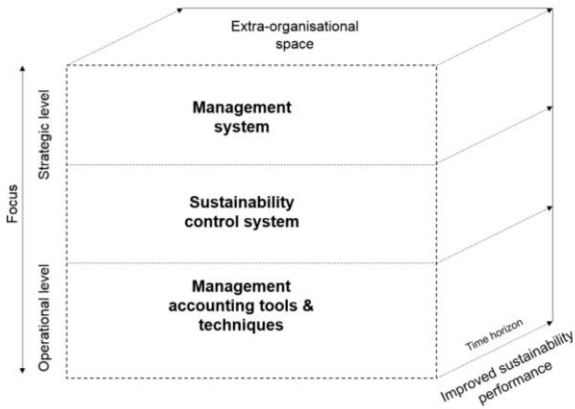

Figure 2. Sustainability MAC positioning framework (adapted from Guenther et al., 2016)

Guenther et al.'s (2016) framework illustrates that the various elements of management accounting and control are connected through the construction of the SCS. This is reflected in the dashed lines between the intra-organisational levels of focus and regards the iteration between strategy and operations for improved sustainability performance. Moreover, the spatial and time horizons indicate that performance outcomes in the current timeframe feed forward with extra-organisational future effects. Here, there is the suggestion that performance outcomes also feed into future strategic SCS design (see also Rodrigue et al., 2013). Accordingly, although the focus of control can be either strategic or operational, the orientation of control itself is not isolated to the intra-organisational context. This is because the SCS exists as part of a broader environment which is often not captured in extant MCS frameworks as domain theories orientated to the firm-level. Resultantly, scholars who adopt MCS frameworks in the sustainability stream tend to couple these with broader method theories (e.g. institutional or stakeholder theory) to help explain their findings (e.g. Qian et al. 2011; Pondeville et al. 2013).

The understanding of SCS in this research builds upon Guenther et al.'s (2016) positioning framework as an analytical tool in terms of its holistic presentation of the SCS in relation to its external context and internal interactions. Particularly, the interrelationship between strategic and operational levels, as well as the temporal and spatial scope of SCS are put forward as important analytical levels to consider in understanding the development

process of SCS in this thesis. Thus, each empirical paper bridges perspectives on system design and use, as well as recognises the temporality and spatiality of sustainability as a discourse which cannot be resigned to intra-organisational MCS frameworks; i.e. sustainability neither begins nor ends at the firm's borders. Not only do external legislative and regulative aspects affect the internal development process of SCS in terms of the formal control instruments adopted, but the extra-organisational experiences of employees are also important in terms of their own sustainability values and experiences (Johnstone 2018a, 2019b). This viewpoint arguably builds upon Wijethilake et al.'s (2017) above definition which highlights that employees are not only guided by formal controls, but also motivated to participate in system development. What differentiates the definition of SCS guiding this thesis, however, is the explicit assertion that employees may are not only motivated through formalised system design, but also through their individual experiences, values and competences which may be the result of extra-organisational stimuli.

Thus, SCS are defined in this thesis in terms of their existence between strategic and operational levels to provide information and direction, as well as to monitor and motivate employees to improve sustainable performance outcomes over temporal and spatial horizons through both formal control instruments and the operational use of controls in practice (see also Johnstone, 2019b). Not only does this imply the iteration between formalised system design and use, it furthermore signals that sustainability management control regards the management of processes in addition to people. This definition infers that while employees *are* guided by the system and formal control instruments, they are also actively encouraged to contribute to its development process from the bottom-up. Hence, it moves beyond functionalist notions of control towards a social constructivist approach to SCS (re)design. This aims to marry seemingly contrasting managerial and critical stances in the field by offering new understandings of SCS as frameworks for improved sustainability performance over time and space. Here, sustainable performance is explained by something more than formalised control instruments. This is exemplified in the various empirical papers in this thesis which bridge the analytical levels presented in Guenther et al.'s (2016) positioning framework.

2.3 Representations of the SCS

As suggested, SCS bridge strategic and operational elements for improved sustainability decision-making and control. They are commonly presented

as managerialist because of their focus on improving intra-organisational performance through directing employee behaviour. Consequently, this section overviews how SCS have been represented in extant research. It does this by reviewing the literature which categorises findings into broad thematic areas. This is considered relevant in order to consolidate the diverse literature base and conceptualise the SCS from within the stream. Particularly, an emphasis on empirical studies is deemed relevant as a first step towards theorising the SCS in this background chapter from extant research. This is because '[e]mpirically derived configurations … can provide more complete descriptions of how controls tend to combine and reveal alternative control patterns not captured or explained by existing frameworks' (Bedford & Malmi 2015, 4). The section begins with some general descriptions, before moving into a more detailed thematic analysis of the findings, supplemented with conceptual articles where appropriate.

Over the past decade, there has been an increasing trend in the top management accounting journals to publish sustainability MAC research. This is reflected in the growing number of special issues,[6] conferences and specialised journals (e.g. *Social and Environmental Accountability Journal*, *Sustainability Accounting, Management and Policy Journal*, and the *Journal of Cleaner Production)* which produce sustainability MAC research. Of the top accounting journals (i.e. those with an ABS-ranking greater than three), *Accounting, Auditing and Accountability Journal*, *British Accounting Review* and *Management Accounting Research* are more receptive to publishing empirical sustainability research. Particularly, *Accounting, Organizations and Society* includes many of the top-cited articles which are often quantitative in nature, even though qualitative studies appear to dominate

[6] Special issues include: Management Accounting Research (2013) '*Sustainable Development, Management and Accounting: Boundary Crossing*'; British Accounting Review (2014) '*Accounting for Sustainability in Production and Supply Chains*'; Accounting, Organizations and Society (2014) '*Enhancing Accounting for Sustainable Development*'; Critical Perspectives on Accounting (2015) '*Social and Environmental Accounting*'; Journal of Accounting Research (2016) '*Advancing Sustainability in Management Accounting*'; Social & Environmental Accountability Journal *(2018) 'Environmental Management Accounting: The missing link to sustainability?'*; and, the Journal of Management Control (2019) '*Management Accounting and Control for Sustainability and Strategic Decision Making*'.

the stream.[7] This, consequently, suggests a bias by accounting researchers towards the merit of quantitative approaches, even though longitudinal and narratives have been on the increase from 2013 onwards (e.g. Egan 2014; Bui & de Villiers 2017; Gibassier 2016).

Increasing attention to the processual elements of MAC are arguably of merit for empirical research (Malmi & Brown 2008). This is especially the case for the sustainability stream given that constructions of the SCS implicitly or explicitly include a time horizon through sustainability as an intergenerational discourse (see Guenther et al. 2016). Nevertheless, as previously indicated, the focus remains on the intra-organisational level of analysis (Crutzen et al. 2018), even though some studies look into sustainability MAC in supply chains (Ferreira, Moulang & Hendro 2010; Ballou et al. 2012; Spence & Rinaldi 2012; Lee & Wu 2014) or public-sector arrangements (Qian, Burritt & Monroe 2011; Thomson, Grubnic & Georgeakopoulos 2014; Crutzen, Bounazef & Qian 2018).

Furthermore, the most popular method theories used to frame or explain findings are contingency (e.g. Perego & Hartman 2009; Qian et al. 2011), stakeholder (e.g. Pondeville et al. 2013) and institutional (e.g. Gibassier 2016; Moore 2013) theories. Meanwhile, legitimacy perspectives are often implicit (e.g. Ball & Craig 2010). While the adoption of socio-political theories reflects trends in broader management accounting research, they are also indicative of an extra-organisational influence on the SCS as a domain theory. In this sense, the use of method theories can help explain domain theories within the field (Lukka & Vinnari 2014). Notwithstanding, most empirical articles published in the area are devoid of any overt theoretical framing.[8] This suggests the exploratory and developmental nature of sustainability MAC research where the SCS constitutes a developing domain theory that necessitates more research attention in terms of operationalisation and use (see Harris, Herzig, de Loo & Manochin 2019).

Most empirical studies tend to focus on SCS design (e.g. Riccaboni & Leone 2010; Arjaliès & Mundy 2013; Pondeville et al. 2013; Rodrigue et al. 2013). This suggests a managerial viewpoint that concentrates on the

[7] The number of citations as a measure of performance were determined from Scopus and supplemented with Google Scholar as needed in order to obtain "a more comprehensive picture" than from ISI databases such as Web of Science (Yang and Meho, 2006: 12).

[8] This is a reflection of a review of articles published in the top ABS-ranked accounting journals over a 10-year period between 2006 and 2016.

strategic elements of the SCS at the organisation-environment interface. Nevertheless, an increasing number of studies are orientated towards SCS use (e.g. Lisi 2015; Wijethilake et al. 2017). This arguably expands on studies on accounting as a social practice from the mainstream MAC field (e.g. Burns & Scapens 2000; Ahrens & Chapman 2007). However, studies which combine analytical perspectives on system design and use (e.g. Ferreira et al. 2010; Battaglia et al. 2016) remain wanting. This, arguably, makes for limited analyses given that the (re)design process of SCS is often rolling, contingent on meeting evolutionary external goals in relation to, for example, management system adoption or customer requirements. Nevertheless, there has been the implicit (e.g. Sundin & Brown 2017) or explicit (e.g. Johnstone 2018a; Ghosh et al. 2019) suggestion over recent years that more attention should be paid towards the perspectives of individual employees as local agents able to affect a sustainable change over time and space.

Finally, there has been an increasing trend regarding the number of tools and core concepts used within the articles. This is a reflection of mapping the literature over a ten-year period to establish key thematic areas of control from empirical evidence. These areas can be loosely aligned with broader categories of control from previous MCS conceptualisations (e.g. Malmi & Brown's [2008]) control package), namely: socio-ideological controls, planning controls, performance controls, administrative controls and reward and compensation controls. Consequently, there have also been changes in the types of controls used over the same period.

As a general overview, administrative and socio-ideological controls appear to be gaining more research attention in recent years (see e.g. Qian et al. 2011; Spence & Rinaldi 2014; Crutzen et al. 2017; Baker, Cohanier & Gibassier 2018), building upon an initial focus on strategic design elements in terms of planning and performance controls (e.g. Ratnatunga & Balachandran 2009; Henri & Journeault 2010). Meanwhile, controls that overtly address reward and compensations mechanisms are somewhat lacking in current SCS studies (see also Crutzen et al. 2017; Soderstrom et al. 2017).

2.3.1 Thematic areas of control

Given that the overall aim of this thesis is to have a better understanding of what management control for sustainability is through an abductive approach that builds on previous research in addition to empirical evidence, the following section further expands on the thematic areas of management

control for sustainability found in extant empirical studies. Throughout this discussion, the various findings point to different analytical levels in the positioning framework which guides this research (see Guenther et al. 2016).

First, *planning control* can be regarded as control that sets out the goals for the organisation and its units, as well as determining the expected behaviour of organisational members to achieve such goals (Malmi & Brown 2008). Planning can be in terms of cost management (e.g. Ratnatunga & Balachandran 2009; Henri et al. 2016), impression management (e.g. Hrasky & Jones 2016), risk management (e.g. Bui & de Villiers 2017), strategic partnerships (e.g. Cooper & Pearce 2011), environmental commitments (e.g. Engels 2009), management systems (Moore 2013) and innovation management (e.g. Ferreira et al. 2010), among others. In this sense, planning constitutes a functional approach to control that can be short (i.e. tactical) or long (i.e. strategic) in nature. It ultimately resides at the strategic level of analysis in Guenther et al.'s (2016) positioning framework. This is because managerial tiers strategise by making decisions and determining risks that consequently effect operational performance which subsequently affects the operational level. For example, Ratnatunga and Balachandran (2009) assert that strategic decisions directly affect discrete management accounting tools. Meanwhile, Pondeville et al. (2013) emphasise the relationship between planning control and system use, highlighting the need for a strategy that involves employees. Notwithstanding, the orientation of planning control is also from the field to the firm given that external pressures that affect SCS design (see e.g. Albeda Perez et al. 2007; Qian et al. 2011; Rodrigue et al. 2013). This suggests that planning is not only a firm-level phenomenon, but rather the product of extra-organisational control in the design and consequent use of SCS; a finding which is also represented in the scope and time horizons of Guenther et al.'s (2016) framework.

Second, *performance control* regards the specific targets and measures implemented to achieved improved sustainability performance output. Malmi and Brown (2008) propose that this type of control regards: budgets, financial measures, non-financial measures and hybrids (Malmi & Brown

2008).[9] Their findings stem from consolidating existing MCS research from the mainstream MAC field. Meanwhile, Simons (1995, 81) proposes that performance-related controls allow managers 'to monitor goals and profitability, and to measure progress toward targets such as revenue growth and market share'.[10] In this sense, performance control permits managers to make future strategic plans through seemingly 'objectifiable' measures. This is manifested in the sustainability MAC stream with studies that aim to account for environmental issues such as carbon (e.g. Ratnatunga, Jones & Balachandran 2011), biodiversity (e.g. Siddiqui 2013) and water (e.g. Tello, Hazelton & Cummings 2016), which involve giving a physical entity numerical properties. Other authors have used discrete tools such as eco-control 'to quantify the environmental actions of an organization and integrate the environmental concerns into the organizational routines' (Henri & Journeault 2010, 67). However, such studies are critiqued for their associated commensuration issues (see Lisi 2015) given that aspects of the natural environment are 'difficult to quantify' and often 'overlooked' (Qian et al. 2011, 120). In this sense, the construction of performance measures is, in essence, a social process (Chan et al. 2014) giving rise to firms using performance controls in different ways. For example, while some companies have complex performance measure systems, others have basic systems based on a 'loose package of financial or non-financial indicators' (Crutzen et al. 2017: 1296). This suggests that there is a range in the type and nature of control for improved sustainability performance.

Third, the human elements of control can be broadly categorised as *socio-ideological controls* (see Bedford and Malmi 2015). In mainstream MAC research, these are asserted as controls which influence employees to adopt particular values or beliefs that are in align with organisational ones (see Alvesson & Kärreman 2004). They are commonly presented as 'informal', guiding employee behaviour (Crutzen et al. 2017). However, socio-ideological controls can also involve formal elements such as employee

[9] Although Malmi and Brown (2008) refer to this type of control as 'cybernetics', this PhD project prefers the use of the term 'performance control'. This is because the word 'cybernetic' essentially implies that the control systems are 'automatic'. This suggests that human actors cannot interpret and use such controls in a semi-autonomous way, and debatably has implications for expanding studies into accounting as a social practice as well as the development process of SCS based on employee involvement.

[10] Note that Simons' (1995) used the term 'diagnostic' rather than performance controls.

training or selection (see Chatman 1991). Nevertheless, socio-ideological control appears to present some analytical problems for MAC scholars in terms of its position. While some argue that it is embedded within all other control elements (see Alvesson & Kärremen 2004), others suggest it is the foundation to other controls (see Widener 2004). There has also been the implication that value-based control – as a particular type of socio-ideological control – moderates the effect of the MCS on performance (see Gerdin, Johansson & Wennblom, 2019).

Increasingly, the value of socio-ideological control for sustainable futures is recognised in the literature (see Johnstone 2018a for an overview). For example, Albelda Pérez et al. (2007) discuss the necessity of intangible assets such as awareness, knowledge, skills, commitment and coordination as prerequisite to system success. Meanwhile, others illustrate the importance of communication, knowledge and commitment as important sustainability management mechanisms that bridge strategic organisational aims with operational tasks (e.g. Ball 2007; Pondeville et al. 2013). Interestingly, Bouten and Hoozée (2013: 346) posit that it would be fruitful to explore how sustainability thinking can be embedded into all organisational levels. Such findings suggest the nuances of the individual corporate actors for improved sustainability performance beyond broad cultural or clan-based controls that are incorporated into existing conceptualisations of MCS (e.g. Malmi & Brown 2008). This is because such a suggestion implies that organisational levels require targeted approaches to embedding sustainability thinking, rather than treating employees as a homogenous group (i.e. through a culture or clan). As Ballou et al. (2012) suggest, the integration of sustainability into organisational strategy is often founded upon an internal disposition. Consequently, individual understanding becomes central to ensuring that the sustainability values of the organisation are absorbed. This, arguably, may require a more nuanced or targeted approach to socio-ideological control. Nevertheless, Fraser (2012) posits that such internal disposition or 'interpretive schema' must be dynamic enough to absorb change in the contextual and institutional environment, as well as within the firm. That is, intra-organisational socio-ideological control is contingent on the external firm context in additional to organisational belief systems. This suggests that the orientation of sustainability values is both internal (i.e. from the organisation's values) and external (i.e. from the broader institutional and social context where the employee exists). This, however, is not captured in current MCS frameworks which assume the orientation of control as an internal phenomenon, based on particularly organisational values, is

founded on conventional bureaucratic organisational structures. Thus, the utility of Guenther et al.'s (2016) positioning framework is highlighted in the insufficiencies of commonly adopted MCS frameworks to frame or explain sustainability phenomena.

Recently, there has been increasing attention to the role of individual employees for improved sustainability performance and the development of socio-ideological controls also originating from the bottom-up. This moves beyond the analytical perspective of the group to the individual employee. Based on a systematic literature review in the sustainability stream, I coin this 'social control' (Johnstone 2018a). Particularly, social control involves some distinct features where sustainability performance is improved through *individual* employees *(1)* having more knowledge about sustainability issues, *(2)* being committed to sustainability; (3) being free to communicate and make suggestions about sustainability issues; and (4) being part of a corporate culture that fosters the education, training and awareness of sustainability issues. Furthermore, there is the assertion that the above features are not only contingent on organisational beliefs systems as commonly suggested in MCS frameworks (e.g. Simons LOC), but also are borne from the individual employee's sustainability values which may be the product of an extra-organisational influence. Therefore, the development process of SCS, in terms of improved process efficiencies and performance outcomes, is the result of both organisational and individual value systems where managers are not necessarily *the* (only) sustainability experts.[11]

Fourth, *administrative control* can be considered in terms of observed policies and procedures, as well as the formal structure of organisations (Crutzen et al. 2017). This relates to governance structures which affect task performance (Malmi & Brown 2008). In the literature, administrative control relates to corporate reporting channels (e.g. Tello et al. 2016), formal policies and procedures (e.g. Crutzen et al. 2017) to direct employee behaviour and report performance-related outputs and measures. In this sense, administrative controls are also connected to broader themes on accountability and responsibility through organisational structures. Nevertheless, such controls tend to overlap with the previously mentioned thematic

[11] Note that Chenhall, Hall and Smith (2017) recognise the influence of employees in system design for a non-governmental organisation. Particularly, they suggest that performance measurement systems can entail an expressive role which embodies the values of individual employees in addition to broader organisational concerns.

groupings. For example, internal CSR policies and procedures (see Durden, 2008; Sands et al., 2016) or organisational structures tend to be established at the strategic level of the intra-organisational context. Furthermore, governance issues such as integration (e.g. Albelda Pérez et al. 2007), accountability (e.g. Tello et al. 2016) or employee enablement/empowerment (e.g. Sands et al. 2016) can just as easily be framed as socio-ideological controls. Finally, reporting measures (e.g. Biswas & O'Grady, 2016) can be considered as essential for performance outcomes and future strategic design. Consequently, administrative elements arguably appear to be embedded within the other control groupings, maintaining a somewhat ambiguous position similar to socio-ideological control.

Finally, *reward and compensation control* regards motivating individual employees in terms rewarding effort (Malmi & Brown 2008). Nevertheless, this type of control rarely features in sustainability MAC studies (see Crutzen et al. 2017; Soderstrom et al. 2017). This may be due to the difficulty in separating financial rewards from those assigned to better social and environmental performance, or the fact that sustainability control is better achieved through implicit reward structures (see Grubnic et al. 2015; Lueg & Radlach 2016) that are difficult to capture empirically. Relatedly, there may also be the viewpoint that rewarding sustainable behaviour is counterproductive given that sustainable behaviour is the new norm; i.e. people should not be rewarded for doing what they should do for society. To this end, the relationship between intrinsic and extrinsic motivations is interesting. While some authors assert that intrinsic motivations are more important in driving sustainability performance (e.g. Grubnic et al. 2015; Lueg & Radlach 2016), others suggest that extrinsic rewards such as compensation mechanisms are also beneficial (e.g. Wijethilake et al. 2017; Crutzen et al. 2018). Yet, more research attention is required on reward and compensation mechanisms for sustainable performance given that we simply do not know much about how this type of control operates in practice.

2.3.2 Reflections

The discussion thus far has indicated some limitations in presentations of SCS frameworks in empirical studies. To this end, the following section serves as a reflection on how SCS have been represented in the literature, outlining main areas which arguably require future research attention. Particularly, it problematises the SCS as characteristically distinct from MCS, thus motivating the need for this thesis which suggests the need to know

more about what management control for sustainability is. Thus, the following paragraphs are founded upon a deductive approach to reasoning based on an interpretative analysis of what has been. This moves beyond the thematic groupings of control to offer some consolidated findings of the representational problems within the field that necessitate further research attention. Although some of the reflections contain areas of overlap, they are presented as individual points which can be raised as issues to address in future studies in relation to a review of the sustainability MAC literature.

First, *it is difficult to distinguish between certain types of management control*. It appears that the control archetypes present in sustainability MAC studies contain elements of overlap. This is problematic because it makes them difficult to separate analytically and in practice. As previously suggested, administrative and socio-ideological controls are arguably embedded within the other control types. If new theorisations and understandings of sustainability control and the SCS are required (see Schaltegger 2011; Guenther et al. 2016)), it becomes of interest to explore the specificities of each control typology and how these relate to the development process of SCS as an entity in practice.

Second, *empirical studies within the sustainability MAC stream rarely capture all established control typologies together in their exploration of the SCS*. Rather, there is the tendency to focus on particular controls or groups of controls. While this may be valid as it provides researchers with 'more pointed references' (Soderstrom et al. 2017, 69), it becomes difficult to theorise the SCS as an academic tool as a system or a package (see Grabner & Moers 2013). Further still, there is a general lack of understanding into reward and compensation mechanisms for sustainability control in the extant literature (Soderstrom et al. 2017), as the focus remains on cybernetic controls (Crutzen et al. 2017). On the one hand, this is problematic given that proposed key features of MCS design are inherently missing in empirical terms for sustainable systems. Notwithstanding, on the other hand, it may actually signal that new conceptualisations of the SCS are needed which minimise the role of such mechanisms for sustainability issues. Looking at controls or groups of controls in isolation therefore means that it remains unclear if and how all typical control typologies are necessary for future theorisations of the SCS as an academic construction. Therefore, it becomes of interest to look at how SCS are developed in practice in order to theorise the SCS 'inductively' from empirical evidence from the field.

Of the studies which do look at the SCS as an entity, there are various findings to note. Rodrigue et al. (2013) explore how managers view stakeholder influence when establishing strategic performance measurement systems. Drawing from Simons' LOC as an analytical tool, they find that performance indicators are used both *diagnostically* and *interactively,* and that stakeholders influence the organisations' *belief* system. This consequently gives rise to four varying patterns of strategic performance measurement systems from narrow-unidirectional to broad-interactive, suggesting that the choice of configuration is the result of external stakeholder pressures. Nevertheless, Rodrigue et al. do not overtly discuss boundary systems and consequently do not satisfice Simons' (1995) notion of balance. This also implies partiality in the adoption of extant MCS frameworks to explain sustainability phenomena and the notion that perhaps other frameworks, specific to the stream, are needed.

Next, Crutzen et al. (2017) adopt Malmi and Brown's (2008) conceptual MCS framework to offer four patterns of control for large firms. These patterns expand upon the notion of a complete package as founded upon 'formal' controls such as extensive planning, advanced cybernetic controls, and reward and compensation structures. Meanwhile, they attribute 'informal' control to cultural signals. In this sense, the inadvertently assert that discrete controls are characterised by a distinct type (i.e. formal or informal). Crutzen et al. propose that the optimal pattern 'full management control' is based on a complete package of controls and strong cultural control. This, consequently, suggests that strong cultural control, in addition to formalised control instruments are necessary for improving sustainability performance. However, no firms in their sample occupy this pattern which suggests a gap between theory and practice. Their findings also imply that large firms *either* focus on formal *or* informal control, rather than combining the two. Consequently, the relationship between the types of control for successful sustainability performance requires further attention to better connect understandings of the SCS with practice.

In a later paper, Crutzen et al. (2018) explore the link between management controls in the public sector, finding that institutional factors both constrain and enable control choice. Particularly, for the public sector, long-range planning controls are deemed important to guide operations. However, these are considered difficult to translate into concrete action plans. As such, they infer that the strategic aims of the company may not translate into direct action (see also Burritt & Saka 2006) and control mechanisms at the firm-level may be rendered obsolete in terms of overarching realms of

influence. Such findings suggest that internal SCS may misalign with broader government challenges in practice. Therefore, much remains to be known about the link between policy and practice through the construction of the system. It also suggests a decoupling between the strategic aims of the firm and operational action. As such, it appears that more research is needed on the interrelationship or connection between the analytical levels of system design and use to better understand the actual processes that contribute to better sustainable performance.

Pondeville et al. (2013) broaden conceptualisations of the SCS by examining the role of contextual and strategic factors in its development, thus suggesting an extra-organisational dimension of control in addition to internal performance outcomes. These authors find that greater environmental uncertainty reduces the organisations' intentions to incorporate effective environmental strategies and may actually be a counterforce to environmental integration via informal and formal elements of the SCS. This suggests that the extra-organisational context has a great role to play in the implementation of sustainable strategies and systems. Nevertheless, given that many studies tend to focus on either the analytical level of system design (i.e. strategy) or use (i.e. action), there is the problem that implementation is often considered only in terms of the construction of formalised control measures at the strategic level. Consequently, there is the need for more studies like Pondeville et al.'s (2013) which implicate externalities into the development process of SCS in terms of both strategy and operational action.

Finally, Baker et al. (2018) look at how the evolution of management controls can bring companies closer to sustainability. Using Malmi and Brown's (2008) package, the authors find that strong cultural control is important to organisational performance, but also to 'drive' the organisation closer to society (see also Crutzen et al. 2017). Baker et al. also find that management control for sustainability extends beyond the firm-level – to industry, customers and the supply chain. As such, they present the organisation as playing a key role in controlling the sustainable actions of other entities. The implies that not only are SCS the result of a field-firm influence, but also that sustainability control within the firm can also affect its broader field (see also Burritt & Schaltegger 2010). Thus, Baker et al. (2018) provide an empirical example which captures the temporal and scope horizons of the SCS which previous studies rarely explicitly include. Other studies which do not present the SCS in its entirety resonate with this viewpoint which positions the firm in dialogue with, particularly, its external constituents.

Third, *SCS frameworks are often presented as an internal construction in response to external pressures*. As suggested in the previous paragraphs, the orientation of control primarily comes from firm to field as various external pressures affect the development process of SCS (see Qian et al. 2011; Zaman Mir & Shiraz Rahaman 2011; Pondeville et al. 2013; Rodrigue et al. 2013; Moore 2013; Lisi 2015). Various examples in the sustainability literature expound upon the orientation of control as something broader than the firm. For example, Moore (2013) adopts Dillard et al.'s (2004) framework of (de)institutionalisation by recognising that accounting for the environment is a recursive political process across multiple political, organisation and field levels (i.e. not confined to the intra-organisational context). Further still, using combined institutional and contingency perspectives, Qian et al. (2011) highlight the role of context in the implementation process of management accounting practices whereby the 'organisational field' can induce mimicry. Meanwhile, others posit that, over time, the orientation of sustainability control can also go from firm to field (Burritt and Schaltegger 2010). In this sense, experiences learnt by the firm can also impact the local context, indicating a governance perspective which is becoming increasingly relevant in accounting studies to link policy and practice (see Bebbington & Unerman 2018; Rinaldi 2019).

Such findings lead one to conclude that the SCS as an academic construction confined to the firm is limited. As previously suggested, studies which adopt traditional MCS frameworks in the sustainability stream are concentrated to the intra-organisational context in their theoretical conceptualisation and often use broader method theories to explain their findings. This is problematic as it suggests that, essentially, the SCS as a theoretical tool is not enough in itself to explain sustainability control in practice. Hence, more research is needed to develop understandings of the SCS. This regards further elaboration on the orientation of control as not merely an internal phenomenon to be fully explanatory.

Fourth, *there remains a focus on formalised control instruments and organisational values as guiding sustainable action at the operational level.* This is problematic for sustainability as a discourse where every actor is responsible and individual values are also important for guiding sustainable futures (Johnstone 2019a). Various studies have highlighted the importance of socio-ideological or cultural controls for effective sustainability management (e.g. Crutzen et al. 2017; Baker et al. 2018). Nevertheless, performance related control still dominates the literature and the intrinsic values of employees in guiding sustainable action require further understanding.

There is the perceived need to know more about how the individualising elements of social control can improve the development process of SCS (Johnstone 2018a). This moves beyond the treatment of socio-ideological control as a group level phenomenon in the mainstream MCS frameworks by suggesting that management control for sustainability is guided not only by formalised system design and organisational values, but also individual experiences, competences and motivations. As such, the extant literature can be problematised in the sense that it is only just begin to explicate that more attention is needed on the perspectives of individual employees in sustainability MAC research (Ghosh et al. 2019). Here, individuals at various hierarchical levels are necessary for embedding sustainability thinking into organisational practice (see Bouten & Hoozée 2013) because "no single company or management decision is likely to create any sufficient [sustainability] solution" without the active participation of employees (Schaltegger 2018, 22). To this end, much remains to be known about how the different 'levels of management control for sustainability' within the firm contribute the development process of the system. This is based on the premise that management control for sustainability also includes the management of processes in addition to the management of people.

Fifth, *management control for sustainability typically takes a managerial perspective.* This is problematic in the sense that sustainability is treated as a controllable phenomenon based on top-level decisions and the intra-organisational context in terms of performance output. It also minimises the role of individual employees beyond managerial tiers as citizens responsible for sustainable futures. Particularly, Simons LOC suggests that belief systems are based on formal system design (decided by managers), rather than also the product of individual values (whether managers or employees). Simons proposes that top-management make sense of external 'beliefs', incorporating those salient claims into organisational systems (see e.g. Arjaliès & Mundy 2013; Rodrigue et al. 2013). This, consequently, asserts top management as those best positioned to make sustainability decisions and thus minimises the values and experiences of individual operators or middle-management tiers. It is also problematic given that organisational beliefs systems change at a slower pace than external sustainability developments. Therefore, there becomes a time-lag between translating external sustainability values into organisational systems. To this end, as suggested, criticists assert that the management of sustainability within firms is unfeasible in practice. This is because sustainability neither begins nor ends at the firm's borders. Furthermore, sustainability is not only a managerial responsibility;

but rather the responsibility of every citizen in a given context (Johnstone 2019a). Here, the experiences and competences of individual operators may be more responsive to meeting sustainability problems at site, as and when they occur (see Johnstone 2019b). Consequently, there remains the need for an analytical conceptualisation of the SCS that embraces temporality and spatiality. Guenther et al.'s (2016) framework responds to this. Yet, currently, empirical analyses adopting the perspectives present in the framework are lacking. This thesis therefore attempts to bridge analytical positions on system design and use, in addition to embracing the externalities that the sustainability discourse necessitates.

Sixth, there is an inherent *problem in using MCS frameworks to explain SCS*. This is because in extant research, SCS are often presented as decoupled from MCS frameworks and therefore characteristically distinct (see Schaltegger 2011; Guenther et al. 2016). For example, Riccaboni and Leone (2010) propose that decentralised structures are key for strategically implementing SCS. This suggests that key departments or units are necessary for establishing sustainability MAC. Moreover, Gond et al. (2012) offer multiple SCS-MCS configurations from dormant-decoupled to fully-integrated to illustrate the integration of such systems with sustainable strategies. Using Simons LOC framework, Gond et al. (2012) present the former as based on diagnostic uses and the latter as integrative. Ultimately, they suggest that organisations should move on a pathway where both MCS and SCS become integrated as sustainability becomes embedded into everyday operations. To this end, various authors have explored the integration of sustainability into corporate strategy (e.g. Crutzen et al. 2018). While Battaglia et al. (2016) suggest that technical instruments are vital to the integration process, Witjes et al. (2016) suggest the formal adoption of a management system does not mean sustainability integration. The presentation of SCS as decoupled from MCS in practice may not necessarily be a bad thing as it offers more responsive solutions to sustainability problems (see Riccaboni & Leone 2010). However, it does have implications for scholars choosing to use MCS frameworks to explain the SCS as a 'distinct' academic framework.

2.4 Problematisation

This thesis builds on the premise that SCS are characteristically distinct MCS frameworks in terms of their form and use (see Schaltegger 2011; Guenther et al. 2016). Through this, it aims to know more about what management control for sustainability is based on empirical evidence.

Essentially, the previous section has highlighted the inherent problem in using MCS frameworks to explain sustainability phenomena. Although various aspects are indeed transferrable to the understanding of SCS, MCS can be considered limited in terms of their analytical scope, intra-organisational and managerial focus, and – often – functionalistic use. Particularly, there is the need to align SCS theory with practice given that SCS are often decoupled from MCS. There is also the need to conceptualise the extra-organisational and inter-generational effects and impacts of SCS in theoretical models. Moreover, given that it is currently unclear if and how all typical control typologies are necessary for future theorisations of the SCS as an academic construction, there is the need to inductively develop theory from the field. This involves building a better understanding of the relationships between the types of control for improved sustainability performance, as well as the connection between the formalised control instruments and the operational use of these in practice by individual corporate actors, beyond managerial tiers.

Given the various problems in extant constructions or assumptions of sustainability control in the literature, this thesis builds on Guenther et al.'s (2016) positioning framework as an analytical tool to frame the SCS. This framework recognises the spatial and temporal horizons embedded into sustainability as a concept, as well as positions the SCS as bridging strategic and operational levels. Further still, the analytical frame in this thesis asserts that the relationship between both the formalised control instruments implicated in system design and the operational action by employees is of interest. This is because much remains to be known about the role of individual employees – beyond managerial tiers – for the development process of the SCS (see Ghosh et al. 2019). This not only regards the typical approach to MCS whereby organisational values guide behaviour, but also the potential of individual values in contributing to SCS development. Consequently, the understanding of management control for sustainability in this thesis is based on the premise that this refers to *the management of processes*, in addition to the functionalist viewpoint that emphasises *the management of people*. To this end, there is the need to combine perspectives on system design and use for a fully informed understanding of the development process of SCS in relation to their overarching context.

3. METHODOLOGICAL CONSIDERATIONS

This chapter outlines the methodological considerations in this PhD project in terms of its position and methodological approach, before detailing the specific operationalisation of each compilation paper. It concludes with a projected timeline and research outcomes to date.

3.1 Philosophical foundations

So-called 'value free' financial and managerial accounting were historically grounded in neoclassical economic theory which is orientated towards positivist philosophies (Collison, Ferguson & Stevenson, 2014: 32). This, subsequently, had implications for how accounting researchers traditionally presented social and environmental issues (see Section 2.1). However, over the course of time, the accounting field has expanded to embrace critical perspectives based on interpretivist ontologies and post-modernist epistemologies. For the sustainability stream, critical authors argue that conventional managerial perspectives, which position sustainability as a controllable, intra-organisational phenomenon, have been an unrealistic attempt to support corporate aims rather than affect a true sustainable change (Gray 2010). This is because social and environmental accounting has developed as 'an interpretively complex field' which has 'important implications for the social realities we construct, embed or seek to change' (Brown & Fraser, 2006, 113), and consequently the theoretical models and tools we use to explain sustainability MAC phenomena.

Criticisms of managerialist viewpoints outline the complexities of sustainability as a discourse broader than the firm. The dominance of short-term economic gain in the intra-generational context is ultimately giving way to a long-term approach which views organisations as but one part of broader governance structures and sustainable systems. This is reflected in emerging attention to broader meta-theoretical sociological discussions in relation to governance, accountability and responsibility perspectives, which identify sustainability management as the responsibility of everyone. As previously discussed in Chapter 2 *'Background'*, while scholars in the critical stream are sceptical of the use of traditional accounting tools to solve sustainability issues, those occupying the managerial stance consider it self-evident that firms strive to incorporate such aims. Specifically, the manage-

rialists suggest that sustainable accounting practices should be directed towards developing tools and models to solve organisational problems. Arguably, they are in favour of operational research into sustainability MAC in order to fully engage sustainability into business practices.

The position of this PhD project rests on bridging both managerial and critical positions for improved sustainability outcomes over time and space. Specifically, it recognises the need for legitimate attempts to control for sustainability within the firm, whilst concurrently recognising that some underlying assumptions in the managerialist literature need to be questioned. Consequently, it adopts a 'middle of the road perspective' to provide more informed insight into sustainability accounting and accountability (Deegan 2017). This is because both arguments have merit and should not necessarily be treated as opposed, even if young scholars are encouraged to frame their research towards *either* critical *or* managerial positions in terms of publication outlet, conference participation and in-text referencing which speaks to a specific audience. While criticists are arguably concerned with broader overarching 'method' theories to explain organisational phenomena in relation to their broader context, managerialists are perhaps more interested in advancing practical 'domain' theories in terms of how sustainability management can be improved for the firm (see Lukka & Vinnari 2014). The analytical distinction between theoretical levels, however, need not necessary be in conflict as broader method theories can be used to explore domain theories.

As a researcher in the sustainability MAC stream, my PhD project focuses on the domain theory of SCS by embracing extra-organisational and critical elements into the compilation papers composed of conceptual and empirical articles that aim to address what management control for sustainability is. Combining managerial and critical positions, therefore, appears within the thesis articles and is based on my beliefs; i.e. I concurrently realise that organisations must be practical in their aims to improve sustainability performance outcomes, whilst also recognising their limitations in scope as only one part of a broader socio-political context. As such, I argue that future sustainability MAC research requires more conceptual, theoretical and empirical studies which bridge positions. This is because positioning studies as either critical or managerial, based on extant traditions in the field, can be considered limited for explaining sustainability phenomena.

Thus, rather than asserting a distinct philosophical position, I position myself as a researcher aiming to improve sustainability performance out-

comes over time and space. Particularly, my research presents itself as bridging seemingly contrasting managerial and critical positions to offer a more informed analysis of how sustainability control is enacted in practice. Arguably, why some may consider the intention of improving sustainability performance as a managerial orientation, the time-space dimension recognises critical concerns in terms of the organisation merely confining performance to its boundaries. This, therefore, moves beyond functionalist conceptualisations of control founded upon system design and managerial perspectives towards illustrating sustainability as the responsibility of all, both within the firm and beyond its borders. For me, the co-existence of moral concerns about the environment, alongside traditional corporate aims mean that management control for sustainability necessitates open-mindedness in the construction of theoretical models and concepts. Here, taking either a positivistic or interpretivist view of the world is limited. To this end, I see the utility of trying to manage and account for sustainability, whilst I also concede that this is simultaneously impossible.

3.2 Approach and methods

This compilation thesis is composed of five papers: one conceptual and four empirical. Overall, it adopts an abductive approach meaning that the empirical material is reflected upon in light of extant sustainability MAC research (see Alvesson & Sköldberg, 2017) and the problematisation presented in the background section.

The empirical papers are qualitative in nature. This is considered beneficial to increase understandings of the actual development process of sustainability control based on the experiences and understandings of individuals within the organisations. Particularly, capturing the use of control requires a thorough understanding of what actually occurs within companies and how management control for sustainability is presented, received and understood by corporate actors at different levels. For such a purpose, case studies are particularly useful as they offer useful illustrative examples and contribute to 'engaging research' (see Adams & Larrinaga-González 2007). They also help refine existing theories by inducing new perspectives and ideas (Siggelkow, 2007). By providing what Bebbington and Thomson (2013) term an 'inside-out' view, case studies increase understandings of the intricate ways in which the development process of SCS occurs in practice (see also Stake, 2005). Furthermore, this approach can be considered rela-

tively novel given that much research in sustainability accounting lacks inductive theorising from empirical cases (see Parker, 2005, 2011, Moore, 2013). Consequently, the main approach in this thesis is a case-study approach. However, the various empirical papers range from in-depth cases to cross-case analyses, which are explicated more in each article. Generally, the methods employed are semi-structured interviews, informal dialogues, and the analysis of corporate documents and websites. There have also been field visits to various case companies. This is deemed beneficial in order to understand the development process of SCS in various organisational forms from empirical evidence, rather than relying on constructed measures and items based on extant MCS frameworks which may limit responses.

3.2.1 Empirical contexts, cases and access

The empirical articles in this thesis are orientated around what can be broadly termed as two, discrete empirical contexts in the private sector, namely: SMEs and MNCs. The decision to study multiple contexts was made given that it was deemed necessary to study a broad range of companies to allow for a broader generalisation of what management control for sustainability is. Particularly, controlling activities for smaller companies is also necessary (Nandan 2010), however most empirical sustainability MAC research focuses on large firms with established MCS (e.g. Henri & Journeault 2010; Pondeville et al. 2013). This means that present understandings of what management control for sustainability is are arguably partial, limited to the peculiarities of larger firms, as they do not embrace a broader variety of contexts that can contribute to theorising the field.

Each context contains multiple case companies coming from various sectors, with various organisational forms which are further explicated in the method section of each article. All company names have been removed from the final manuscripts. The reasons for this are multiple. First, because the overarching research aim to establish what sustainability control is, and specifically to theorise the SCS, is more important than identifying the specific practices of particular companies. Second, because some participants requested confidentiality. Third, because this may lead to some respondents giving more honest answers. Further, for the SME context, the participants were made aware of the cross-case approach which helps further anonymise the respondent through safety in numbers via similar organisations to pro-

vide a general response rather than singling out respondents and/or companies.[12] Ethically, however, the research project does not require an application to the Ethics Board. Notwithstanding, I must be sensitive to the needs of my research participants not to disclose any information that could be harmful. I have a duty as a researcher to society to follow good research practice.

As an overview, Table 1 provides details of the cases, companies and interviews conducted so far for the 'two' empirical contexts. These interviews are ongoing. If time permits, a third context may also be added to inform a final compilation paper. This is because access has also been granted to an environmental charity in England and Wales.

[12] Note that in accordance with the Swedish Research Council's conditions for Good Research Practice (2017), it is not possible to guarantee anonymity as an ethical requirement. This is because all data help by the researcher is owned by the university as a public institution. Therefore, the case companies and individuals cannot be promised anonymity, rather they can be assured that every attempt will be made to hide their identity as far as possible.

Table 1. Details on the empirical contexts, cases and methods - ongoing

Context	*Cases*	*Companies*	*Primary Location*	*Respondents*	*Method(s)*	*Minutes*
ISO 14001-certified SMEs	Auditors	Auditor A	UK	Director	Interview	53
		Auditor B	UK	Director of Quality Assurance and Compliance	Interview	20
		Auditor C	UK	Quality Assurance Manager	Interview	20
		Auditor D	UK	Lead Auditor	Interview	80
		Auditor E	Sweden	Lead Auditor and Assessment Manager	Two meetings	240
					Interview	55
		Auditor F	UK	Auditor	Interview	65
		Auditor G	UK	Environment and Energy Principal Assessor	Interview	160
	SMEs	SME 1	Ireland	Compliance Manager	Interview	40
		SME 2	UK	Research Assistant	Interview	50
		SME 3	Ireland	Environmental Representative	Interview	45
		SME 4	UK	Environmental Manager	Interview	30
		SME 5	Ireland	Facility Manager	Interview	30
		SME 6	UK	Management System Co-ordinator	Interview	80
		SME 7	Sweden	Quality Manager	Interview	55
		SME 8	Sweden	Traffic Manager	Interview	50

		SME 9	Sweden	Managing Director	Interview	25
		SME 10	Sweden	CEO	Interview	45
		SME 11	Sweden	Environment and Quality Manager	Interview	30
		SME 12	Sweden	Vice-CEO	Interview	30
		SME 13	Sweden	HR and Quality Manager	Interview	35
		SME 14	Sweden	Management System Co-ordinator	Interview	40
		SME 15	Sweden	Quality Management As-sessor	Interview	45
		SME 16	Sweden	Technical Director	Interview	30
		SME 17	Sweden	Marketing Manager	Interview	40
		SME 18	Sweden	**Sustainable Business Development & Strategist**	Interview	40
		SME 19	Sweden	Technical Manager	Interview	35
MNC	Logistics Company		Sweden	Head of Strategy	Introductory meet-ing	60
					Interview	40
					Lunch meeting	30
				Head of Environment and Quality	Interview	80
				Warehouse Employee	Informal conversa-tion	30
				Environmental Director	Interview	75
				Sustainable Supply Chain Specialist & Supply Chain Specialist	Group interview	70
				HR Strategist	Interview	85

	Industrial Group	Sweden	Principal Sustainability Coordinator	Telephone introduction	30
				Interview	70
				Interview – to be checked	50
			Principal Sustainability Coordinator & CFO/Subsidiary Sustainability Coordinator	Group interview	60
			Principal Sustainability Coordinator & Environment & Permit Manager	Group interview	60
			HSSEQ/ Subsidiary Company Sustainability Coordinator	Interview	45
			CSR Manager/ Subsidiary Company Sustainability Coordinator	Interview	50
			Site visit Local Site Coordinator & Principal Sustainability Coordinator	Interviews & informal discussions	Full day

3.2.2 Considerations & limitations of the research method

Each compilation paper details the specific considerations and limitations in relation to the methodological approach. Therefore, at the risk of repetition, only some broad considerations are highlighted in this section.

First, there may be the criticism that access has been granted to companies that are 'good at sustainability' and have extensive sustainability programmes in operation. Such companies may be willing to participate because they are confident and proud in what they do which will, in turn, skew the findings and analysis positively. Indeed, while the participating SMEs all have ISO 14001 in operation, such a perceived limitation may be mitigated for two reasons. First, because ISO 14001 necessitates the annual improvement of internal sustainability systems. This means that companies are never at an optimal state based on ISO 14001's cycle of continual improvement. Second, because the interviews with auditors serve to triangulate the data. Moreover, for the larger case companies, the firms have openly admitted that they are cutting back on sustainability investments and programmes due to structural changes and/or financial hardship. This suggests that they may, in fact, be in a position where they are actually embarrassed or ashamed by what is happening within the company in terms of its sustainability control. Consequently, the findings and analysis of the larger firms serve to highlight the realities of sustainability control in practice, as best as possible in light of changing circumstances.

Second, there may be the view that the contextual background of this thesis does not elaborate on the specific features of SMEs and MNCs (or decentralised organisations) as areas for attention in this research. Indeed, while the peculiarities of each context have unique, distinct features and constitute contexts in their own rights, the decision has been made for this PhD project not to be a comparative study. This is because the aim is to offer a consolidated impression of what management control for sustainability looks like in practice. Indeed, there may be some specificities for each context. These, however, will be drawn out in the compilation papers, rather than the thesis itself which aims to address what management control for sustainability is more broadly. An initial analysis, however, suggests that many of the themes are cross-cutting and 'both' contexts share more similarities than differences in terms of the types, nature, levels, orientation and scope of sustainability control. These will be overviewed in Chapter 5 *'Preliminary Conclusions & Contributions'*.

Finally, this PhD project may be critiqued given that the plan indicates that the compilation papers are primarily a sole endeavour. This could be viewed as a limitation in terms of subjective analysis and biased viewpoints. However, in order to mitigate this limitation, the articles are in continual correspondence with my supervisors who provide valuable feedback to improve their quality, as well as allows me to incorporate other, alternative understandings of the empirical material and my initial analyses. The initial feedback sessions are complemented with internal higher seminars that include discussants from Örebro University's Centre of Empirical Research on Organisational Control (CEROC) and external international conferences where the papers (at various stages) are peer-reviewed and open to audience comments. Finally, the peer-review process adds another layer to mitigate this perceived limitation (see Table 5 *'Research outcomes to date'* in Section 3.5 for more information).

3.3 Preliminary paper outlines

The papers in this compilation thesis each connect to the overarching research aim to better understand what management control for sustainability is. While Paper 1 connects to this question by deductively reviewing the literature and proposing a broad framework for sustainability control to guide future empirical research, the compilation papers each relate to it in their own distinct way. Paper 2 offers and understanding of the broad type and nature of control necessary for the implementation of sustainable systems and Paper 3 inductively theorises the SCS in SMEs from empirical evidence. Together, these papers are proposed as offering incite to the aim of this thesis by building understanding of the controls necessary for improved sustainability performance. Meanwhile, Papers 4 and 5 connect the research aim by looking at how accountability for sustainability manifests itself internally within the organisation in terms of structure and metrics. These papers usefully tease out examples of control in terms of their strategic, administrative, socio-ideological, compensatory and performance-related dimensions, thus contributing to the research aim.

Table 2 provides a general overview and possible publication channels. The choice of target journals below aims to marry the specific research aims in each paper with the publication outlets' aims and scope. Consequently, journals such as the *Journal of Management Control, Accounting, Auditing and Accountability, and Management Accounting Research* are planned as target channels. This is also because such journals appear receptive to publications in the sustainability MAC stream and the exploration of accounting as a social practice. Additionally, Section 3.5 provides a comprehensive overview of the research outcomes to date within the accounting realm since the start of this PhD in 2016. This includes additional papers that supplement the overall PhD research project and my future academic career. Some of these have already been referenced in Chapter 2. The remainder of this section follows with detailed outlines of each compilation paper to be included in the thesis.

Table 2. General overview of compilation papers

Paper	*Author(s)*	*Title*	*(Potential) Publication channel*	*Status*
1	Johnstone, L.	Theorising and conceptualising the sustainability control system for effective sustainability management	Journal of Management Control	Published
2	Johnstone, L.	Understanding Sustainability Control in SMEs through the implementation of ISO 14001	Accounting, Auditing & Accountability Journal	
3	Johnstone, L.	Theorising the SCS in ISO 14001-certified SMEs		
4	Johnstone, L. & Frostenson, M.	Constructing accountability for sustainability within a decentralised organisation		
5	Johnstone, L.	Corporate and individual accountability through reward and compensation mechanisms for sustainability management control		

3.3.1 Paper 1

Title	*Theorising and conceptualising the sustainability control system for effective sustainability management.*
RQ.	*How can the development process of SCS be understood by combining the dual role of control based on system design and use?*
Keywords	*Boundary spanners; enabling formalisation; management accounting and control; social control; sustainability control systems; sustainability*
Paper type	*Conceptual*
Status	*Published*

Theoretical and conceptual perspectives and understandings of SCS are currently in development (see Bebbington & Thomson 2013). As such, much remains to be known about the emergence and use of SCS within organisations from a theoretical stance (Searcy 2012; Guenther et al. 2016). SCS not only assist strategy but also influence the practices of organisational actors (Gond et al. 2012). Thus, they are instrumental to daily operations for improved sustainability performance. Nevertheless, a clear definition of SCS is difficult to find (Lueg & Radlach 2016). This may due to the fragmentation in theoretical understandings of SCS by academics (Guenther et al. 2016) and/or because of the inherently contextual nature of SCS (e.g. Riccaboni & Leone 2010; Qian et al. 2011; Thomson et al. 2014). Consequently, much remains to be known about constructions of SCS from theoretical and conceptual positions. This will help inform future studies into the design and use of SCS.

Extant research into SCS tends to focus on design principles (e.g. Arjaliès & Mundy 2013; Riccaboni & Leone 2010; Rodrigue et al. 2013 Journeault et al. 2016) and cybernetic controls (Crutzen et al. 2017). However, an emerging stream of scholars have indicated the importance of socio-ideological control for better sustainability performance (e.g. Sundin & Brown 2017; Won Kim & Matsumura 2017; Johnstone 2018). To this end, emphasis on how SCS are received from the perspective of the employees arguably merits more research attention (Ghosh et al. 2019). This regards moving beyond functionalist assumptions of management control as solely a hierarchical phenomenon, as well as contributes to the literature on accounting as a social practice. Consequently, Paper 1 looks at constructing the SCS based on a broader understanding of control, rather than detailing specific configurations or control interactions. This has the intended aim of contributing to conceptualising and theorising the SCS for better sustaina-

bility performance over time and space. It also provides incite into the overarching research aim to better understand what management control for sustainability is.

Through a systematic literature review based loosely on Adler and Borys' (1996) theoretical framework of enabling and coercive bureaucracy as an analytical tool, it positions sustainability control as a multidimensional, defining the SCS as:

> *SCS are the dynamic constellation of management accounting tools that connect organisational strategy with operations in a given context by providing information and direction, as well as monitoring and motivating employees to continually develop sustainable practices and procedures for future improved sustainability performance (Johnstone 2019: 34).*

Here, the orientation of control is not only top-down (i.e. via formalised system design), but also bottom-up (i.e. through system use via operators as experts). This, consequently, contributes to the literature on accounting as a social practice by suggesting that local actors have the potential to affect the (re)design process of the SCS from the operational level. Yet, it adds an additional proposition that individual operators are not only affected by organisational sustainability values and beliefs systems, as assumed in extant MCS frameworks (e.g. Simons' LOC) and studies on accounting as a social practice (e.g. Burns & Scapens 2000; Ahrens & Chapman 2007), but also individual ones, borne from the external context. Thus, the paper elaborates on the social elements of control by emphasising how employee knowledge is used and reproduced through the SCS. This is manifested in the production of a SCS framework that overviews the relationship between what has been termed 'control over' (i.e. formalised system design) and 'control in situ' (i.e. its reception and use at the operational level by the user) to inform future research in the sustainability MAC field.

Overall, this paper is built on the premise that much remains to be known about SCS from conceptual and theoretical stances. It concludes by suggesting that SCS theorisations require broader conceptualisations and analytical frames to fully capture the development process of sustainable systems in a particular context. This means that conceptual models require the inclusion of extra-organisational dimensions and the recognition that SCS users not only have the ability to affect system (re)design, but also are necessary for this. Thus, it suggests that typical MCS are limited in their explanation of

sustainability phenomena and socio-ideological controls that treat employees as a homogenous group of actors to be controlled via system design. Particularly, the paper presents individual competences as essential for improved sustainability over organisational and generational boundaries. Here, the paper marries the critical approach which recognises governance, accountability and responsibility structures in the design of SCS, in addition to the traditional managerialist assumptions embedded into MCS frameworks. These conclusions are manifested in the construction of a model – later known as the 'framework of sustainability control' (see Paper 2) – which captures the broad elements of management control for sustainability. Here, the *'management'* refers to the management of processes, not only of people.

3.3.2 Paper 2

Tentative Title	*Understanding Sustainability Control in SMEs through the implementation of ISO 14001*
RQ.	*How is sustainability control characterised in SMEs that have implemented ISO 14001?*
Keywords	*environmental engagement; environmental management system; EMS; ISO 14001; SMEs; sustainability control*
Paper type	*Empirical*
Status	*Work in progress – for review at this half-way seminar*

Much sustainability MAC literature focuses on large firms with established SCS in place or fails to differentiate between large and small firms in its samples (e.g. Henri & Journeault 2010; Riccaboni & Leone 2010; Pondeville et al. 2013). Less is known, however, about sustainability control in different organisational contexts, which could contribute to developing theoretical understandings of the SCS as an academic construction. As the biggest sector of society, as well as the biggest collective polluters (Kearins et al. 2010), controlling activities for sustainable performance in SMEs is also considered important (Nandan, 2010; Johnstone, 2019c). Given their unique characteristics in terms of size, structure and resources, on the one hand, control in SMEs is considered to be characteristically informal (Moore & Spence 2006; Scapens 2006). On the other hand, there is the perspective that SMEs often implement formal systems, mimicking their larger customers (Nawrocka 2008). Resultantly, it remains unclear whether SMEs adopt ad hoc approaches to environmental management (Moore &

Spence 2006), or alternatively adopt more formal approaches (see Granly & Welo 2014).

Given the above empirical and theoretical gaps, Paper 2 looks into the broad type and nature of control in SMEs that have implemented ISO 14001. Rather than focusing on the control typologies and their interaction effects, this study focuses on the broad characteristics of sustainability control which also contributes to the overarching thesis aim. To this end, ISO 14001 is presented as a useful empirical context to explore the type and nature of sustainability control. As an environmental management system (EMS), ISO 14001 has clauses that require firms to both develop formal processes and procedures (i.e. technical rules and routines), *as well as* improve leadership and employee competence (i.e. social processes). If these conditions are not met, the firm does not receive accreditation.

Framed loosely under 'the framework of sustainability control' presented in Paper 1 as an analytical tool, this paper adopts a qualitative cross-case approach of 18 SMEs and seven ISO 14001 auditors operating in Northern Europe. Particularly, knowing the "the opinion of managers and practitioners that apply the EMS in specific contexts" is considered important for more informed theoretical perspectives (Mazzi et al. 2016, 882). Resultantly, it finds that both the formalised control instruments designed for ISO 14001 in SMEs and the operational use of these controls by employees are (generally) characteristically formal, based on tight control and coercive measures. This stands in contrast to the latest version of ISO 14001 which is moving towards enabling environmental management based on employee involvement at the operational level in daily tasks. Nevertheless, employee engagement in environmental management is also partially achieved through informal control instruments which engage employees through their passionate interests and intrinsic motivations, even if these are downplayed in this study. To this end, the development process of SCS is primarily achieved through the redefinition of performance metrics on an annual basis (i.e. a top-down 'coercive' approach to system design based on formal control), rather than involving individual operators on the shop-floor (i.e. an 'enabling' approach based on flexibility at the operational level). This suggests that although control in smaller firms is considered characteristically informal (Halme & Korpela, 2014), the implementation of EMS such as ISO 14001 in SMEs tends to result in the formalisation of system design and work processes as Nawrocka (2008) suggests.

The paper yields various contributions as follow. Not only does the paper contribute to a better understanding of the broad type and nature of

control in SMEs through ISO 14001 implementation, it also proposes the interplay of coercive and enabling controls for effective environmental management at the operational level. Of particular interest is the use of extrinsic and intrinsic measures to engage general employees in environmental initiatives; examples of which are somewhat lacking in extant sustainability MAC studies (see Crutzen et al. 2017). Furthermore, the study suggests that in contrast to recent developments in ISO 14001, which emphasise more flexibility in the approach adopted by organisations to meet certification, the SMEs (wrongly) perceive that in order to pass the external audit process, the formalisation of work processes and practices is necessary.

For practitioners, the study highlights that owner-managers of SMEs should proactively involve employees in the development process of SCS to not only meet ISO 14001 accreditation, but to improve internal operating efficiencies and performance outcomes. This is especially evident considering that ISO 14001 is moving towards more flexible forms of control, and standardised control systems are arguably viewed as limited in response to sustainability issues.

3.3.3 Paper 3

Tentative Title	*Theorising the SCS in ISO 14001-certified organisations*
RQ.	*How are SCS characterised in SMEs with ISO 14001?*
Keywords	*TO ADD*
Paper type	*Empirical*
Status	*Skeletal outline of the manuscript has been prepared*

TO COMPLETE

3.3.4 Paper 4

Tentative Title	*Constructing accountability for sustainability within a decentralised organisation*
RQ.	*How is accountability for sustainability is constructed in a decentralised organisation?*
Keywords	*Accountability; corporate governance structures; decentralised organisation; social and environmental accounting; sustainability control*
Paper type	*Empirical*
Status	*Work in progress – for review at this half-way seminar*

Accountability is a concept that is increasingly popular in SEA research. Nevertheless, it is rarely considered from an internal perspective, with most studies focusing on external accountability in terms of reporting and disclosure (Brown & Dillard, 2013) that favours conventional accounting channels in terms of calculative accounts (see Kamuf 2007; Dillard & Vinnari 2019).

More research is needed on the operationalisation of accountability, and more specifically in terms of how systems for accountability are designed and implemented within the firm (Joannides 2012). An understanding of internal accountability mechanisms can contribute to a broader understanding of what management control for sustainability is. Frequently, accountability for sustainability is within organisations is seen as a managerial, top-down construct in terms of formal corporate governance structures (see Saliterer & Korac 2013; Glass et al. 2015). This implicitly asserts corporate accounting systems as *the* means to provide information and guide employee responsibilities in terms of strategic action (see e.g. Gond et al. 2012; Arjaliès & Mundy, 2013). Not only does this present accountability as an imposed constraint on opportunistic behaviour by individual employees (i.e. hierarchical accounts), thus downplaying the socialising processes of accountability (see Roberts, 1991, 2001), it also fails to address how accountability for sustainability is formed in different organisational forms (Brennan and Solomon 2008).

Rather than looking at accountability in terms of results at the organisation-environmental interface, this paper explores *how accountability for sustainability is constructed in a decentralised organisation*. Through a case-study of a large industrial group, it looks into both the formalised governance structures that guide corporate and individual accountability for sustainable actions within the firm, as well as the informal routines and exchanges where reasons for action are exchanged.

Using accountability as a theoretical tool, the paper finds that hierarchical structures are partly constructed and aspired for by engaged individuals within the organisation; primarily those designated responsibility for constructing sustainable accounts at middle-managerial levels. Consequently, the paper emphasises the interrelationship between hierarchical and socialising forms of accountability within a decentralised organisation. It suggests that sustainable actions are sometimes achieved through individual effort and commitment, rather than formalised accounting systems. To this end, accountability for sustainability it is seen as a negotiated result of a social process within the corporate structure where driven and convinced

individuals strive for the recognition of sustainability issues and hierarchical order when defining key responsibilities for sustainable action further down the organisational hierarchy. Particularly, the paper emphasises the role of corporate structure for the implementation of sustainable initiatives. As evidenced, management control for sustainability in the case organisation was established through the middle. This has implications for the prevalence of SCS studies that focus on the strategic level of top managers, implying them as the sustainability experts through system design (e.g. Arjaliès & Mundy 2013; Rodrigue et al. 2013).

The paper contributes to the accountability research in various ways. It suggests that the interrelationship between hierarchical and socialising accountability forms are necessary within the decentralised organisation to guide sustainable action. Furthermore, it finds that not only do hierarchical accounts serve to individualise employees through formal structure, but that socialising forms have individualising effects. This is evident through the case which shows that corporate accounts for sustainability are contingent on the individual efforts of employees who are not only delegated responsibility for constructing accounts and meeting sustainability targets through formal corporate governance structures, but also engaged through their personal social and environmental values. This further emphasises the interrelationship between structural and personal discourses (see Sinclair 1995) in the construction of accountability for sustainability internally within the firm. For practitioners, this is useful as it implies that sustainability performance is primarily achieved through individual efforts and commitment, rather than formalised policies and procedures.

3.3.5 Paper 5

Tentative Title	*Corporate and individual accountability through reward and compensation mechanisms for sustainability management control*
RQ.	*How are performance measures used as accountability mechanisms for sustainability control?*
Keywords	*TO ADD*
Paper type	*Empirical*
Progress	*Skeletal outline of the manuscript has been prepared*

TO COMPLETE

3.5 Summary and timeline

As an overview, the proposed papers for this compilation thesis aim to advance understandings of management control for sustainability, which can yield contributions to theorising the SCS. While Papers 1 and 2 developed understandings at the general level in terms of the broad types and nature of control, in addition to its orientation and scope, Paper 3 looks further into the specific control typologies of the SCS. Meanwhile, Papers 4 and 5 give some detailed examples of how some of these typologies are used in practice, namely control in relation to structural and personal accountability (Paper 4), and control in relation to performance measures and outputs (Paper 5). Together, the five compilation papers develop understandings of how management control for sustainability is manifested in practice. This leads to some preliminary conclusions that are detailed in Chapter 5. To conclude this chapter, Table 3 provides the projected timeline for the remaining two years of this PhD project and Table 4 illustrates the research outcomes to date. These outcomes include additional articles and conference presentations that are not included in the final thesis but supplement the research project into management control for sustainability.

Table 3. Projected timeline for the remaining two years of PhD

Year	*Details*	*Links to research papers*	*Comments*
3	• Conduct the remainder of qualitative data-gathering and analysis • Finalise and submit Papers 2 & 4 • Begin the production of Papers 3 & 5	Papers 2, 3, 4 & 5	In progress.
4	• Finalise and submit Papers 3 & 5 • Finalise Kappa	Papers 3 & 5	To have final seminar and public defence.

Table 4. Research outcomes to date[13]

Product	*Status*
Johnstone, L. (2017). "Accounting for the environment: a gap between theory and academic practice?" Paper presented at the *Management Control Association Conference – Researching Management Accounting and Control: Reflections on its Impact and Implications for the Future*, 8-9 June, University of Groningen, the Netherlands.	Presented
Attendance of the *CSEAR 29th International Congress on Social and Environmental Accounting Research*, St. Andrews, Scotland, 29–31 August, 2017. Doctoral colloquium attended and the following papers presented & discussed: • Johnstone, L. (2017). "Boundary spanning actors as coercive-enabling (social) controls in environmental management control systems". • Johnstone, L. (2017). "Transient knowledge nets as instances of multilevel governance for sustainability".	Presented
Johnstone, L. (2017). "Boundary spanners as enabling (social) controls and formalisation in environmental management accounting". Paper chosen for discussion at the *Mistra Centre for Sustainable Markets, Sustainability Research Workshop for Young Scholars*, 5 September, 2017; hosted by Professor Mette Morsing of SSE and Professor Andreas Rasche of Copenhagen University.	Attended & Presented
Johnstone, L. (2017). "Enabling social control in environmental management accounting." Paper presented at the Management Accounting Research Group conference in association with the Management Control Association, Aston Business School, Birmingham, UK, November 23-24, 2017.	Presented
Johnstone, L. (2018). "To be controlled, or not to be controlled? The case of integrating environmental sustainability within an international logistics company." Paper presented at the 7th Annual Conference for Management Accounting Research Doctoral Colloquium, Otto Beisheim School of Management, Vallender, Germany, March 7-8, 2018.	Presented
Attendance at the Nordic Accounting Conference 2018 & Doctoral Colloquium, Copenhagen Business School, 15-16 November, 2018. The following papers presented:	Presented & Acted as Discussant

[13] These research outcomes focus on publications within the accounting field. Other publications have been made within the area of sustainability, marketing and entrepreneurship.

• Johnstone, L. (2018). "The nature of control in the development process of ISO 14001-certified SMEs' sustainable control systems". • Johnstone. L. (2018). "Environmental performance and SMEs via the implementation of ISO 14001". • Johnstone, L. (2018). "Opening up the black-box: Environmental management control systems in SMEs with ISO 14001".	
Johnstone, L. (in review). "Developing conceptualisations and theorisations of environmental management control systems from within the sustainability field".	Submitted April 2018
Johnstone, L. (2018). "Theorising & modelling social controls in environmental management accounting". *Social & Environmental Accountability Journal*, 38(1), 30-48. DOI: 10.1080/0969160X.2017.1422778 Special issue – Environmental Management Accounting: The missing link to sustainability? Editors Delphine Gibassier & Simon Alcouffe	Published
Johnstone, L. (2018). "Environmental management decisions in CSR-based accounting research". *Corporate Social Responsibility & Environmental Management*, pp. 1-11. DOI: 10.1002/csr.1632	Published
Johnstone, L. (2019). "Temporal strategic knowledge-sharing nets as instances of sustainability governance in practice". *Social & Environmental Accountability Journal*. DOI: 10.1080/0969160X.2019.1568275 Special issue on Sustainability Governance, editor Leonardo Rinaldi	Published
Johnstone, L. (2019). "Theorising and conceptualising the sustainability control system for effective sustainability management". *Journal of Management Control 30*(1), 25-64. DOI :10.1007/s00187-019-00277-w Special issue on Management Accounting and Control for Sustainability and Strategic Decision Making, editors Elaine Harris, Christian Herzig, Ivo de Loo & Melina Manochin	Published
Johnstone, L. (2019). "A systematic analysis of environmental management systems in SMEs: Possible research directions from a management accounting and control stance". Journal of Cleaner Production. 10.1016/j.jclepro.2019.118802	Published
Johnstone, L. (2019). "The construction of environmental performance in ISO 14001-certified SMEs"	Submitted
Johnstone, L. (2019) "Management control for sustainability in ISO 14001-certified SMEs" Paper presented at the Nordic Academy of Management, Vaasa, Finland, 22–24 August, 2019.	Presented

Attendance of the *CSEAR 31st International Congress on Social and Environmental Accounting Research*, St. Andrews, Scotland, 26–29 August, 2019. Doctoral colloquium attended and the following papers presented & discussed: • Johnstone, L. (2019) "Organisational structures and narratives as accountability mechanisms for sustainability management control"	Presented

4. PAPERS FOR REVIEW

This chapter provides the abstracts for the papers for review at the half-way seminar. These papers are either available online or attached as supplementary material. The papers are at various stages of development and – for those applicable – feedback is appreciated to approve their publishing potential.

4.1 Paper 1 – Johnstone, L. (2019) Theorising and conceptualising the sustainability control system for effective sustainability management. *Journal of Management Control* 30(1), 25-64.

Published in the Special issue on Management Accounting and Control for Sustainability and Strategic Decision Making
https://doi.org/10.1007/s00187-019-00277-w (Available Open Access)

Abstract: This conceptual paper explores the iterative relationship between system design and use for the development process of sustainability control systems (SCS). Building upon Adler and Borys' seminal framework (Adm Sci Q 41(4):61–89, 1996) as an analytical tool, it suggests that SCS are characteristically distinct, and more research into the dual role of control (i.e. *control over* based on system design and *control in situ* based on system use by the individual user) is necessary for future theorisations of the SCS. It poses that for sustainable futures that extend beyond organisational boundaries, more attention is required on individual general employees in management accounting and control frameworks as instrumental for performance outcomes. To this end, individual values, borne from the extra-organisational context, are considered important alongside organisational ones for the development of SCS. Thus, the paper bridges perspectives on system characteristics, the individual and performance outcomes by offering a theoretical framework for future research. It also extends studies on accounting as a social practice by emphasising the extra-organisational factors that influence internal accounting systems. Finally, it expounds upon the notion of social control as an individual-level phenomenon, necessary for sustainability. This expanded theoretical perspective also has implications for practice by encouraging managers to think strategically about how systems are received from the perspective of the user. This can encourage more commitment to the sustainability cause from the outset, as well as over spatial and temporal boundaries.

Keywords: Boundary spanners; enabling formalisation; management accounting and control; social control; sustainability control systems; sustainability

4.2 Paper 2 – Johnstone, L. Understanding Sustainability Control in SMEs through the implementation of ISO 14001

Abstract: Controlling activities for sustainable performance is important for small to medium sized enterprises (SMEs). This is because SMEs constitute the sector which collectively pollutes the most in the European context. Nevertheless, sustainability management control research in SMEs remains wanting. Particularly, much remains to be known about the type and nature of sustainability control in SMEs. Through a qualitative cross-case approach of 18 SMEs and seven auditors operating in Northern Europe, this paper explores how sustainability control is characterised in SMEs that have implemented ISO 14001. It finds that the control instruments designed by SMEs to meet ISO 14001 are characteristically formal and that the implementation of ISO 14001 results in the formalisation of work processes and practices at the operational level in SMEs. Nevertheless, engaging employees through informal means (e.g. based on their passionate interests about the environment and intrinsic rewards) are also considered increasingly important. The findings contribute by offering examples of how formalised control measures are used in SMEs to improve environmental management. Furthermore, it provides examples of reward and compensation mechanisms as management controls in SMEs. For practitioners, the findings of this study suggest that SME owner-managers develop the internal capabilities of general operators for better environmental performance. This can be achieved through the formal design of coercive controls as well as by enabling individual employees to develop their own sustainability competences.

Keywords: environmental engagement; environmental management system; EMS; ISO 14001; SMEs; sustainability control system

4.3 Paper 4 – Johnstone, L. & Frostenson, M. Constructing accountability for sustainability within a decentralised organisation

Abstract: When related to the internal context of the firm, accountability for sustainability is frequently seen as a managerial top-down construct. In decentralised organisations, however, it is conditioned by organisational structures. Departing from this observation, the article explores how accountability for sustainability is constructed internally within a decentralised organisation. Through a case study approach, it finds that both formalised structures and personal engagement are necessary for the construction of sustainable accounts. Particularly, although hierarchical structures for accountability are aspired for by engaged individuals, the construction of accountability appears to be mainly the result of a negotiated social process in the decentralised organisation. Here, driven and convinced individuals strive for recognition of sustainability issues within their respective subsidiary companies in the organisation of their sustainability control work. Specifically, it finds that not only do hierarchical accounts serve to individualise employees through formal structure, but also that socialising forms of accountability contribute to shaping hierarchical accountability for sustainability further down the company levels. To this end, the paper extends previous accountability research by presenting the individualising effects of socialising forms of accountability whereby individuals strive for improved sustainability in the construction of systems within the decentralised organisation. Particularly, corporate accounts for sustainability are contingent on the individual efforts of employees who are not only delegated responsibility for constructing accounts and meeting sustainability targets through formal corporate governance structures, but also engaged through their personal social and environmental values.

Keywords: Accountability; corporate governance structures; decentralised organisation; social and environmental accounting; sustainability control

5. PRELIMINARY CONCLUSIONS & CONTRIBUTIONS

Together, the PhD project aims to explore what management control for sustainability is. Fundamentally, this is not just a descriptive issue, but through the empirical findings, the PhD project is able to provide some explanations as to why SCS develop the way they do within firms. Resultantly, the outcome of this thesis is not only in terms of academic contributions, but also practical and societal ones. These, however, will be drawn out at the end of this chapter. Before that, it is necessary to offer some preliminary conclusions based on the overarching research aim. These will be elaborated on as the PhD project progresses in the following two years, therefore they should be seen as indicators of tentative findings which may change over as the other empirical papers are analysed and developed.

Management control for sustainability appears to entail some broad – and overlapping – thematic categories regarding the type, nature, level, orientation and scope of control:

- The type of control necessary for sustainability appears to be becoming increasingly informal over time. Particularly, socio-ideological control in terms of communication, dialogue and awareness of social and environmental matters is considered central to improved sustainability performance.
- The nature of sustainability control is moving from tight control based on coercive systems, to 'looser' control based on an enabling approach. This is characterised by decentralised power, employee autonomy, interpersonal trust, innovation and responsiveness, among others.
- The levels of sustainability control are becoming more nuanced. Typically, sustainability control has been presented at the level of top managers through the use of extant MCS frameworks to frame or explain findings. However, the findings of this research project reveal that often middle-managerial tiers or key individuals are responsible for the design and implementation of sustainable performance measures. Moreover, sustainability control is increasingly becoming an individual-level responsibility on the operational floor.

- Relatedly, the orientation of sustainability control is diversifying. While it was typically considered an intra-organisational, hierarchical phenomenon, it is now becoming multidirectional and not confined the analytical level of the firm. First, the opinions and experiences of individual employees are becoming increasingly important. This means that the orientation is from bottom-up as well as top-down. Moreover, external values are increasingly integrated into organisational beliefs systems. This means that SCS design and use is contingent on the broader field. This also has implications of the SCS being conceptualised as an organisational phenomenon. Finally, these external values are not only the product of institutional concerns but also manifested through the individual employee who brings his/her sustainability values and opinions into the workplace.
- Finally, the scope of sustainability control suggests that it remains decoupled from existing MCS in practice. Particularly, there remains an emphasis on the organisational and cognitive integration of sustainability, but technical aspects are lacking. Moreover, discrete departments or individual responsibility for sustainability suggest that is currently is not embodied as something normative by the organisation. This suggests that there is still some way to go for firms to treat sustainability as a norm, rather than something special or an 'extra'.

5.2 What management control for sustainability is (not)

Based on these tentative findings, it is possible to offer a preliminary 'answer' to the overarching aim guiding this research. The following paragraphs present management control for sustainability in a negative ontological grounding by presenting what it is not.

Management control for sustainability is not based on coercive design characteristics. It is not based on unilateral control over employees. Hierarchy, compliance and constraint result in low trust and a lack of innovation. Management control for sustainability regards the management of processes by people, in addition to the management of people by formalised system design. Management control for sustainability requires employee autonomy and involvement. This extends the extant assumption in MCS frameworks of functionalist control, by posting that a social constructivist

approach is also important for conceptualising the SCS as an academic construct; i.e. improved sustainability (performance) as the responsibility of all.

Management control for sustainability is not confined to the firm. It is not merely an intra-organisational phenomenon. Management control for sustainability regards incorporating external concerns in the design and use of SCS. Management here regards the management of sustainable process that improve the social and environmental conditions of present and future generations, in addition to people for these processes at the intra-organisational level. It is based on accountability in terms of relationships *and* measures. Thus, management control for sustainability in academia regards bridging managerial and critical positions for a more accurate theorisation.

Management control for sustainability does not focus on *either* design *or* use. It requires scholars to address the interrelationship between design and use as instrumental to the development process of SCS. This is because focusing either on one analytical aspect or the other gives an incomplete picture of sustainability control in practice. Sustainability control is subject to more rapid paces of development than other dimensions that the organisation needs to control for. This is because of the rate of change in legislative, regulative and societal pressures in complex multilevel sustainability governance structures. Particularly, rolling standards such as ISO 14001 necessitate continual development. As such, it becomes key for academics to confront these in their theoretical representations and conceptualisations.

ADD IN MORE WHEN OTHER PAPERS COMPLETE.

5.3 Research contributions

The necessity of this thesis is primarily driven by the need to know more about what management control for sustainability is. This has both academic and practical implications which can be seen as contributions in their own right. Not only is this project positioned in the sustainability MAC literature stream, which contributes with knowledge about the SCS as a domain theory, it also contributes by producing knowledge which is useful for practitioners in the design and use of sustainability initiatives. As Parker (2005, 850) comments: "Impact for policy and practice calls for active engagement in the process of design and experimentation with SEA systems, structures and processes". Resultantly, it contributes to sustainable societies as an ultimate outcome. To this end, the contributions of this research are

not only considered in relation to extant literature, but also the wider impact that they have on society and practice. In this sense, the 'contributions' also relate to the impact and implications of this research.

5.3.1 General contributions

At the general level, sustainability is becoming increasingly important for practitioners who are put under increasing regulative and normative pressures. Organisations are required to move beyond legitimacy perspectives towards making substantive internal improvements in their sustainable strategies and systems. As academics, we have a duty to society that extends beyond professional and institutional lines. This is especially true in the developed world in times of growing multilevel governance structures where the responsibility for sustainable futures lies with not only governments, firms or research institutions as entities, but also the individuals within them as global citizens. Consequently, a better understanding of the SCS put in place by firms to meet external challenges in different organisational contexts can contribute to the future development of internal organisational systems and sustainability performance outcomes. This yields benefits not only for present generations of stakeholders, but also those to come.

By recognising the important role organisations play in ensuring sustainable futures, this thesis contributes to practice by outlining some of the tools which can be adopted by different types of organisational forms for effective and efficient sustainability management. More specifically, it contributes by highlighting the need to invest in the capabilities of individual employees for improved performance outcomes. This involves embracing the individual's ideas as valuable in the development process of SCS, thus responding to a broader multilevel governance perspective where individuals as global citizens must also take responsibility for sustainable futures (see Johnstone, 2019a). Particularly, the various studies in this thesis point to the need for practitioners to support employee autonomy in daily work tasks. This regards both listening and valuing employee opinion in the (re)design of sustainable work practices and systems, creating a workforce that feels empowered and competent in their tasks and roles.

From an academic viewpoint, the general focus on the values and perspectives of individual employees (beyond managerial tiers) contributes to the accounting as a social practice literature. It also contributes by emphasising the interplay between managerial and critical perspectives for improved sustainability performance beyond the organisation's borders. Particularly, the thesis recognises that not only the design of SCS affects their

use, but also extra-organisational sustainability pressures, experiences and values can impact the future development process of internal SCS. While the extra-organisational impact on SCS design is not new (e.g. Pondeville et al. 2013), the impact on internal change from the bottom-up by individual employees has not explicitly been applied in MAC studies which tend to focus on managers and/or groups of actors within the firm in terms of accounting as a social practice (e.g. Burns & Scapens 2000; Ahrens & Chapman 2007). As such, the role of general operators has been neglected. However, this research emphasises the value of the individual employee for the development process of SCS as a key theoretical contribution which moves beyond symbolic, value and clan-based types of cultural controls (see Malmi & Brown [2008] for an overview). Particularly, extant research on socio-ideological control typically asserts employees as groups of actors controlled by system design. Therefore, this research contributes by putting forward another level of socio-ideological control for sustainability, namely social control (see Johnstone, 2018a), as an individual-level phenomenon. Here, the orientation for individual employee sustainable developments in daily tasks may also come from the external context, in addition to the formalised SCS and organisational value systems.

5.3.2 Specific contributions

Beyond the broad contributions to society, professionals and academia, there are multiple specific contributions yielded from each compilation paper that relate to discussions in the literature. These specific contributions subsequently regard establishing what management control for sustainability is and thus contribute to theorising the SCS. The following paragraphs provide a brief summary of the tentative contributions from each compilation paper, followed by a summary table which serves as an overview (Table 5).

Paper 1 contributes by presenting the framework of sustainability control as a first step to framing sustainability MAC studies based on the perspectives of employees, beyond managerial tiers, as instrumental to the development process of SCS. This, consequently, contributes to knowledge in the area of accounting as a social practice as previously explicated in the general contributions. It also contributes by offering a framework that bridges managerial and critical positions in the sense that it recognises that external factors also influence SCS development, and management control for sustain-

ability is not solely a firm-level phenomenon. For practitioners, it contributes by encouraging managers to think about how the design of internal MAC systems affects users in their daily tasks.

Paper 2 contributes by applying the theoretical framework of sustainability control established in Paper 1 for the empirical context of ISO 14001 implementation in SMEs. It contributes empirically by using this framework to develop understandings of the *broad type and nature of control* in SMEs for the development process of SCS. Furthermore, it contributes by offering an empirical example of the interaction between formal and informal controls as necessary complements for this. Finally, it contributes by offering an example of the interplay between extrinsic and intrinsic rewards as reward and compensation mechanisms for improved sustainability performance. Such empirical contributions also have theoretical and practical implications. Specifically, it contributes by presenting the SCS as characteristically distinct MCS frameworks which require broader analytical perspectives that combine system design and use. For practitioners, it contributes by suggesting the need to engage employees through both formal and informal means for better environmental management. It also contributes by providing ISO 14001 auditors insight into how the standard is received in practice.

Paper 3 contributes by outlining thematic categories of control inductively from empirical evidence, rather than relying on extant MCS frameworks to explain sustainability phenomena. The specific contributions of this paper, however, currently remain unclear at this stage as the paper is a work-in-progress.

Paper 4 contributes by offering empirical evidence of how accountability for sustainability is constructed internally within a decentralised organisation. Particularly, the paper contributes theoretically to the limited accountability research from an internal perspective, finding that both formalised structures and personal engagement are necessary for the construction of sustainable accounts. It contributes to previous accountability research by presenting accountability as resting on the interaction of both hierarchical and socialising forms (see Roberts 1991), as well as the product of both structural and personal discourses (see Sinclair 1995). Further still, it contributes by offering an example of the individualising effects of socialising forms of accountability, thus extending previous assumptions in accountability research that only hierarchy serves to individualise (Roberts 1991). Finally, it contributes to practitioner understanding by asserting that better sustainability performance is primarily achieved through individual efforts

and commitment, rather than formalised policies and procedures. Therefore, more attention should be given to listening to the views and values of individual operations for the development process of sustainable processes and systems.

Finally, Paper 5 builds upon sustainability control as founded upon operational accountability in terms of performance measures and outcomes. This contributes by offering a further example of internal accountability mechanisms for sustainability control. Nevertheless, the specific contributions of this paper, however, currently remain unclear at this stage given that this is a work-in-progress.

5.3.2.1 Overview of academic contributions

The contributions of each paper are summarised in Table 5. Essentially, the main theoretical contributions to the sustainability stream include *a)* expounding upon the types and nature of control by *b)* offering a theoretical framework of sustainability control to guide future research. This contributes to building understandings of the SCS as a domain theory (see Schaltegger 2011; Guenther et al. 2016) with broader analytical levels than typically asserted via the adoption of MCS frameworks to frame or explain sustainability phenomena. To this end, it further contributes by *c)* bridging managerial and critical viewpoints in the conceptualisation of SCS as theoretical tools.

Beyond that, the thesis offers some broader theoretical contributions to the accounting as a social practice and accountability literatures. Regarding the former, it contributes by *d)* presenting individual values in additional to organisational ones as instrumental for the development process of SCS. This extends previous assertions that only organisational values guide behaviour. Regarding the latter, it contributes *e)* by offering examples of internal accountability mechanisms as an understudied empirical context as well as by *f)* highlighting the individualising aspects of socialising accountability for sustainability. This, consequently, contributes by indicating another level of socio-ideological control based on the individual level of analysis.

Table 5. Overview of specific research questions in compilation papers & contributions to research, practice and society

Paper	*Research question*	*Contributions*
Paper 1	***How can the development process of SCS be understood by combining the dual role of control based on system design and use?***	Academically – defines the SCS; emphasises the need for studies which combine perspectives on system design and use; highlights accounting as a social practice based on values and beliefs not only borne from the formal design of SCS; builds upon the notion of social control as an individual-level phenomenon that merits more research attention; and, bridges managerial and critical positions.
		Professionally – encourages managers to think about how the design of internal MAC systems affects users in their daily tasks, as well as the potential of utlising individual employee experiences and competences to produce better performance outcomes.
		Societally – proposes that a better understanding of the development process of SCS by building upon individual employee sustainability competences for improved performance outcomes leads to more sustainable futures for all.
Paper 2	***How is sustainability control characterised in SMEs that have implemented ISO 14001?***	Academically – develops understandings on the *broad* types and nature of control for the development process of SCS in SMEs through ISO 14001 implementation; utlises the theoretical framework of sustainability control empirically; contributes to understanding the interaction between formal and informal controls in SMEs as necessary complements for the development process of SCS; offers examples of reward and compensation mechanisms for sustainability control; asserts sustainability control as not only an intra-organisational, managerial phenomenon but also the responsibility of individual employees; implies that ISO 14001 is moving from being a standard to a guideline in the sense that it is increasingly based on a flexible approach, rather than specific requirements.
		Professionally – highlights the necessity of engaging employees for environmental management through both formal and informal means to improve sustainability performance outcomes; and, provides ISO 14001 auditors with insight into how the EMS is received and implemented by SMEs in practice.
		Societally – indicates that the sustainable performance of firms through ISO 14001 implementation can be improved with consequent environmental and social implications for not only current generations, but for those to come.
Paper 3	***How are SCS characterised in ISO 14001-certified SMEs?***	Academically – develops understandings of specific control typologies inductively which help theorise the SCS from within the field.
		Professionally –
		Societally –
Paper 4	***How is accountability for sustainability constructed in a decentralised organisation?***	Academically – contributes with examples of how accountability is constructed internally within a decentralised organisation; suggests the interplay of personal and structural accountability discourses, as well as hierarchical and socialising accountability forms in a decentralised organisation; recognises that socialising forms of accountability also have individualising effects; suggests that individual sustainability values and engagement are more

		important than technical approaches to control; offers an example of the construction of sustainability control through the middle-managerial tiers, rather than the top.
		Professionally – suggests that companies need to build upon the competences of individuals in order to truly improve sustainability performance outcomes. This is because sustainability performance is primarily achieved through individual efforts and commitment, rather than formalised policies and procedures.
		Societally – presents sustainability as the responsibility of all.
Paper 5	*How are performance measures used as accountability mechanisms for sustainability control?*	Academically – offers examples of reward and compensation mechanisms for sustainability control; contributes empirically with an example of internal accountability mechanisms
		Professionally –
		Societally –

5.4 What next?

Although Section 3.5 highlights the projected plan for the remaining two years of this PhD project, this plan is very general. Resultantly, the comments yielded from this half-way seminar will be integrated into each respective paper and the overall thesis. This will be based on further discussions with my supervisors. Hopefully, from this, Paper 2 may be finalised before the end of the year with potential journal submission. Meanwhile, Paper 4 requires some more empirical work in the form of further interviews with, particularly, the sustainability coordinators within the firm. As such, it is still a work in progress. Finally, Papers 3 and 5 will be developed upon my return to work after my planned maternity leave in 2020. I hope to stay in academia, therefore concentrating on the production of the compilation articles to improve their publishing potential remains a key focus for me throughout this PhD process. This involves building my academic reputation and network of sustainability scholars in the hope of future collaborations.

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