

Sense-Making Resource Efficiency Through “Sustainability” Reports

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Abstract This paper explores the nature and antecedents of a unique “sustainability” reporting initiative developed within a large Australian family-run manufacturing company. In so doing, the paper responds to calls for empirical insight into how accounting can inform organisational objectives relating to sustainability. Despite known flaws in the data, the company’s weekly sustainability reports had become a critical support to on-going sense-making, driven by deliberate strategies focused on resource efficiency, and understanding the business. While the contributions of these initiatives to broader global sustainability concerns were limited, the case provides insight into a well-intentioned and passionate journey towards the unknown of sustainability. The case explains how management distinguished related activities from core economic objectives. What is important here is that the CEO availed space for management to explore the moral dimensions of corporate activity. There was opportunity to now enhance that space, by encouraging engagement with a broader range of stakeholders, and a broader range of sustainability impacts.

Keywords Sustainability · Sustainability accounting · Sustainability reporting · Sense-making

Introduction

What do we mean when we talk of “sustainability”? The 1987 “Brundtland” conception left us with more of a puzzle than a definition, by suggesting that we might someday achieve sustainability if we can then conclude that we are addressing current needs without compromising “the ability of future generations to meet their own” (WCED 1987, p. 24). While this definition raises more questions than answers, it continues to hold utility for those seeking to reconcile economic development with the critical need to also protect our threatened planet. This interest in sustainability has emerged throughout society, including from within the corporate sector. But can corporate-level claims to sustainability reflect anything more than self-interest? Gray (2010, p. 48) cautions that the “environment at least, only begins to make any sense at the ... planetary or species level”. Laine (2005, p. 395) argues that there is “little evidence of anyone [at the corporate level] actually walking this talk”.

Schaltegger (2011) and Schaltegger and Burritt (2010) offer an alternative perspective, arguing that in some cases, corporate claims to sustainability reflect creative, sincere, and novel initiatives that have the potential to contribute not only to the corporation (through, for example, improving resource efficiency), but also to broader (environmental and social) concerns. While there is value, therefore, in empirically investigating related corporate claims, the extent of past studies is “limited ... and even less research has been devoted to examining the interplay and integration of these concepts” (Maas et al. 2016, p. 243). Further exploration of related corporate-level initiatives might “broaden debate concerning the uptake of tools that can move us away from unsustainability” (Bebbington et al. 2007, p. 225). Others call for studies that

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give particular attention to exploring how management utilise accounting technologies to make sense of related objectives (Adams and Larrinaga-Gonzalez 2007; Albelda 2011; Arjalies and Mundy 2013; Schaltegger et al. 2015; Tillmann and Goddard 2008). While several responses have examined external “sustainability” reporting practices, limited attention has been directed to exploring how management draws on accounting to make sense of corporate (un)sustainability (Bebbington 2014; Contrafatto and Burns 2013; Durden 2008; Spence and Rinaldi 2010; Thomson and Georgakopoulos 2010). My interest in this study, is to explore how a case example company utilised accounting to inform claims to a well-developed focus on sustainability.

The literature provides some indications of what sincere and robust corporate “sustainability” accounting might entail. Thomson (2014, p. 400) suggests that corporations would have to start by acknowledging that sustainability is contested; we do not currently “have the answers to what accounting for sustainable development should become”. Nonetheless, deep engagement with complex issues of ecological security, inter-generational justice, and economic resilience would all appear necessary (Bebbington et al. 2014; Contrafatto and Burns 2013; Figge and Hahn 2013). Bebbington and Larrinaga (2014, p. 399) observe that five key issues are “widely accepted to fall within the ambit of sustainable development”: water, energy, health, agriculture, and biodiversity. However, “what is relevant to note is that these areas do not neatly map onto disciplinary fields [and so] ... require, at least, interdisciplinary approaches for their investigation”. Broad engagement with a cross section of stakeholders would also appear important.

Several studies have sought to add further empirical insight into these understandings (Albelda 2011; Bebbington 2014; Fraser 2012; Durden 2008; Larrinaga-Gonzalez and Bebbington 2001; Larrinaga-Gonzalez et al. 2001; Monteiro and Aibar-Guzman 2010; Spence and Rinaldi 2010). However, most seem to confirm Thomson’s (2014) expectation that comprehensive and robust approaches to sustainability accounting are likely to be scarce. The case company that I have the opportunity to explore here, complements these studies by providing insight into how a novel “sustainability” reporting initiative became an indispensable part of the company’s regular weekly management reporting processes. Years of effort had been put into developing and integrating related practices across this large company. The “family” nature of this company was also central to explaining these developments, as it gave the CEO latitude to drive change which closely aligned with his personal ethical concerns and values.

In seeking to understand how management utilised accounting to make sense of claims to sustainability, I

develop a framework of analytical concepts that integrate two fields of literature: studies seeking to understand processes of organisational sense-making, and studies exploring the role of accounting in sustainability decision-making. Noting a dearth of research exploring links between sense-making and routines, and little micro-level sense-making research within corporate settings (Maitlis and Christianson 2014), the research question developed for this study therefore asks:

How can accounting technologies contribute to management’s sense-making of corporate ‘sustainability’ impacts?

Interviewees explained that their internal sustainability reports meaningfully informed decisions in relation to waste minimisation, and the efficient consumption of gas, electricity, and water. All of these issues can also be seen as matters of financial concern and control, and so the contributions of this study focus on understanding how management saw these objectives as distinct from core economic-focused objectives. As a first contribution, I argue that while accounting constrained the parameters of what was scrutinised, it was of critical importance to management seeking to make sense of directives given to them about sustainability. Evidence of the utility of accounting reports to on-going dialogue and debate, confirmed that the unknown of sustainability remained a meaningful direction of intention (Spence and Rinaldi 2010).

The second contribution focuses on demonstrating how effective organisational sense-making was able to persist, despite perceived flaws in the company’s sustainability reports. A clear overarching narrative focused on the importance of understanding the business, sense-given from top management, enabled production managers to both link sustainability to core economic concerns, and act on personal ethical perspectives about sustainability. The experience and commitment of management was also important, as it enabled them to work with and interpret data which they knew to be flawed. A final contribution counters that on-going sense-making towards the unknown of sustainability would now benefit if management also improved engagement with external stakeholders and expanded their focus beyond resource efficiency. The case confirms Bakan’s (2005) argument that a corporation itself is without conscience and so cannot speak of being “ethical”. However, the case adds that where senior support is clear, management can draw on personal ethical values, to the benefit of both the company and the environment.

The remainder of this paper is structured as follows. The next section develops a framework of concepts to aid exploration of how accounting technologies can contribute to corporate sense-making of sustainability. That is

followed by methodology, an exploration of the role accounting played in helping management to sense-make sustainability, and finally, further discussion and conclusions.

Drawing on Accounting to Sense-Make Sustainability

“The Role of Accounting in Organisational Sense-Making” section reviews arguments about organisational sense-making, and how accounting contributes. In “The Role of Accounting in Sense-Making Sustainability” section, I review arguments about the role of accounting in supporting corporate-level claims to sustainability. The core concepts of analytical value to this study are summarised at the end of this section in Table 1.

The Role of Accounting in Organisational Sense-Making

Maitlis and Christianson (2014, p. 67) suggest that management are driven to a process of sense-making when expectations of organisational reality are “violated”. Such violations in this case might include emerging understandings that sustainability has become an issue of global importance. Sense-making involves “bracketing cues in the environment, [and] creating intersubjective meaning through cycles of interpretation and action”. “Successful” sense-making is not about taking the “right” action; “it is about creating an emerging picture that becomes more comprehensive through data collection, action, experience, and conversation” (Ancona 2012, p. 6). Action is the key; on-going and productive sense-making will be evident where dialogue remains fresh and contested, and where management are continuing to learn and adapt (Weick et al. 2005). Conversely, evidence that dialogue has eroded may indicate that sense-making has become “self-confirming or delusional” (Baker and Schaltegger 2014, p. 280).

Gioia and Chittipeddi (1991, p. 446) suggest that organisational sense-making starts with “deliberate” strategic direction (Mintzberg 1978) or “sense-giving” provided by the “architects, assimilators, and facilitators” of the organisation (the CEO and top management). Effective sense-giving can “shut down alternative interpretations of reality, constrain sense making, and limit who can participate in the sense making process” (Voronov 2008, p. 201). Nonetheless, “emergent” direction (Mintzberg 1978) might also become evident, as organisational agents “adopt, alter, resist, or reject a sense they have been given” (Maitlis and Christianson 2014, p. 78). Staff might legitimise certain sense-giving strategies and delegitimise others (Voronov 2008).

Management commonly draw on accounting information, as they seek to make sense of organisational violations. Ancona (2012) suggests that accounting technologies will be most effective as sense-making “maps” where it is apparent that management are continuously reviewing, questioning, testing, and possibly abandoning those maps. Similarly, Weick (1995, p. 188) argues that continuous development is important; “if people want to share meaning, then they need to talk about their shared experience in close proximity to its occurrence and hammer out a common way to encode it and talk about it”. Again, sense-making prompts us to consider that a map is “good”, not so much for leading to the “right” outcome, but more where that map continues to be developed and drive action.

A range of studies draw on these concepts, to explore the effectiveness of accounting technologies as sense-making maps (Baker and Schaltegger 2014; Bennett and James 1998; Catusus et al. 2009; Smith and Lambell 1997; Tillmann and Goddard 2008). Tillmann and Goddard (2008, p. 91) suggest that accounting can effectively inform sense-making where it provides: *structure* through the way that it helps “organising activities in relatively clearly defined ways”; *harmony* through the use of consistent rules; *bridging and contextualising* through a “bridging of information across time and the contextualising of information

Table 1 Features of sustainability accounting that might contribute to effective sense-making

Acknowledgement that sustainability is contested (Thomson 2014)
A focus on water, energy, health, agriculture, biodiversity, inter-generational justice, and economic resilience (Bebbington and Larrinaga 2014; Bebbington et al. 2014)
Engagement with a broad range of stakeholders (Bebbington et al. 2007; Dillard 2014; Giuliani 2016)
Utility for management decision-making (Maitlis and Christianson 2014)
On-going experiment (Gasparatos et al. 2009), re-development, and refinement (Weick 1995)
Integration with financial accounting systems (Fries et al. 2010; Hopwood et al. 2010), and both monetary (Bebbington 2014) and physical measurement (Kraus and Stromsten 2012; Schaltegger and Burritt 2000)
A focus on structuring; harmonising; bridging and contextualising; compromising and balancing (Tillmann and Goddard 2008)
Consistent coding (Gond et al. 2012; Weick 1995)

across space”; and *compromising and balancing* by enabling management to weigh up alternatives and adapt judgements accordingly. Accounting reports can become valuable sense-making devices where they trigger a sense of ambiguity (Abrahamsson et al. 2016), where they provide both qualitative and quantitative data able to “bind an organisation together, structure interactions” (Faure et al. 2010, p. 1251), and where a broad range of stakeholders come to be involved (Giuliani 2016). Any filtering to focus solely on familiar financial metrics is likely to conceal “uncertainty and equivocality”, and narrow sense-making to “preconceived conceptualizations” (Kraus and Stromsten 2012, p. 200).

The Role of Accounting in Sense-Making Sustainability

A range of studies have questioned how accounting might be utilised to specifically aid sense-making of corporate “sustainability”. Contributions in this field tend to take one of two distinct angles. Several studies suggest that accounting can positively contribute to organisational sense-making of sustainability (Maitlis and Christianson 2014). Alternatively, a range of distinct studies provide a more critical perspective, suggesting that accounting commonly narrows related debates. Both of these perspectives are explored here.

A helpful starting point may be found in studies that explore the narrower conception of “environmental management” and “environmental management accounting” (EMA). Schaltegger and Burritt (2000) and Smith and Lambell (1997) suggest that EMA can provide both physical and monetary measurement of emissions, water usage, and waste. EMA might focus on plans, a monitoring of performance against targets, and a sharing of good practices throughout the organisation (Arjalies and Mundy 2013). “Common calculability infrastructure” (Gond et al. 2012, p. 209) and integration with financial reporting processes might also enable performance improvement (Adams and Frost 2008; Fries et al. 2010; Hopwood et al. 2010; Luft 2009).

Hopwood et al. (2010) suggest that EMA might benefit a corporation in a number of ways. EMA might help management identify past and potential impacts and opportunities, formulate strategic solutions, and provide some accountability to third parties. Figge and Hahn (2013) add that a focus on minimising resource usage, or “eco-efficiency” can improve competitive position and reputation. Arjalies and Mundy (2013) argue that while EMA initiatives might be designed to focus primarily on shareholder value, benefit for the environment can follow. Nonetheless, the potential of EMA to contribute to broad questions of global sustainability is probably limited at best (Milne 1996).

Empirical explorations of organisational claims to EMA present largely disappointing findings. Environmental accounting initiatives might have limited utility for decision-making (Larrinaga-Gonzalez and Bebbington 2001), might be utilised to reorient, capture, or construct environmental debates (Larrinaga-Gonzalez et al. 2001), and might be decoupled from financial accounting information, staff, and systems (Monteiro and Aibar-Guzman 2010). Durden (2008) concluded that novel accounting tools supporting a focus on “social” objectives were largely “experimental”. Albelda (2011) concluded that accounting commonly reorients the focus of environmental issues to link closely to economic performance. Alternatively, Duncan and Thomson (1998) suggest unique responses are possible, depending on corporate culture.

Could an organisation go further, and develop accounting technologies capable of contributing to broader sustainability challenges? Whereas EMA might focus solely on resource usage, sustainability accounting would undoubtedly require management to consider a range of social, environmental, economic, and cultural dimensions (Bebbington et al. 2007). Bebbington et al. (2007, p. 225) argues that related accounting endeavours will have greatest value, where they “promote social dialogue, broaden public discourse and help people see their commonalities and differences”. Both Dillard (2014) and Gasparatos et al. (2009) effectively concur, arguing there is value in related corporate efforts, particularly with creative and active engagement with a broad array of stakeholders. Gasparatos et al. (2009) add that the complexity of sustainability is best dealt with by experimenting with a variety of metrics. Bebbington (2014) suggests that sustainability accounting should seek to do four things: make impacts transparent; provide consistent measurement; ensure that decisions are made on the basis of the information constructed; and include a broad range of participants in related discussion.

A number of studies have empirically explored corporate claims to a focus on sustainability accounting. Spence and Rinaldi (2010, p. 55) concluded that while sustainability may not be “an achievable end goal [it could usefully be seen as] ... a direction of intention”. Thomson and Georgakopoulos (2010, p. 140) argued that “none of the individual techniques or accounting methods [examined in their case company were]... earth shattering, unique or novel ... [nonetheless, related initiatives discouraged] most of the perverse incentives to act in environmentally damaging way”.

The “Sustainability Assessment Model” (SAM) is one of the more commonly utilised approaches to sustainability accounting (Jasinski et al. 2015). SAM seeks to provide management with a forecast of the environmental, resource, social, and economic impacts of a project.

Bebbington (2014) argues that SAM’s value lies particularly in its use of both physical metrics, as well as translation to a single monetary bottom line, which enables a useful ranking of projects. Bebbington (2014) adds that top management support is critical and that the imprecision of translating everything to a monetary measurement is less important than the fact that management tend to find the tool understandable, and therefore useful for decision-making. Fraser (2012, p. 510) adds that “the process of constructing such accounts can be of greater value than the actual accounting ‘output’... because of the change [it induces] in participants’ thinking”. Bebbington and Fraser (2014, p. 149) concur that while SAM may not change practice, it enables managers “to make visible and challenge dominant organizational beliefs”.

Alternatively, other studies suggest that management are more commonly motivated to avoid any “moral responsibility that might be owed by the economic agent to parties other than the entity’s owners” (Shearer 2002, p. 570). Young (2006, p. 596) argues that accounting tends to be “embedded deeply within an economic discourse that holds efficiency and growth as the appropriate ends”. Therefore, any accounting technologies which management represent as focused on “sustainability”, might more truly be designed to narrow related discourse to a focus on core technical goals. Accounting may crush broad and democratic contributions to organisational sense-making (Young 2006; Shearer 2002; Miller and O’Leary 1993). An inability to move beyond a technical focus may also reflect “cost constraints, lack of political will from governments, [and] lack of conviction about business roles in the environment” (Gray and Bebbington 2001, p. 40).

Gasparatos et al. (2009) add that accounting may have little to contribute to sincere corporate efforts to engage with sustainability because accounting does not have the means to reveal complex, nested, dynamic, and nonlinear relationships, nor can it easily respond to a need for urgent action. Bebbington (2007, p. 236) concur that the “power of accounting and reporting to induce and reflect [sustainability] changes may also be minimal”. For Gray et al. (1995, p. 233), a danger of new accountings is that while they may lead to “increased visibility”, the trade-off can be a “constraining of environment to a safe and controllable issue”. Despite all of these limitations, Gasparatos et al. (2009) conclude that accounting technologies remain a critical source of information about organisational impacts. The solution they suggest, for managers who are sincere in their efforts to engage with sustainability, is continuous experimentation with a variety of metrics, and broad engagement with a range of stakeholders. Gladwin et al. (1995, p. 42) conclude that an organisation’s ability to effectively engage with sustainability, “boils down to a supreme test of executive courage”.

The puzzle that emerges across this literature is that while accounting might reduce dialogue to “statement[s] of facts, not the start of conversations” (Thomson and Bebbington 2005 p. 523), it would also appear essential to managers who seek to sincerely understand related impacts and opportunities. Accounting might overcome the limitations suggested here, if management engage with a broad range of stakeholders, and remain open to on-going experimentation as they develop related tools. Value is suggested in further empirical studies therefore, that seek to reconcile the divides that persist in these debates. The concepts and arguments developed across “Drawing on Accounting to Sense-Make Sustainability” section are summarised and distilled into Table 1. These key concepts will be drawn on to aid analysis of role and impact of the “sustainability reporting” initiatives explored in this study.

Methodology

Highlighting the value of studies adopting a qualitative methodology, Ahrens and Chapman (2006, p. 826) suggest that management accounting change “is not easily classified as only a dependent or only an independent variable”. Here I target a privately owned Australian corporate producer of staple food products (hereafter referred to as “the company”) with over \$2 billion of revenue in 2013 (BRW 2013), over 100 production sites in Australia and New Zealand, and which claimed to have a well-developed focus on “sustainability”. As a food producer, the case company consumed significant volumes of water, was responsible for significant greenhouse gas emissions, and had significant waste levels. As a consequence, the CEO made a commitment in the early 2000s to champion a focus on “sustainability” management practices.

The Head Office Environment Manager (HOEM) was contacted in mid-2012, and an initial meeting was held to discuss the project and request access to appropriate individuals for semi-structured interviews. Specifically, I requested access to all staff involved in the company’s sustainability accounting initiatives, as well as any other individuals that the HOEM understood to have opinions or perspectives on related initiatives. A semi-structured interview approach can enable rich insight into a phenomenon (Creswell 1998). The semi-structured interview issues developed here questioned the organisation’s approach to sustainability, the accounting technologies utilised to support sustainability practices, and perspectives of the interviewees on the effectiveness of those technologies.

Nine individuals ultimately provided informed consent to be interviewed through 2012 and 2013 including regional managers, environment officers, plant managers, and accountants. Access to the CEO was also requested;

Table 2 Interview summary

Date of interview	Generic position description	Acronym used in paper	Length (mins)
26 September 2012	Head Office Accountant	HOA	41
26 September 2012	Head Office Environment Manager	HOEM	60
23 November 2012	Regional Accountant 1	RA1	43
23 November 2012	Regional Environmental Officer 1	REO1	11
23 November 2012	Regional Accountant 2	RA2	28
21 January 2013	Regional Engineer 1	RE1	38
14 May 2013	Regional Environmental Officer 2	REO2	40
5 June 2013	Regional Plant Manager 1	RPM1	28
13 June 2013	Regional General Manager 1	RGM1	34
24 September 2013	Head Office Accountant and Environment Manager (joint interview)	HOA and HOEM	61

however, he argued that the HOEM had been appointed to operationalise his sustainability ambitions, and so therefore adequately spoke for his perspectives. A final follow-up joint interview with the HOEM and the Head Office Accountant was undertaken in September 2013. I acknowledge that a limitation in working through the HOEM is that there may have been other staff with perspectives on related processes that the HOEM was either unaware of, or wished to exclude from the study (including perhaps the CEO). Nonetheless, the nine interviewees provided a range of perspectives including some criticism and dissent about the value of related processes, thus enabling the nuanced narrative presented in this paper. Furthermore, assertions made by the interviewees were verified where possible, by examining hard copies of the company's sustainability reports. A list of interviewees (with anonymised position descriptions), along with interview dates and lengths, is provided in Table 2.

Interviews were transcribed and coded (utilising NVivo10) according to key themes that emerged. Those "nodes" were then edited and became the four sub-sections presented in the next section. Subjectivity of coding and analysis is acknowledged as a limitation of the study. Nonetheless, a "plausible" and "trustworthy" account (Ahrens and Chapman 2006, p. 834) is sought, by contrasting and comparing key arguments across interviewees.

Sense-Making Through Sustainability Reporting

This section is divided into four sub-sections in accordance with four key issues that emerged from the interviews; the role of sustainability reporting; antecedents of those reports; perceptions regarding the value of those reports; and shortcomings and challenges. Concepts from "Drawing on Accounting to Sense-Make Sustainability" section are drawn on as appropriate to aid articulation and analysis.

That theorisation is further developed in Discussion section that follows.

Sustainability Reporting

Interviewees explained that the company had been working on integrating a focus on "sustainability" for some time. By 2012, all production sites prepared Excel-based "sustainability reports" on a weekly basis. These reports now focused on measurement of several key metrics including water, energy, and gas consumption, and waste.¹ Clearly, the "sense" the company currently made of sustainability was closely aligned with resource and waste efficiency. The reports did not address a range of other potential sustainability questions including impacts on biodiversity, customer health (through consumption of their products), community, or employee welfare (Bebbington and Larrinaga 2014). Management currently had little interest in disclosing related data externally.

Several key characteristics of effective sense-making were, however, evident; "sustainability" had become an important element of on-going identity construction, extracted cues were drawn on to aid on-going interpretation and action, and the company remained willing to engage in on-going experimentation with reporting form and content (Weick 1995). Furthermore, all measurements were presented in both dollar and physical units, and so appealed to a range of staff (Schaltegger and Burritt 2000). The HOA explained, "I think we wanted, in the initial years, to develop the system to see what data was actually useful and what wasn't, for the business, and for other stakeholders". REO2 reiterated this experimental process;

'This is the fourth or fifth or sixth version since we first developed it in 2008 and we've actually trimmed down on quite a lot of things. We used to put in community feedback... Since then we've said don't

worry about this, just focus on water, energy and waste’.

REO2 summarised, “we think it works best when it’s simple”.

Location-specific sustainability reports were discussed by management in weekly teleconferences and combined into a consolidated report. Teleconferences helped “people understand the business model and the thinking behind why we do certain things” (HOEM). Teleconferences enabled a social sharing of ideas about efficiency and focused on retrospective reflection. This lively on-going interpretation adds to arguments that sense-making was effective (Weick 1995). A range of organisational agents were engaged from the CEO, to accountants, and to production-level staff (Bebbington et al. 2007). Locations with relatively poor results were able to examine the successes of other locations and were encouraged to reflect and act on related opportunities. These sustainability reports therefore met most of the criteria suggested by Bebbington (2014), for effective sustainability performance accounting; they made impacts visible, measurement was consistent, and the reports were valued as useful for decision-making. A key deficiency, however, was that there was currently little effort to engage with external stakeholders (Bebbington 2014).

Report compilation and preparation began each week when regional staff entered the quantity of each resource consumed (for example, litres of water and megawatts of power consumed), along with current unit costs charged by regional suppliers (for example, the current cost charged per litre of water by the utility servicing local production sites), to the shared spreadsheet. The spreadsheet then calculated a number of other distinct cost fields including a true cost of water, which sought to meaningfully combine the costs to purchase, treat, heat, and dispose of that resource. The Head Office Accountant (HOA) explained that these Excel-based sustainability reports did not draw from, or otherwise link with, the general ledger;

‘At the moment eighty-eight sites fill out the sustainability report. They email that report here to a server... and then we do a consolidated report... We collect quantitative data as well as descriptive data each week on what they have achieved, what they haven’t achieved... they all have their individual factors that are being looked at. So in ‘primary plants’ for example, water will be more of a focus than it will be in farming sites’.

In the absence of any direct reconciliation to the general ledger, the HOA explained how he validated the sustainability reports. “We use weekly average values and we say the values allowed to be entered are 30% less or more than your average values”. He added that plant-level staff inputting data were given a warning message that says “this value is outside the set values, please check it”. While there was therefore value in these validation checks, the inability to reconcile with the general ledger created a real possibility for intentional or inadvertent errors. The HOA was questioned on this and added, “we have ... discovered that some figures were a little different to those reported in the financials. Since then we have been auditing these figures internally on a regular basis to ensure that figures reported are materially close to the financial figures taking into account the timing differences between invoice and metered data”.

Here we provide contrast to Adams and Frost (2008) who suggested that performance improvement is difficult unless novel sustainability accountings are effectively integrated with financial accounting data. In this case, motivated by a strong mandate from top management to engage with sustainability, management had learnt to understand how local production nuances contributed to flaws in the data, and so meaningfully work with those reports. In this manner, sustainability data provided a useful complement to core financial accounting reports and so were capable of motivating effective performance improvement.

From RA1’s perspective, “the Excel spreadsheet works well for me because I can see every week our cost”. In addition, “I have a spreadsheet that runs through the whole year, and I can calculate what [each production site’s] usages are”. Similar comments from other suggest that sustainability reporting both motivated action, and interestingly (considering the lack of integration with the general ledger), had now become a useful source of financial information. RA1 finished, “the company’s been around for a long time, and a lot of people have been through the place and worked out very smart ways of accounting for everything”. The flip side to these successes, however, was that for a lot of production sites, the easier efficiency opportunities had now been addressed. For some sites, sustainability had become a relatively straightforward and routine process focused on monitoring good efficiency levels. Sense-making is most effective where dialogue is broad and on-going (Weick 1995). In this case, regular teleconferences stimulated that on-going dialogue.

Regional Plant Manager 1 (RPM1) explained the approach to waste recycling and water metering in his plant to illustrate how sustainability reporting enabled impressive efficiencies;

¹ The format and content of these reports as explained in this section were verified during the interview process where appropriate, by referring to hard copy examples.

'I'm running on about 98% on waste diverted from landfill. The little bit we've still got [to dispose of] is wet plastic. It's got a bit of matter on it that [recycling] people won't take. So we break down each area on the plant with meters and we break down through the day and cleaning through the night as well [usage was dissected in the reports by function and time]'

A key sense-making challenge now would arguably be maintaining this impressive waste recycling.

RA1 explained that the unique operations of the company had an important impact on the design and usage of the reports;

'We're a very integrated company. We produce everything..., we grow the [product], we produce it, we produce further processed products in different plants, we use the waste;... so it's a very difficult company. I think that if anyone came in and said, 'let's do a software package,'... we've had various people do that in the past and it hasn't worked because we are so multifaceted'.

In similar comments, the HOEM explained that the product mix can change from week to week, and so their Excel-based reports had become an effective tool to "drill down on things. If there is a particular number at a particular site that doesn't look right, I can go back into their individual site report respond". Alternatively, Regional Accountant 2 (RA2) felt that the use of Excel resulted in a lot of "double keying". He concluded, however, that it was still the best approach; it "doesn't take a lot of time". Regional Engineer 1 (RE1) argued that Excel was "reasonably accessible for all people" including accountants, engineers, environment managers, and plant managers.

Antecedents

In this "family"-owned company, the personal values of the CEO, relating to the environment and resource efficiency, were central to explaining how space was availed for the development of these reports. The HOEM explained that the "philosophy of the company is doing the right thing and doing things right". Later, she added that corporate strategies also focused on "being ahead of the game and anticipating what's going to happen". Similarly, the HOA explained, "genuinely he [the CEO] is concerned about the environment. I think that's the number one focus but there is also financial benefits to be gained from being sustainable and looking at alternative ways of running your organisation. So I think that there is a twofold focus here". RA1 explained, "there is a focus from very high up within the company that this report needs to be done". In short, the unique "sense-given" (Gioia and Chittipeddi 1991) by

the CEO about sustainability was that it was "realistic" and impacted on all of "us". The CEO argued that the company had an ethical responsibility to seek to limit resource consumption to the "right" levels, and should be able to defend itself with solid data, should resource providers ever threaten supply. The deliberate strategy (Mintzberg 1978) for sustainability in this case, thereby, became focused on resource efficiency.

RPM1 seemed to have a somewhat different perspective. He felt that the key motivation for producing these reports was financial;

'the [key] motivation is the cost to the business,... I think what he [the CEO] is doing here is being very realistic and saying 'we have to look at it from the perspective of how it impacts on us'.

However, others were confident to argue that sustainability was not simply about cost efficiency. As RA1 explained, in some cases related initiatives actually increased costs; sustainability reporting "has obviously cost the company more because [for example] the cost to send to landfill in Victoria is cheaper than waste removal". These alternative perspectives reflect the latitude staff had to respond with their own ethical values on water, energy, gas, and waste. In this manner, staff were able to "adopt, alter, [but not] resist or reject" (Maitlis and Christianson 2014, p. 78) the sense given about these issues from the CEO. The outcome in this case, was a diversity of emergent strategies across production sites (Mintzberg 1978) which linked closely to cost efficiency logics, and so encouraged all staff to "legitimise" (Voronov 2008), and appreciate the CEO's intention for these initiatives (Gioia and Chittipeddi 1991).

The HOEM added that while the CEO's ambitions for sustainability were a key antecedent, she had been employed to operationalise those ambitions;

'the people who run the company are aware what some of the long-term challenges are going to be for the company. And the short term ones. And increasingly they are sustainability risks. So it wasn't too much of a hard sell to get it started and I had the very strong support of the CEO and also our equivalent of CFO, our director of corporate services, was very much on board with it'.

From a sense-making perspective therefore, the HOEM and her three regional environment officers, with support from the CEO and CFO, were able to influence plant-level practices through a novel focus on "sustainability" that encouraged broad engagement, education, and linkage to established understandings of key organisational risks. The HOEM explained;

‘We’re educating people around the table about the business and sustainability at the same time. ... that increases the level of knowledge across plant managers and the executive team as to why things are a certain way’.

Those educational processes appeared to have impacted on the HOA, who now had his own emergent sense of how sustainability was distinct from financial control;

‘it’s not just about the cost, it is thinking outside the square. Just because we’ve been doing something for the past 30 years this way; there is new technologies to enable you to do things differently’.

The Value of Sustainability Reporting

Reviewing Trends and “Understanding the Business”

RPM1 explained that sustainability reporting helped him to understand trends across time;

‘The beauty about it is that I’ve actually broken my whole business down and I’ve got a record back to 2004 in relation to [business] sections, and then by electricity, gas, waste, recycling as well... that’s what I tend to do, just watch the trend over the years’.

RE1 also saw value in plotting trends; however, he felt that further sense-making was needed to improve the way this was done:

‘I think there’s got to be, as we collate data over the operation of the business, a way of plotting and distributing that data over each site to say, ‘this is how we’ve been trending over the last five years,’ and maybe also include where capital expenditure or improvements on the site have impacted’.

Contrasting to financial accounting, the HOEM also argued that sustainability information became valuable when it was analysed over long periods of time;

‘Financials are always looking at year to date compared with the previous year. But with sustainability you’ve got to take at least a ten year horizon... That’s one of the challenges with sustainability; the time frame is different [from financial accounting]’.

The HOEM added, “that’s really the whole point of it; to look at the trends ... because if you look at trends then you’re *understanding your business*” (emphasis added). Elsewhere she argued that it was important to “understand across the business what the numbers mean”. This simple narrative about the understanding the business was also referenced by other interviewees. Cultivation of this simple

narrative enabled broad interpretation of what “sustainability” might mean for the company. This sense given about sustainability also related to the fact that the company saw itself as very “numbers driven” (HOEM). Through these narratives, staff had come to accept that sustainability was not inconsistent with core goals around cost efficiency, productivity, and profitability, and that decision-making about resource consumption had to be supported by rigorous reporting, across a long time frame, and dissected in detail by process and site.

The HOEM provided further commentary about how she saw a distinction between sustainability and financial efficiency;

‘I guess to me the financials make sure that the business is viable and point to those areas of efficiency in a fairly short time frame.... but when you’re looking at what has happened and what is likely to happen [regarding sustainability] you do have to take a longer view’.

The HOA explained his perspective on understanding the business through sustainability reporting;

‘being an organisation of our size you need to report on just about everything in order for it to be highlighted and addressed so I guess that’s where sustainability come in’.

Communication and Plant-Level Decision-Making

Sustainability reports also facilitated valuable dialogue between plant managers. “The plants talk to each other about what processes they are using in order to reduce for example water use and electricity use. [Through these reports] ... they can view each other and compare” (HOA). The HOA added, “we have seen the wastewater treatment plant, we have seen all sorts of initiatives being driven to reduce those KPI’s and I think a lot of it can be attributed to that reporting”. The HOEM explained that weekly sustainability teleconferences drove “best practice through the business and we use those reports to inform that discussion”.

RGM1 explained that the company’s sustainability reports were “definitely” useful for plant-level decision-making, “because those are the reports that the sustainability committees, the various discipline sustainability committees, review every second month to see whether they’re on track”. RGM1 added, “we also benchmark against each other ... and we discuss how they got there and see if that can be implemented in any other sites”. The HOEM explained the benchmarking value of sub-metering within individual production sites.

‘Each site has to be able to account for water use in twelve or thirteen different areas... So we can set benchmarks ... we’ve been able to use that system to pull water use back at almost every site’.

The HOEM explained how the reports enabled her to interrogate individual production sites;

‘if there is a particular number at a particular site that doesn’t look right, I can go back into their individual site report... and see exactly what week whatever it was happened, whether it’s a consistent thing, whether it might be a mistake’.

In summary, sustainability reports had come to be valued by key organisational sense-makers, because they were consistently utilised across all production sites, and because they facilitated meaningful dialogue about resource efficiency opportunities. Approaches differed across production sites as they were allowed to uniquely “render the numbers intelligible through drawing upon the extant working version of operational reality” (Abrahamsson et al. 2016, p. 181). Ancona (2012) suggests that maps are only deficient if they fail to drive action. In this case, these reports were effective sense-making devices as they guided a range of active management responses. If identity construction is a “core preoccupation in sense-making” (Weick 1995, p. 20), then the journey towards the un-identifiable goal of “sustainability” benefited here, through connection to another value that was also broadly respected; the importance of encouraging everyone to “understand the business”.

Shortcomings and Challenges for Sustainability Reporting

RPM1 explained that sustainability data required careful interpretation; “there are other factors that come into the mix ... [including] production volume and mix of products [which also] changes each year”. While the HOA felt that it was “a lot easier to manage [sustainability accounting] in Excel”, he explained;

‘Excel isn’t exactly integrated with our ERP system [their financial and production accounting system] and so [he believed], we will be moving it in and using our financial data alongside sustainable data to produce mainstream reporting which is integrated.’

Because of the current disconnect from the general ledger, “large differences exist and they definitely get highlighted” (REO2). The HOEM explained for example, that electricity costs as represented in a recent annual sustainability report were approximately 30% less than that recorded in the general ledger. She added, however, that

these problems had come to be accepted as something of a norm;

‘so that’s something that’s crept into the system. People think, well they can just do that [in some cases use estimates of resource usage] as a kind of quicker way of calculating, rather than waiting for the invoice to come in; but it doesn’t work’.

Integration of the company’s sustainability and financial accounting records clearly had some way to go. It would seem, however, that the HOEM was less committed than the HOA to progressing towards reconciling these disparate accounting systems; “I guess at some point we will shift our current system into a database system”. The HOA also suggested that sense-making on the importance of integrating sustainability and financial accounting systems had slowed; “at the moment we haven’t done anything about it... I think at the moment everyone’s quite happy on the things we are reporting”. As noted earlier, management had learnt to understand and work with flaws in sustainability accounting information, and so make progress with using that data for meaningful decision-making.

The HOA felt that there were flaws in both financial and sustainability accounting;

‘I think the only reason [for discrepancies between the sustainability report and the general ledger] was because I don’t think purely electricity costs were in that general ledger account... I think there were a whole lot of things grouped together. So until we separate ‘sustainability electricity’ from other things, I think we might have to keep going this way.’

The HOEM also argued, “as long as we know what the general ledger is comprised of and we can pull two or three figures on energy from the sustainability report and we can say they’re roughly the same [then we are happy that they reconcile]”. Importantly, both sustainability and financial accounting reports had value. On-going sense-making of how more effective reconciliation might be achieved was persisting, and deficiencies in both accounting systems did not hamper on-going sense-making of sustainability. Management understood how the nuances of their production processes were contributing to inaccuracies, and so persisted with utilising sustainability maps to support resource efficiency decision-making. For now, a key “sense” that was emerging from these discussions was that there would ultimately be value in reconciliation, and in reducing the “doubling up” of data entry.

The HOEM explained that another challenge was to formally link capital expenditure proposals with sustainability data; “CAPEX is [currently] done on a simple payback... [however] if it’s got a sustainability or an environmental merit consideration then he [the CFO] talks

to me about it”. In line with the overarching narrative of the importance of “understanding the business”, management were willing to explore investment proposals that narrowly met financial benchmarks, if those proposals also had sustainability utility. Informal mapping of CAPEX proposals to sustainability information was successful here, because management valued both formal reporting systems and the supplement provided through informal information.

Further Discussion

This section provides deeper theoretical analysis of how management utilised accounting to aid interpretation of directives given by the CEO about sustainability. Understood through the language of sense-making, it is apparent that management retained an openness (Ancona 2012) to continue working towards the unknown of sustainability (Spence and Rinaldi 2010). Here I add to the arguments of Maitlis and Christianson (2014) by showing that the CEO was able to convince staff to adopt a sense given about sustainability and resource efficiency, by cleverly and compellingly packaging these issues as elements of broader deliberate strategies (Mintzberg 1978) focused on “understanding the business”. Through compelling packaging championed from “the top”, the case provides a contrast to Gray et al. (1995), demonstrating that sustainability is not always battle ground of internal conflict, and can progress, despite known flaws in supporting data. At the time of this study, on-going sense-making remained evident in the lively sense of complementarity between economic and sustainability objectives.

van der Cramer et al. (2006, p. 387) suggest that corporate interpretations of sustainability are likely to vary depending “on the values that are particular to the organisation”. The key value that guided interpretation of these sustainability reports was the importance of understanding resource usage, and how environmental factors impacted on the business. Here I contrast to Schaltegger (2011) by arguing that it is not critical to have a comprehensive sustainability strategy in place before taking action. Instead, there is value in allowing creative responses to the sustainability mandate (for example, the “true cost” of water) to emerge through cycles of interpretation and action (Maitlis and Christianson 2014). Complementary metrics (such as water usage in kilolitres and the true cost of water) pushed management to think about resource usage outside any “preconceived conceptualisations” (Kraus and Stromsten 2012, p. 200). Further to Fraser (2012) and Bebbington and Fraser (2014), the power of sustainability here lay in its focus on a “journey” rather than a “destination”. While the simplicity of a single monetary bottom line was valued in a case explored by

Bebbington (2014), all financial measurements utilised in the reports explored here were presented discretely. This case demonstrates that there is no one “right” approach to accounting for sustainability [such as SAM (Jasinski et al. 2015)]. A variety of approaches can have utility in different circumstances, and allowing for management creativity is, in fact, critical.

Like Bebbington (2014), this case demonstrates that simplicity is paramount. I add to Bebbington (2014) by observing that the understandability of simple indicators can be more important to management than concerns about a range of flaws including dubious monetary translation, and a failure to effectively reconcile to the general ledger. Further to Gond et al. (2012), Kraus and Stromsten (2012), and Tillmann and Goddard (2008), the combination of both financial and physical metrics was valued and reflected sense-making input from finance managers and production managers (Schaltegger et al. 2015). Gray (2010, p. 51) critiqued the use of “simplified and integrated sets of indicators”. However, management in this case would counter that it was this simplicity that gave the reports their power to drive on-going interpretation (Weick et al. 2005), and “induce and reflect” change (Bebbington 2007, p. 236). While the indicators examined here were limited, engagement with “sustainability” was well supported from the top and so had percolated through the organisation (Bebbington and Fraser 2014; Fraser 2012). The visibility created by accounting, “provided an opportunity to interrogate the organizational metarules of sustainability” (Bebbington and Fraser 2014, p. 149).

Interviewees explained how sustainability sense-making had progressed since the CEO gave directions in 2008 to engage in related practice. A range of initiatives had since emerged, managed by the HOEM, but with contributions from accountants and production managers. These initiatives included a focus on the importance of monitoring trends, a consideration of how sustainability targets could be set, and the establishment of regular teleconferences which focused on opportunities for improvement:

‘every year there’s been things that need to be changed. They’re more structural things. Every time we do it people get better and they understand more what it’s about. So I think this time next year it will be really focused on specific action and specific targets as opposed to how the whole thing works’.

Focusing specifically on the example of electricity, the HOEM explained that sense-making processes started by seeking to understand cost, then progressed to understanding efficiency, and was now concentrated on seeking to effect incremental change:

‘coming from a position where we know how much money we spend of electricity every year, to realisation where things are at with energy, that has taken two or three years. ... I think in the future sustainability reporting will really be about incremental improvement’.

At the time of the study, the HOEM was continuing to seek progress by thinking about how accountants could become more involved. She hoped they might now be encouraged to utilise the reports to continuously review utility pricing, prepare financial forecasts (“links can be made, and that will evolve, I think, over time”), and understand “why we want to know the true cost of water is, why we’re measuring the nutrient concentration in waste water, and those sort of things”. She added that an important sense-making direction was to consider “economic sustainability” as a part of it as well. Obviously you have to be viable and profitable to be sustainable too, and that link can be made stronger, as well.

The fact that management were continuing to grapple with a number of related puzzles, and experiment with a range of metrics (Gasparatos et al. 2009), suggests that sustainability in this case was not an effort to shut down debate (Milne et al. 2006). For now, those on-going puzzles including questioning how the reports might be reconciled to the general ledger, how they might be enhanced to contribute to capital investment dialogues, and how a range of employee related metrics might be added. While the case company had some way to go in integrating sustainability and financial reporting and resolving flaws in both (Fries et al. 2010), management remained willing to persist with sustainability interpretation and action (Maitlis and Christianson 2014).

Despite these positive indications, a number of features in this case can also be critically reflected upon. Firstly, despite the company’s bold choice to utilise the term “sustainability”, related activities were largely directed towards questions of eco-efficiency (Figge and Hahn 2013), and did little to address broader global sustainability concerns including health, agriculture, and biodiversity (Bebbington and Larrinaga 2014; WCED 1987). Furthermore, the focus here was on how resource scarcity impacted on the company; limited attention was given to how the company impacted on the environment. While the simplicity of focusing on water, gas, energy and waste was appealing to management, efforts to engage with a greater range of potentially contradictory qualitative and quantitative metrics might have enabled more effective challenging of “preconceived conceptualizations” (Kraus and Stromsten 2012, p. 200).

After over 5 years of development, the content and structure of these reports remained nothing particularly

“earth shattering, unique or novel” (Thomson and Georgakopoulos 2010, p. 140). Sustainability accounting here did nothing to answer complex, nested and dynamic questions about water, energy, and waste (Gasparatos et al. 2009). For example, how did the company’s water consumption impact on Australia’s threaten water resources? and how did the company’s efforts to minimise waste and energy consumption impact on Australia’s pollution concerns? Finally, while management retained an openness to engage with on-going sense-making, that openness was also constrained within the limitation that only agents from within the organisation were permitted to participate in related dialogue.

The very act of calculating, reporting, and responding to simplified indicators, therefore, effected some constraining of the complex reality of sustainability to a “safe and controllable”, corporate-focused conversation (Gray et al. 1995, p. 233). Nonetheless, what the company was doing cannot simply be dismissed as “some blandly under defined notion of responsibility.... [or a] powerful fiction” designed to consciously misuse related terminology (Gray 2010, p. 50). Through the language of sense-making, it is apparent that management were continuing to question how related activities might be developed. Management understood that “sustainability” was a contested concept. Nonetheless, mobilisation of this terminology enabled a range of actions which financial reporting alone would not have facilitated. Several subtle explanations were provided about how sustainability objectives differed to core financial objectives. First, interviewees explained that the goal of sustainability was to maximise resource and waste efficiency, not simply to be efficient to the extent that was cost-effective. Second, sustainability was viewed as requiring a long-term focus (apparently a ten year and longer horizon was appropriate). Third, sustainability reporting focused on measurement in both physical and dollar units.

The first contribution of this paper focuses on understanding how accounting technologies enabled sense-making of the company’s sustainability-related impacts. Further to Maas et al. (2016), the largely emergent performance-focused sustainability accounting system developed here was well supported by a deliberate sustainability strategy given by the CEO. That strategy focused on the importance of understanding the business (Contrafatto and Burns 2013) and was effectively controlled through regular teleconferences. The on-going importance of accounting reports, to support this environment of vibrant dialogue and debate, confirms that sustainability remained a meaningful direction of intention (Spence and Rinaldi 2010).

Weick (1995) argues that sense-making is driven by plausibility rather than accuracy. Thomson and Georgakopoulos (2010, p. 145) support Weick (1995) by

arguing that “organisations should not wait until they have a perfect environmental or sustainability accounting system in place before they attempt to report on their sustainability”. My second contribution adds to Thomson and Georgakopoulos (2010) by demonstrating how management were able to persist in usefully interpreting flawed sustainability maps (Maitlis and Christianson 2014). Sense-making persisted because management were provided with a clear sense-given narrative from the CEO, focused on the importance of understanding the business. This broad directive provided latitude to management to link sustainability to core economic concerns. Management also had the experience to temper interpretations of these flawed data, with a little sensibility about how nuances in production processes contributed to those flaws.

The “courage” demonstrated by the CEO here (Gladwin et al. 1995, p. 42), to mandate this focus on sustainability, also gave management space to act on their personal ethical perspectives about sustainability. We can observe, however, that this courage was probably not as “supreme”, as what Gladwin et al. (1995, p. 42) might have hoped for. The openness to on-going development tolerated in this case was limited to a focus on exploring opportunities relating to energy, gas, water, and waste. Without any bolder sense-giving from the CEO, management remained unwilling for now, to embrace broader sustainability initiatives such as tackling questions of biodiversity or consumer health.

As a final contrasting contribution, I suggest that unless novel maps are subject to continuous development, they might ultimately constrain sense-making. In this case, conversations were becoming increasingly dull as opportunities to further improve resource efficiency narrowed. Head office management were cognisant of these concerns, which they sought to address through regular teleconferences. “If sense-making is inherently social, and if more and different kinds of data are important ... then leaders at the top of the organisation need to encourage others further down in the organisation to assist in ongoing sense-making” (Ancona 2012, p. 12). I argue, however, that what was now needed was something more. Specifically, it was becoming increasingly critical that the company now seek to engage with a broader range of sustainability questions, along with a broader collective of external stakeholders.

Both the HOA and the HOEM effectively concurred. The HOEM argued that what she felt was now needed was,

‘more strategic discussions with site managers about stakeholder involvement, dealing with our neighbours and those sorts of things. And also at that point I hope we would be bringing in those other aspects of sustainability as well [such as employee, community and customer focused sustainability impacts]’.

The HOA argued, “once we become efficient and mature at our efficiencies I think maybe down the track there will be a little bit less focus on [existing metrics] because ... you can’t squeeze any more efficiencies”. Therefore, unless the CEO now championed new sustainability sense-giving opportunities, management’s energy for on-going discussion amongst themselves about the importance of water, gas, energy, and waste efficiency might begin to erode. The CEO now needed the “supreme courage” (Gladwin et al. 1995) to encourage new dialogues which focused on broader sustainability concerns (Bebbington and Larrinaga, 2014), such as employee, community, and customer impacts.

While the case demonstrates that a wide range of perspectives were engaged with from the CEO, HOEM, and CFO, through to regional plant managers and environmental officers, there was still little engagement with others outside the organisation. Bebbington et al. (2007, p. 231) suggest that “the process of working with organisations and stakeholders to provide accounts of sustainability may prove more useful than the accounts themselves”. Sustainability sense-making could now also benefit here, if management were to encourage a broader range to stakeholders to participate in related dialogue about issues and questions of importance (Dillard 2014; Giuliani 2016).

Shearer (2002, p. 542) suggests that broader roles for accounting will only be able to develop where organisations “reconsider the moral dimensions of economic life”. Discourse is the solution; “if such an ethic is successfully to compete with economic discourse, it cannot be merely regulatory or prohibitive in its aim, but must rather compromise a discourse of human identity that is irreducibly distinct from economic man” (Shearer 2002, p. 569). The broad focus on understanding the business encouraged in the case company explored here, provided effective space for internal discourse. Further nurturing of the moral dimensions on sustainability, could now benefit if the CEO encouraged this discourse to engage with broader community groups. A broader openness to a wide range of ethical perspectives offered the best hope for developing a focus on sustainability which could become less dominated by neo-liberal imperatives.

Conclusions

The case company explored here provides an example of how a focus on sustainability and sustainability accounting can begin to be realised in practice. Sustainability here was driven from the top and was an element of deliberate strategies focused on the importance of understanding the business. That clear narrative enabled staff to

operationalise a range of sense-making initiatives focused on resource efficiency and waste minimisation. Guidance provided by sustainability reports became critical to management's sense-making. Through those accountings, an effective culture of benchmarking developed. Ideas for improving efficiencies were shared, and gradually all production sites were progressing towards improved practice.

Management argued their sustainability reports had value because of their simplicity. In a complex company, with varied production processes, and over 100 production sites across Australia and New Zealand, making "sense" of how to achieve that simplicity had taken years of engagement with a broad cross section of management. Of practical relevance, this case suggests value in a pragmatic and incremental approach to change. While the accuracy and meaningfulness of related data may be contested, management should not hesitate to engage with sustainability, particularly given its power to ignite the imagination and personal ethical perspectives of management.

Limitations of this study are identified including the fact that limited interviews were obtained, and a single case company's approach to sustainability reporting has been explored. This study provides no empirical insight into how a corporation might develop and sustain distinct practices focus on other elements of sustainability including biodiversity and consumer health. This study does suggest, however, that if a company is to engage with novel questions of this nature, the "supreme" championing courage (Gladwin et al. 1995) of the CEO will be critical. Further studies might seek to explore how CEOs wrangle with such broader sustainability questions, and how they develop the necessary sense-giving arguments, to convince management of the importance to the company.

A number of contributions are developed. First, management understood that they drew narrowly from the Brundtland conception of sustainability. However, because a focus on sustainability identity construction persisted (Weick 1995), the novel accounting initiatives developed here, guided management towards a meaningful direction of intention (Spence and Rinaldi 2010). Management's sense-making of sustainability was not focused on shutting down debate (Milne et al. 2006), nor had it become "self-confirming and delusional" (Baker and Schaltegger 2014). Furthermore, despite the fact that sustainability linked closely with core financially focused objectives, staff had clear understandings about how the two differed. Significant consensus had been achieved that together, both financial control and sustainability contributed to core organisational goals.

Second, the study complements Thomson and Georgakopoulos (2010), by providing an example of how management were able to overcome a number of challenges, and utilise flawed accounting maps to navigate on-

going "sustainability" interpretation (Maitlis and Christianson 2014). To address tensions that sustainability objectives might be inconsistent with core profit-focused objectives, the CEO developed a clear overarching narrative that linked the two, focused on the importance of understanding the business. Importantly, this narrative also gave management space to articulate and act on personal ethical perspectives. Management experience was also important as it enabled them to interpret how production peculiarities impacted on those flaws.

Finally, the case company provides an example of how accounting can limit on-going sense-making, where development of related maps is constrained (Ancona 2012). I contribute here by arguing that if the company is sincere in seeking to progress with sustainability sense-making, it ought to now experiment by incorporating new features and objectives, and by engaging with a broader range of stakeholders. In order to do that, however, the sincere commitment from the CEO to this broad unknown of sustainability will be needed. It is only through such commitment that management are availed space to engage with such "moral dimensions of economic life" (Shearer 2002, p. 542).

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Compliance with Ethical Standards

The author has no financial relationship, and otherwise no known potential conflict of interest, with the case study organisation explored in this study. In this study, semi-structured interviews have been undertaken with adult human participants, all of whom provided informed consent to be interviewed. All procedures performed in this study involving human participants were in accordance with the ethical standards of the institutional research committee and with the 1964 Declaration of Helsinki and its later amendments. The author has full control of all primary data which are available to the journal to review if requested.

Conflict of interest The author declares that he has no conflict of interest.

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