Controlling for Sustainability Strategies: Findings from Research and Directions for the Future

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Abstract

Over the past decade the focus of sustainability researchers has broadened to explore management controls for sustainable business practice. This paper contributes to the emerging area of interest on understanding the roles management controls play by presenting a review of the literature that specifically focuses on the relationship between management controls and sustainability strategies. The paper shows that the current literature predominantly focuses on exploring controls from a management control design perspective, mostly informed through the case study based approach while concentrating primarily on large firms. Nine key themes arising out of the review of the literature are presented. The limitations of current research are subsequently addressed and avenues for further research are presented and discussed.

Keywords: Sustainability Strategy; Management Controls; Literature Review

JEL: M10; M14; M19; M40; M41; M49; G32; G34; Q56

1. Introduction

With the advent of increased public scrutiny of corporate practice beyond its financial performance, the emergence of ethical consumerism as well as a growing concern for the availability of raw materials amidst other global issues including climate change, increasingly, companies are adopting explicit strategies to deal with challenges pertaining to the society and environment at large (Journeault et al. 2016; McKinsey 2011). A McKinsey (2011) survey revealed that progressively the motivations for engaging in sustainability has moved beyond pure reputational management orientation and more towards both short-term and long-term value creation. Value is created through the adoption of responsible strategies through the efficient resource use, investments in making products with sustainable attributes as well as searching for opportunities in responsible business actions that create shared value (McKinsey 2011; Benn et al. 2014). Through these strategies, companies seek to manage the expectations of many stakeholder groups as well as accrue benefits from responsible practice. In this context, Wood (1991, p. 707) suggested further research to understand "what managerial processes apply to the development and implementation of responsive programs and policies" and, in particular to examine "the role of organizational culture in mediating the transmission of ideas, support, information and resources relevant to social responsiveness". Ackerman and Bauer (1976) opined that an institutionalised approach to social responsiveness requires designing controls that will promote social responsibility holistically within the organisations, thereby highlighting the significance attached to the design and use of control systems in ways that institutionalises socially responsible behaviour and decision making. More recently, Bebbington (2007, p.6) has pointed out "if organisations are seeking to report on their contribution to sustainable development, one may expect that there are some internal mechanisms which guide activities towards this goal." Accordingly, a recent stream of literature has started to explore how companies are translating these explicit extra-financial strategies into practice and how they manage these strategies (e.g., Lothe and Myrtveit, 2003; Epstein and Wisner, 2005; Hubbard, 2009; Bulter et al., 2011). Whilst earlier research published at the end of the 1990s and in the beginning of the 2000s remained often conceptual in nature (e.g., Azzone and Noci 1998; Epstein and Wisner 2001; Figge et al. 2002; Lothe and Myrtveit 2003) or limited to a few empirical papers providing an overview of how notable companies were managing sustainability goals (for instance, Maxwell et al. 1997; James et al. 1999), the past decade saw an influx of empirical studies with various research foci (e.g., Journeault et al. 2016; Ferreira et al., 2010; Perego and Hartmann 2009; Durden 2008). The maturing nature of management controls for extra-financial strategy as a field of study is also reflected in the multidimensional approach (i.e. the combined analysis of environmental and social goals) applied by an increasing number of studies (e.g., Hubbard 2009; Butler et al. 2011; Sundin et al. 2010).

The purpose of this article, therefore, is to review research that seeks to explore and enhance our understanding of how management controls are designed and used by firms to manage sustainability strategies. In particular, it summarises the key themes addressed and the approaches adopted and discusses the findings of previous research. In doing so, it expands on two earlier reviews of which one by Günther et al. (2016) focused on environmental aspects when reviewing the literature to conceptualise management control systems (e.g., Henri and Journeault, 2010; Journeault, 2016) whilst the other by Crutzen and Herzig (2013) examined empirical studies into management control, strategy and sustainability without taking into account other non-empirical papers.

The rest of the article is organised as follows. The next section provides the conceptual basis of strategy and management controls which we tempted to follow. Then, we discuss the themes emanating from our review of the literature. We finally discuss our findings and provide some indicative areas for further research.

2. Strategy and management controls: A conceptual basis

Our review discusses the literature that focuses on management controls for sustainability strategy. Consequently, we start by providing a brief discussion of strategy and management controls. We define strategy as "a pattern" that emerges from "a stream of decisions" (Mintzberg 1978, p. 934) providing a "long-term direction of an organisation" (Johnson et al. 2011, p. 3). Two lines of research drive scholars to studying strategy. While one focuses on the "content" of the strategy, the other perspective focuses on investigating the "processes" shaping strategy (Chenhall 2005; Rajagopalan et al. 1993). The content approach looks at the outcome of the strategy formation process that is an outcome of a deliberate decision made by managers to conform to a strategic position (Porter 1980; Chenhall 2005). In other words, content researchers tend to focus on the "content" of or "snapshots of ideal strategies, or optimal combinations of strategies for organisations facing different situations" (Chenhall 2005, p.12). Hence, content researchers view strategy formation as a deliberate outcome of a "formal and rational" choice of managers who consider the contextual factors including the organisation's external environment (outside in perspective) and internal environment or the resource based "inside-out" perspective while prioritising strategic fit and positioning. This approach gives rise to strategy or a combination of strategies aligned with the business

context for optimising performance thereby enabling competitive advantage or positioning for business continuity (Chenhall 2005).

In contrast to the content approach of studying strategy in management control context, the process approach tends to deal with the processes that shape strategies. It investigates the role of the strategy makers and identification of persons involved in such a process. Furthermore, the process approach looks at the reasons for changes in strategy and the process of strategic change and their implementation. On a similar vein, process researchers look at how a deliberate strategy can be implemented. Additionally, this approach is concerned with studying how informal processes give shape to new strategies and how new ideas may emerge within the organisational system that may lead to intentional strategies. In short, strategic process entails both strategy formulation and implementation (Chenhall 2005).

A large body of literature that has evolved since the times of Anthony (1965) has put management controls as means of ensuring business strategies are implemented efficiently and have also credited management controls for shaping and informing strategies (Kober et al. 2003). These studies view management controls as the primary means of directing employee behaviour, managing expectations as well as ensuring the pursued organisational objectives and goals are achieved. Numerous variations of the way the literature has defined management controls exist. While very narrow specifications of management controls have been promoted, for example, limiting management controls as exclusively to accounting based controls (e.g., Anthony, 1965), broader versions of the definition also exist. For instance, Merchant and Otley (2007) observe that management controls may transcend pure accounting forms of controls to include strategic controls as well. In addition, management controls take the shape and form of either formal or informal controls. Informal controls are those that are not explicit, non-written but tend to exist in the forms of shared values, beliefs and traditions (Ouchi 1979a). On the contrary, formal controls are those that are explicit, take a tangible form (e.g. written codes and policies) and composed of "purposefully designed, information-based and explicit packages of structures, routines, procedures and processes" (Crutzen et al. 2017, p. 1292). Malmi and Brown (2008) adopt a wider definition to include both formal and informal as well as accounting and non-accounting based controls that are typically used to "ensure that the behaviours and decisions of employees are consistent with the organisation's objectives and strategies" (p. 290).

In this review, we follow Malmi and Brown's definition of management controls given its broader approach, thus allowing for a much wider management controls to be captured and providing richer understanding of the state of the literature on controlling for sustainability strategy. The framework has been instrumental for other related research on management control and sustainability strategy (e.g., Gond et al. 2012) and reviews on environmental management control systems carried out by scholars such as Günther et al. (2016). There has been a growing trend within the extant management control literature on the number of controls that have been subjected to exploration, investigation or theory testing within a study irrespective of whether the focus is on content design or use. For instance, Bedford and Malmi (2015) and Bedford et al. (2016) subject a variety of management controls in empirical contexts and observe how firms are designing and using the controls by different business strategic foci. In the same vein, other management scholars including Auzair and Langfield-Smith (2005), Chung et al. (2000), as well as Nilsson (2000) have included a number of different controls as part of their studies. This follows criticisms by eminent scholars of the limitations of research that focuses solely on one form of control (Chenhall 2003). Based on this growing trend, an additional categorisation of control focus is possible such that studies employing more than one control could be classified as having a broad focus (e.g., Azzone and Noci, 1998; Epstein and Wisner, 2005; Pondeville et al., 2013) and those involving just one control as having a narrow focus (e.g., Slack et al., 2015; Neugebauer, 2016; Hansen and Schaltegger, 2016).

Tucker et al.'s (2009) conceptual distinction between how controls are used and how these are designed is one of the salient developments in the extant literature focusing on management control and strategy relationship and thus was applied to classify the sampled articles in this current review. Although a definition of control design and use is not offered, nonetheless, the conceptual differences can be easily recognised. For instance, Abernethy and Brownell (1999) conceptualise controls with regards to how it is utilised in an organisational setting. In particular, budgetary controls are studied with a focus on the interactive use of budgets thereby moderating the effect of the budget as a form of control on strategic change and firm performance. In sharp contrast, studies conceptualising control from a design perspective, for instance van der Stede (2000), explore the nature of budgetary control and seek to understand if budgetary rigidity or flexibility is more relevant for a differentiation strategy as opposed to seeking an understanding of the interactive and diagnostic uses of budgets (Simons 1995). Based on the extant literature, control design has been conceptualised in a number of ways including exploring

the different types of controls a firm relies upon (Bedford and Malmi 2015), control nature (tight/flexible) (Chenhall and Morris 1995; van der Stede 2000), control type (organic/mechanistic; formal/informal; social, cultural or cybernetic; actions/results; strategic/financial) (Ouchi 1979a; Abernethy and Stoelwinder 1995; Marginson 1999; Whitley 1999; Chung et al. 2000; Nilsson 2000; Goold and Quinn 1990), control emphases (Auzair and Langfield-Smith 2005), existence of controls (Crutzen et al. 2017) and control attributes (Perego and Hartmann 2009).

This review mobilises the concepts of management control and strategy introduced above to categorise the reviewed articles focusing on controls for sustainability on the basis of the strategic focus (content vs process) and whether the studies relate to controls from a narrow or broad perspective, further segregated by whether the focus is on exploring controls from the design or usability perspectives. Most reviews into management controls and strategy, in the past, have exclusively focused on business oriented strategies (e.g. Langfield-Smith 1997; Chenhall 2003; Tucker et al. 2009) whereas this review focuses on studies that address corporate sustainability oriented strategies and practices. The review adopts the view that corporate sustainability refers to strategies and practices that address the environmental and social aspects of performance, that may create shared value over the short term and long term ensuring business continuity (Porter and Kramer 2006; Benn et al. 2014; Marrewijk, 2003). We now turn to the key themes identified in our review, presented according to the strategy and control classifications introduced above.

3 The design of controls for sustainability strategy

Our review of the literature suggests studies into controls for sustainability are predominantly conceptualised from a design perspective. The themes of this body of literature can be organised along broad and narrow control designs and their implications for strategic process and content.

3.1 Broad control designs and their implications for strategic process

The multiplicity of controls

One of the foremost themes of studies adopting a broader view of control design from the strategic process perspective pertain to the role of a multitude of controls in implementing sustainability strategies, without however elaborating on the type of strategy that the controls are supporting. The qualitative studies, largely informed by a small number of case organisations, provided context laden and textually rich depiction of how multiple controls were designed to support strategy implementation. They were however not guided by any theoretical underpinnings and remained descriptive in nature (Morsing and Oswald 2009; Lee 2009; Teh and Corbitt 2015; Masanet-llodra 2006; Riccaboni and Leone 2010). Their purpose was to "discover" or unpack how sustainability was controlled for in organisations known for their sustainability prerogatives (for instance, P&G; Novo Nordisk). These studies provide the empirical evidence to support the management frameworks discussed later on in this section, and particularly lend support to the role of multiple controls as has been conceptualised within these frameworks (Khoo and Tan 2002; Panapanaan et al. 2003; Maon et al. 2009; Cramer 2005). Besides providing evidence of the prevalence of control multiplicity, the case studies also provided evidence of the existence of both formal and informal controls supporting strategic implementation (see Morsing and Oswald 2009; Riccaboni and Leone 2010), with Lee's (2009) case study being generally one of the very few studies concentrating on small firms (see also Durden 2008). More specifically, Riccaboni and Leone (2010) observed visible changes in formal controls including organisational structure and design as well as strategic planning processes on the one hand and informal controls on the other supporting strategic implementation. The prevalence of both formal and informal controls and their significance for sustainability implementation as found in practice may be explained by the need to "embed" sustainability within the management routine as part of a "continuous cycle of actions" (Mass and Reniers 2014, p. 108, see also van der Heijden et al. 2010). Mass and Reniers (2014) argue that emphasis could be given to both informal controls to promote "belief driven interactions" within organisations as well as formal controls to promote "action driven interactions" recognising the role played by both types of controls (Mass and Reniers 2014, p. 108).

Tensions in decision making

The role of informal and formal controls have been further debated, specifically regarding controls promoting and balancing tensions in sustainability-related decision making. For instance, Norris and O'Dwyer (2004) contribute to the discussion of formal and informal controls, by focusing on system congruency to implement strategies (see also Durden 2008). In other words, they contend that responsible behaviour is controlled effectively when both formal and informal controls support each other and work in harmony and collectively promote responsible

actions (Falkenberg and Herremans 1995). Where formal and informal controls were not acting in harmony, this gave rise to tensions in decision making as observed in their case context (Norris and O'Dwyer 2004). Contrary to Durden (2008) and Norris and O'Dwyer's (2004) observations, Epstein et al. (2015), however, assert that informal controls are sufficient to controlling for sustainability as these embed sustainability focus into decision-making rendering formal controls unnecessary. Hence, there are mixed results concerning the relationship of formal and informal controls and its impact on strategizing sustainability within organisations. Relatedly, Riccaboni and Leone (2010) provide empirical evidence of the application of an indigenously developed tool facilitating the assessment of each of the three dimensions of product sustainability, namely financial, environmental (life cycle assessment) and social (stakeholder assessment). This perhaps indicates that organisations that have reached a certain stage of maturity with regards to sustainability have resorted to innovative measures to overcome challenges imposed by potential conflicts in balancing financial and non-financial aspects of decision making.

Management frameworks

Several studies have extended frameworks to aid decision makers to manage CSR/sustainability and have remained predominantly prescriptive in nature (Khoo and Tan 2002; Panapanaan et al. 2003; Maon et al. 2009; Cramer 2005). The frameworks have common denominators in that these recommend the inclusion of controls that are common within these frameworks. For instance, similar to the preparation and transformation phases in Khoo and Tan's (2002) framework, Maon et al.'s (2009) model identifies the need to transform the existing firm culture by developing the workforce through training and education so as to create a shared vision for sustainability and consequently empowering employees to take positive actions. Emphasis is on the establishment of a learning organisation where empowerment, awareness, knowledge sharing and action learning are encouraged. Formal controls are also included in these frameworks. For instance, the need to include vision and mission in the strategic plans as means of translating CSR mission and vision, and values into practice (Maon et al. 2009). Additionally, Khoo and Tan (2002) and Cramer (2005) refer to the mobilisation of PMS to collect information about environmental performance for decision making. Maon et al. (2009) emphasise reward mechanisms to incentivise employees to engage with the implementation process. The focus is also paid to structural reforms to facilitate the implementation of the adopted strategy (Panapanaan et al. 2003).

Supplementary roles played by controls

Another key theme refers to the significant supplementary role played by management controls to support Environmental Management Systems (EMS). For instance, Albelda et al. (2007) contended that the development of intangible assets through staff training and engagement programme ensured that EMS was kept "…alive and fresh, avoiding becoming bureaucratic" indicating the role of informal controls in EMS mobilisation (Albelda et al. 2007, p. 410). Masanet-Llodra (2006) also found the presence of non-financial rewards as additional means of motivating employees and engaging them in the EMS implementation process. The empirical evidence points out that EMS in isolation may not be effective in implementing a strategy but need to be supplemented by other management controls. Additionally, Länsiluoto and Järvenpää¨ (2008, 2010) provide empirical evidence of cultural and structural controls facilitating the integration of sustainability indicators in hybrid performance measurement mechanisms (e.g. a BSC).

3.2 Narrow control designs and their implications for strategic process

Focus on Sustainability Balanced Scorecard

The majority of research within this category pertains to the single control dimension of PMS and specifically the BSC approach. The emergent focus of sustainability control researchers and more so those included in this review points back to the assumption that sustainability entails a structured and planned approach and as such it could be monitored using a structured tool (Neugebauer 2016). Consistent with Hansen and Schaltegger's (2016) findings, the reviewed papers while remaining primarily conceptual in nature with the occasional use of illustrative cases advance different means of designing BSC. Simplistically, the differences in design exist in how multiple goals are included as part of the scorecard. For instance, Figge et al.'s (2002) BSC design resonates with the strictly hierarchical structure (Hansen and Schaltegger 2016) where sustainability goals are bound by a strict cause and effect relationship with the underlying emphasis on augmenting the financial bottom-line. Contrastingly, other designs consider multiple goals as equally important resonating with the triple bottom line perspective such that the financial perspective is replaced by each of the elements of the triple-bottom-line concept (Hsu et al. 2011).

Additionally, some designs also reject that strict cause and effect relationship need not exist and as such sustainability objectives "may exist in their own right" (Hansen and Schaltegger 2016, p. 206) exhibiting the characteristics of a semi-hierarchical structure (see van der Woerd and van der Brink 2004; Dias-Sardinha et al. 2007; León-Soriano et al. 2010). Others have focused on how sustainability objectives are integrated within a BSC including a dedicated perspective solely for sustainability (Chalmeta and Palomera 2011), the inclusion of sustainability objectives in few perspectives of a traditional BSC, in all the four traditional perspectives or a combination of a dedicated perspective and the remaining two approaches (Figge et al. 2002; Epstein and Wisner 2001).

Employee perception of controlling for sustainability

Very few studies have yet considered the perspectives of individual employees which demonstrates the vitality of informal controls and the aspects that need to be taken into account within control design. Slack et al. (2015) focused on employees or individuals as the unit of analysis as opposed to the organisation and provided unique aspects about the effectiveness of controls for sustainability understood through the perspectives of employees. The study explored the employee perspectives of CSR and noted the disparities in the views. The divergent views demonstrated the lack of organisational awareness of CSR indicating a lack of shared vision for CSR commitment further fuelled by a lack of internal communication, especially from the top management. The study observed that formal controls were inadequate and failed to promote an understanding of the significance of undertaking CSR, the organisation's stance towards CSR as well as what it meant for the firm. The case illustrated the importance of informal controls (Epstein et al. 2015) providing evidence from the employee perspective. Moreover, together with a few other studies exploring management control for sustainability strategy at the unit or site levels (e.g., Albelda et al. 2007), these works represent insightful exceptions from the body of literature concentrated on examining controls for sustainability strategy at the organisational level.

3.3 Broad control designs and their implications for strategic content

Control multiplicity for environmental strategies

Previously, the need for a range of controls to implement sustainability was established, however without explicitly considering the type of strategy that has been pursued. Articles presented in this section provide empirical evidence of a range of controls matched to particular strategic orientations. For instance, Epstein and Wisner (2005) reported that Mexican manufacturing facilities that mobilised a range of controls including comprehensive planning mechanisms, integrated environmental responsibilities within their value systems as well as rewarded both managerial and non-managerial employees based on environmental actions were better at executing environmental compliance strategies (see also Azzone and Noci 1998). Maxwell et al. (1997) presented three brief cases to illustrate the role of different controls for a proactive stance towards social responsibility. They observed in all the three cases the extensive reliance placed on creating a shared understanding of extra-financial responsibilities and the use of associated investments to propagate such commitments, structural reforms (either modified or newly set up to accommodate a proactive stance) and goal setting with the establishment of both short-term and long-term targets to provide direction. Regarding the use of planning systems, the goals and objectives responded to the proactive nature of the strategic direction. Hence, plans were put in place to prevent wastage and inefficient use of resources and generate competitive advantage besides formally complying with prevailing legislative requirements (for instance, in P&G).

Antecedents of control multiplicity

While the above studies concentrated on exploring control design for environmental strategies, Pondeville et al. (2013) retake a step to understand the antecedents of such control systems. One of the major findings of the study is that perceived uncertainty in the decision making context hampers the development of both formal and informal controls for environmental strategy, while additionally hampering proactivity towards the environment. In other words, since environmental proactivity remains impaired in uncertain ecological settings, consequentially controls for environmental strategy remain undeveloped. The finding reinforces Neugebauer et al.'s (2016) concern noted earlier about the planned nature of strategy assumed by sustainability scholars. Hart (1992) and Regnér (2003) note that a structured approach is valid in controllable environments where decision making is straightforward, simple and not subjected to ambiguity. The study also observes that organisational stakeholder commitment and participation are absolute requirements for a proactive stance and influences the development of informal controls

for ecological strategies. Other stakeholders including community and market stakeholders were found to positively influence strategic proactivity with varying influence on the direct development of controls.

3.4 Narrow control designs and their implications for strategic content

The studies included within this category focus exclusively on a single control mechanism and explore their design and underlying attributes in detail about the type of strategy pursued. Some studies concentrate on the design of a BSC for a particular sustainability strategic orientation (Gates and Germain 2010; van der Woerd and van der Brink 2004). For instance, van der Woerd and van der Brink (2004) develop a BSC for a community-driven strategic focus that emphasises stakeholder engagement in the value creation process. The model reflects the community-driven strategic direction by redesigning each of the perspectives of the scorecard such that the resulting BSC reflects the stakeholder input in the value creation process. The changes in design could be contrasted with a profit and/or compliance driven strategies requiring no such changes as the authors assert that a traditional BSC would suffice the requirements (see also the discussion in Hansen and Schaltegger 2016).

Others examine further individual control mechanisms and how they are linked with particular types of strategies. Perego and Hartmann (2009) demonstrate the increasing complexities of the overall PMS design associated with higher levels of strategic approaches. Additionally, the study confirms greater reliance placed on PMS by firms pursuing a proactive environmental strategy relative to those that are merely reacting to institutional requirements. For firms pursuing a proactive environmental strategy, the PMS design reflects the posture through its design attributes of timeliness, scope and quantification (Chia 1995; Tillema 2005).

Berrone and Gomez-mejia (2009) found proactive environmental strategies attracted greater executive compensation than reactive environmental strategies, i.e. the compensated amounts were higher for executives assuming additional risks in making proactive environmental decisions (Hart 1995). Additionally, the study finds reward mechanisms informed by proactive strategy take into account the longer term perspective, i.e. it influences the long-term pay of executives. Reward systems are aligned with the level of the strategy pursued and that non-financial elements of performance affect the total pay package.

Shaukat et al. (2016) identify the attributes of governance and leadership mechanism that inform a proactive strategy. Specifically, they find a proactive CSR strategic orientation is supported by board characterised by board independence, gender diversity as well as the presence of financial expertise within audit committee, which in turn also augmented sustainability performance. As one of the only two articles identified focusing on the Information System perspective, Benitez-Amado and Walczuch (2012) research demonstrates that proactive strategies require firms to develop IT capabilities to support the implementation of a proactive stance. IT is identified as one of the key resources that inform the capacity of a firm to implement a proactive strategy.

Overall, the above research studies show that the focus has been on understanding control design mainly from the strategic process perspective with an almost exclusive focus on strategy implementation. Moreover, studies with a broad control focus tend to cover a number of control areas and provide an understanding of the relevance of a multiplicity of controls to manage sustainability. Although a range of controls are explored in aggregate within the sample, yet there is a visible tendency within the sampled studies to focus exclusively on culture, PMS and planning mechanisms simultaneously. In the next section, we examine studies into the use of management controls for sustainability strategy.

4. The use of controls for sustainability strategy

Research interest in the use of controls for managing sustainability strategies is a developing area. Two different types of studies can be distinguished, one that applies Simon's Levers of Control (1995) as the underlying framework to guide research (e.g., Rodrique et al., 2013; Arjaliès and Mundy, 2013) and the other that does not use such premise (Adam and Frost, 2008; Perego and Hartmann, 2009). Adam and Frost (2008) focus on the process by which key performance indicators (KPIs) for sustainability are developed and used in decision-making, planning and performance measurement. The study concluded that KPIs need to be used not only for external reporting purposes but also for internal decision making purposes to internalise the benefits from pursuing sustainability. In a similar fashion, Perego and Hartmann (2009) examine the use of environmental performance indicators for firms pursuing an environmental strategy to understand how the performance measures are aligned with the strategy. They find that the use of these performance indicators is as result of changes to performance measurement system in order to align with the environmental strategy.

While the above studies highlighted the KPI properties facilitating decision making, both Rodrique et al. (2013) and Arjaliès and Mundy's (2013) articles bring in the notion of risk management and discuss how controls are used to manage uncertainties and sustain legitimacy. These studies typically rely on Simon's (1995) Levers of Control framework and map the use of sustainability-related controls along the four levers namely belief, boundary, interactive and diagnostic uses (Gond et al., 2012). For instance, through the use of belief systems, firms were found to disseminate the commitment top management places on sustainability, facilitating the diffusion of values on which sustainability is based. Additionally, Rodrigue et al. (2013) note that stakeholder concerns become infused throughout the organisation, through the use of the belief systems and that such use helps translate stakeholder views into practice. The use of codes of conduct and policies informed through both legislative as well as voluntary standards establish the boundaries and the constraints within which employees are to perform their duties. Such constraints provide the means for organisations to manage risks emanating from both internally as well as externally. For example, the use of supplier codes and policies provide ways to maintain legitimacy and manage any risks associated with the use of child labour in the supply chain or other unethical practices (Arjaliès and Mundy 2013).

Through interactive use, Rodrigue et al. (2013) find the rhetoric of legitimacy and risk management resurfacing. For instance, the case organisation relied extensively on the interactive use of environmental KPIs with the community, regulatory and internal stakeholder groups as means of managing uncertainties and understanding potential threats to organisational legitimacy. Beyond the need to maintain legitimacy and manage risk, Arjaliès and Mundy (2013) found interactive use associated with the development of strategies through the sharing of emergent ideas and as means of implementing intended strategies holistically throughout the organisation by bringing in different actors from different organisational departments together and facilitating functional collaborations (see also Burritt et al., 2019). While the interactive use enabled ideation and holistic implementation of strategies, the diagnostic use enabled units to verify if the performance was on par with firm level expectation so that corrective measures could be undertaken (Rodrigue et al. 2013; Arjaliès and Mundy 2013). The studies provide evidence that merely incorporating sustainability KPIs within PMS may not be sufficient unless the KPIs are used in certain ways (e.g. KPI use for internal decision making purposes as opposed to their use solely for external reporting).

5. Discussion and conclusion

The research field on controlling for sustainability is at a nascent stage and still emerging as a fully-fledged area of interest. As the field is yet to reach a state of maturity, it necessitates further research to be undertaken to enhance our understanding of controlling for sustainability strategies by building on the insights and other related observations gathered from the existing literature. The emerging nature of research is reflected in the simplistic advancements of knowledge within the field that is yet to take into account the level of complexity inherent in the extant management control literature. Nonetheless, a number of learnings could be observed from the reviewed literature that may form the foundational basis for future research within the field. These are summarised in the following paragraphs.

The empirical publications largely demonstrate that similar to business strategy, sustainability strategy needs to be brought under the purview of control mechanisms and that strategy implementation requires a carefully considered control design and use. The publications revealed a range of controls for sustainability strategies while noting that both formal and informal controls have significant roles to play. This is consistent with the conceptual frameworks that have been advanced (Slack et al. 2015; Norris and O'Dwyer 2004; Morsing and Oswald 2009; Riccaboni and Leone 2010). Both conceptually and empirically, management controls for sustainability strategy include informal controls to acquaint the firm culture with sustainable thinking and formal controls such as structure, governance and leadership, planning, rewards, information technology/system and performance measurement system to promote the cause of sustainability beyond the financial aspect. The wide range of controls necessary for sustainability management demonstrate the adaptabilities needed in existing control mechanisms to cater for sustainability. It provides evidence to negate the inherent assumption within the extant sustainability literature that a seamless integration takes place for internalising sustainability (Morsing and Oswald 2009). On the contrary to this assumption, visible changes need to be made to existing controls to manage sustainability even at the stage of compliance (Riccaboni and Leone 2010; Epstein and Wisner 2005). In other words, sustainability strategies are accompanied by modifications to existing control mechanisms although not in all instances is this observed (Durden 2008). The latter indicates a possibility of an inherently external orientation towards sustainability for image enhancement purposes and not a genuine attempt to make a move towards sustainable strategies by some firms. It could be argued that studying internal controls may provide the means to verify

whether firms are genuinely moving towards sustainability rather than engaging in an empty rhetoric without any substance.

One key theme has been the role of controls of diverse nature, i.e. formal and informal. Whilst it is evident from the case studies and the conceptual frameworks that both forms of controls are significant, yet disparities exist within the literature with views ranging from control congruity (that is a balance needs to exist between formal and informal controls) (Norris and O'Dwyer 2004); that both forms of controls need to reinforce one another to promote sustainability objectives internally (Durden 2008); and the primacy of informal controls negating the need for formal controls (Epstein et al. 2015). Our understanding of control congruity or primacy is based on research undertaken on a limited number of organisations and as such statistical tests examining the role of both types of controls could enhance our knowledge in this area. Case study evidence shows that incongruity led to tensions in decision making as formal controls failed to promote sustainability and focused primarily on the financial aspects of decision making (Norris and O'Dwyer 2004). In other words, the case studies have provided anecdotal evidence of the need to consider both types of controls to implement strategy effectively (Slack et al. 2016; Riccaboni and Leone 2010; Norris and O'Dwyer 2004; Durden 2008) but we still know little about the optimal configurations of different types of controls that exist in practice (Bedford and Malmi 2015). Calls have been made to subject investigation based on happenings in practice, and as such, there is a need to broaden the research horizon to include a larger number of organisations to explore controls for sustainability (Bedford and Malmi 2015; Gond et al. 2012). The field will benefit from a focus on strategy content-based studies that seek to identify patterns of approaches to management controls for specific sustainability related strategies while adopting a broader view of controls. Rather than seeking to "discover" how controls are designed within organisations as reflected in the sampled case study based research, a structured and systematic approach is required to understand how a range of management controls traditionally found in practice are adapted to manage sustainability on the basis of the strategic focus. However, only a small number of articles have focused on how sustainability strategy plays a role in control design, and even a smaller number have surveyed a large number of companies to provide measures of statistical significance (Epstein and Wisner 2005; Perego and Hartmann 2009).

Although these studies demonstrate the role strategy plays in shaping controls, the focus has yet been on a limited number of controls. For instance, Perego and Hartmann (2009) focused on PMS, van der Woerd and van den Brink (2004) on BSC, and Lock and Seele (2015) on organisational structural arrangements. However, the case studies have provided the anecdotal evidence of some form of interdependencies existing amongst different controls and that a firm may choose to employ a number of controls to support sustainability. In other words, future studies need to consider a larger set of controls and explore how different strategic orientations influence the type, nature, relevance and emphases given to a set of controls. In the same vein, the low number of studies concentrating on strategic content have explored the attributes of a limited number of control designs for a given strategic outlook. We are yet to learn about the attributes of reward based systems and how strategic orientations shape such compensation systems although its relevance has been conceptually studied in the literature (Lothe and Myrtveit 2003). It is recommended that future studies adopt the management control package perspective to systematically explore what the different management control configurations observable in practice informed by different strategic orientations are.

The package perspective promotes the understanding that individual controls do not operate in isolation but as part of the overall control structure of the firm that consists of both formal and informal controls (Malmi and Brown 2008; Otley 1980). A narrow perspective of controls fails to provide a holistic picture of controlling for sustainability strategies. By subjecting the same range of controls in different empirical contexts informed by different strategic orientations, a better and complete understanding of how sustainability strategies shape management controls operating as part of a control package would be obtainable. This will allow the exploration whether some controls acting in combinations are found to match certain strategic orientations or whether certain controls receive relatively greater or lesser emphasis under specific strategic contexts (Bedford and Malmi 2015; Chenhall and Langfield-Smith 1998). Additionally, it could also be explored what management control configurations informed by different strategic orientations lead to optimum sustainability performance.

Although the review indicates a significant number of controls necessary for managing sustainability and that vigorous changes within the existing control design may not be a need to cater for sustainability with only moderate modifications to adapt for sustainability (Riccaboni and Leone 2010), yet caution must be exercised when debating the appropriateness of visible adaptations made to internal controls for sustainability. An implementation may remain inadequate and ineffective even if sustainability is reflected in visible changes to

control mechanisms. For instance, from Slack et al.'s (2016) study it was evident that structural changes were inadequate to control for sustainability without the proactive participation of employees (see also Berrone and Gomez-Mejia 2009). Rodrigue et al. (2013) identified employees as one of the major stakeholder groups without whom implementation remains challenging. The same premise was also put forward by Grubnic et al. (2015) who observed the intrinsic motivation of staff driving sustainability at the case organisation. However, the lack of cultural controls and a shared understanding of sustainability hampered the implementation process (Slack et al. 2016). This provides prima facie evidence of the interdependencies between different control mechanisms for sustainability and the need for formal and informal controls to reinforce one another (Durden 2008). In other words, controls need to exist in certain configurations for these to be effective in promoting sustainable thinking due to the inherent dependencies and complementarities that may exist among different control types (Sandelin 2008). This observation leads onto the question on how different management controls are interdependent on one another for effective sustainability management.

Similar to the existing management control and business strategy literature, the review also provided similar inferences about the proactive role strategy plays in control design and use (Langfield-Smith 1997). It was observed that controls differed in their design complexities informed by differences in sustainability strategic pursuits (Epstein and Wisner 2005; Perego and Hartmann 2006; der Woerd and den Brink 2004; Azzone and Noci 1998). A higher level of sustainability strategies was associated with more complex control designs. For instance, the PMS attributes of informativeness and sophistication increased as a result of proactive strategic pursuit (Perego and Hartmann 2009). Even at the same level of strategic pursuit, different control designs were observed in Mexican factories by Epstein and Wisner (2005). These observations indicate that different organisations may choose to rely on different control types or put different emphasis for pursuing a given strategic orientation. By exploring control designs for different strategy types in practice, we would be better able to understand the relationship between controls for sustainability strategies. In other words, there is a need to study a range of controls holistically and explore if and how control arrangements differ amongst different organisations for the same strategy, if at all, and of the various strategic orientations.

As discussed above, a number of learnings could be identified from the review of the literature, however, as noted previously, these might be assumed to be simplistic advancements of knowledge. Many such instances could be identified where the current literature falls short of reaching complexities observed within the extant management control and business strategy research, revealing the many gaps that are yet to be solved. To elaborate, the majority of publications have regarded controls passively or as a subordinate to sustainability strategy. By doing so, the field has undermined the abilities of controls to shape strategies which have been demonstrated within the extant management control literature (Abernethy and Brownell 1999). However, the opportunity exists for researchers within this field to explore controls as a powerful mechanism of strategy formulation process. The gap is inherently due to the preoccupation of researchers within this field to explore and identify controls that are designed to implement strategies in practice or to prescribe means of implementing strategies. This necessitates the need to refer to strategy classifications and reflect on how strategies are formulated. By doing so, the proactive role of controls in strategy formulation could be identified and demonstrated leading onto the question how management controls inform sustainability strategic progression. Furthermore, Simon's Lever of Control framework (1995) has already been applied in the study of sustainability strategy and control. The framework provides the means of unpacking the proactive nature of controls (specifically through its interactive use) to give rise to new strategies. On this note it is also important to consider Neugebauer et al.'s (2016) concerns about the obsession of researchers considering strategy as a structured and planned process. The LOC framework could be applied to study the role of controls (again its proactive nature) in giving rise to emerging strategies. Moreover, the research has identified informal controls as significant means of raising awareness of CSR within organisations and additionally attributed organisational stakeholders as an important partner to facilitate the implementation of strategies (Rodrique et al. 2013). There is now the need to go beyond this and consider how interactive use of controls with employees may benefit firms in promoting bottom-up strategies.

Once controls are recognised as playing a proactive role within sustainability literature, the level of complexity of research within this field could be further enhanced by investigating if a two-way relationship exists between control and sustainability strategy (Kober et al. 2007). Longitudinal case studies that are yet to gain grounding could be the means of investigating the strategy-control lifecycle, and the role controls have played in strategic progression, and the role strategies played in control design and use. More generally, the current literature focuses extensively on large companies. Considering that SMEs form a larger share of businesses globally, it will be

interesting to explore how small firms control for sustainability and whether certain controls receive primacy in small firms. In the same vein, the majority of the studies focus exclusively on the organisational level without seeking to explore how employees perceive the effectiveness of management controls to be leading onto a research question of interest *how employees perceive the effectiveness of management control approaches towards sustainability management.* Further studies could also enhance our understanding of the influence of institutional contexts on management control design and use for sustainability and/or the approach of MNCs to controlling for sustainability.

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