THE BALANCED SCORECARD AND ENVIRONMENTAL DIMENSIONS: EVIDENCE FROM AN AUSTRALIAN HEATH CARE STUDY

A Thesis submitted by

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ABSTRACT

The purpose of this thesis is to explore the integration of the environmental dimension into a balanced scorecard (BSC) in a regional public healthcare organisation in Australia. Significant information, such as sustainability issues, including environmental and social sustainability, was not considered in Kaplan and Norton's original BSC. It therefore needs to be updated to include several elements including environmental issues. The thesis considers three objectives. The first objective is to investigate the ways the environmental dimension can be adapted and incorporated into the BSC in a public healthcare context. The second objective is to investigate the barriers and motivations of integrating environmental performance into the BSC. The third objective is to examine how a public hospital constructs a BSC which incorporates endogenous (internally generated) environmental activities and exogenous (externally generated) environmental events. Three separate journal publications have been developed to address these three objectives. Qualitative data was collected from semi-structured interviews with individuals employed in management, medical, and operational roles in a large public hospital. Secondary data was collected through document analysis (including annual reports, strategic plans, and information sourced from the hospital website).

The first paper reports that four different approaches are possible to incorporate the environmental dimension into the BSC. These approaches are fully integrated, partially integrated, a separate additional perspective and differentiation. Selection of the appropriate response is dependent upon the origin of the environmental activities and events. In relation to the stakeholder theory, the findings of paper one suggest that healthcare providers recognise the critical nature of environmental performance in creating value for both internal and external stakeholders. Such findings may encourage organisations to clearly identify their target stakeholders before developing a bespoke BSC. The results from the second paper reinforced the contingent nature of the chosen model and highlight the importance of organisational vision and environmental strategy as formative factors. This paper also identified sources of resistance to incorporating the environmental dimension in the BSC. These included the role of environmental disclosure, insufficient sustainability BSC knowledge, the lack of BSC champion's support, organisational culture, and limited environmental commitment practices. The second paper's findings also revealed actions which can

be taken to support the decision to integrate environmental performance in the BSC. These included updating the information system, appointing sustainability champions, articulating financial motivations, and recognising external pressures. Linking with the theoretical perspective, concepts from institutional theory have used to illustrate how institutional factors (professional sustainability expertise and realisation of financial benefits) and reflexive isomorphism (associated with external pressure by government) can be conceptually integrated to better understand organisational applications of the BSC. Finally, the third paper concludes that it is necessary to differentiate between an organisation's environmental interventions and external environmental interventions. The BSC is a useful tool to monitor the hospital's environmental practices and enable the organisation to effectively manage the impacts of non-organisational actions such as climate change, natural disasters and pandemics. This paper also explains how the possible use of attribution theory may help differentiate between internally generated environmental activities (controllable) and externally generated environmental events (uncontrollable).

The three papers that form this thesis provide a substantive contribution to the literature. The research provides impetus for health care organisations to consider the benefits of including the environmental components as a part of the BSC. Moreover, it offers new avenues for future academic research which explores the role of performance measurement in environmental sustainability.

CERTIFICATION OF THESIS

This Thesis is the work of Salim Khaleel Khalid except where otherwise acknowledged, with the majority of the authorship of the papers presented as a Thesis by Publication undertaken. The work is original and has not previously been submitted for any other award, except where acknowledged.

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STATEMENT OF CONTRIBUTION

The following detail is the agreed share of contribution for candidate and co-authors in the presented publications in this thesis:

1. Khalid, S, Beattie, C, Sands, J & Hampson, V 2019, 'Incorporating the environmental dimension into the balanced scorecard', *Meditari Accountancy Research*, vol. 27, no. 4, pp. 652-674.

   The overall contribution of ***Salim Khaleel Khalid*** was 72.5% to the concept development, analysis, drafting and revising the final submission; ***Professor John Sands (10%), Dr Clair Beattie (15%), and Bonnie Hampson (2.5%)*** contributed the other 27.5% to concept development, analysis, editing and providing important technical inputs.

2. Khalid, S, Beattie, C, & Sands, J 2020, Barriers and Motivations of Integrating Environmental Performance into the BSC. ***(Paper submitted***).

   The overall contribution of ***Salim Khaleel Khalid*** was 75% to the concept development, analysis, drafting and revising the final submission; ***Professor John Sands (10%), and Dr Clair Beattie (15%)*** contributed the other 25% to concept development, analysis, editing and providing important technical inputs.

3. Khalid, S, Beattie, C, & Sands, J 2020, Identification of Organisational Environmental Actions and Non-organisational Environmental Actions for Balanced Scorecard. ***(Paper submitted***).

   The overall contribution of ***Salim Khaleel Khalid*** was 75% to the concept development, analysis, drafting and revising the final submission; ***Professor John Sands (10%), and Dr Clair Beattie (15%)*** contributed the other 25% to concept development, analysis, editing and providing important technical inputs.

CONFERENCE PRESENTATIONS

Khalid, S, Beattie, C, and Sands, J 2019. Considering Endogenous and Exogenous Environmental Indicators in the Public Hospital's Balanced Scorecard, Proceedings of 53rd International Business Research Conference 21-22 November 2019, Monash Conference Centre, Melbourne, Australia, ISBN: 978-1-925488-70-8.

AWARDS

The article, Incorporating the environmental dimension into the Balanced Scorecard: A case study in health care, has been selected as an Outstanding Paper in the 2020 Emerald Literati Awards. The editorial team said that it is one of the most exceptional pieces of work they saw throughout 2019.

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LIST OF ABBREVIATIONS

ABF	Activity Based Funding
BSC	Balanced Scorecard
BVS	Business Values Scorecard
CSR	Corporate Social Responsibility
GDP	Gross Domestic Product
HSBC	Hospital Balanced Scorecard
KPI	Key Performance Indicator
PBF	Population Based Funding
NHA	National Healthcare Agreement
NHRA	National Health Reform Agreement
SBSC	Sustainability Balanced Scorecard

CHAPTER 1: INTRODUCTION

1.1 Motivations and significance of the research

Balanced Scorecard has been "hailed … as one of the 75 most influential ideas of the twentieth century" (Niven, 2008, p. 12).

Strategy formulation and strategy implementation are two quite different things (Engert et al., 2016). In business, strategy formulation demonstrates how an organisation sees its internal and external stakeholders (Engert et al., 2016). On the other hand, strategy implementation refers to the translation of the chosen strategy into action (Engert et al., 2016). A balanced scorecard (BSC) is a modern performance management technique that is used to monitor and check progress of strategy implementation (Upton & Arrington, 2012; Campbell et al., 2018; Langfield-Smith, 2018). The BSC explicitly connects strategy with a group of performance indicators (Busco & Quattrone, 2015). The BSC moves organisations from a narrow vision to a broad vision (Wong-On-Wing et al., 2007). In contrast to traditional performance measurement systems, the BSC is a holistic performance measurement system. It includes leading (non-financial) and lagging (financial) performance data (Dalla Via et al., 2019), qualitative and quantitative measures, internal and external stakeholders, representing a short-term and long-term view (Bartlett et al., 2014; Otley, 2016).

In recent years, a growing number of public health care providers have begun to use the BSC (van de Wetering et al., 2006; Aidemark & Funck, 2009; Weir et al., 2009; Kollberg & Elg, 2011; Yuen & Ng, 2012; Smith & Loonam, 2016; Soysa et al., 2016; Bobe et al., 2017; Soysa et al., 2019; Oliveira et al., 2020). Nevertheless, the BSC may not provide what it promises (Busco & Quattrone, 2015). The popularity of the BSCs does not necessarily provide a sufficient indicator for the success of the BSC (Perkins et al., 2014), especially since the estimated failure rate of the BSC is more than 70 per cent (Johanson et al., 2006). Thus, despite the popularity of the BSC, the benefits of using the BSC in health organisations are still ambiguous (Porporato et al., 2017). Moreover, the original BSC does not cover all stakeholder expectations (Huang

et al., 2014). That is, while public hospitals are being asked to consider all their aspects in their performance measurement systems (Weir et al., 2009), the original BSC does not present an holistic "balanced" picture of a public hospital (Kollberg & Elg, 2011). Significant information, such as sustainability issues, including environmental and social sustainability, was not considered in Kaplan and Norton's original BSC (Kennerley & Neely, 2002). Kaplan and McMillan (2020) recognise that the original BSC was not developed to implement sustainability strategies; it therefore needs to be updated to include several elements including environmental issues (Kaplan & McMillan, 2020).

There are many reasons that organisations may omit environmental measures from a traditional BSC. Firstly, the integration of environmental issues throughout the BSC "is rather a complex, highly micro political process requiring a lot of patience, power and persistence" (Bieker, 2003). This reflects the knowledge that developing the BSC based on a sustainability strategy requires a reconsidered vision, new design and new data (Möller & Schaltegger, 2005). Such a process is costly and is time-intensive (Lipe & Salterio, 2000). Furthermore, using multiple reports leads to fragmented environmental information (Länsiluoto & Järvenpää, 2008). Prior research related to the Australian public sector has also found limited interest in integrating environmental measures into the BSC (Adams et al., 2014). Yet, sources of active resistance to including environmental performance dimensions in the BSC are not well understood.

Commentators have reported that many Australian organisations have attempted to integrate environmental issues in their BSC (Bedford et al., 2008). Where the environmental measures should appear in the BSC still remains a significant question in this regard (Journeault, 2016), and it depends on several factors including orientation strategies (Bieker, 2003). In general, organisations try to either achieve market success or meet society's needs (Bieker, 2003), or both. For example, integrating environmental issues throughout the existing original BSC perspectives provides a chance to succeed in the marketplace (Figge et al., 2002). Alternatively adding a fifth perspective related to environmental and social issues can be a good approach to meet society stakeholders' needs (Figge et al., 2002). This however is contradicted by Epstein and Wisner's (2001, p. 8), arguing that "companies that have

identified sustainability as a key corporate value or strategic imperative of the organisation may choose to expand the BSC by creating a fifth perspective" (see also Butler et al., 2011). For Kaplan et al. (2004), the environmental dimension is one of the components of the internal processess that illustrates the creation of value for customers. For this reason, environmental and social issues should be moniterd under the internal business processes perspective (Kaplan & Norton, 2004). Consequently, defining the appropriate BSC perspective(s) for environmental issues is a significant challenge for organisations (Epstein & Wisner, 2001). In addition, most of the previous approaches are still theoretical and have not yet been empirically tested (Nikolaou & Tsalis, 2013). For public organisations, it is yet unknown what the potential ways to encompass environmental issues into the BSC are (Journeault, 2016).

Defining environmental issues that should appear in the BSC is another concern facing the development of the BSC for sustainability issues. In general, it is not recommended to include all environmental components in the BSC (Journeault, 2016), as this will draw attention away from the organisation's central strategy (Butler et al., 2011). There are two problems in this regard. Firstly, there is a lack of clear procedures to select these areas (Nikolaou & Tsalis, 2013). Secondly, while Dias-Sardinha and Reijnders (2005) suggested considering all significant environmental components in the BSC, these are different from industry to industry and from firm to firm (Hubbard, 2009). Thus, as stated above, the public sector, including healthcare still shies away from incorporating an environmental component into their BSC (Journeault, 2016). However, the Australian Medical Association (AMA) in 2019 publicly stated "that achieving environmental sustainability in health care is essential to improving the way Australia's health system functions" [1]. Its position on improving environmental sustainability within the Australian healthcare sector has expected outcomes of bring benefits tor human health and supplementary efficiencies for the sector.

The scope of environmental issues is another contemprary issue facing the integration of environmental issues into the BSC. Environmental events are not limited to an

[1] See Environmental Sustainability in Health Care -2019 https://www.ama.com.au/position-statement/environmental-sustainability-health-care-2019

organisation's context. Any organisation works within a larger system (Hansen & Schaltegger, 2018). This system consists of an organisational level, an industry level, a societal level and a natural level (Hahn et al., 2010). Accordingly, environmental events are generated by these different levels (Whiteman et al., 2013). For example, "how many organizations could exist in the absence of oxygen production, fresh water supply, or fertile soil?" (Gladwin et al., 1995, p. 875). Yet, the BSC does not pay any attention to non-organisational environmental actions (Johnson, 1998; Figge et al., 2002; Butler et al., 2011; Hahn & Figge, 2018; Hansen & Schaltegger, 2018). The contemporary question for adopters of the BSC is whether organisations need to consider non-organisational actions (e.g. global outcomes) in their BSCs (Hansen & Schaltegger, 2018). This thesis tries to address the gaps outlined above.

1.2 Research objectives and research questions

Hospitals are environmentally sensitive industries (Shapiro et al., 2000), and they are being asked to take environmental actions more so than organisations that work in less environmentally sensitive fields (Christ & Burritt, 2013). BSC is a vehicle for implementing a sustainability strategy (Länsiluoto & Järvenpää, 2010) and provides managers with feedback about strategies being implemented (Cheng et al., 2018). Some organisations have started to use BSC to implement their environmental sustainability strategy (Länsiluoto & Järvenpää, 2008, 2010; Journeault, 2016) while others still tend to exclude environmental issues from their BSC (Hansen & Schaltegger, 2016). The institutional pressures for excluding environmental issues from BSC are as yet unexplored (Hansen & Schaltegger, 2016). Moreover, despite the increase in the use of the BSC by public hospitals, it is not clear whether hospitals actually employ the BSC to implement a sustainability strategy. Further, more research is needed to investigate how public organisations, including health organisations, integrate environmental issues into the BSC (Journeault, 2016). Therefore, this study has set the following main research objectives:

1. To explore the ways in which the BSC can be adapted to incorporate the environmental dimension in a health care context.
2. To explore the barriers and motivations to adopting a decision to integrate environmental performance into the BSC.

3. To explore the organisational environmental actions and non-organisational environmental actions that should be incorporated in the BSC.

To achieve the above research objectives, this study addresses the following research questions:

R.Q.1 How can the BSC be adapted to incorporate environmental performance in a health care context?

R.Q.2 What are the barriers and motivations to adopting a decision to integrate environmental performance into the BSC?

R.Q.3 What organisational environmental actions and non-organisational environmental actions should be incorporated into the BSC?

Chapter 3 contains the findings of the research study that address RQ1, while chapter 4 provides the evidence to help answer RQ2. Finally, RQ3 is used to investigate the third question, which is reported in chapter 5.

1.3 Scope of the study

Sustainability stakeholders in urban areas are different from those in regional areas. For example, an organisation that works in an urban area is more sensitive to community stakeholder pressures than other areas (Epstein & Wisner, 2001). Hence, developing a BSC for sustainability purposes needs to take into account the spatial and geographical context of the organisation (Epstein & Wisner, 2001; Hahn & Figge, 2018). There is no single study that addresses the earlier stated gaps, neither in metropolitan areas nor in regional areas in Australia. Nevertheless, in Australia, organisations that work in regional areas are regarded as the "backbone of the desert economy" (Evans & Sawyer, 2010). In Queensland researchers observe that people living in regional areas visit public hospitals more than private hospitals (Gray et al., 2012). Therefore, Queensland has 70 public hospitals in regional areas while it has just 20 hospitals in the major cities. Furthermore, the sizes of public hospitals are different from the private hospitals. For example, in 2013–14, there were 747 public hospitals, which accounted for about 65% of hospital beds (58,600) while there were

612 private hospitals, which accounted for about 35% of beds (31,000) (Australian Institute of Health and Welfare, 2015). This thesis therefore makes a significant contribution to the literature with its focus on regional and rural public health organisations.

The study was conducted with a large regional public health care provider in Queensland, Australia. The organisation offers services across many thousands of square kilometres and delivers clinical services to over 250,000 people. It has over twenty hospital and healthcare facilities under its control and employs several thousand staff.

1.4 Overview of research methodology[2]

Before starting to develop the research questions, data collection and data analysis, researchers have to carefully define a suitable research philosophy and research paradigm for their research. A research philosophy refers to a group of assumptions that pertain to the nature of epistemology, the nature of ontology and the nature of axiology (Collis & Hussey, 2013). Research paradigm is a broad concept and covers a range of things (Lukka, 2010). The research paradigm guides the research to identify what is to be examined, the type of research questions, and how the data should be interpreted (Lukka, 2010). Table 1-1 summarises two different research philosophies and research paradigms.

[2] Because this thesis follows the format of thesis by publication, the methodology section is discussed in detail in chapter three (paper one), chapter four (paper two) and chapter five (paper three).

Table 1.1 Research philosophies and research paradigms (Collis & Hussey, 2013, p. 47)

Philosophical assumption	Positivism	Interpretivism
Ontology assumption (the nature of reality)	Social reality is objective and external to the researcher. There is only one reality.	Social reality is subjective and socially constructed. There are multiple realities.
Epistemology assumption (what constitutes valid knowledge)	Knowledge comes from objective evidence about observable and measurable phenomena. The researcher is distant from phenomena under study.	Knowledge comes from subjective evidence from participants. The researcher interacts with phenomena under study.
Axiological assumption (the role of values)	The researcher is independent from phenomena under study. The results are unbiased and value-free.	The researcher acknowledges that the research is subjective. The findings are biased and value-laden.

For several reasons, this study has adopted an interpretivist paradigm. For example, in a health context, BSC represents views of medical staff and administrative staff (Kollberg & Elg, 2011). Basically, these people contribute their own perceptions (Martinez & Cooper, 2019). Each group of people attempts to understand how their individual activities contribute to the strategy being performed (Johanson et al., 2006). There is a conflict of interest between medical staff and administrators (Oliveira et al., 2020). Physicians try to enhance health care quality whereas administrators pay more

attention to economic measures and patient satisfaction (Kollberg & Elg, 2011), or to meeting political and legal requirements (Maran et al., 2018). The reality here is constructed by social actors and participants' perceptions of it, and it may change (Wahyuni, 2012). This is a form of ontological perspective. Furthermore, interpretivism acknowledges that the researcher gets involved in the social world of what is being studied (Wilson, 2014). In this way, the researcher is most likely to analyse social actors within their cultural setting (Wilson, 2014). Finally, from an axiology perspective, the values of both the researcher and their interviewees have a major impact on data collection and data analysis (Wahyuni, 2012). With this regard, people from different backgrounds, positions, and experience levels within the organisation involved in this study. Then, the data is biased to their backgrounds, positions, and experience levels within the organisation. To mitigate this potential bias, the researcher used multiple sources data sources. The data of this study collected from semi-structured interviews and documents.

Validity and reliability are essential concepts to ensure rigour in qualitative research (Morse et al., 2002). In order to achieve validity, qualitative researchers need to follow certain procedures to ensure the accuracy of their findings (Creswell, 2018). Various strategies, such as triangulation data sources, prolonged engagement, and an external auditor, can be used to attain validity in qualitative research (Lincoln & Guba, 1985; Creswell, 2018). Qualitative researchers can validate their findings through adopting one or more strategies (Creswell, 2018). Data triangulation means gathering data from multiple sources to gain a better understanding about the phenomenon being examined (Sargeant, 2012). The triangulation method used for this research takes a qualitative approach, which involves the gathering of data from documentary evidence and semi-structured in-depth interviews. 17 participants from different backgrounds, positions, and experience levels within the organisation were nominated to partake in this study. Document analysis, including annual reports, strategic plans, and website data, was also conducted. In addition, prolonged engagement occurs when the researcher spends enough time to learn more about the phenomenon being studied (Amin et al., 2020). The researcher spent a long time (from the beginning of 2016 until the ending of 2017) before collecting the data to understand more deeply not only the organisation being investigated but also the available relevant BSC literature. The transcription of interviews was completed by two independent people and the researcher to mitigate

the possibility of bias or transpositional errors in the coding of the collected data. This was also used to attain validity of the research (Creswell, 2018).

Reliability in qualitative research is related to the consistency of the researcher's approach with other researchers and other projects (Gibbs, 2018). To this end, researchers should document in detail the procedures of their study so that other researchers can follow the same procedures (Yin, 2014). Transcription checking and definitional drift in coding are useful techniques to gain qualitative reliability procedures (Gibbs, 2018). Checking transcripts assists to ensure there are no clear mistakes made during transcription (Amin et al., 2020). The researcher has therefore listened to the recordings several times and compared them with the transcripts to minimise any mistakes made during transcription. The intent of the second technique is to make sure there is no change in the meaning of the codes and add to the validity of the data (Creswell, 2018).

Thematic analysis was used to investigate the data. Thematic analysis is widely used in the social sciences, physical sciences, health care and mathematics (Nurse et al., 2003; Tuckett, 2005; Fereday & Muir-Cochrane, 2006; Bowen, 2009; Floersch et al., 2010; Joffe, 2012; Vaismoradi et al., 2013). Thematic analysis identifies which themes are important in the description of the phenomenon under study (Joffe, 2012). It is a useful and flexible approach to analyse a complex phenomenon such as health care (Braun et al., 2019).

Qualitative researchers should guarantee their participants that no harm will come from their participation in the project (Miles & Huberman, 1994). It is therefore essential to keep the identity of the participants confidential (Saunders et al., 2016). In doing so, the researcher had to obtain approval from the Human Research and Ethics Committee (HREC) of the University of Southern Queensland (USQ). The researcher met the requirements and the HREC approved this project on 6 October 2017. Appendix 1 shows the ethics approval. Before conducting interviews, the researcher sent a research information sheet (appendix 2), and a participant consent form (appendix 3) to each of the interviewees to sign.

This study used an inductive thematic orientation which occurs when "the researcher starts the analytic process from the data, working "bottom-up" to identify meaning

without importing ideas" (Braun et al., 2019, p. 854). This "bottom up" approach assists in avoiding the data being forced into a particular theory, at least not during the data collection process (Burns et al., 2006; Länsiluoto & Järvenpää, 2008). Then, concepts from institutional theory, stakeholder theory and attribution theory were used to explore three issues. First, exploring the ways the environmental dimension can be adapted and incorporated into the BSC in a public healthcare context. Second, exploring whether the identified barriers and motivations are driven by internal institutional factors (e.g. routines, rules etc.) or external institutional pressures (e.g. coercive, mimetic, or normative). Third, exploring how a public hospital constructs a BSC which incorporates endogenous (internally generated) environmental activities and exogenous (externally generated) environmental events not to identify the themes themselves.

1.5 Thesis structure

Figure 1-1 shows the thesis structure. **Chapter One** starts with demonstrating the research motivation and research significance. This is followed by the research objectives and research questions. The scope of the study and overview of research methodology are also demonstrated. **Chapter Two** includes the literature review and theoretical framework. The chapter provides a summary of the Australian hospital sector context. This chapter also provides background as to the origins and structure of the BSC. The following section of this chapter develops BSC for health care providers. Institutional theory, stakeholder theory and attribution theory are elaborated in the final section of Chapter Two.

Chapter Three presents the first paper "Incorporating the environmental dimension into the Balanced Scorecard: A case study in health care", which has been published in ***Meditari Accountancy Research***, vol. 27, no. 4, pp. 652-674**.** The aim of this study is to explore the ways that the balanced scorecard can be adapted to incorporate environmental performance in a health care context. **Chapter Four** presents the second paper "Barriers and motivations of integrating environmental performance into the BSC: A case study in healthcare". This paper has been submitted to an academic referred journal, and it is currently under review. This paper tries to understand the barriers and motivations to adopting a decision to integrate environmental performance into a BSC.

Chapter Five presents the third paper. This paper explores organisational environmental actions and non-organisational environmental actions that should be incorporated in a BSC. This paper will be submitted soon to an academic referred journal. Finally, **Chapter Six** presents a compilation of the findings of the three studies for this project into a conclusion, limitations and implications of the findings.

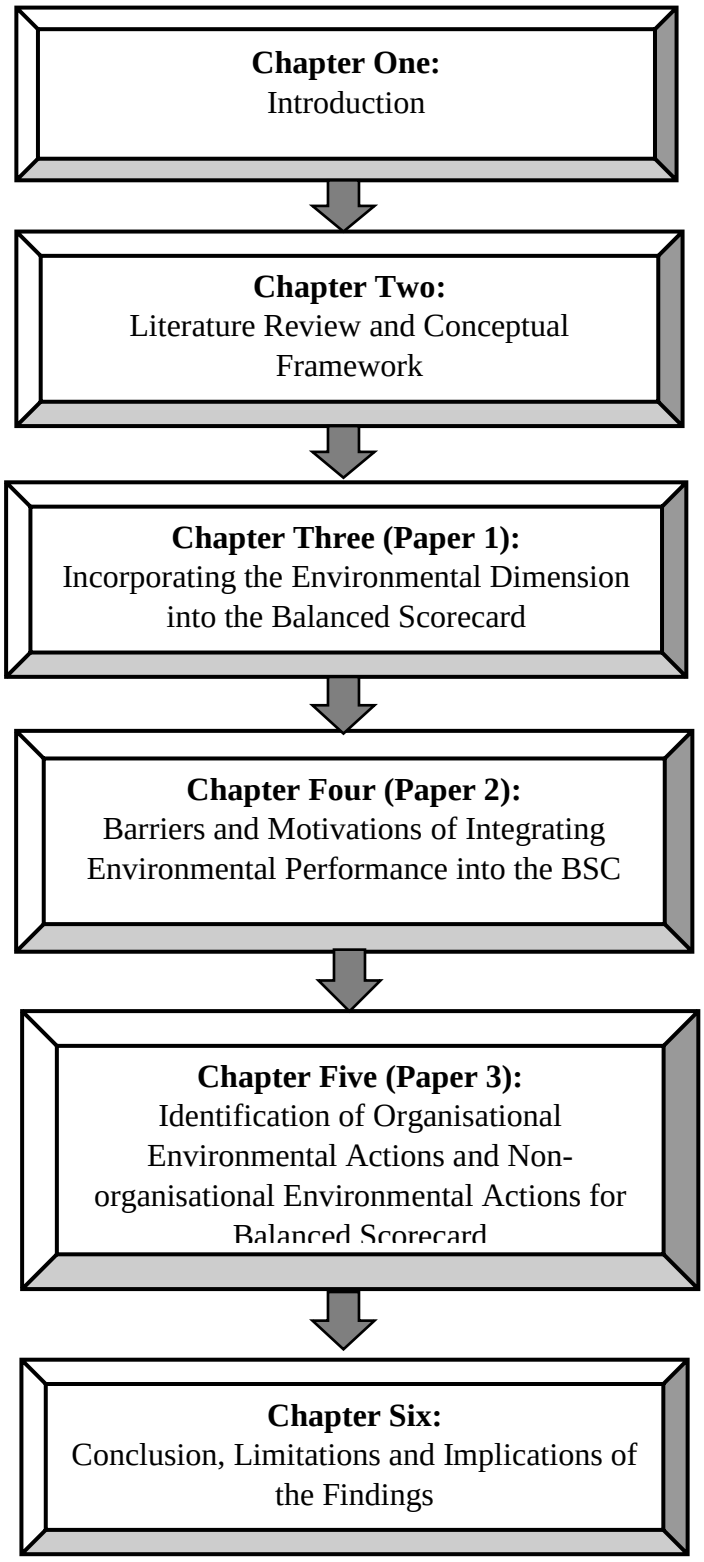

Figure 1:1 Thesis Structure

CHAPTER 2: LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK

2.1 Introduction

The initial general discussion about the balanced scorecard is in sections 2.2.1, 2.2.2. and 2.2.3. Section 2.2.4 contains more details about the application of the BSC in the hospital setting**.** A brief discussion about the Australian hospital setting is provided in section 2.2.5. The remainder of this chapter is presented in two main parts.

Part one of this chapter provides a critical analysis of the relevant literature pertaining to BSC research in public health organisations in section 2.2.6. The aim of this part of this chapter is to provide in this section a list of potential limitations in prior studies. That is, section 2.2.6 recognises what has been investigated, what is still being investigated, or what is still to be investigated.

Part two of this chapter presents the theoretical framework of the study is provided in section 2.3. This project employs institutional theory, stakeholder theory and attribution theory to provide answers for research questions of the study. Institutional theory is used to explain the key drivers that support or constrain designing the BSC for environmental sustainability purposes. The main idea of a BSC incorporating the sustainability concepts is to broaden the scope of the measures to include aspects of the majority of an organisation's stakeholders (Hubbard, 2009, p 177). Stakeholder theory is employed to identify where activities or events with environmental characteristics should be reported as part of BSC perspective(s). The final section explains how the possible use of attribution theory may help differentiate between internally generated environmental (controllable) activities and externally generated environmental (uncontrollable) events.

2.2 Literature Review[3]

The BSC has been heralded as one of the most significant developments in management accounting (Tayler, 2010, p. 1096).

2.2.1 Development of the BSC concept

After the end of the industrial age and the start of the intellectual revolution, the significance of tangible assets has plummeted, while the importance of intangible assets has raised as indicated in Figure 2.1 (Niven, 2008). This change motivated Kaplan and Norton (1992) to develop the BSC to address the over reliance on financial measures in traditional management accounting systems. Management accountants struggled to deal with non-financial measures until the introduction of the BSC (Otley, 2016). The BSC enhances performance measurement judgments by providing decision makers with a comprehensive set of financial and non-financial indicators (Humphreys & Trotman, 2011). Whilst financial measures are presented in dollars or proportions of dollars, non-financial measures cannot be presented in dollars (Eldenburg et al., 2019). However, during this period, there was pressure on accountants to consider intangible assets as part of balance sheets (Kaplan & Norton, 2001). Yet, three main reasons prevented responses to such calls. Firstly, there is no direct connection between growth in revenues and investment in intangible assets (Kaplan & Norton, 2001). In other words, it is difficult, to determine an increase in profits which comes from using knowledge capital. Secondly, while "the balance sheet is characterised by a linear relationship, additive model, the value from intangible assets is neither linear nor additive" (Kaplan, 2009, p.9). Finally, some managers use non-financial measures to promote their performance in the best light (self-interest), not to create value for the organisation (Luft, 2004).

[3] To avoid the repetition in the thesis, this section will not discuss about environmental issues. Integration of environmental issues into the BSC is discussed in detail in chapters three, four and five.

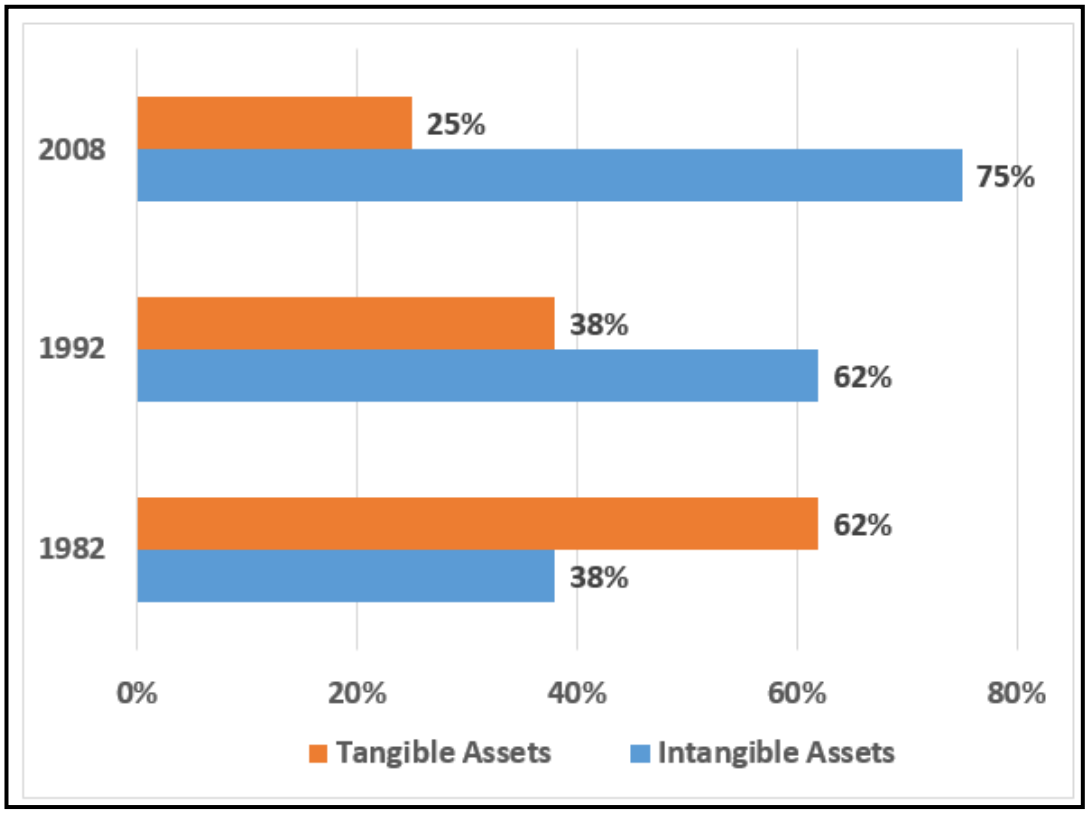

Figure 2:1 The rise of intangible assets in value creation (Niven, 2008, p. 5)

Since 1992, the interest in non-financial measures has expanded in management accounting (Jazayeri & Scapens, 2008). There are other management accounting tools such as Business Values Scorecard (BVS), which consider both financial and non-financial measures (Jazayeri & Scapens, 2008). The underlying concept for BVS is based on the argument that the organisation consists of main five values: performance, people, customers, partnerships, and innovation and technology (Jazayeri & Scapens, 2008). While BSC aims to evaluate the success of strategy (Hansen & Schaltegger, 2016), BVS is employed to develop the strategy (Jazayeri & Scapens, 2008). Stakeholder scorecards (which mainly focus on customers, shareholders, and employees) are also commonly used to evaluate an organisation's performance. However, stakeholder scorecards do not explain how these measures should be implemented (Kaplan & Norton, 2001). Also, Key Performance Indicator (KPI) scorecards are often used to group financial and non-financial measures in a document, but they do not consider customer measures (Kaplan & Norton, 2001). In general accountants define BSC as a group of procedures to organise work practice

and formalise performance (Cooper & Ezzamel, 2013). Furthermore, the use of the BSC enables managers to share their strategy with all organisational members (Wiersma, 2009; Cheng & Humphreys, 2012). Cheng et al. (2018) state that the BSC helps managers to review their strategy as it is being achieved.

Researchers have acknowledged that BSC is a tool to implement strategies at the business unit level or the corporate level (Kaplan & Norton, 1996b, 1996a; Lipe & Salterio, 2000; Kaplan & Norton, 2006; Wiersma, 2009; Kraus & Lind, 2010; Sundin et al., 2010; Hoque, 2014; Ax & Greve, 2017; Hahn & Figge, 2018). The initial BSC is designed to convert business unit strategies into actions (Cheng et al., 2018). However, corporate managers have a broad vision compared to business unit managers, which reflects the BSC strategy.

2.2.2 BSC strategic objectives

Initially, the BSC was used to create and use a balance between financial measures and non-financial measures (Tayler, 2010). More recently, the use of the BSC has been expanded to translate an organisation's strategy (Tayler, 2010). Therefore, users of the BSC should define their strategic objectives (Tayler, 2010). Organisations must select strategic objectives for all BSC perspectives to implement successfully their strategies (Atkinson et al., 2012). Niven (2008) explained that "there is no hard - and - fast rule for the right number of objectives, but a useful guideline is less is more" (p. 198). Each perspective may need to contain one to three strategic objectives (Chang et al., 2008). To ensure the strategic objectives can be accomplished, most organisations set dozens of initiatives (Niven, 2008). These initiatives refer to the necessary steps, actions, and projects to implement the strategic objectives (Campbell et al., 2018).

2.2.3 BSC performance indicators or measures

The BSC provides a framework to provide a more complete picture of the organisation's activities (Hall, 2011). However, there may exist different sets of measures among or within organisations. For example, the BSC is not solely a

collection of critical financial and non-financial indicators (Möller & Schaltegger, 2005; De Geuser et al., 2009; Ax & Greve, 2017). Rather, it highlights a balance between a set of past performance indicators (lag[4] indicators), and future performance driver indicators (lead[5] indicators) that are useful for internal and external stakeholders (Hansen et al., 2009; Atkinson et al., 2012). Furthermore, the measures of the BSC are developed based on an organisation's vision and strategy (Kaplan & Norton, 1996b). The best balanced measures reflect the strategy of the organisation (Kaplan & Norton, 2001). Nevertheless, many adopters of the BSC consider both strategically linked measures and non-strategically linked measures (Kaplan et al., 2012). In addition, some BSC users still pay insufficient attention to non-financial measures (Bartlett et al., 2014). Finally, while BSC organises its measures based on cause and effects relationships (Cheng et al., 2018), some organisations make a list of financial and non-financial measures that is not related to a cause and effect relationship (Cardinaels & van Veen-Dirks, 2010). Some organisations may use measures that have objective links between the activities and the outcomes (quantitative measures) while other organisations may adopt more subjective measures (qualitative measures) or organisations have both types of measures.

Quantitative and qualitative measures are needed to monitor and assess how a strategic objective is accomplished (Atkinson et al., 2012). In the meantime, capturing all desired business strategic objectives requires populating the BSC with a large number of measures (Lipe & Salterio, 2000). However there is a positive relationship between the number of BSC measures and task complexity (Lipe & Salterio, 2000). Multiple indicators also increase the cost and require more resources (Funck, 2007). Furthermore, if managers include many indicators, their focus may get diverted from the most critical strategic objectives (Kaplan & Norton, 1993). The complexity of health organisations is reflected in the complexity of selecting BSC indicators (Porporato et al., 2017). This means health organisations are struggling to establish which indicators should be included in the BSC (Bisbe & Barrubés, 2012).

[4] Lagging indicators indicate whether the strategic objectives in each perspective were achieved (Figge et al., 2002).

[5] Leading indicators represent how the results –reflected by the aging indicators –should be achieved (Figge et al., 2002).

The literature presents different suggestions with regards to the appropriate number of BSC indicators. For example, some researchers (Kaplan & Norton, 1996b; Chang et al., 2008) suggest four or five measures for each perspective as a desired number of measures while for others, like Epstein and Wisner (2001), six measures in each perspective would be an ideal number. Elsewhere research has found that the BSC typically contains 18–25 key measures (DeBusk et al., 2003). However, in a review study, Gurd and Gao (2007) found some health organisations included a range of 13 to 44 measures into their BSCs. Kollberg and Elg (2011) investigated how public health organisations in Sweden defined BSC measures. They concluded that the investigated public health organisations included 25 measures into their BSC, which supports the finding by DeBusk et al. (2003).

2.2.4 BSC perspectives in hospital settings

The BSC developed initially focused the on for-profit organisations, with the four perspectives; financial, customer, internal process and learning and growth. In the public health care sector, the relationship between the financial perspective and customer perspective is interchangeable and reciprocal. For example, the general public, as tax payers, pay taxes to government departments that then allocate funds to receiving agencies (hospitals), which is the financial perspective. Subsequently, the tax payers receive benefits as customers when treated in hospitals. In this context, tax collection is seen as necessary to provide benefits to the community (Soysa et al., 2016). It is not an objective of public hospitals to generate profit but rather to maximize the efficient use of public funds (Kaplan & Norton, 2001). Within the public healthcare industry, the internal business process perspective of the BSC identifies the critical internal processes, which are important for the achievement of the intended outcomes of the other perspectives (Figge et al., 2002). This internal process perspective frequently reports indicators that reflect the efficiency and effectiveness of the agency (Butler et al., 2011). The learning and growth perspective of the BSC contains indicators related to the capabilities and competences among employees to the enable the achievement of the intended outcomes of the other perspectives (Aidemark, 2001). Healthcare organisations must continually assess their future needs and ensure that the intellectual capital and human resources components within their

learning and growth perspective, are sufficient to sustain their future survival (Epstein & Wisner, 2001).

It is clear that BSC perspectives should reflect the characteristics of health organisations (Funck, 2007; Aidemark & Funck, 2009; Kober & Northcott, 2020). In a recent Canadian study, it was noted that healthcare providers proponents for the use of BSC have an interest in knowing which type and how many perspectives should be considered in the BSC (Porporato et al., 2017). Patients, employees, and processes are called the golden triangle of BSC in health organisations (Aidemark, 2001), yet each health organisation has different numbers and different types of perspectives (Porporato et al., 2017). For example, in Sweden, Kollberg and Elg (2011) determined five BSC perspectives: patient/customer, process, development/future, employee and production/economic. A study conducted in a public Australian health care organisation by van de Wetering et al. (2006) found four perspectives: clinical business process, patient, quality and transparency, and information systems. These researchers observed that just two of the perspectives, clinical business process and patient, were similar to the original BSC perspectives (van de Wetering et al., 2006). In Hong Kong, public health organisations still use perspectives similar to the original BSC perspectives (Yuen & Ng, 2012). Meanwhile, a recent African study revealed that community, finance, internal business process, and capacity building are perspectives in the BSC of African health providers (Bobe et al., 2017). Thus, it is evident that there are multiple ways of refining the BSC to accommodate the specific health care context.

In healthcare organisations, the meaning of balance relates to several matters. It relates to the balance between financial and non-financial measures, lead and lag indicators, and internal and external performance sources. All these measures, indicators, or sources are expanded to form the balance between and among the BSC's perspectives (Aidemark, 2001). In a series of case studies conducted in the public healthcare sector, Kollberg and Elg, (2011) and Bobe et al. (2017) found that BSC perspectives were not prioritised but they were all equally significant. These organisations adopted the term "well-balanced perspectives" (Aidemark, 2001).

It has been suggested that the names and contents of BSC perspectives need to be revised to be consistent with public health organisations (Behrouzi et al., 2014). For

example, Behrouzi et al. (2014) concluded that patient perspective is too narrow and needs to be extended into community perspective. The community perspective covers citizens, high-risk groups, policy makers etc. (Behrouzi et al., 2014). Furthermore, health organisations may create new BSC perspective(s) (Bisbe & Barrubés, 2012). For instance, some organisations add a perspective for clinical outcomes (Bisbe & Barrubés, 2012) or a people perspective (Funck, 2007).

2.2.5 The Australian hospital sector context

The Australian health system provides primary health care, secondary care, and hospitals. The hospitals are classified into public hospitals and private hospitals. Australia has 695 public hospitals and 630 private hospitals (Australian Institute of Health and Welfare, 2018). These hospitals are distributed across Australia, as shown in tables 2-2 and 2-3. Only 176 public hospitals are located in the major cities while 519 public hospitals are located in the rural areas, as reported in table 2-4 (Australian Institute of Health and Welfare, 2018). Public hospitals offer various services for inpatients and outpatients (Australian Institute of Health and Welfare, 2015). Diagnostic gastrointestinal and orthopaedics are the most popular services provided by the private sector (Australian Institute of Health and Welfare, 2015).

Table 2.1 Public hospitals, States and Territories, 2012–13 to 2016–17(source: Australian Institute of Health and Welfare, 2018)

	2012-13	2013-14	2014-15	2015-16	2016-17
New South Wales	225	225	225	226	222
Victoria	150	151	151	151	151
Queensland	170	169	122	122	123
Western Australia	90	91	92	94	91
South Australia	80	80	77	77	77
Tasmania	23	23	23	23	23
Australian Capital Territory	3	3	3	3	3
Northern Territory	5	5	5	5	5
Total public hospitals	746	747	698	701	695

Table 2.2 Private hospitals, States and Territories, 2012–13 to 2016–17 (source: Australian Institute of Health and Welfare, 2018)

	2012-13	2013-14	2014-15	2015-16	2016-17
New South Wales	185	192	193	203	205
Victoria	164	165	165	167	169
Queensland	107	106	108	109	109
Western Australia	57	57	62	60	62
South Australia	54	55	55	55	56
Tasmania, Australian Capital Territory and Northern Territory	25	26	29	30	29
Total public hospitals	592	601	612	624	630

Table 2.3 Number of public hospitals by major cities and regional areas, States and Territories, 2016–17 (source: Australian Institute of Health and Welfare, 2018)

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
Major cities	66	53	20	19	15	..	3	..	176
Regional areas	137	96	70	37	44	19	..	1	404
Total all areas	203	149	90	56	59	19	3	1	580

In 2016-17, around 365,000 full-time equivalent staff were employed in public hospitals (Australian Institute of Health and Welfare, 2018). During the 2011-12 fiscal year, Australia spent about $140.2 billion on the public health services, which accounted for 9.5% of its gross domestic product (GDP) (Australian Institute of Health and Welfare, 2015). This amount was covered by Australian governments (70%), patients (17%), accident compensation schemes (5%), and private health insurers (8%) (Australian Institute of Health and Welfare, 2014). Part of private health insurance is paid by the Australian Government (Australian Institute of Health and Welfare, 2014). This means the Australian governments are the main contributors to funding public hospitals. Funding public hospital services is a responsibility of State Governments while funding of primary health and aged care services is the responsibility of the Commonwealth Government (Australian Institute of Health and Welfare, 2014). Two main agreements, the National Healthcare Agreement (NHA) and the National Health Reform Agreement (NHRA), commit the Commonwealth Government to funding Australian public hospitals (Queensland Health, 2016).

There are two funding models: activity-based funding (ABF); and population-based funding (PBF). ABF assists management to capture information pertaining to hospital activities and costs (Queensland Health, 2016). Population based funding (PBF) "is a method of allocating funding to a service provider based on the expected cost of

meeting the healthcare needs of the population being served" (Queensland Health, 2016).

2.2.6 Review of research conducting BSC application in public hospital setting

In different countries, efforts have been made to comprehensively examine the BSC in hospital settings. In New Zealand, research has focused on the diffusion of BSC application in the public health segment (Northcott & France, 2005). Similarly, in Taiwan, Wu and Kuo, (2012) have examined the potential of using BSC to assess information technologies. Another study has highlighted the significance of BSC to enhance service delivery in an Irish Hospital Department (Smith & Loonam, 2016). Likewise, a US study suggested that there is a need to include community health improvements into the hospital's BSC (Olden & Smith, 2008).

Whether adopting BSC is useful for the public hospital sector is still unclear (Correa et al., 2014). Therefore, Correa et al. (2014) decided to investigate the significance of using BSC in two Brazilian hospitals, one public and one private. They asked administrators, doctors, and nurses who have used a BSC about their opinions regarding criticisms levelled at BSC (Correa et al., 2014). Their research found that the BSC was worthwhile to hospitals but the difficulty of establishing goals and the persistence of traditional budgetary processes were the main BSC obstacles (Correa et al., 2014).

For some BSC adopters, such as Chinese public hospitals, establishing performance indicators is still a big challenge (Gao et al., 2018). To fill this knowledge gap, Gao et al. (2018) have suggested some performance indicators that should be included in the BSC. Initially, experts in healthcare and performance measurement were consulted to develop a series of performance indicators (Gao et al., 2018). Around 25 experts, from administrative units, universities and hospitals, were invited to evaluate the proposed BSC model (Gao et al., 2018). The analysis finally provided 36 indicators (Gao et al., 2018). In a similar vein, Hwa et al. (2013) set up criteria to develop BSC with the following performance indicators: measurable, validity of the data, and amenable to improvement (Hwa et al., 2013). Based on these criteria, 41 performance indicators were developed, which included 16 indicators chosen for the

initial BSC (Hwa et al., 2013). Another US study in hospital settings highlighted the need to carefully define the most important performance indicators from a learning and growth perspective (Emami & Doolen, 2015).

The BSC in healthcare settings maybe subject to a certain amount of departmental judgment biases in selecting performance indicators (Chan, 2006). Chan's (2006) research used the analytic hierarchy process and identified 39 indicators grouped into four classic perspectives of the BSC. It was found that the main cause of the large number of measures was different measures were considered important or necessary by different departments. Mackay Memorial Hospital, in Taiwan, is one example of an organisation implementing hospital BSC[6] (Chang et al., 2008). Dyball et al.'s (2011) study in the New South Wales Department of Health in Australia asserted that the BSC cannot to be useful unless it is easy to understand and implement.

The research in Greece has been devoted to finding the most appropriate method in the selection of BSC performance indicators. Therefore, the Governmental Hospital of Didimoticho, in Greece, adopted a UTASTAR method to group 24 performance indicators into four clusters that represented the four performance perspectives of the BSC (Grigoroudis et al., 2012). In Italy, Lovaglio (2011) argued that structural equation models are more useful than other methods in determining hospital BSC performance indicators (Lovaglio, 2011). In Canada and New Zealand, some research went further by investigating the relationship between the measures selected in the public hospital BSC (Porporato et al., 2017; Kober & Northcott, 2020). While the research in Canada rejected the purported cause-effect relationship among leading measures and lagging measures in the hospital BSC (Porporato et al., 2017), the research in New Zealand asserted the statistically significant causal relationships (Kober & Northcott, 2020).

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[6] Chang et al. (2008) used the acronym HSBC to describe an implemented hospital BSC. For consistency, the acronym BSC will be used for this thesis. Furthermore, the HBSC has a general vision, while each health unit has its own focused vision (Aidemark & Funck, 2009). Thus, the cascading HBSC perspectives may be different from BSC in the health department (Aidemark & Funck, 2009). However, the combination between HBSC and BSC in each health department will assist health organisations to determine whether they are doing the right thing(s) and doing things right (Walker & Dunn, 2006).

In order to get a complete picture about BSC application in Canadian public health organisations, Weir et al. (2009) answered many questions, including the following:

- Who should participate in choosing performance indicators?
- Who is or are the main stakeholder(s)?
- What kinds of performance indicators should be considered in the BSC?
- Should the four BSC perspectives be linked?

Similar questions were considered by Broccardo (2015) in a study conducted in Italy, which confirmed that Italian hospitals still use the four classical perspectives. Broccardo's (2015) research further observed that the highest number of indicators are within the customer perspective and internal processes perspective. Finally, while Bisbe and Barrubés (2012) concluded that the BSC helps to implement a public hospital strategy, Italian hospitals were found to employ the BSC as a control tool but not a translation strategy tool (Broccardo, 2015).

Three Swedish public health care organisations were examined to find the main characteristics of the BSC (Kollberg & Elg, 2011). The main research question considered how public health care providers implement the BSC in their work practice. Kollberg and Elg's (2011) research acknowledged that BSC helped to enhance internal capabilities, but not to implement the strategy. In 2014, another study investigated the implications of BSC on Chinese public hospitals' performance (Zhijun et al., 2014). This study affirmed that that BSC application improved both hospital performance and personal performance (Zhijun et al., 2014). On the other hand, in the UK, Chang (2007) explored implications and limitations of using the BSC in the National Health Service (NHS). Chang observed that the BSC was considered to be symbolic, ceremonial, and adopted for seeking legitimacy, rather than to enhance performance (Chang, 2007).

Although BSC research has quickly extended to the public hospital sector, little attention has been paid to investigating the relationship between BSC and neo-bureaucracy concepts (Oliveira et al., 2020). Oliveira et al., (2020) conducted a qualitative investigation into a Portuguese public healthcare provider, asking whether the operationalization of the BSC included "neo-bureaucratic" concepts and whether the BSC implemented demonstrated a neo-bureaucratic approach. An neo-

bureaucracy approach incorporates ideas that foster flexibility, collaboration, innovation and adaptation that softens hierarchical authority and help led to improvements in healthcare outcomes (Oliveira et al., 2020, p. 250). Their study identified nine bureaucratic themes evident in a Portuguese public healthcare provider, and the BSC used in that organisation demonstrated a neo-bureaucratic approach (Oliveira et al., 2020).

Recently, the acknowledgement of organisations' responsibilities towards the environment has taken place in the wider community (Fernando & Lawrence, 2014). Consequently, the significance of organisations' environmental activity or responsibility has imposed the need for public organisations to measure, monitor and disclose their environmental performance (Guthrie & Farneti, 2008). Therefore, supporters of BSC have discussed various models to ascertain the environmental performance part of BSC (Figge, Frank et al., 2002; Bieker, 2003; Kaplan & Norton, 2004; Butler et al., 2011; Hansen & Schaltegger, 2016; Hahn & Figge, 2018; Hansen & Schaltegger, 2018). Some set up some steps and models to subsume environmental measures within BSC (Figge, Frank et al., 2002). However, most of these attempts are still theoretically normative and not yet verified empirically (Nikolaou & Tsalis, 2013). Table 2.4 lists the empirical research investigating the integration of environmental issues into the BSC identified from the extensive literature review for this study. The most significant failure is the absence of standard guidelines on how to embed sustainability concerns, including those related to environmental issues, into BSC perspectives (Nikolaou & Tsalis, 2013).

Table 2.4 Identified empirical research that has investigated integration of environmental issues into the BSC

Author(s)	Organisational setting
Dias-Sardinha et al., 2002	Manufacturing organisations in Portugal
Van Der Woerd & Van Den Brink, 2004	Dutch tourism sector and Italian food industry
Dias-Sardinha & Reijnders, 2005	Thirteen large organisations (most of them manufacturing) in Portugal
Laurinkevičiūtė et al., 2008	Furniture sector in Lithuania
Länsiluoto & Järvenpää, 2008	Finnish food sector
Länsiluoto & Järvenpää, 2010	Finnish food sector
Hsu & Liu, 2010	Automobile manufacturing in Taiwan
Nikolaou & Tsalis, 2013	Different sectors in Greece
Kang et al., 2015	Tourism sector in Thailand
Journeault, 2016	Two 'for profit' organisations in Canada
Tsai et al., 2020	Solid waste management in Vietnam.

The above review has identified the following gaps in prior studies:

1. There is a limited number of research studies that have examined public hospitals' BSCs.
2. The majority of the prior studies in public hospital settings have focused on the following:
    a. What kind and how many perspectives should be included in BSC?
    b. What kind and how many performances indicators should be considered in each perspective?
    c. What are the implications of applying BSC?
3. Prior research into sustainability BSC (SBSC) suggests several theoretical frameworks to consider environmental concerns within the traditional BSC but these frameworks still need more empirical research to be validated.
4. The research about public hospital BSC has not focused on environmental issues yet, neither in Australia nor in other countries.

2.3 Conceptual framework

2.3.1 Introduction

The purpose of this section is to develop a theoretical framework which will help to analyse the findings and answer the research questions. There is no one single theory that supports all the research questions of this study. Concepts from stakeholder theory, institutional theory, and attribution theory were used to develop three research questions. First, stakeholder theory will be used to develop a question about the ways the environmental dimension can be adapted and incorporated into the BSC in a public healthcare context. In contrast to stakeholder theory, that look at the ways the environmental dimensions is incorporated into the BSC, institutional theory, is used to identify not only barriers and motivations driven by internal institutional factors (e.g. routines, rules etc.) but also external institutional pressures (e.g. coercive, mimetic, or normative) that will form the basis for the second question. Attribution theory neither looks at the ways environmental dimensions is incorporated into the BSC nor barriers and motivations or external institutional pressures. Instead, it helps consider how a public hospital includes not only endogenous (internally generated) environmental activities but also exogenous (externally generated) environmental events into a BSC and aids the development of the third research question.

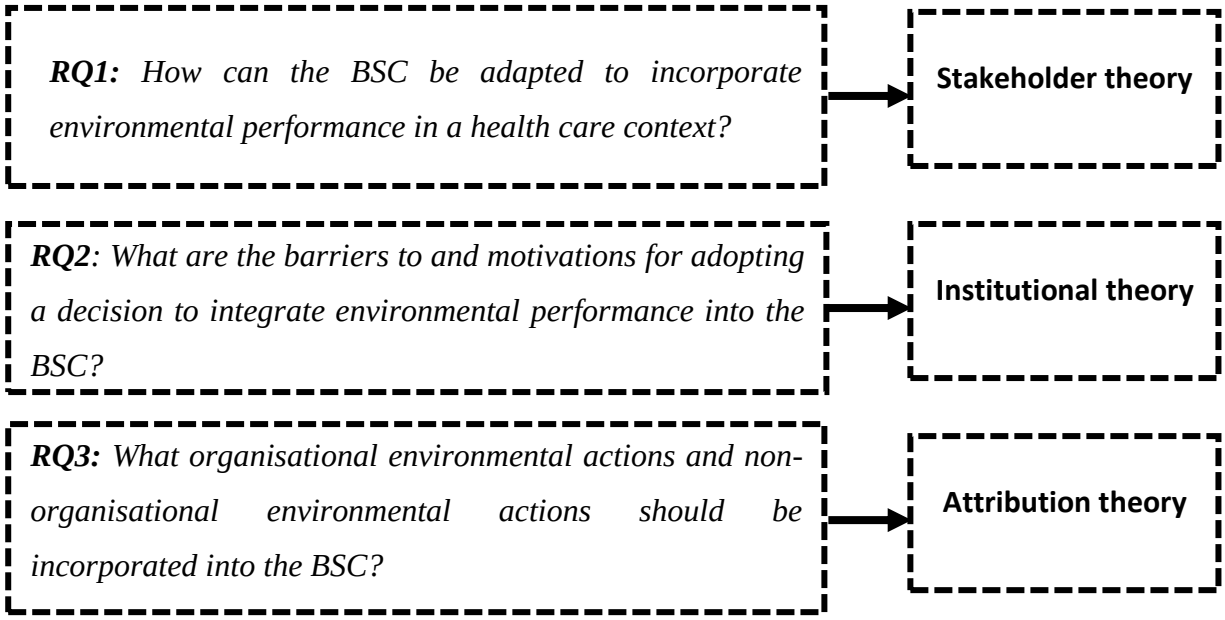

Figure 2:2 Theories underpinning the three research questions

This study has adopted an interpretivist paradigm because the healthcare participants contribute their own perceptions but there will need an interpretivism acknowledge by the researcher who needs to get involved in the social world of what is being studied. These three different theories are used to answer the research questions and interpret the findings of the study. Figure 2-2 portrays the theories underpinning the study. This discussion starts with a discussion of how stakeholder theory is appropriate for research question one. Sub-section 2.3.3 provided an explanation and justification for using an institutional theory relevant to research question 2 in the next sub-section. The final sub-section employs attribution theory to answer the third research question.

2.3.2 Stakeholder theory

> ***"Proponents of stakeholder theory strive to describe what managers actually do with respect to stakeholder relationships, what would happen if managers adhered to stakeholder management principles, and what managers should do vis-a-vis dealing with firm stakeholders" (Jones, 1995, p. 406).***

Stakeholder theory is an influential theory in social and environmental accounting research (Chiu & Wang, 2015). Stakeholder theory is an effective way to help both researchers and practitioners understand relationships between an organisation's performance and its stakeholders (Jones et al., 2018). This theory suggests that organisations cannot create value and continue in their business sectors without support from their stakeholders (Bosse & Coughlan, 2016). The theory expands the business responsibilities from shareholders' interests to include non-shareholding stakeholders' interest (Alniacik et al., 2011). Stakeholder theory recognises that organisational actions are influenced by multiple stakeholders and that organisations attempt to manage competing stakeholder demands (Garvare & Johansson, 2010).

Applying stakeholder theory requires the identification of an organisation's stakeholders. A stakeholder has been defined as "…any group or individual that can affect or be affected by the realisation of an organisation's purpose" (Freeman et al., 2010, p. 26). Gray et al. (2010) expanded this definition to provide guidance on the management of different stakeholder groups by noting that "the stakeholders are identified by the organisation, by reference to the extent to which the organisation

believes the group needs to be managed to further the interests of the organisation" (p. 25).

Ultimately, the organisation must identify the stakeholders' needs and then assess how some or all of these stakeholders can contribute to the organisation's success (Kaplan, 2009). It is necessary to recognise that organisations deal with different stakeholders who have different and conflicting claims (Michelon et al., 2016; Hyndman & McKillop, 2018). Occasionally, meeting such claims is difficult or impossible (Schaltegger et al., 2017). Therefore, the managerial branch of stakeholder theory acknowledges that managers may pay less attention to less salient stakeholder groups, which lack the voice to press their claims (Miles, 2017). In some cases, managers respond only to the most influential (salient) stakeholder group (Deegan, 2014; Chiu & Wang, 2015).

Early studies stated that stakeholders can be identified by interest or stake and power (Freeman, 1994). The interest or stake approach defines a stakeholder as anyone who has a part or stake in the organisation's activities, and without their support the organisation will cease to exist (Gomes et al., 2010). Depending on this view, stakeholders have the ability to impact positively or negatively on an organisation's performance (Gibson, 2000). In public health organisations, stakeholders also refer to the users of an organisation's services (Freeman, 1994) such as citizens, taxpayers, service recipients, the governing body, employees, unions, interest groups, political parties, the financial community and other governments (Bryson, 1988).

Stakeholders are arbiters of the organisation (Neely et al., 2002). The wants and needs of the stakeholders should be defined before starting to design a performance measurement system (Neely et al., 2002). Kaur & Lodhia (2018) have explained that "the involvement of stakeholders in the accounting and reporting process enables organisations to identify and incorporate their material concerns, issues, perceptions, needs and expectations" (p. 338). It therefore has been argued that the BSC is developed based on stakeholder theory because the BSC is not only focused on one stakeholder (shareholders) but also customer, suppliers, employees, and the community (Hubbard, 2009).

Researchers have extended the BSC to include stakeholders' feedback against organisational environmental performance (Hubbard, 2009). In the meantime, merging environmental issues into the BSC's perspective(s) is complex (Epstein & Wisner, 2001). Stakeholder theory has an important role in identifying the environmental stakeholders and determining the types of target success (success from either the market system or outside the market system) of the environmental orientation (Schaltegger et al., 2019). This environmental orientation will identify the type of stakeholder theory. Stakeholder theory has three perspectives: instrumental, social and political, and normative (Harrison et al., 2010; Hansen & Schaltegger, 2016; Jahn & Brühl, 2018; Jones et al., 2018). Following the first perspective, managers try to meet stakeholders' requirements to maximise revenues or secure profits (Schaltegger et al., 2017).[7]

In contrast, a social and political perspective aims to enhance the corporate image in order to gain and sustain a license to operate (Boiral & Heras-Saizarbitoria, 2017). Finally, normative stakeholder theory postulates that organisations have moral obligations toward their stakeholders (Herremans et al., 2016). Such a classification of stakeholder theory perspectives has given BSC researchers an opportunity to think about and understand the link between environmental issues and BSC perspective(s) (Figge et al., 2002).

Varying opinions are contained in the literature about how stakeholders will use environmental dimensions indicators and how these indicators will be constructed within the perspectives of a BSC. These varying BSC structures are considered in chapter 3 (paper 1) within the stakeholder framework. How these environmental indicators will be gathered should range from a fully integrated BSC within the four perspectives, a partially integrated BSC within the four perspectives, or the inclusion of a fifth perspective of some structure.

Instrumental stakeholder theory, for example, states that "firms that contract (through their managers) with their stakeholders on the basis of mutual trust and cooperation

[7] A commonly identified general imitation for stakeholder theory is the broadness of the stakeholders' outside interests and diversity of power, which may lead to a confusion about the purpose of each stakeholder group because of their diversity and this may lead to confusion about the level of success achieved.

will have a competitive advantage over those that do not" (Jones & Wicks, 1999, p. 208). This stakeholder theory perspective argues that the wisdom behind integration of environmental indicators into the BSC is to gain success in the marketplace (Hansen & Schaltegger, 2016). However, these authors are silent on how to integrate the environmental indicators. Perhaps integration of environmental issues throughout four BSC perspectives is the right way to reach this success (Figge et al., 2002).

According to normative, moral or ethical stakeholder theory, the organisation has an equal responsibility to all its stakeholders (Gray et al., 2010). Thus, all stakeholders' needs should be treated equally (Deegan, 2014). This theory excludes stakeholder power (Deegan, 2014) or financial stakeholders (Fernando & Lawrence, 2014). The normative perspective suggests that organisations encompass environmental indicators within their BSC to cover their ethical obligations (Hansen & Schaltegger, 2016). According to normative stakeholder theory, the integration of environmental indicators into BSC is not seen as a competitive advantage (Hansen & Schaltegger, 2016). It is a tool to demonstrate an organisation's environmental responsibility to some of its stakeholders (Hansen & Schaltegger, 2016). In this case, adding a fifth BSC perspective for environmental issues can be considered adequate (Figge, et al., 2002). Finally, from a social and political perspective, descriptive stakeholder theory assumes that an organisation integrates environmental information into its BSC in order to gain and conserve the license to operate (Hansen & Schaltegger, 2016).

In this thesis, stakeholder theory will be explored in detail in chapter 4. Examples of stakeholders in the health care sector are government bodies, research organisations, and community organisations. Organisations therefore need to pay enough attention to environmental issues so that they can gain good relationships with their stakeholders (Buysse & Verbeke, 2003; Sutantoputra et al., 2012). However, past research has asserted that BSC is a significant instrument which helps public health care managers to achieve their organisational mission and prove organisational effectiveness to multiple stakeholders (Zelman et al. 2003; Behrouzi et al. 2014; Gonzalez-Sanchez et al. 2017). Collectively, such studies reinforce the importance of stakeholder theory in exploring performance measurement systems in public sector organisations.

2.3.3 Institutional theory

"All institutions are frameworks of programmes or rules establishing identities and activity scripts for such identities" (Jepperson, 1991, p. 146).

The literature outlines different ways to define an institution (Hiebl, 2018). In a broad definition, "institutions are comprised of regulative, normative and cultural-cognitive elements that, together with associated activities and resources, provide stability and meaning to social life" (Scott, 2008, p. 48). Institutions' behaviours are constrained by structure and shape political, economic and social interaction (North, 1991). This includes informal constraints such as sanctions, taboos, customs, traditions, and codes of conduct, and formal constraints, such as constitutions, laws, and property rights, which are all identified as part of the institution's behaviour (North, 1991). Depending on these constraints, an organisation may resist change (Scott, 2008) or it may be alerted to external demands (Powell & DiMaggio, 1991). Institutional theory states that organisations are driven by their environments (Powell & DiMaggio, 1991).

Institutional theory has commonly been used in accounting studies (Covaleski et al., 1993; Hoque & Alam, 1999; Ahmed & Scapens, 2000; Carpenter & Feroz, 2001; Dillard et al., 2004; Ribeiro & Scapens, 2006; Gomes et al., 2008; Kasperskaya, 2008; Goddard et al., 2016; Hiebl, 2018; Schneider & Andreaus, 2018). For example, Carpenter and Feroz (2001) used institutional theory to understand how institutional pressures, exerted on four state governments (New York, Michigan, Ohio, Delaware), influenced the decisions of these governments to adopt or resist the use of generally accepted accounting principles for external financial reporting. Old institutional economics and new institutional sociology are widely used by management accounting researchers (Burns & Scapens, 2000; Ribeiro & Scapens, 2006; Yazdifar et al., 2008; Bell et al., 2012; Hiebl, 2018).

Old institutional economics dominated the field during the period between the 1950s and 1960s (Hiebl, 2018). Old institutional economics theory states that changes in management accounting systems are constrained by organisational rules and routines (Ozdil & Hoque, 2017). Old institutional economics differentiates between management accounting rules and management accounting routines (Burns & Scapens, 2000). Accounting rules refer to the formal accounting systems whereas

accounting routines refer to the accounting practices in use (Burns & Scapens, 2000). Accounting rules are used to meet the interests of certain groups or individuals (Yazdifar et al., 2008). In contrast, accounting routines are used to help with decision-making (Yazdifar et al., 2008). Kasperskaya (2008) observed that powerful actors have a prominent role in shaping new accounting routines. Consequently, organisations most often tend to accept new accounting rules that are consistent with existing routines, more so than those which are in conflict (Burns & Scapens, 2000). The adoption of new accounting rules and routines is constrained by coercive isomorphism (Guarini et al., 2018). Indeed, in updating management accounting systems, one needs to understand the internal context of the organisation (Ozdil & Hoque, 2017; Ma et al., 2020).

From the 1970s to the 1980s, new institutional sociology has become most popular (Hiebl, 2018). Accounting researchers have used new institutional sociology theory to identify the role of institutional pressures in shaping accounting systems (Ahmed & Scapens, 2000). New institutional sociology argues that organisations are inclined to follow structures and procedures that are privileged in their social and cultural environment in order to meet community expectations, rather than for economic purposes (Ribeiro & Scapens, 2006; Kasperskaya, 2008). This provides a rigorous analysis for accounting research in public organisations (Carpenter & Feroz, 2001; Goddard et al., 2016).

Decoupling and institutional isomorphism are the main concepts in institutional theory (Deegan, 2014). Decoupling occurs when formal organisational practice is different from actual practice (Meyer & Rowan, 1977). By loose-coupling their external systems from their internal systems organisations can avoid massive dysfunction (Covaleski et al., 1993). However, DiMaggio & Powell (1983) stated that “isomorphism is a constraining process that forces one unit in a population to resemble other units that face the same set of environmental conditions” (p. 149). They added that institutional isomorphism is “a useful tool for understanding the politics and ceremony that pervade much modern organizational life” (DiMaggio & Powell, 1983, p. 150). Institutional isomorphism proponents claim that organisations facing similar conditions are inclined to adopt similar producers and practices (DiMaggio & Powell, 1983).

New institutional sociology theory is popular in qualitative management accounting and environmental management research (Länsiluoto & Järvenpää, 2008). An institutional isomorphism perspective on institutional theory explains the institutional pressures on BSC (Munir & Baird, 2016). For example, one public sector accounting study, conducted by Hoque and Adams (2011), used coercive isomorphism to understand to what extent Australian government departments employed BSC to satisfy external stakeholders and meet internal organisational information needs. Also, Kasperskaya (2008) employed the same theory to explore why and how two Spanish city councils moved from their old performance measurement systems to using BSC. In sum, new institutional sociology theory clarifies why organisations integrate environmental issues into their BSC (Länsiluoto & Järvenpää, 2008).

2.3.4 Attribution theory

Attribution theory refers to the work of Heider, (1958), Kelley, (1973), and Watts and Weiner (1986). Attribution theory connects the effect or outcome with its cause or source (Kruglanski, 1975). This theory attempts to demonstrate the causes of human behaviour and events (Pishghadam & Abbasnejad, 2017). Attribution theory argues that success or failure is ascribed to internal causes and external causes (Weiner, 2010). An attribution refers to the perception or inference of cause and source of the effect (Kelley & Michela, 1980). In other words, the "term attribution refers to inferences or ascriptions (e.g., inferring traits from behaviour, ascribing blame to a person)" (Malle, 2011, p. 72). Attribution identifies a grant of responsibility which can be assigned to a person or the environment or even the weather (Oghojafor et al., 2012).

Attribution theory differentiates between endogenous and exogenous attributions (Kruglanski, 1975). Endogenous or internal attribution refers to operational behaviour within organisations, while exogenous or external attribution refers to others' behaviours or episodic events (Nishii et al., 2008). These others' behaviours or events are outside of an organisation's control, such as other people's actions and *force majeure*, are "external attributions, [and] the causes of observed behaviours are ascribed to situational factors outside the actor's control" (Lin-Hi & Blumberg, 2018, p. 192). On the other hand, when "internal attribution is made, the cause of the given

behaviour is within the person, i.e. the variables which make a person responsible like attitude, aptitude, character and personality" (Oghojafor et al., 2012, p. 34). Accordingly, endogenous environmental attributions are ascribed to the organisation's actions and these actions are voluntary (Kruglanski, 1975). By contrast, exogenous environmental attributions are described as occurrences that are not voluntary (Kruglanski, 1975).

This theory is commonly used in management accounting research (Schiff & Hoffman, 1996; Bloomfield & Luft, 2006; Chapman et al., 2006; Coram et al., 2009; Hartmann & Slapničar, 2009; Messier Jr et al., 2011; Franco-Santos et al., 2012). According to attribution theory, some performance indicators are attributed to endogenous sources or actions, while other performance indicators are attributed to exogenous sources or actions (Schiff & Hoffman, 1996). In other words, exogenous indicators are ascribed to situational actions outside the organisation's control, while endogenous indicators are ascribed to the organisation's disposition (Lin-Hi & Blumberg, 2018). The first group of indicators, endogenous indicators, measures how the organisation is doing the right thing (Lin-Hi & Blumberg, 2018). Alternatively, the second group of indicators, exogenous indicators, evaluates how well the organisation avoids or minimises the effect of externally generated occurrences (Lin-Hi & Blumberg, 2018).

This theory will be explored in detail as the theoretical framework in chapter 5. This third paper uses attribution theory to establish the source of the environmental intervention.

2.4 Chapter summary

Three main themes have been explained in the first section of this chapter: research conducting BSC applications in public hospital settings, the Australian hospital sector context, and the implementation of BSC in health organisations. Section 2.2.2 has primarily identified the stakeholders of the Australian hospital sector, and the number of hospitals (public and private) in Australia, and described how these hospitals are funded. This was followed by a discussion of the implementation of BSC in health organisations. Section 2.2.4 included BSC perspectives, BSC strategic objectives and BSC performance indicators. Part two of this chapter presented the three theories

underpinning the study: institutional theory, stakeholder theory, and attribution theory.

The next chapter (chapter three) explores the ways in which BSC can be adapted to incorporate environmental performance in a health care context. Paper 2 (chapter four) addresses the second research objective, which is to identify the barriers and motivations to adopting a decision to integrate environmental performance into a BSC. The final paper (chapter five) explores how organisational environmental actions and non-organisational environmental actions should be incorporated in BSC. The three papers are based on a qualitative case study. Semi-structured interviews were conducted with individuals within a large public hospital and health service organisation in Australia. Secondary document analysis including annual reports, strategic plans, and website data was also conducted. Thematic analysis was further used to investigate the data.

Figure 2-3 depicts how the research questions will be addressed in the following three chapters and the location of the conclusions of the findings of these three individual studies.

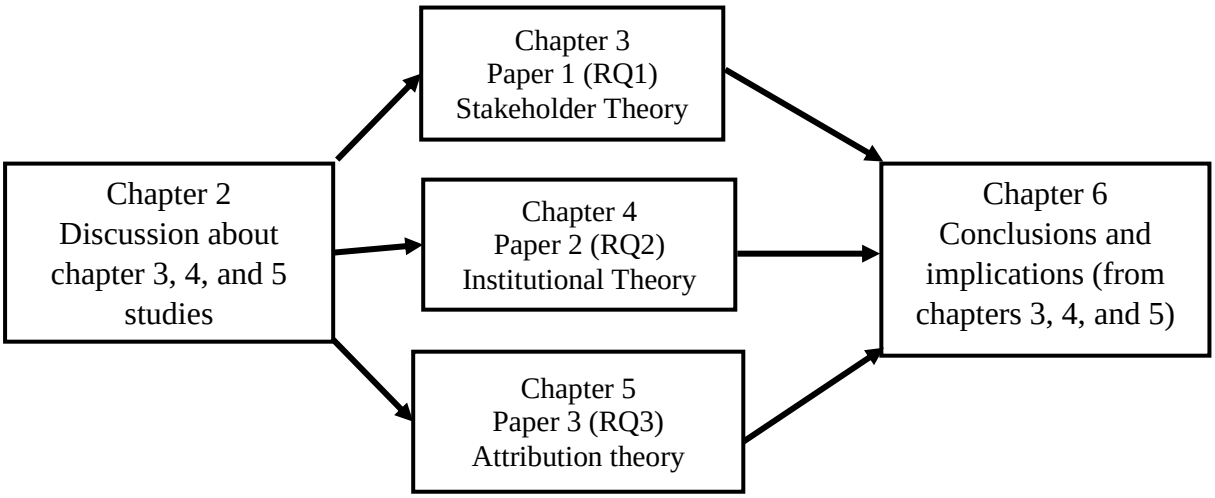

Figure 2:3 Thesis structure for addressing the research questions

CHAPTER 3: INCORPORATING THE ENVIRONMENTAL DIMENSION INTO THE BALANCED SCORECARD: A CASE STUDY IN HEALTH CARE

3.1 Chapter introduction

The previous chapter reviewed the BSC research conducted in the public healthcare settings. Chapter 2 also identified and justified the use of stakeholder theory to inform the first research question. The purpose of this chapter is to address the first research question. This chapter examines the participants' responses to explore the ways that the BSC can be adapted to incorporate environmental performance in a health care context. The next section presents the first paper in the required format of Meditari Accountancy Research in which this manuscript was published; Khalid, Beattie, Sands, and Hampson (2019) Incorporating the Environmental Dimension into the Balanced Scorecard: A Case Study in Health Care, *Meditari Accountancy Research*, Vol. 27 No. 4, pp. 652-674. Section 3.3 provides a summary of the chapter.

3.2 Paper One

Incorporating the Environmental Dimension into the Balanced Scorecard: A Case Study in Health Care

This article has been published in *Meditari Accountancy Research*, vol. 27, no. 4, pp. 652-674. This section of chapter 3 is an exact copy of the paper, which has been prepared and presented in correspondence to the Journal style.

Abstract

Purpose – This study aims to explore the ways that the balanced scorecard (BSC) can be adapted to incorporate environmental performance in a health care context.

Design/methodology/approach – This research adopts a qualitative approach that uses an in-depth case study including semi-structured interviews and document review. Interviews are conducted with individuals working within a regional public hospital and health service organisation in Australia. The research is informed by stakeholder theory.

Findings – The participants identified a number of approaches to incorporating environmental dimensions within the BSC: fully integrated, partially integrated, a separate additional perspective and differentiation based on the origin of the environmental activities and events. These findings confirm the contingent nature of the selected model and reinforce the importance of organisational vision and environmental strategy as formative factors.

Research limitations/implications – This research provides a starting point for future research to refine the proposed models and evaluate their viability and relevance in other contexts. Practical implications – This study provides motivations for managers to engage with the BSC as an effective performance measurement system, which can be developed and adapted to incorporate important environmental elements of organisational performance. Social implications – This study reveals the importance

of difference between endogenous and exogenous environmental activities. As concerns around the environmental consequences of organisational activities continue to grow, opportunities for institutions to reassure stakeholders of their sustainable practices are increasingly critical.

Originality/value – This study presents preliminary evidence on the suitability of various models for integrating environmental dimensions within the BSC. The findings provide a valuable contribution to literature on performance measurement systems in the healthcare sector.

Keywords: Balanced Scorecard, Environmental performance, Health care, Performance measurement

Paper type Research paper

Introduction

The health care industry impacts all of society, and it is now increasingly important because of an ageing community (Mavlutova & Babauska, 2013). From an economic perspective, the health care industries' fundamental role is to deliver social outcomes (Soysa et al., 2016). As organisations in this sector provide services continually, this creates the potential for large amounts of energy consumption, greenhouse gas emissions, carbon dioxide emissions and waste disposal relative to other industries (Shapiro et al., 2000; Blass et al., 2017). For instance, U.S. healthcare facilities produce about 6,700 tonnes of waste each day (Zimmer & McKinley, 2008). These same organisations generate a substantial degree of U.S. carbon dioxide emissions and greenhouse gas emissions (Kaplan et al., 2012). These emissions produced by healthcare providers represent 8% of total US greenhouse gas and 7% carbon dioxide emissions (Chung & Meltzer, 2009). In the Australian context Victorian public healthcare providers are classified as the second largest emitter of greenhouse gas emissions, which contribute 20% of public sector emissions in Australia (Victorian Auditor-General's Office, 2012). As a result, such organisations are implicated in causing negative environmental outcomes in relation to air quality, water, natural resources and human health.

Healthcare organisations are responsible for their environmental activities to a broad range of stakeholders (Hoque, 2006) and Australian hospitals are under pressure to reduce, manage, and monitor their environmental activities (Naylor & Appleby, 2012). Consequently, Australian public sector organisations have become increasingly conscious of the need to improve their environmental performance (Adams et al., 2014). The act of properly identifying stakeholders is considered a starting point to designing the performance measurement system (Neely et al., 2002). For this reason, Kaplan & Norton's BSC performance measurement system is based around stakeholder theory (Kaplan & Norton, 1992). This theory evaluates organisational performance against the expectations of the various stakeholders (e.g. shareholders, employees, customers, suppliers, governments and communities) that have interest in the organisation's activities (Hubbard, 2009). However, whilst the BSC is a viable mechanism to monitor hospitals' performance, the original four perspectives (financial, customer, internal business processes and learning and growth) do not explicitly include measures for environmental activities.

Managers require relevant and reliable environmental information to inform and support their decisions (Burritt et al., 2010). This need for relevant and reliable environmental information requires the use of accounting tools that support organisational managers in understanding and monitoring environmental activities (Christ & Burritt, 2013). The aim of using these accounting tools is to provide a clear picture about organisational performance and reporting for all stakeholders (Hoque, 2006). As stakeholder theory provides a multi-dimensional approach for organisation performance measurement (Kaplan, 2009), many sustainable balanced scorecard (SBSC) scholars have based their studies on stakeholder theory (e.g. Hansen & Schaltegger, 2014; Hubbard, 2009; Hansen & Schaltegger, 2016). This study builds on this research by explicitly recognising that stakeholder demands influence the design of performance measurement systems and this effect is emphasised in the context of health care.

Limited empirical studies have been conducted to examine ways that the environmental dimension may be comprehensively incorporated into the BSC (Länsiluoto & Järvenpää, 2008, 2010; Van der Woerd & van Den Brink, 2004; Dias-Sardinha & Reijnders, 2005; Dias-Sardinha et al., 2002). Länsiluoto and Järvenpää (2008) investigated how environmental activities were embedded within the BSC in a Finnish food manufacturing system. Their study found that measures for environmental elements were embedded within the internal process perspective. In the Italian food and tourist industries, Van der Woerd and van Den Brink (2004) suggested that five perspectives are necessary (customers and suppliers, financiers and owners, society and planet, internal process and employees and learning). In Portugal organisations, there is evidence that the BSC contains sustainability, stakeholders, internal process, and learning and growth perspectives (Dias-Sardinha et al., 2002; Dias-Sardinha & Reijnders, 2005). Meanwhile, Journeault (2016) proposed four perspectives for Canadian non-profit organisations: sustainable perspective (social performance), external stakeholder perspective (financial and environmental performance), internal business processes, skills and capabilities perspectives. The current study utilises insights from these studies to explore the perceptions of key internal stakeholders in a large Queensland hospital to understand how environmental performance could be reflected in the organisation's BSC. The remainder of this paper is organized as follows. Section 2 provides the literature

review. Section 3 discusses the relevance of stakeholder theory as a conceptual framework to interpret the findings of the study. Section 4 explains the research method, whereas Section 5 outlines the empirical findings and discussion. The conclusions are presented in Section 6.

2. Literature review

2.1 Environmental Performance Indicators

Environmental performance refers to managing an organisation's environmental aspects (e.g. fuel consumption, water consumption and environmental impacts (e.g. air pollution, natural resource depletion, water pollution) (Feldman, 2012). The definition of environmental performance has been expanded to "cover a wide range of areas such as waste management, emissions to air, land and water, and the existence of environmental management systems" (Sutantoputra et al., 2012, p. 52). Environmental performance management systems are a group of different organisational management practices that establish, measure and monitor organisation's environmental impacts (Martín-de Castro et al., 2016). These systems include the organisational processes which minimize unwanted environmental outcomes on the natural environment (Dangelico, 2015). Disclosing environmental information voluntarily provides stakeholders with a level of assurance that the organisation is responsive to environmental concerns (Martín-de Castro et al., 2016). The disclosure of environmental information may include data about the organisation's environmental profile, environmental initiatives or environmental performance indicators etc. (Sutantoputra et al., 2012). This focus of this study is the link between environmental performance indicators and the balanced scorecard. However it is important to note that the measurement and disclosure of environmental information is rapidly evolving and organisations make choices about how to report these factors. Performance associated with environmental indicators can be reported in a separate report, an annual report, the organisation's website (Sutantoputra et al., 2012), or in the BSC (e.g. Hansen & Schaltegger, 2016). There are also reporting initiatives such as the Global Reporting Initiative which are designed to help organisations manage and report on activities that affect environmental sustainability (Vigneau et al., 2015).

Environmental performance, from an accounting perspective, can be reflected in a group of financial and non-financial indicators. These indicators capture the benefits and costs of consuming natural resources such as energy, land, or water (Hubbard, 2009). This performance can be measured through monetary environmental information (e.g. dollars) and/or physical environmental information (e.g. kilowatt-hours; kWh). The physical information incorporates the volume of energy, water, and materials consumed, while monetary data specifies environment-related costs and benefits (Lee, 2011). It is likely that some stakeholders prefer monetary environmental information while others prefer physical environmental information (Bennett et al., 2011).

Monetary environmental costs encompass an organisation's payments in relation to environmental damage and protection (Hansen et al., 2009) while environmental revenue is that gained either from sales of recyclable materials (Qian et al., 2011) or grants, subsidies and awards (Gale, 2006). Explicit recognition of the potential cost savings generated through environmentally sensitive activities enables organisations to increase their profitability through efficiency savings (Shapiro et al., 2000). In addition to these efficiency benefits an organisation's good environmental performance can be a source of increased revenue via enhanced community recognition. Langfield-Smith (2015) considered these reputational benefits to be another motivation for adopting environmental management accounting.

As organisations serve different stakeholder groups, their operational activities affect the community in multiple ways (Hoque, 2006). A hospital has a responsibility to satisfy the financial and non-financial expectations of various stakeholders including shareholders, employees, customers/patients, suppliers, governments and communities (Clarkson, 1995; Donaldson & Preston, 1995). In order for healthcare organisations to meet these expectations, there is growing recognition of the need to report the environmental effects of their operational activities to their stakeholders. Consequently many types of organisations in Europe are now "required to report their carbon emissions to both governments and customers" (Journeault, 2016, p. 217). Generally, the ability to create good relationships with all its stakeholders is considered an essential element of long term organisational survival (Clarkson, 1995; Perrini & Tencati, 2006).

2.2 The role of the balanced scorecard in the healthcare sector

Since the beginning of 1990s, many accounting techniques such as BSC, economic value added, fair values creation, and target costing have been introduced into the management accounting field (Cooper et al., 2017). However, BSC is one of the most popular performance measurement approaches (Cooper et al., 2017). Indeed some commentators suggest that the BSC is a major innovation in the recent history of management accounting (Busco & Quattrone, 2015). Kaplan and Norton (1992) developed the BSC model to address the over reliance on financial measures in traditional management accounting systems. The BSC is a multi-dimensional accounting instrument for evaluating performance and analyzing alternative measures with an essential concentration on achieving an organisation's strategic goals (Alewine & Stone, 2013). The BSC may enhance performance measurement judgments by providing decision makers with a comprehensive set of financial and non-financial indicators (Humphreys & Trotman, 2011). It is argued that this provides a more complete picture on the organisation's activities (Hall, 2011).

Proponents of the BSC suggest that, in addition to the financial measures, other non-financial measures (customer, internal business process and learning and growth) have a significant role in organisational performance (Kaplan & Norton, 1992, 1996a; Aidemark, 2001). Thus the BSC is not solely a collection of critical indicators (Möller & Schaltegger, 2005), rather it highlights a balance between a set of inputs and outputs, current performance driver indicators (lag indicators), future performance driver indicators (lead indicators), and includes objective and subjective measures that are useful for internal and external stakeholders (Hansen et al., 2009; Atkinson et al., 2012). The BSC also assists to effectively "operationalize managerial discourse concerning goals, missions, values and strategies" (Cooper & Ezzamel, 2013, p. 290). Further, use of the BSC enables managers to share their strategy with all organisational members (Cheng & Humphreys, 2012).

During the last two decades the use of the BSC in the public sector has received attention in the accounting literature (Hoque, 2014; Bobe et al., 2017; Aidemark, 2001). Throughout this period, there has been increasing pressure on public healthcare

organisations to improve performance (Adams et al., 2014). Consequently researchers have recently noted an increase in the application of BSC to the health sector (Trotta et al. 2013). Smith and Loonam (2016) note that health care organisations are increasingly utilising the BSC in order to "attain greater strategic performance measurement" (p.407). Another reason suggested for this resurgence is that the BSC takes into account patients, healthcare processes and professional staff development as well as financial outcomes (Aidemark, 2001). Furthermore, the BSC can accommodate the complexity of healthcare companies by providing a multidimensional system to measure and manage organisational effectiveness (Trotta et al. 2013).

Although specific support for the utilisation of the BSC in healthcare organisations occurred as early as 1994 (Griffith, 1994), the use of this model did not become widely evident until the end of the 1990s and the beginning of the new century (Bisbe & Barrubés, 2012). However, the public sector has complex social and political contexts and performance measurement that adequately captures these multiple dimensions is difficult (Hoque, 2014). Financial outcomes do not always provide adequate insights into whether a government organisation is achieving its mission (Kaplan & Norton, 2001). Consequently, the organisation's mission must be considered at the highest level of its scorecard (Kaplan, 2001).

In the public health care sector, the relationship between the financial perspective and customer perspective is interchangeable and reciprocal. For example, the general public, as tax payers, pay taxes to government departments that then allocate funds to receiving agencies (hospitals), which is the financial perspective. Subsequently, the tax payers receive benefits as customers when treated in hospitals. In this context, tax collection is seen as necessary to provide benefits to the community (Soysa et al., 2016). It is not an objective of governments to generate profit but rather to maximize the efficient use of public funds (Kaplan & Norton, 2001). Within the public healthcare industry the internal business process perspective of the BSC identifies the critical internal processes, which are important for the achievement of the intended outcomes of the other perspectives (Figge et al., 2002). This perspective frequently reports indicators that reflect the efficiency and effectiveness of the agency (Butler et al., 2011). The learning and growth perspective of the BSC contains indicators about

the capabilities and competences among employees (Aidemark, 2001). Healthcare organisations must continually assess their future needs and ensure that their intellectual capital and human resources, components of the learning and growth perspective, are sufficient to sustain its future survival (Epstein & Wisner, 2001).

It is clear that BSC perspectives should reflect the characteristics of health organisations (Aidemark & Funck, 2009). Therefore, several studies have been conducted to identify BSC perspectives in health organisations. For example, in Sweden, Kollberg and Elg (2011) determined five BSC perspectives: patient/customer, process, development/future, employee and production/economic. A study conducted in a public Australian health care organization by (van de Wetering et al., 2006) found four perspectives: clinical business process, patient, quality and transparency, and information systems. These researchers observed that just two of the perspectives, clinical business process and patient, are similar to the original BSC perspectives (van de Wetering et al., 2006). In Hong Kong, public health organizations still use perspectives similar to the original BSC perspectives (Yuen & Ng, 2012). Meanwhile a recent African study revealed that community, financial, internal business process, and capacity building are perspectives in the BSC of African health providers (Bobe et al., 2017). Therefore it is evident that there are multiple ways of refining the BSC to accommodate the health care context. In regards to environmental performance it is likely that health care organisations will seek to innovate and creatively adapt the BSC to incorporate appropriate indicators which support their organisational attributes and strategy.

2.3 Incorporating the Environmental Dimension into the balanced scorecard

There is little consensus as to the best method of incorporating the environmental dimension within the BSC. Johnson (1998) argued that the environmental perspective is already incorporated within the existing four BSC perspectives. Kaplan and Norton (2001) implicitly supported Johnson's assertion when they included social and environmental responsibility as part of internal business process perspective. They argue that organisational value is created through internal business process. Further, (Butler et al., 2011) support Johnson's suggestion that major changes to the BSC structure are not required. Figge et al. (2002) also supported the argument that

environmental issues are automatically embedded within the BSC's cause and effect links. However, their argument contrasted the cause and effect links and advocated for the creation of a separate SBSC, which requires the environmental and social issues to be represented in a standalone perspective of BSC. This is an attractive option for organisations that want to incorporate environmental issues without revamping the original BSC (Butler et al., 2011). However, some commentators argue that this approach does not adequately capture the links to creating financial value (Journeault, 2016). Moreover, Figge et al. (2002) state that the SBSC is an extension of the previous approaches and cannot be considered an independent method. As a result, this approach may provide little benefit to organisations wishing to implement a sustainability strategy (Journeault, 2016).

The model in which a fifth perspective is embedded within the BSC is considered the simplest approach (Butler et al., 2011) to incorporating the environmental dimension. A key benefit of this approach is that this may draw decision makers attention to environmental responsibility as a core organisation value (Epstein & Wisner, 2001). This helps organisations to connect their environmental initiatives with financial value creation (Journeault, 2016). While this approach has been accepted by some commentators (Hubbard, 2009; Butler et al., 2011), Kaplan and Wisner (2009) find that providing a separate environmental perspective is not effective unless decision makers receive additional information about the strategic importance of the environmental measures. In addition, the poor connection between the existing BSC perspectives and the additional perspective brings a high risk of failure (Hansen & Schaltegger, 2016). Overall, adding a fifth perspective remains somewhat controversial (Hansen & Schaltegger, 2016) and this makes "its role and contributions ambiguous" (Journeault, 2016, p. 216). It may be easy for managers to ignore the extra perspective and continue to focus on the four traditional perspectives; therefore providing little contribution to achieving the organisation's environmental goals (Hansen & Schaltegger, 2016).

In summary, the extant literature outlines two main arguments for integrating the environmental measures into the BSC. The first argument was developed by Figge et.al (2002) and involves three models: integration of the environmental measures in the four BSC perspectives, additional fifth non-market perspective, and developing a separate environmental and social scorecard. The first model argues that integration

of the environmental issues in the BSC perspectives is appropriate for environmentally orientated organisations and provides opportunities to increase financial outcomes (i.e. the organisation's success within market) (Figge et.al, 2002). The second recommended model is adding a fifth non-market perspective which recognises additional aspects such as customer, socio-cultural, legal sphere etc. (i.e. the organisation's success from outside market) (Figge et.al, 2002). The final model promotes differentiating the environmental and social issues and developing a separate environmental and social scorecard (Figge et.al, 2002). However, it is important to observe that this model is an extension to the original two approaches (Figge et.al, 2002).

Butler et.al (2011) rearranged the above argument. Their approach commences with adding the fifth perspective, then developing a separate SBSC, and finally integration of the environmental issues throughout four BSC perspectives. The fifth perspective model is considered most appropriate for organisations with high-profile exposure to sustainability issues (Butler et al., 2011). However, in some cases, organisations do not have a BSC or they have BSC but they do not wish to change the existing BSC (Butler et al., 2011). In this case (Butler et al., 2011) recommends the development of a separate SBSC as the second option. Such an approach includes sustainability measures (financial, social and environmental) in a separate BSC. Finally, "the integrated approach works well for companies that have a BSC in place and are willing to evolve that scorecard to reflect sustainability practices" (Butler et al., 2011, p. 5).

A number of differences are evident between Butler et.al (2011) and Figge et.al (2002). For example, Butler et.al (2011), in their first model, consider that the organisation's success (financial or comprehensive success) is the main driver to integrate the environmental and social issues in the BSC. Meanwhile, Figge et.al (2002) stressed that developing a separate environmental and social scorecard is not an independent approach because developing a separate environmental and social scorecard cannot be achieved without firstly achieving integration as well as a fifth perspective. In contrast, Butler et.al (2011) state that the sustainability strategy, availability of BSC, and the desire to change are the main drivers to adopt a specific approach. Therefore, their argument commences with adding fifth perspective. Furthermore, they also suggest that a separate SBSC is an independent approach.

It is evident that the potential integration of an environmental dimension into the original BSC is an important and complex question in the management accounting discipline (Thomson et al., 2014). Researchers have considered various ways of incorporating the environmental dimension into the BSC (Johnson, 1998; Kaplan & Norton, 2001; Figge et al., 2002; Hansen & Schaltegger, 2016, 2017; Journeault, 2016; Bieker & Waxenberger, 2002; Bieker, 2003; Butler et al., 2011; Kaplan & Norton, 2004; Kaplan & Wisner, 2009; Möller & Schaltegger, 2005; Hubbard, 2009; Dias-Sardinha et al., 2007, 2002; Hansen & Schaltegger, 2014; Hansen et al., 2010). Recently, Hansen & Schaltegger (2016) conducted a review of 69 studies that proposed models and examined ways of incorporating the environmental and social issues within the BSC. They classify the models into several typologies:

> "Adding a sustainability perspective only (additional perspective); partial integration into existing perspectives; full integration into existing perspectives and integration across existing perspectives while simultaneously adding a dedicated perspective (extended model)" (Hansen & Schaltegger, 2016, p. 209).

However, there remains little empirical evidence that explores the experience of health care providers in regards to integrating environmental indicators within the BSC. Given the growing recognition of the environmental impacts of health care activities and the resultant need to satisfy stakeholder information requirements it is necessary to fully understand the application of the BSC in this context. This gap in the literature gives rise to this study's research question:

> *RQ1*. How can the balanced scorecard be adapted to incorporate environmental performance in a health care context?

3. Stakeholder theory

In qualitative research, a theory "can connect pieces of research data to generate findings which fit into a larger framework of other studies" (Stewart & Klein, 2016, p. 616). It also can help to code the data for thematic analysis (Stewart & Klein, 2016). Stakeholder theory was used to interpret and inform this research. The use of stakeholder theory is well established in social and environmental accounting research (Chiu & Wang, 2015). This theory acknowledges that business responsibilities include both shareholders' and non-shareholding stakeholders' interests (Alniacik et

al., 2011). Accordingly, stakeholder theory recognises that organisational actions are influenced by multiple stakeholders and that organisations attempt to manage competing stakeholder demands (Garvare & Johansson, 2010).

From a stakeholder theory perspective modern performance measurement systems such as the BSC can be considered as a mechanism to more fully recognise the interests of an organisation's stakeholders (e.g. employees, communities, suppliers, customers, and governments). Kaplan and Norton (1996) attempt to include the majority of stakeholders in their BSC model. Expectations of shareholders and customers are explicitly integrated in the financial perspective and customer perspective. Stakeholders such as suppliers and employees are implicitly addressed through internal business processes perspective and learning and growth perspective. This emphasis on stakeholder interests reinforces the relevance of the BSC in a health care context because public sector reforms influenced by new public management have promoted the need for such organisations to be accountable for creating public value. In this environment the success of public sector organisations is dependent on "satisfying stakeholders according to their definition of what is valuable" (Bryson, 2004, p. 25). In this context the balanced scorecard is a flexible model which can be used to build comprehensive and multi-dimensional performance measures which accommodate multiple stakeholder expectations.

The health care sector has a complex and reciprocal relationship with stakeholders. Stakeholders in this context include internal stakeholders as well as multiple external stakeholders such as government bodies, research organisations, community organisations and the general public. Inadequate attention to environmental performance may degrade the relationship between organisations and their stakeholders' interests (Buysse & Verbeke, 2003; Sutantoputra et al., 2012). However, prior research has recognised that the balanced scorecard is an important tool which assists public health care managers to fulfil their organisational mission and demonstrate organisational effectiveness to multiple stakeholders (Zelman et al. 2003; Behrouzi et al. 2014; Gonzalez-Sanchez et al. 2017). Collectively, such studies underlie the importance of stakeholder theory in exploring performance measurement systems in public sector organisations.

4. Research method

ABC[8] is a large public health care provider in Queensland, Australia. It provides services across an area of approximately 90,000 square kilometres (34,750 square miles) and delivers clinical services to approximately 280,000 people. This represents 5.2% of the Queensland landmass and 5.7% of the Queensland population. It has twenty-nine facilities (such as hospitals, outpatient clinics, aged care facilities etc.) and five thousand staff. The researchers have chosen this case study for two key reasons. Firstly, this hospital uses the BSC for performance measurement purposes. In addition, this organisation is currently investigating ways to update their BSC to incorporate sustainability into its performance measurement system.

This research adopts a qualitative approach that utilises an in-depth case study consisting of semi-structured interviews, and document analysis. Case study research is an appropriate research method for understanding the dynamics of performance measurement within a hospital (Vesty, 2004). The research interview is considered one of the most important qualitative data collection methods (Qu & Dumay 2011). Qualitative researchers aim to understand subjective human experience (Gilgun, 2005) and the selection of interview participants is a critical decision in qualitative research (Kuper et al., 2008). This is because the knowledge of the participant is a key source of understanding the phenomenon under study (Kuper et al., 2008). An ideal participant is an individual who can provide rich information pertinent to the research question (Sargeant, 2012). Hence, a qualitative researcher must choose participants who have knowledge relevant to the research aim (Devers & Frankel, 2000). Morse (2000) suggests that quality participants should have experience in the topic, available time to share with the researcher, and be willing to relate their experiences to the researcher.

There is little consensus about when to cease interviewing in qualitative studies although Creswell (2018) suggests that saturation point is reached when subsequent interviews generate no new ideas or concepts. However, Hennink et al., (2017) argue that saturation should be seen as a multi-dimensional concept which incorporates both code saturation and meaning saturation. Their discussion explicitly recognises that it

[8] In accordance with ethics approval to conduct the study, the name of the hospital has been changed to ensure its anonymity.

is common for code saturation to occur relatively early in the interview process whereas meaning saturation often requires additional data. In this study interviews continued until the authors were confident that the data collected captured the key relevant themes pertinent to the research aim (code saturation). After analysing the transcripts from these interviews the researchers conducted three further interviews to add depth and richness to the data set. These interviews provided the researchers with the opportunity to assess the relevance of prevalent codes by collecting new perspectives which clarify or enrich the emerging issue (Hennink et al., 2017). As per the stopping criterion principle advocated by (Francis et al., 2010) each consecutive interview was interrogated to assess its contribution to the existing data (Fusch and Ness, 2015). After conducting 16 interviews the researchers were confident that the richness of the data could explicitly address the research aims.

Thematic analysis was used to identify key themes and recognise connections between them. Thematic analysis demonstrates which themes are significant in the description of the phenomenon under study (Joffe, 2012). It is a useful and flexible approach to deal with a complex phenomenon such as health care (Braun & Clarke, 2006). Documents such as annual reports, strategic plans and websites were also analysed. This phase provided a comprehensive understanding of the organisation and its activities and was critical to establish the manner in which the case study organisation was using the BSC. This also allowed the researchers to ascertain the extent to which the environmental dimension was incorporated into the existing BSC. The document analysis revealed that managers were using the BSC to monitor and evaluate their organisation performance. Further, there was little evidence that the existing BSC included any environmental information and measures. This motivated the researchers to explore managers' perceptions about possible initiatives to incorporate the environmental information into the BSC.

A total of 16 interviews were conducted with individuals across various organisational designations (A, B, and C). Group A consists of managers, financial controllers, and accounting staff. Group B includes operational staff involved in maintenance, engineering infrastructure and facility services. Group C refers to nursing and medicine staff. The interviews were conducted throughout 2018 and typically lasted between 30 and 60 min. Table 1 provides details of the participants.

Interviewees were carefully selected to ensure that a cross section of the organisation was captured in order to reduce the potential for bias in responses (Sargeant, 2012). This approach is designed to increase the validity of the research findings as it allows the researcher to be confident in the "accuracy of the findings" (Creswell, 2018, p. 199). This type of triangulation can be seen as a validity check (Golafshani, 2003; Mathison, 1988).

Prior to the interviews an executive summary, information sheet and consent form were sent to the participants. A sample of interview questions is provided in the appendix. All interviews were conducted at the participants' office. Interviews were audio recorded for transcription purposes and to improve the reliability of the research findings. Reliability of qualitative research is "established through accurate data recording and transcription" (Lewis, 2015, p. 474).

In this study the authors used a thematic approach to analysing the data. Data analysis was informed by the following steps (Braun et al., 2019).

- Familiarization: After each interview the first author reviewed the audio recording to concentrate on absorbing the participants' responses. At this stage preliminary notes of each interview were taken. The interviews were then sent to a transcription service. The transcriber was asked to transcribe the interviews verbatim. Once the completed transcripts were received the same author read the transcripts several times and compared these to the preliminary notes. These steps were conducted to ensure that the author had a thorough understanding of the evidence that had been collected.
- Generating Codes: This stage involved the researcher organising the data into meaningful blocks of information. This allows the researcher to begin to generate meaning from the data. In this study an inductive orientation was adopted which allowed the data to reveal the codes.
- Constructing Themes: This phase developed useful themes from the codes. To do this all codes were explored to identify the key characteristics of the data.

Group A Management, Finance and Accounting Staff (MFAS)		**Group B** Operational Staff (OS)		**Group C** Nursing and Medicine Staff (NS)	
Participant code	Position	Participant code	Position	Participant code	Position
MFAS1	Senior level	OS1	Senior level	NMS1	Senior level
MFAS2	Senior level	OS2	Middle level	NMS2	Middle level
MFAS3	Middle level	OS3	Middle level	NMS3	Middle level
MFAS4	Middle level	OS4	Middle level	NMS4	Middle level
MFAS5	Junior level	OS5	Middle level	NMS5	Middle level
MFAS6	Senior level				

Table 1. Interviewee details

The researchers looked for patterns in the codes which led to the development of "coherent clusters of meaning" (Braun et al., 2019, p. 855). The use of thematic mapping informed this stage and helped visually represent the important conceptual meanings.

- Revising and Defining Themes: Using the initial list of themes the researchers then revisited these themes and reflected on them within the context of the research question (Jason & Glenwick, 2016). This process resulted in some themes being disregarded and others being combined because they portrayed similar concepts (Braun et al., 2019).

The researchers used NVivo as a coding tool. NVivo provides an efficient way of organising and collating data. The data was initially sorted into three main groups (A, B, and C), according to the background of the interviewee. Researchers then coded each interview to develop themes and sub themes. The authors then independently rechecked the codes (Gibbs, 2008) and analysed the data in detail. Various searches were undertaken on the data to identify relevant connections and compare participant responses. The query tool was also employed to help identify pertinent information.

5. Findings and discussion

Participants in this study reported that a number of different approaches could be used to incorporate the environmental performance indicators within the BSC in their organisation. These approaches tended to reflect the models proposed by the existing literature. However there was little agreement as to which method is most appropriate for the organisational context. There was also evidence that a number of contingent organisational factors influence internal stakeholder perceptions about how to fully report the environmental impacts of organisational activities. For some participants it was important that endogenous and exogenous environmental events are differentiated. This resulted in the suggestion of an additional model in which internal environmental aspects are accommodated within the financial perspective of the BSC and a separate perspective for the effects of climate change is implicated. The remainder of this section reviews the interview findings in details and outlines the proposed methods for refining the BSC.

5.1 Model 1: Full integration

Participants in this study reinforced the understanding that organisational strategy is the first step of identifying how to incorporate environmental performance within the BSC. This reflects the literature which emphasises that it is critical to create an understanding of the organization's mission and strategy (Lipe & Salterio, 2000). Therefore, choosing the most suitable model for incorporating environmental performance into the BSC is contingent on the vision and strategy of the organisation. As two participants elaborated:

> *It really depends on how we want position ourselves as a business- […] so coming back to the vision and strategy (MFAS3).*

> *I think that the balanced score card follows our strategic [direction] and that's why we try to connect it to the strategy. If we were to improve our environmental strategy and include it in our strategic plan, our balanced scorecard should feature some of our strategies to do with the environment. Whether its own thing or incorporated within one of these (MFAS2).*

This approach is consistent with creators of the BSC, Kaplan and Norton (1996), who assert that managers need to review their mission statement first and then they can develop their vision and strategy (Kaplan & Norton, 2001). According to Möller & Schaltegger (2005) and Johnson (1998) reporting environmental performance under the BSC does not simply involve adding environmental measures. This finding is also consistent with Möller & Schaltegger's conclusion (2005) that suggests effectively embedding environmental performance within the BSC requires a reconsidered vision, new design and new data. In other words, "structure follows strategy" (Chandler 1990, p. 14). This is supported by participants who argued that it is necessary to explicity acknowledge the organisational strategy for environmental considerations before connecting it to the BSC.

Strategy can also translate to specifying management's desired associations between BSC perspectives (Hansen et al., 2009). This requires connecting the environmental indicators with other financial and nonfinancial measures (Johnson, 1998). Some participants such as MFAS3, OS2, MFAS5 and NMS5 advocated integrating environmental indicators throughout existing BSC perspectives. For NMS5, the direct relationship between the environmental indicators and other BSC indicators is an important reason to follow a full[9] integration approach:

> *Certainly environmental factors and environmental repercussions have direct or indirect influences into all four. […] It is probably a component of all four customer, financial, internal and learning and growth (NMS5).*

Other participants acknowledged that environmental performance is not evident in the strategic priority areas for their organisation. Accordingly they also favoured the full integration approach:

> *At this point in time our core vision statement is, "caring for the community's healthcare together," of which I feel the environmental perspective falls under the existing perspectives.*

[9] Full integration approach refers to integrating environmental indicators throughout existing BSC perspectives.

Having the resourcing to train every single employee in being environmentally aware is not one of our core priorities. […] We're embedding it in our existing strategies rather than making it a standalone (MFAS3).

It probably sits across a number of those [four existing perspectives]. […] It shouldn't be a thing on its own. It should be integrated with a number of activities that we're doing (OS2).

We probably would not focus on the environmental aspect as a single thing. It would probably feed into one of our other dimensions. I don't think we'd create a new one. It's probably more around processes. […] It wouldn't necessarily be a separate dimension (MFAS5).

The above insights resemble Butler's et al. approach (2011) that states this tactic is suitable for organisations which do not wish to undertake major revisions to their BSC. Further, this approach implies that integration within the existing BSC perspectives can adequately capture stakeholder expectations regarding environmental performance.

5.2 Model 1: Partial integration

Commentators have acknowledged that full integration is not always suitable for all organisations (Journeault, 2016). This was also reflected in this study as some participants reject full integration and advocate adopting the partial[10] integration model. In this study this generally involved two positions. The first position argues that the environmental measures should be reported under one of the existing perspectives. However, the second position states that integration of the environmental issues within two of the existing perspectives is more practical.

Some participants such as NMS5 and MFAS4 concentrated on the starting point of the environmental activities. From their perspective they argued that environmental

[10] Partial integration approach refers to integrate the environmental indicators within one or more BSC perspective(s) but not all BSC perspectives.

performance is essentially created by internal processes. For this reason, they suggested environmental measures should be included under the internal business process perspective. As the participants explained:

> If you were to put them into one basket where it has the most influence, I would say it's probably within internal perspective (NMS5).

> [The environmental dimension] would map back to probably the right processes. […] So, the right processes–, under our planning objective we have a strategy to identify and respond to environmental risks and ensure sustainability (MFAS4).

A key argument underlying this approach is that complying with national regulations on the environment is an essential part of value-creating processes (Kaplan and Norton, 2004). Accordingly, organisations need to re-design internal processes to reflect environmental standards (Marchi et al., 2013; Campbell et al., 2018) and create value for its stakeholders (Kaplan & Norton, 2004). This link between external environmental standards and internal business process is also supported by other researchers (e.g. Lang-Koetz et al., 2008; Buytendijk & O'Rourke, 2008). Sands, et al. (2016) found direct relationships existed between environmental performance and value creating activities within the internal business process perspective. The authors concluded that their results provide support for the feasibility of integrating environmental, social and innovation-orientated value-creating process into the internal process of the four-perspective BSC model (Sands et al., 2016).

An alternative approach is also recognised by Kaplan and Norton (2004) who note that relevance of the learning and growth perspective which focuses on three areas: human capital, information technology capital and organisational capital. Comments from some participants in this study reflected this potential approach:

> We could do it within the staff [perspective]. Otherwise when we get to other processes I think it's very difficult. I think it has to be done at a higher level (NMS4).

This model is consistent with Henriques and Sadorsky's (1999) observation which states that improving environmental outcomes relies on employees' participation (Henriques & Sadorsky, 1999). For example, highly trained and experienced engineers are "the key to ensuring that the process is efficient and that improvements are continually identified" (Wynder, 2010, p. 236). This will ensure that the BSC can generate successful outcomes (Sinha, 2006). However, in relation to BSC design, this point of view has received limited attention in the literature.

Overall, there was notable support for the suggestion that environmental performance would be best captured in the financial dimension. However, these participants also noted that there was considerable potential for individual bias to influence the structural design of the BSC:

> It depends on who you're talking. So everyone has their own bias…. So if you're talking to an accountant, they'd say go straight into the financial section of the plan. If you're talking to an environmental scientist they'll say it'll be part of the overall healthcare strategy, or something like that so it just depends on what. […] So, for someone like me I'm very financial focussed and numbered. [...] For me I would put in the financial section of it (OS4).

> I often think of the balance scorecard with what we've currently got, it's purely driven by the finance team in collaboration with us as the service manager group, but it's largely built around finances and what track we're on to achieving those outcomes that we need to achieve with the finances that we've got (NMS3).

A further two participants also proposed the financial perspective as the optimal dimension for integrating environmental performance. However, their argument varied from their colleagues and emphasised the potential to gain financial benefits from environmental activities.

> [For example,] clinical waste is often looked at in terms of from a finance perspective. What is it costing us? […] [Therefore,] the obvious one that crops out is sustainable resources (NMS3).

Although many participants supported the inclusion of environmental performance in one BSC perspective there was some support for integration in multiple perspectives. These participants recommended leveraging the natural link among internal business processes perspective and learning and growth perspective to report the environmental position:

> Definitely the right processes because a lot of the environmental stuff we come around process management […] and resources. Resource management around– you've got to have experts in the field to understand what you're trying– for instance, if you put this into a balance score card you've got to have someone who understands what– so, the resources to understand what you're putting in there, to interpret– they can educate people on what we're actually looking at. And then those experts too can formulate processes in order to manage the [environmental issues] (NMS1).

> The environmental factor is somewhere between internal process and innovation. […] The growth and learning, you should be looking at the next emergent technology and new methodology that you're going to become more environmentally friendly. […] We are sending these people here to learn about this. […] Better thinking people that will be having the learning and growth driving the new innovations in internal process. […] Growth and innovation will drive the internal process (OS5).

This approach has some recognition in the existing literature and Sands et al. (2016) investigated the direct relationship between the learning and growth perspective and internal processes perspective. In particular, environmental performance was linked with several human capital components of the learning and growth (autonomy, effective goal commitment, training to safety and health performance and employment practices (within the regulatory and social processes) were identified (Sands el al., 2016). From an internal stakeholder position, these findings appear to link environmental performance with specific organisational activities or processes. This point of view may reflect the understanding that "the influence of each

stakeholder on the firm is dissimilar, and the expectations of different stakeholders are diverse and sometimes conflicting" (Helfaya & Moussa, 2017, p. 1063).

5.3 Model 2: Additional fifth perspective

There was evidence that some participants believe a new environmental perspective was warranted in this organisation. The literature suggests that a BSC design needs to have a mature environmental strategy to effectively link the environmental measures with other financial and nonfinancial measures (Johnson, 1998). Hence, these participants suggested that the lack of institutional emphasis on environmental performance means that it is inappropriate to utilise the full or partial integration approach:

> Environmental is never going to be a priority unless you make it on the balanced scorecard, make it the 5th one. So […] it should be an additional 5th line if you want it to be important. Because while it's one of the 4 it will never be a priority (MFAS6).

> If we want to position as an environmentally sustainable corporate citizen and that's our main positioning statement then that would be further argument to have it as its own standalone sphere (MFAS3).

> It would raise more awareness if it was a separate one. That's probably why I thought it would be good by itself because at the moment if you put it under one of these things it may be lost (MFAS2).

This supports the literature that suggests that organisations in the early stage of dealing with the environmental issues (such as this case study) may be best to consider this approach as a means of raising the profile of environmental activities:

> It would stand out more because we don't do anything now. We are quite obviously omitting anything to do with factors to do with the environment and any of our reporting. We don't do any reporting

> on the environment now in a balance score card type of thing (MFAS2).

These viewpoints indicate an addition of a fifth perspective can be used to signal that the organisation carefully considers the environmental consequences of its activities. This may be seen as a way to promote the organisation's ability to receive support from its stakeholders (Dobbs & Van Staden, 2016).

5.4 Model 3: New perspective for climate change coupled with other environmental aspects integrated into the financial perspective

The third approach identified in this study deviates from the extant literature and represents a significant development in the design of environmental performance measurement. This approach is based on explicitly differentiating between endogenous and exogenous environmental elements. With regard to endogenous environmental elements the organisation is responsible for activities such as energy consumption, water consumption, waste production etc. Managing these environmental concerns is necessary to ensure organisational efficiency and improved financial outcomes. According to traditional BSC design the financial perspective reflects activities that support performance towards the organisation's desired financial results. Accordingly, participants in this study explicitly recognised that financial benefits which derive from the organisation's endogenous environmental activities should be reported under the financial perspective.

> For electricity, water, waste, looking into those issues the main thing is looking at our own efficiency. We get a nice benefit that we're being a good corporate citizen but the real reason we're looking at that is because we want to save money. When we use less water, when we want to use less electricity, we want to make less waste and in the end we get a financial benefit from that. I think those parts fit in the financial part (OS1).

However, it was also argued that the organisational activities affected by exogenous environmental events such as climate change and microbiological phenomenon may be best reported separately. This approach explicitly acknowledges that these events

affect the organisation's ability to operate effectively and therefore a fifth perspective should separately recognise the institutional consequences of exogenous environmental elements:

> Climate change, to me, it's a little bit different. I'm a bit more interested in business continuity because let's say for example in this part of the world climate change results in higher frequency of flood events and in the ABC area flood all the time - more often and we can't move patients between hospitals or we can't get food supplies into hospitals. Those sorts – that effects whether we can continue business. So, there's business continuity effects. […] I think […] things like climate change could almost be a fifth dimension (OS1).

This argument provides motivation to further explore the institutional consequences of explicitly recognising the source of environmental events: endogenous and exogenous. Endogenous elements such as energy consumption, water consumption, and waste production are controllable and occur on an expected basis. Conversely, other elements such as climate change and microbiological phenomenon are uncontrollable and occur randomly and unexpectedly. As a result, incorporating these non-homogeneous elements within the same performance measurement system may distort the interpretation of organisational results. This possibility has yet to be fully considered in the literature either within or beyond the hospital sector.

6. Conclusions

This study was conducted in the Australian public healthcare sector. The findings suggest that healthcare providers recognise the critical nature of environmental performance in creating value for both internal and external stakeholders. In regards to developing a performance measurement model based on the BSC, we identify four potential BSC approaches: partially integrated model, fully integrated model, an expanded model with five perspectives, and an integrated model coupled with a separate climate change perspective. The study provides some support for proponents of the fully integrated approach (e.g. Johnson, 1998; Figge et al., 2002). In addition

proponents for the partially integrated approach receive support for their view. In this study partial integration is implicated in two potential models. Firstly, the organisation links the environmental dimension to one of three perspectives: internal business process, financial or learning and growth. Another option is to integrate the environmental measures in both the learning and growth perspective and internal business process perspective. There is little reference in the literature about this dual perspective approach and this is worthy of further exploration.

The addition of a separate fifth environmental perspective is favoured by some participants. This is consistent with the work of Butler et al. (2011). In this study participants argued that integration approach (partially or fully) undermines the importance of environmental issues. Therefore an additional fifth perspective provides an effective vehicle to promote the visibility of environmental issues. This study also provides a novel contribution by highlighting the potential need to separate endogenous and exogenous environment elements when designing the BSC. Also of interest is the finding that there was no support for an entirely separate SBSC.

The study has explored ways to integrate environmental performance measures into the BSC. It is evident that environmental performance measurement is heavily contingent on the organisational environmental strategy. Further, there is evidence that internal stakeholders appreciate the role that environmental performance plays in regards to satisfying external stakeholders. It is clear that participants understand the need for health care services to demonstrate the creation of value across various dimensions. However, there is also a recognition that not all stakeholders have the same power to influence organisational decisions (Harrison et al., 2010). This may contribute to the varying perceptions in regards to how to integrate environmental performance in the BSC. According to stakeholder theory, the integration of environmental indicators in the BSC can be seen as a tool to demonstrate organisation environmental responsibility to some stakeholders (e.g. Hansen & Schaltegger, 2016; Hubbard, 2009). Participants in this study noted that the relative visibility of environmental performance measures may reflect the perceived importance of various stakeholders (Herremans et al., 2016). Such findings may encourage organisations to clearly identify their target stakeholders before developing a bespoke BSC. In addition, the proposed development of a separate organisational scorecard to reflect

exogenous factors reflects the participants' understanding that not all institutional practices are controllable. Potentially this separation may be interpreted as a means of moderating stakeholder expectations.

This study provides impetus for future research that explores the development of the BSC in health care organisations. Stakeholder theory provides a relevant interpretive framework for understanding how these organisations attempt to address internal and external stakeholder expectations. How this translates into the practice of environmental performance measurement requires further investigation. The findings reinforce Journeault's (2016) claim which acknowledges the best approach to incorporating environmental performance in the BSC remains an open question. Future research is required to explore comprehensively the implications associated with explicitly recognising endogenous and exogenous environmental events as separate organisational influences. In addition it is necessary to identify the barriers to incorporating the environmental dimension into the BSC, particularly in public sector contexts.

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Appendix: Indicative Interview Questions

- To what extent does your organisation use the BSC?
- Can environmental elements be reported within the hospital's BSC?
- Can you describe your experience in regards to potential ways of incorporating the environmental dimension into the BSC in your organisation?
- Should the environmental dimension be subsumed under the existing perspectives of the BSC?
- There is some evidence that suggests that incorporating environmental measures under one or more existing perspectives undermines the significance of the environmental issues, can you make a comment on this statement?
- Where should the environmental elements appear in the BSC in your organisation?

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3.3 Chapter summary

This chapter has addressed the first research question; how can the BSC be adapted to incorporate environmental performance in a health care context. The results suggest that organisations may select a number of different approaches to incorporate the environmental performance indicators within their BSC. While these approaches are consistent with the models proposed by the existing literature, there was little agreement as to which method is most appropriate for the organisational context. A detailed compilation of the findings is included in chapter 6. Chapter 4 provides information about the next part of this study, which addresses the second research question of this thesis.

CHAPTER 4: BARRIERS AND MOTIVATIONS OF INTEGRATING ENVIRONMENTAL PERFORMANCE INTO THE BSC: A CASE STUDY IN HEALTHCARE

4.1 Chapter introduction

Chapter 2 provided the literature review and conceptual framework for this thesis. The literature supported the identification of three theories that underpin the conceptual framework for this thesis, which led to the development of three research questions. This chapter provides the second paper and is informed by institutional theory. The objective of the current chapter is to explore the barriers and motivations of adopting a decision to incorporate environmental performance into the BSC. Section 4.2 presents the second empirical study. Finally, section 4.3 gives a summary of the contents of this chapter.

4.2 Paper Two

Barriers and Motivations of Integrating Environmental Performance into the BSC: A case study in healthcare

This chapter is an exact copy of the paper, which has been prepared and submitted to a double-blind review academic journal using the journal's formatting style.

Abstract

Purpose – This paper explores the barriers and motivations to adopting a decision to incorporate environmental performance into the balanced scorecard (BSC).

Design/methodology/approach– Semi-structured interviews were conducted with individuals within a large public hospital and health service organisation in Australia. Secondary document analysis including annual reports, strategic plan, and website data was also conducted.

Findings– This study identified sources of resistance to incorporating environmental performance in the BSC. These included the role of environmental disclosure, insufficient sustainability BSC knowledge, a lack of BSC champion's support, organisational culture, and limited environmental commitment practices. The study also revealed actions that can be taken to support the decision to incorporate environmental performance in a BSC. These include updating information systems, appointing sustainability champions, articulating financial motivations, and recognising external pressures.

Practical Implications- The findings outline actions that other organisations facing similar challenges can take to remove or reduce existing institutional factors that may be obstacles for the integration of environmental performance into a balanced scorecard (BSC).

Social Implications- Users of balanced scorecards (BSCs) have been asked to consider environmental issues. This paper provides some insights into the potential problems that limit or delay the achievement of this process.

Originality/value– The study provides empirical evidence of how institutional factors influence the barriers and motivations to embed environmental performance measures into a BSC. There is little existing literature that demonstrates how health care

organisations can effectively overcome these barriers by initiating specific activities within the institution.

Keywords Balanced Scorecard, Public Healthcare, Barriers, Environmental Performance, Institutional Theory

Paper type Research paper

1. Introduction

The balanced scorecard (BSC) was envisioned as a tool to provide a comprehensive view of organisational performance (Kaplan & Norton, 1992). In doing so, the BSC combines four performances perspectives (financial, customer, internal processes, and learning and growth) in one single report (Kaplan & Norton, 1992). The financial perspective assesses the capability of fiscal resources required to accomplish the desired mission (Niven, 2008). The customer (patient) perspective informs how the organisation can create value for its targeted patients (Kaplan, 2001). The third BSC perspective, internal business processes, establishes the significant processes that deliver value to the customers (Kaplan, 2001). Finally, the learning and growth perspective measures the capability of the organisation to reach its desired aims (Kaplan, 2001). However, more recently commentators have suggested that one of the main shortcomings of the BSC is that it ignores environmental and social performance (Kang et al., 2015; Hahn & Figge, 2018).

While the BSC model provides a broad picture of the organisation's performance (Hall, 2011; Cheng et al., 2018), the model requires refinement to properly incorporate an organisation's environmental performance (Hansen & Schaltegger, 2016). Health organisations in particular require this refinement for two main reasons. Firstly, healthcare organisations generate a significant quantity of hazardous and non-hazardous materials (Blass et al., 2017). They can also create a substantial degree of carbon dioxide emissions and greenhouse gas emissions (Kaplan et al., 2012). Accordingly, such organisations are increasingly conscious of their responsibility related to environmental activities to their stakeholders (Hoque, 2006). Hospitals therefore seek to provide their services with minimal negative environmental consequences (Griffiths, 2006). Second, many health organisations are subject to limited financial resources (Kakabadse & Rozuel, 2006) and it is important to use natural resources prudently to mitigate their impact on the community and the planet (Griffiths, 2006). For example, decreasing pollution and greenhouse gas emissions may help to minimize the incidence of human disease, thereby saving money for the health care system and society as a whole (Kaplan et al., 2012). Potentially, a lack of relevant and useful environmental information may lead to inefficiencies in management's, and stakeholders', decision-making (Evangelinos et al., 2015), and thus to sub-optimal outcomes for the community.

Researchers have attempted to provide suggestions to guide the incorporation of environmental concerns within the BSC (Figge et al., 2002; Bieker, 2003; Kaplan & Norton, 2004; Butler et al., 2011; Hansen & Schaltegger, 2016; Hahn & Figge, 2018; Hansen & Schaltegger, 2018). According to Kaplan and Norton, ‘‘depending on industry circumstances and a business unit’s strategy, one or more additional perspectives may be needed’’ (1996, p. 34). Figge and colleagues (2002) provided four simple steps to incorporate environmental measures into a BSC. In addition, the literature identifies various theoretical frameworks so that an organisation is able to choose the most appropriate approach to embed environmental measures into its BSC (Figge et al., 2002; Bieker, 2003; Kaplan & Norton, 2004; Butler et al., 2011; Hansen & Schaltegger, 2016; Hahn & Figge, 2018; Hansen & Schaltegger, 2018). From a practical perspective there is some evidence that it is easier to incorporate environmental measures within an existing BSC if the organisation has already established an effective BSC (Hubbard, 2009; Länsiluoto & Järvenpää, 2010). Despite this knowledge, there are limited examples of Australian contexts where environmental performance has been successfully incorporated into a BSC.

Farneti and Guthrie (2009) investigated sustainability reporting by Australian public organisations and found that the majority of these organisations started with a BSC but some organisations converted to the Global Reporting Initiatives framework (Farneti & Guthrie, 2009). Another Australian public sector study, conducted by Adams et al. (2014) has identified a gap or no connection between the BSC and environmental performance. Also in the public sector context, Chiarini and Vagnoni (2016) asserted that some public health organisations tend to use either an environmental management system or ISO14001, or both, to communicate with their environmental stakeholders. These studies suggest that Australian public organisations, including health organisations, tend to exclude environmental issues from their BSC. This view is supported by Khalid et al. (2019) who note that integration of environmental dimensions into a BSC is still limited in the Australian public hospital sector. On the other hand, Bedford et al. (2008) identified a number of Australian organisations (including health organisations) that incorporated environmental performance into their BSCs. The mixed research findings suggest that further investigations are necessary to understand the extent to which public sector

organisations have incorporated environmental and social issues into their BSCs (see Adams et al., 2014; Hansen & Schaltegger, 2016; Journeault, 2016).

The above discussion has led to the following research question:

RQ: ***What are the barriers and motivations to adopting a decision to incorporate environmental performance into the BSC?***

This research adopts a case study approach and explores the barriers and motivations to adopting a decision to incorporate environmental performance into the BSC. The purpose of the study is to provide a fuller understanding of why some organisations do not attempt to incorporate environmental performance elements into their BSCs (Hansen & Schaltegger, 2016). In more recent research applications institutional theory has been used to recognise that the successful implantation of a BSC is constrained by internal and external institutional factors (Alsharari et al., 2019). This study makes a major contribution in this regard through identifying and linking the barriers and motivations of integrating environmental performance into BSCs, by using institutional theory concepts. Moreover, there is a dearth of empirical research investigating the integration of environmental issues into BSCs in the public sector (Journeault, 2016), which thus constitutes another major contribution of this study. Finally, the Australian public health sector still has a lower number of BSC research compared with other developed countries (Gurd & Gao, 2007). Again, our study makes a key contribution in this regard.

The remainder of this paper is organised as follows. The second section provides a literature review. This is followed by the third section which develops the theoretical framework. The fourth section explains the research method, followed by an analysis of the data in the fifth section. The final section discusses the findings and outlines suggestions for future research opportunities.

2. Literature review

The BSC is successfully implemented in many different sectors (Sigalas, 2015; Alsharari et al., 2019; Fatima & Elbanna, 2020), including the public health sector (Bobe et al., 2017). Over the last two decades the use of the BSC in the healthcare sector has received much attention in the accounting literature (Aidemark, 2001;

Hoque, 2014; Perkins et al., 2014; BobeBobe, et al., 2017; Porporato et al., 2017). Throughout this period, there has been increasing pressure on public healthcare organisations to improve their performance (Adams et al., 2014). Consequently, researchers have recently noted increases in the application of BSCs in the health sector (Trotta et al. 2013). One of the suggested reasons for this resurgence is that the BSC takes into account patients, healthcare processes and professional staff development, as well as financial outcomes (Aidemark, 2001). Furthermore, the BSC can accommodate the complexity of healthcare organisations through providing a multidimensional system to evaluate and manage organisational effectiveness (Aidemark, 2001).

Environmental performance attempts to explain how an organisation interacts with the natural environment (Dias-Sardinha et al., 2007). Some commentators suggest that environmental performance is the crux of sustainable performance (Adams & Ghaly, 2006). For public organisations, environmental performance has been increasingly regarded as a core component of their mission (Lodhia & Jacobs, 2013). In addition, environmental issues have a substantial impact on their legitimacy (Länsiluoto & Järvenpää, 2010). Environmental performance is also considered a more comprehensive indicator of sustainability than other performance aspects (Möller & Schaltegger, 2005). For example, net profit indicates economic value creation while good environmental performance creates economic value and environmental value (Möller & Schaltegger, 2005). Organisations may therefore seek to make their environmental actions, plans, and strategies explicitly part of their business routines to proactively engage in sustainable behaviour (Baumgartner & Ebner, 2010). However, for this to be effective there should also be a mechanism that provides managers with feedback on their environmental performance (Henriques & Sadorsky, 1999).

It is generally accepted that an organisation has an environmental responsibility to its stakeholders (Fernando & Lawrence, 2014). The relationship between the organisation and its stakeholders is a good indicator for organisational survival (Post et al., 2002; Sutantoputra et al., 2012). An organisation's ability to demonstrate environmental sensitivity may create a positive relationship between the organisation and its stakeholders. Conversely, poor environmental performance may strain an organisation's relationship with its stakeholders (Buysse & Verbeke, 2003).

Governments also have an important role to play in motivating organisations to adopt environmental strategies (Buysse & Verbeke, 2003; Huang & Kung, 2010). For example, governments may impose financial and economic sanctions on organisations which do not meet certain environmental standards (Huang & Kung, 2010). Hence, if an organisation's activities have a negative impact on the environment, not only may that organisation face fines or penalties, but the reputational effects may undermine its financial supporters' interest (Huang & Kung, 2010). There is also increasing evidence that customers consider the organisation's image and reputation before buying any product or service (Huang & Kung, 2010). Customers may provide organisations with feedback to minimise its environmental impacts and they may respond negatively to an organisation with a poor environmental reputation by boycotting its products or services (Henriques & Sadorsky, 1999; Buysse & Verbeke, 2003).

Public health organisations have a wide range of stakeholders including citizens, taxpayers, service recipients, the governing body, employees, unions, interest groups, political parties, the financial community and other governments (Bryson, 1988). These stakeholders may seek information regarding the organisation's environmental behaviour (Sutantoputra et al., 2012; Fernando & Lawrence, 2014), and public hospitals develop environmental plans designed to meet their stakeholders' needs (Walker et al., 2008) or requirements (Díaz-Garrido et al., 2016). Hence a public health organisation may be motivated to define its environmental policy, programme and environmental procedures, and create a group of environmental indicators (Chiarini & Vagnoni, 2016). This provides the base from which to develop and report on environmental indicators. A public hospital can share its environmental efforts with its stakeholders through annual reports, the press and awareness events (Walker et al., 2008), or via its website (Chiarini & Vagnoni, 2016). However, typically these reports describe the environmental actions which are being undertaken, rather than setting a group of environmental indicators (Walker et al., 2008).

Working in an environmentally sustainable manner is one of the most urgent challenges facing organisations (Hopwood et al., 2010). To be environmentally sustainable, an organisation should take explicit responsibility for its environmental decisions and outcomes (Le Roux & Pretorius, 2019). To maintain the validity of the

BSC, the instrument should help organisations deeply understand sustainability issues (Hahn & Figge, 2018), and go "a step further by explicitly integrating strategically relevant environmental, social and ethical goals" (Hansen & Schaltegger, 2016, p. 194). A contemporary BSC approach records the necessary information pertaining to an organisation's environmental performance (Nikolaou & Tsalis, 2013). This updated BSC assesses not only an organisation's environmental performance (Dias-Sardinha et al., 2007) but also appraises its sustainability policies (Journeault, 2016). It can further be an effective instrument to help establish strategic environmental aspects within the organisational culture (Bieker, 2003).

Kaplan and Norton (2001) argue that to incorporate environmental performance into the BSC, managers should review their organisational strategy (Kaplan & Norton, 2001) and explain why and how the environmental issues are important to the organisation (Elijido-Ten & Tjan, 2014). Then, one or more performance indicators should be selected to monitor the organisation's environmental progress (Eldenburg et al., 2019). Figge et al. (2002) provided additional assistance and suggested four necessary steps to embed environmental issues within a BSC. The first step is to choose a strategic business level, as a BSC can be implemented at the business unit level or the corporate level (Kaplan & Norton, 1996). The second phase is to establish environmental issues that need to be incorporated into the BSC. While there is no specific number of environmental issues that should be documented in a BSC, there is a risk of too many issues being incorporated, which may lead to less attention being paid to the organisation's central strategy (Epstein & Wisner, 2001; Butler et al., 2011). Therefore, it is important to define the strategic relevance of environmental aspects (Figge et al., 2002). Finally, organisations have an option to incorporate environmental performance throughout the four existing BSC perspectives or to create a fifth BSC perspective for sustainability issues (Figge et al., 2002). However, despite these theoretical suggestions there is a lack of standard instructions on how to effectively incorporate sustainability issues into the BSC perspectives (Nikolaou & Tsalis, 2013). There is also a concern that the approaches suggested to incorporate environmental issues into the BSC are not yet empirically tested (Nikolaou & Tsalis, 2013). Furthermore, there is evidence that organisations find it difficult to select appropriate environmental performance indicators (Nikolaou & Tsalis, 2013; Falle et al., 2016).

3. Theoretical Framework[11]

Institutional theory has been applied to various accounting research areas (Ahmed & Scapens, 2000; Carpenter & Feroz, 2001; Ribeiro & Scapens, 2006; Kasperskaya, 2008; Arroyo, 2012; Goddard et al., 2016; Schneider & Andreaus, 2018). Institutional theory incorporates three streams: new institutional economics, new institutional sociology, and old institutional economics (Ahmed & Scapens, 2000). Institutional theory recognises that the implementation of a BSC is constrained by internal and external institutional factors (Alsharari et al., 2019). Institutional theory streams such as new institutional sociology and old institutional economics are used to analyse the process leading to resisting or accepting the updating of existing management accounting systems (Siti-Nabiha & Scapens, 2005). These two streams provide useful explanations of resistance and adoption of accounting change, yet old institutional economics theory is a micro perspective while new institutional sociology theory is a macro perspective (Ribeiro & Scapens, 2006). Apparently, old institutional economics theory is the most appropriate approach to interpret the findings of this study because the study focuses on change within a particular setting (Ribeiro & Scapens, 2006). However, there is also a need to use new institutional sociology, because there are internal and external institutional pressures behind changing accounting systems (Carpenter & Feroz, 2001). Consequently, as Arroyo (2012) has suggested, two streams of institutional theory - new institutional sociology and old institutional economics - are used in this study.

Old institutional economics theory postulates that management accounting change is a dynamic process driven by institutions, rules, and routines. “In the context of managerial accounting, rules comprise the formal management accounting systems, as they are set out in the procedure manuals; whereas routines are the accounting practices in use” (Burns & Scapens, 2000, p. 7). Despite old institutional economics theory having been extensively used in accounting change research, it provides limited support in explaining how external institutional pressures can affect accounting change (Elliot, 2016).

[11] Theoretical framework was inductively selected (Thomas, 2006). More details about theory selection process are presented in the method section.

Typically, accounting researchers use new institutional sociology theory to identify the role of external institutional pressures in shaping accounting systems (Ahmed & Scapens, 2000). New institutional sociology is used to argue that organisations are inclined to follow structures and procedures that are evident in their social and cultural environment in order to meet community expectations, rather than for economic purposes (Ribeiro & Scapens, 2006; Kasperskaya, 2008). Institutional isomorphism is a key concept in institutional theory (DiMaggio & Powell, 1983), which suggests that organisations facing similar conditions are inclined to adopt similar processes and practices (DiMaggio & Powell, 1983). This institutional isomorphism can be coercive, mimetic or normative (DiMaggio & Powell, 1983). DiMaggio and Powell (2000) observed that coercive pressures "may be felt as force, as persuasion, or as invitations to join in collusion" (p. 147). They also note that organisations tend to imitate a certain system in some cases, such as uncertainty, unability to change, or unclear goals. Finally, DiMaggio and Powell (2000) believed that normative pressure stemmed from professionalization. Empirically, it is difficult to differentiate between the three institutional pressures (Mizruchi & Fein, 1999; DiMaggio & Powell, 2000; Carpenter & Feroz, 2001). This is not a problem unless the researcher focuses on a certain type of pressure (Mizruchi & Fein, 1999). However, being passive in responding to external institutional pressures is not the right direction for adopters of new institution sociology theory (see Lounsbury, 2008). In fact, there are other contemporary isomorphism perspectives, such as reflexive isomorphism and institutional logics (Ferdous et al., 2019). Reflexive isomorphism "identifies a reflexive relationship between field- and organization-level legitimation strategies" (Nicholls, 2010, p. 612). Institutional logics are formal and informal rules that shape the structure and process of an organisation's response to accounting change (Lander et al., 2013). In management accounting research, reflexive isomorphism and institutional logics allow organisations to strike a balance between external institutional drivers and internal institutional drivers in responding to accounting change (Ferdous et al., 2019). This theoretical framework is recommended when an organisation seeks to align its internal logics and field logics in a self-legitimating manner (Ferdous et al., 2019).

This theory informs the present study for two main reasons. Firstly, institutional isomorphism can be used to interpret how organisations adopt or reject new accounting systems (Carpenter & Feroz, 2001). Secondly, this theory anticipates that

public sector organisations may be motivated to implemenent new accounting systems to meet social expectations (Carpenter & Feroz, 2001; Kasperskaya, 2008). In this study we use institutional theory to inform our study of the factors that influenced the development of environmental measures in a healthcare organisation's balanced scorecard.

4. Research method

Australia spends around 9.4% of the nation's gross domestic product on its health care sector (Malik et al., 2018). Almost 7% of the Australia's carbon footprint attributes to the health care sector (Malik et al., 2018). Geographically, around a third (31.5%) of the Australian population live in regional areas (Baxter et al., 2011). In Australia, there are 671 regional hospitals (Australian Institute of Health and Welfare, 2018). Hospitals in larger regional areas confront the challenge of providing services to many smaller surrounding communities in addition to their own town (Wilkinson, 2002). In some parts of regional Australia the challenge is how to provide more services to a growing and increasingly prosperous community (Wilkinson, 2002). Also some research has observed that people living in regional areas of Queensland are attending public hospitals more so than private hospitals (Gray et al., 2012). Therefore, this study was conducted in a large regional public health care provider in Queensland, Australia. Similar to other large regional public health care providers in Queensland, the organisation offers services across tens of thousands of square kilometres and delivers clinical services to over 250,000 people. It has numerous hospital and healthcare facilities under its control and employs many thousands of staff.

Due to the nature of hospital operations the research design was developed with respect to the multiple levels of ethics clearance required for this study. Firstly, ethics approval from the Queensland Government was gained. The second tier of the approval process was to obtain the approval from the university's ethics committee. Finally, ethics approval was granted by the regional hospital and a site contact person was identified. The site contact person refers to a person who is familiar with the research topic. This individual was identified after receiving ethics approval but before collecting the data. The site contact person for this study was the director responsible for applying and updating the BSC in this organisation. The primary researcher conducted a series of meetings with the site contact person to determine

the appropriate participants for this study. As a result, 17 participants from different disciplinary backgrounds, positions, and experience levels within the organisation were nominated to contribute to this study. It is the responsibility of the site contact person to communicate with the nominated participants and ask them for their willingness to take part in the project. Indeed, all interviews were organised by the site contact person.

The data was collected from primary and secondary sources (Table 1 and 2). Seventeen interviews were conducted with individuals who voluntarily participated in this study. The interviews were conducted throughout 2018 as shown in Table 1. To maintain consistency in the interpretation of the data, the first author conducted all interviews and performed the initial coding. Before conducting the interviews, the interview protocol, information sheet and consent form were sent to the participants. The Appendix provides a sample of the interview questions. The semi-structured interviews were conducted at the interviewees' office and interviews were recorded for transcription purposes. Interviewees were located in different sections of the organisation and they came from different disciplinary backgrounds, as shown in Table 1. This diversity of interviewees ensured a suitable cross section of data and minimised potential selection bias (Sargeant, 2012).

To identify the themes of the study, the researchers followed the steps suggested by Braun et al. (2019). The first step was familiarisation with the data set. This task was achieved through repeatedly reading the gathered data. Then, the researchers moved to organise the data into meaningful blocks of information, which is called generating codes. The purpose of this stage was to consider all important information, without missing any information pertaining to the research objective. The third step was constructing themes. In this phase, the researchers started developing useful themes emerging from the codes by exploring all codes to determine the main characteristics of the data. The final phase was revising and defining themes, which meant that the researchers revisited all initial themes. During this final step, some themes were disregarded and others were combined because they portrayed similar concepts.

The process of qualitative data analysis was facilitated by the use of NVivo software 12, which provided a mechanism for storing and collating the data. The 'query tool' was used to determine pertinent information related to the research questions. Then

the primary researcher read all interviews line by line and word by word. The purpose of this stage was to identify and consider all interesting information. Thematic analysis was then used to identify key themes and make a link between them. Thematic analysis demonstrates which themes are significant in the description of the phenomenon under study (Harper & Thompson, 2012; Braun et al., 2019). This study used an inductive thematic orientation which means that "the researcher starts the analytic process from the data, working "bottom-up" to identify meaning without importing ideas" (Braun et al., 2019, p. 854). This research is concerned with *why* something is happening, rather than *what* is happening in a particular organisation (Saunders et al., 2016). In this case, an inductive approach was more appropriate than a deductive approach (Saunders et al., 2016). Also, the inductive approach is suitable for a small sample, but not for a big sample (Saunders et al., 2016). In addition, in a case study research, it is not recommended to force the data into a particular theory, at least not during the data collection process (Burns et al., 2006; Länsiluoto & Järvenpää, 2008). Thus, adopting an inductive approach meant that we finished our data analysis first, and then we interpreted these findings under the appropriate theoretical framework (new institutional sociology and old institutional economics). The concepts of institutional sociology and old institutional economics were used to demonstrate whether these barriers and motivations were driven by internal institutional factors (e.g. routines, rules etc.) or external institutional pressures (e.g. coercive, mimetic or normative) rather than to identify the themes themselves.

Participant code	Designation	Length of employment (in years)	Interview date	Interview length
MFAS1	Chief finance officer	16	24 January 2018	30 Min
MFAS2	Executive director	18	29 January 2018	37 Min
MFAS3	Director of strategy and planning	unknown	5 February 2018	31 Min
MFAS4	Service planning manager	25	12 February 2018	32 Min
MFAS5	Financial controller	17	15 February 2018	30 Min
MFAS6	Executive director workforce	13	1 March 2018	31 Min
OS1	Executive director infrastructure	21	1 February 2018	41 Min
OS2	Director maintenance and engineering infrastructure	24	5 February 2018	40 Min
OS3	Manager environmental health	10	21 February 2018	44 Min
OS4	Director of project property and plaining	10	22 February 2018	30 Min
OS5	Director of facility services	20	23 February 2018	82 Min
NMS1	Executive director of nursing and midwifery	unknown	12 February 2018	45 Min
NMS2	Nurse unit manager	35	27 February 2018	31 Min
NMS3	Nursing director of surgical services	10	27 February 2018	51 Min
NMS4	Director of public health	30	6 March 2018	31 Min
NMS5	Director of medicine	1	7 March 2018	31 Min
NMS6	Nurse	unknown	By email	

Table 1. Primary data sources

Secondary data sources were used to obtain the hospital's vision, BSC strategic objectives, BSC perspective, BSC performance indicators, and BSC initiatives.

1.	2012-2013 Annual Report
2.	2013-2014 Annual Report
3.	2014-2015 Annual Report
4.	2015-2016 Annual Report
5.	2016-2017 Annual Report
6.	2017-2018 Annual Report
7.	2016-2020 Strategic Plan
8.	2016-2020 Strategic Plan (2017 update)
9.	2016-2020 Strategic Plan (2018 update)
10.	Waste Management Operational Handling Guidelines
11.	Website

Table 2. Secondary data sources.

5. Findings

The first stage of this study identified and documented the content of the existing balanced scorecard that was used within the organisation. Preliminary document analysis, including annual reports, strategic plan and BSC document, and website, confirmed that there was little evidence of environmental components in the existing scorecard. However, the participants asserted that from the beginning of 2019 the hospital intended to implement an updated BSC reflecting the organisation's sustainable strategy. The participants also provided evidence on the institutional motivations to implement environmental measures in the BSC. Six main themes regarding institutional barriers were identified: narrow vision, role of environmental disclosure, sustainability BSC knowledge, lack of champions, organisational culture, and absence of environmental commitment practices. Three further main themes were identified regarding institutional motivations: new professional sustainability members, financial motivations, and external pressures.

5.1 ***Institutional Barriers***

Participants noted that until late 2018 there had been little interest in including environmental measures in the BSC.

Dealing with operational running of services [there] doesn't appear to be a large emphasis on it at the moment (NMS3).

Those environmental issues have not been viewed as being [important] (MFAS5) and "completely neglected" (*NMS3, MFAS5, and OS4).*

In the past, we have been very reactionary. So, if something happens then we'll put a little in the annual report. […] We're at our early steps with that and we're very new at reporting on this. […] We are quite obviously omitting anything to do with factors to do with the environment. […] We don't do any reporting on the environment now in a balanced scorecard (MFAS2).

It's not something that we focus on (*MFAS2).*

These comments suggest that the organisation was utilising a traditional BSC at the time of the interviews. We engaged in follow up questions to ascertain the reasons for this approach, which elicited deep insights, and we identified six key elements which are discussed in detail in the next section.

5.1.1 Narrow Vision

Kaplan and Norton (2001) noted that an organisation must clarify its vision first, and then identify a BSC's contents such as strategy, perspectives, measures etc. (Kaplan & Norton, 2001). In other words, a BSC is a tool that assists organisations to achieve their vision (Niven, 2008). In this organisation there was a clear understanding that "health care and providing a patient focused service is the first priority" (MFAS3). Our analysis of the strategic plan documents, annual reports, and website emphasised that their "*vision [is] caring for our communities: Healthier Together and to deliver excellence in rural and regional healthcare"*. Hence, staff felt that "there has not been necessarily a focus on the environmental impact" (MFAS5), and "talking about environmental impacts don't really come into play a lot" (MFAS1). As two participants stated:

From an environmental sustainability perspective, I do think we have a bit of work to do. […] Being environmentally aware is not one of our core priorities (MFAS3).

I have got a feeling that some of those environmental factors we may not be able potentially add a number to [BSC] at this stage because we have not placed an importance on it (NMS3).

Two participants noted that there were statements about environmental issues in the strategic plan but these strategic objectives were not prioritised. These two participants also explained how competing priorities in health service delivery prevented managers from effectively actioning environmental issues within the organisation's operations. In this sense environmental actions were de-emphasised in favour of operational matters:

There is a strategy in our strategic plan about needing to be environmentally sustainable. […] Ensuring that we manage risks associated with environmental responsibility and sustainability and being across social aspects. So, making sure we're a socially responsible organisation. [However,] planning efforts to date have been – there's been a lot of talk about what we'd like to do but because of competing priorities in health service delivery space, there's probably not been as much focus on those strategies and how to progress them as we'd like (MFAS3).

Because we prioritise people. Our priority, our number one is people. […] We're all about the patient. The patient and the community, it's all about people. So when you look at our vision, caring for our communities, people, healthier together, people. (MFAS6).

It is likely that during this time frame the strategic plan paid superficial attention to the environmental considerations, but these were not seen as a key hospital priority. Consequently, there was little need to design and implement performance measures in the traditional BSC. The narrow vision is consistent with an organisation with an immature environmental strategy and a lack of incentive to develop appropriate performance measures. Organisations develop their performance measurement system based on their stated priorities (Hsu & Liu, 2010). Therefore it is important to justify the integration of any performance indicator into the BSC (Butler et al., 2011). This justification appeared to be absent in this organisation resulting in an acceptance that disclosure in the annual report was an adequate alternative.

5.1.2 Role of Environmental Disclosure

Coupled with the lack of decisive organisational vision for environmental issues there was evidence that disclosure was adopted as a strategy to demonstrate pseudo sustainability. According to MFAS6, "we do corporate [environmental and] social responsibility but I don't think that we have connected that what we're doing is actually the balanced scorecard". Furthermore, participants indicated that generally the annual report was considered a satisfactory alternative to demonstrate the organisation's environmental commitment:

> *At the moment, we report things like [environmental performance] through our annual report. We might talk about it in our annual report – the things that we're doing for the environment. So, that might be if we choose to do some recycling things or if we choose to do electricity things or if our electricity goes up and things we'll report it in our annual report (MFAS2).*

> *At this point in time [environmental performance] would be through our annual report … [and] it's an opportunity for us to showcase how we have been delivering on what we intended to deliver (MFAS3).*

Thus, the organisational focus appeared to be on core priorities that did not explicitly recognise environmental factors. One participant noted that "when [we] get down to the detail it gets quite difficult to have meaningful measures and that is always the challenge with the balanced scorecard" (MFAS4). Therefore, there seemed to be little appetite for a costly and time consuming investment in developing environmental indicators that would make disclosure acceptable and achievable. The absence of external pressures to more formally embed these measures in the balanced scorecard and a lack of knowledge within the organisation contributed to this elevated role of disclosure.

Technically, environmental information is available from different sources (e.g. annual report, environmental report, etc.) (Länsiluoto & Järvenpää, 2008). Bringing all environmental information into one document is the main means of integrating environmental elements into the BSC (Länsiluoto & Järvenpää, 2008). Our findings, however, show that this was not the case in the organisation in this study.

5.1.3 Sustainability and BSC Knowledge

A comprehensive understanding of sustainability and appropriate personal skills are essential to ensure the quality and reliability of reporting on sustainability issues (Boiral et al., 2020). Some interviewees observed that an incomplete understanding of BSC concepts was one of the main factors that hindered incorporating environmental measures in the BSC. Interviews with MFAS6 and OS3 provided the following evidence:

> *I don't believe people understand what the balanced scorecard is in Queensland Health. […] We actually do cover the balanced scorecard without understanding that we're doing it. I think people use the balanced scorecard without knowing that they're using it (MFAS6).*

> *Probably the big thing is the people, so, the skills, knowledge and … type thing. You'll have to do some work around that to get the people on side and take them along the journey with you, and that's probably important up front because the greater engagement you get early on, the more chance of success you've got down the track. So, that human factor is probably a key one that needs to be done well (OS3).*

There was also evidence that individuals felt unprepared to contribute to the development of a sustainability strategy; "we don't have enough knowledge or information about what is or isn't occurring and without being informed it is difficult to make comment" (NMS6). The fact that the existing balanced scorecard was seen as primarily a finance function meant that there were institutional silos which effectively prevented a broad integrated approach; the "[BSC] is purely driven by the finance team in collaboration with the service manager" (NMS3). The same interviewee also mentioned that their organisation's BSC "is largely built around finances". However, participants from the finance area acknowledged that they were unfamiliar with environmental issues. For instance, MFAS1 recalled that, "as a finance person, I'm looking at the dollars rather than the actual environmental". Also, MFAS4 stated that *"*the problem is [that] I'm not an expert in that area". As a consequence, collecting environmental data which fitted the financial models was difficult and one participant stated that "[here], a barrier may be being able to capture

the [environmental] data" (NMS3). This reflects a key problem identified in the literature, namely that the key problem organisations face when developing contemporary BSC is having incomplete environmental information (Möller & Schaltegger, 2005). While it was noted that this sustainability knowledge can be developed through training programs (Boiral et al., 2020), participants indicated that "the organisation hasn't invested a lot of …. into that area yet" (MFAS4).

5.1.4 Lack of Champions

The accounting literature is clear that changing any organisational system is complex and it requires commitment (Higgs & Rowland, 2005), and champions can be instrumental in bringing about change (Pimentel & Major, 2010; Taylor & Baines, 2012). It is well established that the beliefs and mind-sets of leaders have a significant role to play in selecting a specific system (Higgs & Rowland, 2005). Champions refer to individuals who have an ability to change, develop, or facilitate the process of updating organisational systems (Thakhathi, 2018). In this organisation there were signs that the lack of change champions was instrumental in maintaining the traditional structure of the existing balanced scorecard. We attempted to understand the processes by which change was implemented in this organisation. It was clear that the organisation was based on a very hierarchical and traditional structure. The Director of Strategy and Planning (MFAS3) noted that:

> *From an organisational point of view, our board is the ultimate body who approves the strategic plan and the strategic direction of the organisation and the executive group under the board is responsible for embedding the planning approach across the divisional level. So, there are multiple authorities within that. But from a pure hierarchical perspective it would be a top down and then bottom up approach. So, the board sets the strategic agenda and then the executives are responsible for embedding it.*

In relation to the balanced scorecard specifically, the procedures for updating this instrument were outlined:

> *So, when it comes to changes to those sorts of things our executive team would discuss and make those changes. They'd be endorsed up to the board for their approval. So, the final approval is through our board of directors…Each year we have – what we'd call our strategic planning cycle. […] So, first and foremost our executive team gets together, talks about the plan for the next twelve months. How it's changed from the plan for the last twelve months and then that gets revised into a new document that gets passed to the board for their approval.*

It was clear that there was a well-defined process and line of accountability embedded in this organisation. While this provided certainty and rigour to the decision making process, there was also concern that this created significant disconnect between strategic and operational activities. In this regard, NMS1 made the following comment:

> *It's really at a very high level that they determine what goes into a balanced scorecard. […] I think most of executive, really, only because I think for most ideas to gain traction, you need strong executive leadership and so whether that's from the Chief Executive or anyone on the executive committee, but I think it's hard to gain traction if the people who provide the care (whether that's Nurses, Doctors, Physios) if they can't see that executive have buy-in or are interested or are leading a change, I think it's hard for them to drive the change themselves. I think it has to be seen to be driven from the top.*

This appeared to create a situation in which the importance of environmental issues was not clear to the executive nor was it emphasised at the operational level. Such a perception undermined the opportunity to incorporate a sustainability strategy within the balanced scorecard. Ultimately, this suggests that one reason for the traditional BSC evident in this organisation was due to a lack of institutional champions who could prioritise the change agenda.

5.1.5 Organisational Culture

Organisational culture refers to a group of essential assumptions, beliefs, values, and norms that identify the behaviour of organisation's members (Burnes, 2004).

Organisational culture can be an significant factor in determining employees' behaviour (Babnik et al., 2014). In general people try to avoid being inconsistent with their cultural environments (Granlund & Lukka, 1998). It is likely that the norms of developing a BSC in public health organisations vary from other organisations (see e.g. Aidemark & Funck, 2009; Kollberg & Elg, 2011). One respondent claimed that:

> *I believe it depends on the culture … of the organisation. […] I don't believe a lot of public servants understand the balanced scorecard. I think if people have come from the private sector they understand it more. […] So the balanced scorecard for me, is important in the private sector because it's not just the finances that are important, it's everything else that's important. Whereas in the public sector in Queensland Health, we're all about the people (MFAS6).*

There is some evidence that public organisations do not prioritise environmental issues as much as private organisations (New et al., 2002). This was reflected in this study as participants recognised that although there is a growing concern about environmental issues in private health organisations, public organisations are still in the early stages compared to the private organisations. According to H1, "the private hospitals are a little bit further ahead than us. […] We haven't gone down that road as yet". Prior studies have suggested that updating a traditional BSC requires substantial changes in the organisational culture (Chavan, 2009). The public sector nature of the organisation in this study may be seen as a cultural construct, which influences the way that environmental issues are embedded in its organisational systems.

5.1.6 Absence of Environmental Commitment Practices

Environmental commitment practices refer to a group of techniques which are used to document what the organisation is actually doing to the environment (Henriques & Sadorsky, 1999). Environmental commitment practices include having an environmental plan, reporting environmental activities, an environmental committee board, and environmental training programs (Henriques & Sadorsky, 1999, p. 88). Researchers such as Figge et al., (2002), Bieker (2003), Hsu and Liu (2010), Butler et al. (2011), Elijido-Ten and Tjan (2014), and Hansen and Schaltegger (2016, 2018) agree that integration of environmental measures within BSC is an indicator of environmental commitment practices. However, it is imperative to observe that

reporting on environmental issues is only part of environmental commitment practices. Environmental commitment practices also give insights into the maturity of an organisation (Jabbour, 2015). In this study, MFAS6 speculated that "[reporting environmental information throughout BSC] depends on … the maturity of the organisation". However, many participants recognised that environmental commitment practices were missing from the organisation's business agenda. As two participants commented:

> *I don't think "[we have a special committee to deal with the environmental issues]. If [we] wanted to do a report [we] would bring that to the executive committee. I think we want to get there. I think we're at our baby steps with that and we're very new at reporting on this. […] This is all new for [us] (MFAS2).*

> *We don't have a committee or a board that deals with it. But when we do have initiatives that are in that area our executive team oversees it and we do have a media team here. […] Test the idea to see if it would be acceptable so we do have those sorts of processes but it's not really structured in the way that you would talk about it (OS1).*

Furthermore, environmental training is an important indicator of environmental practice (Jabbour, 2015). However, there was little evidence that training employees in being environmentally aware was one of the organisation's priorities. In this regard, three interviewees noted that there were no opportunities for involvement in relevant training programs (OS3, MFAS1 and MFAS5). However, there was evidence that individuals were interested in participating in environmental training even though this was coupled with concern that there were "barriers [such as] the costs to do that" (MFAS4). This view was supported by another participant:

> *Having the right people- linked to resourcing – to be able to deliver the projects that we want to do". […] So again, it comes down to what's our core vision is and our positioning statement and having the …resourcing. Having the resourcing to train every single employee in being environmentally aware is not one of our core priorities (*MFAS3*).*

Summary of Institutional Barriers

The participants' responses in this section suggest that until 2018 there were numerous obstacles that prevented that organisation from effectively embedding environmental measures in the balanced scorecard. Consequently, this organisation can be characterised as a reactive environmental organisation (Henriques & Sadorsky, 1999). There was little evidence that the hospital had made being environmentally sustainable a strategic priority. The existing vision did not support creating a sustainability strategy. Furthermore, reporting environmental issues within the annual report seemed to undermine the need to explicitly incorporate environmental indicators within its BSC. There was evidence that the hospital had insufficient sustainability expertise and there were few champions emphasising this need. The culture of the public hospital also appeared to be instrumental in making the employees feel that environmental issues were less important. Finally, the absence of environmental commitment practices was evident in this organisation.

5.2 ***Motivations and Solutions***

During 2018, the presence of changing circumstances such as new professional sustainability members, financial motivations and external pressures has contributed to changes in the organisation's perceptions toward environmental issues. Managers have realised the necessity of environmental information. This realisation has motivated them to devise a plan to incorporate environmental indicators in the BSC. The following evidence was provided by participants:

> *We have a plan this year to develop a sustainability organisation, which will focus on not just environmental sustainability but social, financial, economic sustainability (MFAS2).*

> *Our strategic plan now actually does have strategies and actions around being environmentally sustainable. It does actually – we have a plan to write an environmental sustainability plan. So, that's the first step really to think about what we can do to respond a little bit better. […] We are preparing an environmental sustainability plan. So, we are hoping to prepare that this calendar year (OS1).*

5.2.1 New Professional Sustainability Members

Recently, OS1 joined the organisation after thirty years in the environment sector. This member was appointed to a senior position and has the ability to focus attention on the development of environmental indicators in the BSC. As the participant recalled:

> *In the last year or two there was a renewed focus on environmental sustainability because I think part of that is that the health service has started to recruit from the outside [people] like myself, who have different experiences and want our health service to not just provide good health services but we want to be a good corporate citizen, as well. […] The advantage is that I can influence the health service infrastructure in an environmental way because I've got a personal background there and an interest in alternative energies and all of those sorts of things.*

Similarly, MFAS2 joined the organisation recently and was appointed to a senior position as well. MFAS2 declared that OS1 also has an opportunity to prioritise environmental measures as part of its performance measurement system:

> *I know OS1 has been working very hard on raising the profile and trying to be more proactive and put more in and do individual strategies and be more open about things. Asking for, "how can we be more responsible with the environment?*

This senior manager has significant experience with balanced scorecards in a NZ healthcare organisation before joining the current organisation. As the participant noted: "I've got a lot of experience with balanced scorecards [and] we used them in [Eastern Hospital[12]] in New Zealand" (MFAS2). The senior appointments of these two individuals indicates that the organisation was beginning to prioritise the importance of environmental issues. This may represent the beginning of the change required to break down the existing obstacles.

[12] The actual name has been changed to ensure its anonymity.

5.2.2 Financial Motivations

There was growing appreciation that there may be financial benefits associated with reporting environmental issues within the BSC. NMS1 argued that the integration of environmental measures in the BSC will motivate managers to work on managing environmental resources wisely:

> *We could look at how we could conserve energy more. We could put little devices in [the BSC] so we could have a visual. […] [Because] what we don't know we don't tend to manage. So, if we learnt what that was through visual cues or quantitative – so that we could process that and really understand what we're seeing. That's when we could start to realise how we could put that into a balanced scorecard to manage that better. […] We could definitely save water. […] If you ask me how many litres of water we use in the hospital per day I wouldn't be able to tell you. But if you showed me that it was in the millions of litres. Then we could start looking at ways we could bring that back and say … we need to reduce it.*

This ultimately will assist the organisation to realise financial benefits. Such financial benefits can be obtained through either a cost efficiency strategy (lower resources consumption and waste) or a cost reduction strategy. This was supported by a number of participants who noted that:

> *We get a nice benefit that we're being a good corporate citizen but the real reason you're looking at that is because you want to save money* (*OS1).*
>
> *We consider impacts on the environment as a method, as a way to achieve core savings. […] It's really more around cost savings for us (MFAS1).*
>
> *I don't think we really care about corporate social responsibility as a nation. […] I think what drives us is dollars. […] It is only doing it because of financial reasons (MFAS6).*

NMS1 elaborated that "all these things are adding so much to be able to sustain our health system from a funding perspective". It was very evident that the public sector context of the organisation was central to the participants' actions. Many comments related to the idea that the main objective of raising funds is to provide benefits to the

community (Soysa et al., 2016). It is not to increase profits but rather to maximize funding from outside sources (Kaplan & Norton, 2001). As OS4 and NMS clarified:

> *We save money so that we can provide better care to our patients. The more money we save, the more money we have to spend on patient care, rather than handing out money to [our hospital] to fill up their dump or for paying electricity fees, we could take that money by being more efficient and then go and buy hospital equipment with it (OS4).*

> *So, you know the way health care is going that we can't maintain what we're currently doing because we don't have – if we continue to provide health care how we are we won't have a health care system in twenty years because we won't have funding to provide it (NMS1).*

The acknowledgement of the potential financial benefits effectively encouraged individuals to actively engage in developing an environmental strategy that was consistent with their cultural context. However, there was also a growing awareness that the organisation could not operate in a cultural vacuum and that external motivations were becoming more urgent.

5.2.3 External Pressures

Some respondents stated that the plan to embed environmental measures into the BSC derived from external pressures. According to MFAS5, "we probably wouldn't do that unless there was an external pressure, we started to get some external pressure to". This suggests that there was an understanding that it has become important for the organisation to share its environmental actions with the community and other stakeholders. As OS3 elaborated:

> *We get asked to provide comment on the environmental impact assessment, from a public health point of view. So, what we do is more look at the bigger picture sort of things; how the new projects would impact on the community and (obviously) their health.*

However even within this more receptive context there remained signs that the organisations' cultural origins were paramount and reflected the institutional focus on patient care:

I think we could definitely look at the [environmental performance] into a balanced scorecard. [Because] we get very much asked around what are the major pressing points that we need to be looking at so that we can provide the best patient care possible (NMS1).

The public sector context of this study meant that government intervention (in the form of state regulations) was identified as the main external pressure to incorporate environmental issues in the balanced scorecard:

At the moment, there's probably good political will to push things in the whole climate change space, the environmental sustainability space. There are currently projects at broader government level looking at that and collectively looking at what can be done from a government point of view to make government agencies more efficient, etc, and certainly environmentally sustainable. (OS3)

The real driver is government policy (MFAS6).

The Queensland government has a climate change adaption risk strategy and that's only just come out. […] Also, Queensland Health, which is our umbrella organisation, has that strategy. So, there's work happening in that space now and they're looking at all sorts of risks associated with climate change (*MFAS4).*

Summary of Motivations and Solutions

The responses of the interviewees suggest that during 2018 the organisation started paying more attention to environmental responsibility. Accordingly, the organisation recruited senior staff who were tasked with instigating organisational change to prioritise the collection and reporting of environmental data. There was evidence that there was an appetite to utilise the balanced scorecard to report and monitor environmental activities and performance. It was noted that external pressures were being exerted in regards to environmental actions and that this provided an incentive for resources to be directed at developing a contemporary balanced scorecard.

Previous research has found that environmental authorities, having an environmental certificate (Länsiluoto & Järvenpää, 2008), and capturing new market opportunities (Journeault, 2016) are main motivations to incorporate environmental performance through a BSC. However, in our case study there was no evidence of those motivations.

6. Discussion and Conclusion

Our data set confirmed that the public health organisation in this study intended to use the original BSC model until the end of 2018. While this BSC gets modified annually with new information, there was evidence that institutional barriers prevented the effective integration of environmental performance. The study further found actions that could be taken to support integrating environmental performance in the BSC. Linking with Länsiluoto and Järvenpää's (2008) theoretical framework, this study asserts that the process of the integration of environmental issues into a BSC is governed by factors both inside and outside of the organisation. Our observation was that in 2018 both organisational rules, "things should be done" (Burns & Scapens, 2000, p. 6), and organisational routines, "the way in which things are actually done" (Burns & Scapens, 2000, p. 6), were sources of resistance to incorporating environmental performance dimensions into the BSC. One example of organisational rules which should be adjusted was the hospital vision. It was clear that the strategic vision of the hospital was based on providing high quality health services, rather than being environmentally sustainable. As the balanced scorecard is designed to reflect organisational strategy, there was no impetus to develop and report on environmental performance.

Routines represent the structure of the organisation (Quinn, 2011). Documenting environmental performance through the annual report is one of the organisation's routines. This routine reduced the perceived need to develop a sustainability balanced scorecard. This was seen as acceptable for several reasons. Theoretically, the annual report is more comprehensive. It provides qualitatative and quantitative data on environmental actions (Walker et al., 2008) and represents an avenue to communicate this information to stakeholders. Conversely the BSC's primary audience is internal

organisational members (Länsiluoto & Järvenpää, 2008). From the point of view of satisfying stakeholders, the annual report provides a wider publication of environmental performance (Länsiluoto & Järvenpää, 2008).

Other barriers are related to the capability of the organisation. A lack of sustainability knowledge is a known barrier to introducing environmental aspects to the BSC (Jassem et al., 2018). This was reflected in our study as the participants stated that developing a mechanism to report environmental issues within the existing BSC requires a complex and problematic process. However, the recent appointment of executives with expertise in this area was seen as a strong signal that change was imminent. Despite prior reseach (Hubbard, 2009; Länsiluoto & Järvenpää, 2010), which suggests that it is easy to introduce environmental measures to an existing BSC, participants in this study realised that re-designing a conventional balanced scorecard for sustainability purposes requires resources, capabilities, and new data (Epstein & Wisner, 2001). Indeed, this barrier also falls under the old economics institutional theory framework because it is related to the organisation itself.

Participants were involved in ensuring that the hospital's strategic vision was extended to explicity plan for environmental activities and actions. There was evidence that environmental performance would become a strategic dimension in the hospital's vision (Journeault, 2016). Furthermore, there was recognition that external stimulations, such as political influence, had provided motivation to embed environmental indicators in the performance measurement system. This is the only institutional pressure that can be explained with the use of concepts of new institutional sociology theory. It illustrates reflexive isomorphism as an organisation that makes its own effort to be in line with stakeholder expectations (State government regulations) (Ferdous et al., 2019). Furthermore, the response to this external pressure is shaped based on institutional logics (Ferdous et al., 2019). To align with State guidelines, the organisation in this study decided to change the shape of its performance measurement system from traditional balanced scorecard to sustainability balanced scorecard. However, the hospital had responded to this stimulus by recruiting experts to embed environmental activities into the BSC (Länsiluoto & Järvenpää, 2010). This allowed participants to focus on the potential for financial benefits that could be accrued from a renewed focus on environmental performance.

Australian based BSC research has presented conflicting results about the state of play in regards to embedding environmental issues into the BSC (Bedford et al., 2008; Farneti & Guthrie, 2009; Adams et al., 2014; Khalid et al., 2019). To address this confusion, this research has provided information about how the barriers to adopting a sustainability balanced scorecard can be overcome by specific organisational actions. This study has identified a number of obstacles that can create resistance to embedding environmental issues into existing BSCs. This research complements a review study conducted by Hahn and Figge (2018), which provides evidence that organisations are interested in integrating environmental actions into their BSC. Our research has uncovered existing institutional factors that create barriers to this process and outlined actions which can act to remove or reduce these obstacles. The lessons learnt by the hospital in this study provide insights for other organisations facing similar challenges.

This study has some limitations which need to be addressed in the future. The main limitation is that the data was collected from a single case study in a public hospital. Participants from other types of organisations may have different perceptions and experiences. The balanced scorecard is traditionally seen as a business sub-unit tool and there are questions about whether it is fit for purpose on a corporate level, particularly in a context of political interference. We have not attempted to specify what type of environmental (and/or social) issues should be included in public healthcare scorecards. These questions also remain generally unanswered for broader organisational types. It is further necessary to fully consider the structural elements of the sustainability balanced scorecard and determine how the information can remain viable and visible in a more comprehensive scorecard format.

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Appendix: Sample of interview questions

- To what extent does your organisation incorporate environmental performance into the BSC?
- Can you share your experience in regards to internal barriers of incorporating environmental performance into the BSC in your organisation?
- Can you share your experience in regards to external barriers of incorporating environmental performance into the BSC in your organisation?
- Can you define motivations of incorporating environmental performance into the BSC in your organisations?

4.3 Chapter summary

This chapter has identfied the barriers and motivations to adopting a decision to integrate environmental performance into the BSC. The results suggest that barriers include the role of environmental disclosure, insufficient sustainability BSC knowledge, a lack of BSC champions' support, organisational culture, and limited environmental commitment practices. Institutional factors such as updating information systems, appointing sustainability champions, articulating financial motivations, and recognising external pressures were considered motivations to integrate environmental performance into the BSC. A compilation of the findings is included in chapter 6. The next chapter provides information about the third study for this thesis. This paper explores which organisational environmental actions and non-organisational environmental actions should be incorporated into the BSC.

CHAPTER 5: IDENTIFICATION OF ORGANISATIONAL ENVIRONMENTAL ACTIONS AND NON-ORGANISATIONAL ENVIRONMENTAL ACTIONS FOR A BALANCED SCORECARD: A CASE STUDY IN HEALTHCARE

5.1 Chapter introduction

This chapter provides the final paper from the research conducted in this study. The paper is under a revision and resubmit stage now with a Q1 journal. Chapter 3 addressed the first research question that was developed based on stakeholder theory. In that chapter, findings were presented about the ways that the BSC can be adapted to incorporate environmental performance in a health care context. Chapter 4 reported the findings of the second paper developed to explore the second research question using an institutional theory framework. Chapter 4 determined the barriers and motivations associated with integrating environmental performance into the BSC. The purpose of the study discussed in this chapter is to address the third research question. This paper utilises attribution theory as the theoretical framework. The focus of this study is to identify what organisational environmental actions and non-organisational environmental actions should be incorporated into the BSC. Section 5.2 contains the third empirical study. The final section provides a summary of the contents of this chapter.

5.2 Paper three

Identification of Organisational Environmental Actions and Non-organisational Environmental Actions for a Balanced Scorecard: A case study in healthcare

This is an exact copy of the paper, which is under a revision and resubmit stage now with a Q1 journal.

Abstract

Purpose- The purpose of this study is to explore and define organisational actions for two sources of environmental risk exposure that should be incorporated into the balanced scorecard. Firstly, this includes actions to mitigate an organisation's internally generated (endogenous) environmental activities, and secondly, the non-organisational response actions related to unexpected environmental events outside of the organisation's control (exogenous).

Design/methodology/approach- This research was undertaken in a large regional and rural public health organisation in Queensland, Australia. The qualitative data was collected from seventeen semi-structured interviews.

Findings– The findings suggest that it is important to distinguish a hospital's environmental intervention from environmental intervention in other organisations. The study further revealed that public health organisations are subject to extraordinary conditions such as climate change impacts, natural disasters, and pandemics. The balanced scorecard can be a useful tool to monitor hospital's environmental practices, and enable the organisation to effectively manage the impacts of non-organisational phenomena such as climate change and natural disasters, as well as pandemics.

Research limitations/implications- The findings of this research are restricted to the Australian public healthcare sector.

Practical implication- This study provides an impetus for public sector organisations to consider adapting the balanced scorecard as an effective means of managing internal and external environmental risks.

Originality/value- This paper reports on a comprehensive study of how both organisational environmental actions and non-organisational environmental actions can be effectively incorporated into a balanced scorecard.

Keywords: Organisational Environmental actions, Non-organisational Environmental Actions, Balanced Scorecard, Public Health, Attribution Theory.

Paper type: Research paper

1. Introduction

Recent directions for the development of sustainable enterprises emphasise "the internalisation of environmental concerns into business operations" (Le Roux & Pretorius, 2019, p. 823). This recognises that organisations produce adverse impacts on the environment and also that the environment may impair an organisation's capability to work properly (Hitt et al., 2016). Thus, environmental activities are generated from both organisations' interventions and others' interventions (Jennings & Zandbergen, 1995; Shrivastava, 1995; Hahn et al., 2010; Giannakis & Papadopoulos, 2016; Hahn & Figge, 2018; Hansen & Schaltegger, 2018). Organisational environmental activities originate from the organisation's business actions (Rondinelli & Vastag, 1996; Vastag et al., 1996). Organisation environmental activities usually involve actions such as material consumption, water consumption, energy consumption, waste generation, and air emissions (Journeault, 2016). Some organisational environmental interventions are voluntary (Kruglanski, 1975), predictable, controllable, and manageable (Beck, 1992). In this case responsibility is irrevocable (Beck, 1992). On the other hand, non-organisational environmental activities originate from outside of the organisation's actions (Rondinelli & Vastag, 1996; Hagigi & Sivakumar, 2009). These impacts come from different sources including industry level, societal level, and natural level sources (Hahn et al., 2010; Whiteman et al., 2013); they are uncontrolled, and hard to manage (Beck, 1992). For example, Hansen and Schaltegger note that "the company itself is unable to regenerate the local drinking water system, stop global biodiversity loss, or reverse climate change because this depends on the practices of many other actors, too" (2018, p. 941). Most prior research has focused on organisational environmental consequences (Whiteman et al., 2013).

The balanced scorecard can be utilised to focus on and highlight organisational responsibility (Lu et al., 2018). Contemporary uses of the balanced scorecard include monitoring environmental organisational activities (Hahn & Figge, 2018); however, the balanced scorecard often ignores environmental issues that derive from non-organisational actions (Hansen & Schaltegger, 2018). For example, Hahn and Figge (2018) recognise that many non-organisational actions are not incorporated in the balanced scorecard yet. Considering only organisational environmental actions in the balanced scorecard could be a major shortcoming. Consequently, our study aimed to

explore whether the balanced scorecard could be developed to incorporate both organisational environmental activities and non-organisational environmental activities.

Environmental problems are diverse and complex outcomes of organisation level, industry level, societal level, and natural level actions and phenomena (Hahn et al., 2010; Whiteman et al., 2013). By itself, a single organisation may generate only minor environmental impacts (Jennings & Zandbergen, 1995). According to Jennings and Zandbergen (1995, p. 1023), "individual organisations cannot become sustainable: individual organizations simply contribute to the large system in which sustainability may or may not be achieved". Moreover, business continuity is mandatory for organisations, even those operating under the impact of natural disasters (McKnight & Linnenluecke, 2016). While organisations are unable to halt natural disasters, they (managers) need to have information which provides early detection of future problems (Carmeli & Schaubroeck, 2008). Therefore, organisations may attempt to monitor their environmental performance by paying attention to the interactions between the organisation and the environment itself (Olsthoorn et al., 2001). Some research has claimed that the relationship between the external environment and an organisation's performance is positive (Wong et al., 2014). Yet there is little agreement on which non-organisation environmental impacts should be incorporated in the balanced scorecard.

Some normative balanced scorecard research (Figge et al., 2002; Bieker, 2003; Butler et al., 2011; Hansen & Schaltegger, 2016; Hahn & Figge, 2018; Hansen & Schaltegger, 2018) and a few empirical research studies (Johnson, 1998; Epstein & Wisner, 2001; Journeault, 2016) have discussed which organisational environmental issues should be reported in the balanced scorecard. However, the identification of environmental areas which should be reported in the balanced scorecard is different from organisation to organisation, and from sector to sector (Hubbard, 2009). This issue has not yet been fully explored in the non-profit and public sectors (Journeault, 2016).

From a routine business perspective, non-organisational impacts may prevent or delay a public sector organisation's ability to achieve its predefined targets (Freise & Seuring, 2015). Health care organisations in particular are severely impacted by the

existence of multiple diverse environmental factors that are uncontrollable and occur randomly. COVID-19 is an example of a non-organisational phenomenon which has dramatically affected hospitals' ability to operate effectively during 2020 (Wong et al., 2020). Hospitals have been required to balance the operational requirements of providing the necessary care for COVID-19 patients with preventing the spread of infection from the hospital to the community (Bhangu et al., 2020). The unexpected nature of the pandemic meant that some hospitals were unprepared and have had to rapidly adapt to manage their space, staff, and supplies (Wong et al., 2020).

The above discussion has led to the following research question:

RQ: What organisational environmental actions and non-organisational environmental actions should be incorporated into the balanced scorecard?

This paper makes some important contributions to the literature. Firstly, public organisations, and health organisations in particular, need to pay more attention to environmental issues (Bracci et al., 2015). More specifically, as hospitals produce a considerable amount of hazardous and non-hazardous materials, and adverse environmental impacts, a framework such as a balanced scorecard is required to define relevant and meaningful environmental information (Blass et al., 2017). Secondly, this study extends the definition of environmental performance to consider both organisational actions and non-organisational actions. The research suggests using balanced scorecard indicators to assess the effort of an organisation in responding to non-organisational impacts. Finally, this research has used attribution theory to identify and explain the cause or the source of the environmental intervention needed.

The paper is organised as follows. Section 2 discusses the role of organisational environmental actions. Non-organisational impacts from externally generated environmental events are discussed in the section 3. This is followed by a section outlining the theoretical framework. Section 5 introduces the research methodology. Section 6 presents the findings. Finally, section 7 provides a discussion and conclusions.

2. Organisational environmental actions (endogenous environmental actions**)**

Organisational environmental performance refers to the impact of an organisation's actions on the environment (Langfield-Smith, 2018). The environment includes natural resources, people, and other living organisms (Langfield-Smith, 2018). Environmental actions originate from the organisation's business activities (Rondinelli & Vastag, 1996; Vastag et al., 1996) and are influenced by managerial perceptions, attitudes, and organisational practices (Hagigi & Sivakumar, 2009). It is necessary for organisations to evaluate, monitor, and report their environmental activities (Henri & Journeault, 2008). Organisations may develop a group of indicators to monitor and control their environmental obligations (Delmas & Blass, 2010). Environmental indicators should also help in monitoring and assessing sustainability actions undertaken and stakeholders' reactions (Epstein & Roy, 2001).

Qualitative and quantitative environmental information is needed to check and monitor progress of an organisation's environmental strategy (Delmas & Blass, 2010). Environmental indicators can be incorporated into management performance indicators or operational performance indicators (Langfield-Smith, 2018). Environmental management performance indicators evaluate the environmental management's efforts (Langfield-Smith, 2018). For example, organisations employ part of their budgets for staff environmental training to minimise their negative environmental impacts and work-related injuries (Campbell, 2018). These indicators measure the employees' capacity to reduce their negative environmental impacts and work-related injuries.

An organisation's environmental performance refers to environmental aspects and impacts (Feldman, 2012). According to ISO 14001 (2004), "an environmental aspect is an element of an organisation's activities, products and services that can interact with the environment" (Puig et al., 2015). On the other hand, environmental impacts describe either negative or positive consequences from using the environmental aspects such as air or water pollution (Feldman, 2012). The use of raw materials, energy, and water are common environmental areas included in the balanced scorecard (Dias-Sardinha et al., 2002). Another empirical study has found that indicators to monitor energy consumption, waste and water consumption provided useful, reliable and valid information for a profit-seeking organisation (Länsiluoto & Järvenpää, 2010). Organisations may use operational environmental indicators to

evaluate the efficiency of their internal business processes that create value for customers (Kaplan & Norton, 2004). Organisational environmental indicators can also inform managers to what extent their environmental reputation assists in attracting new customers (Campbell, 2018). Organisations could also consider organisational environmental indicators to measure the financial benefits that stem from enhancing their environmental performance (Campbell, 2018).

3. Non-organisational environmental impacts and phenomena (exogenous environmental actions**)**

Non-organisational environmental phenomena or exogenous interventions originate from outside the organisation's business activities (Rondinelli & Vastag, 1996; Hagigi & Sivakumar, 2009). Examples of exogenous events include plagues, famines, natural disasters (Beck, 1992), heatwaves, droughts, water scarcity (Beck, 1992; Giannakis & Papadopoulos, 2016), episodic events (Nishii et al., 2008), terrorist attacks, refugee and immigration emergencies, the eruption of new pandemics, wars, or political events such as Brexit (Steccolini, 2019). Health organisations that ignore the impact of the external environment on their performance may be unable to deliver sufficient services for the community (Ginter et al., 2018). These organisations are unable to control external environmental events but they can minimise the severity of their impact(Collier, 2009). Being prepared to respond to such issues requires an environmental analysis (Frynas & Mellahi, 2015; Hitt et al., 2016; Ginter et al., 2018). Environmental analysis "is largely strategic thinking and strategic planning, and consists of understanding the issues in the external environment to determine the implications of those issues for the organisation" (Ginter, 2013, p. 40).

Langfield-Smith (2018) has provided a narrow definition of environmental performance that refers to the impact of an organisation's behaviour on the environment, which includes natural resources, people, and other living organisms (Langfield-Smith, 2018). However, this does not explicitly recognise that organisations confront problems from their endogenous (internal) environmental practices, as well as from exogenous (external) conditions (Lin-Hi & Blumberg, 2018).

Measuring a business' success in responding to shifting conditions in the environment requires flexibility indicators (Walker Jr & Ruekert, 1987). Many organisations cannot respond appropriately to unexpected situations because they do not consider flexibility indicators in their performance measurement systems (Anderson & McAdam, 2004). For organisations to be in an appropriate response position, it is important to include flexibility indicators into their performance measurement systems (Walker Jr & Ruekert, 1987; Joung et al., 2006; Purbey et al., 2007; Faturechi & Miller-Hooks, 2014). Flexibility performance defines the degree to which organisational performance is affected during uncontrolled conditions (Swamidass & Newell, 1987). Thus, flexibility indicators evaluate an organisation's ability to adapt to such situations (Faturechi & Miller-Hooks, 2014). Managers also have to understand their organisation's capability to continue to achieve its mission when confronted by disasters, attacks or accidents (Mead et al., 2000). This requires survivability indicators (Mead et al., 2000; Faturechi & Miller-Hooks, 2014). These indicators identify whether or not the organisation can continue to operate sustainably under uncontrollable conditions such as natural disasters (Mead et al., 2000; Faturechi & Miller-Hooks, 2014).

Walker and Dunn (2006) observed that establishing balanced scorecard measures needs to be considered in health organisations and linked with "environmental analysis". The environmental analysis assists in defining issues and changes generated outside the organisation (Ginter et al., 2018). Health care providers subsequently need to modify their criteria to establish balanced scorecard measures and consider measures to adapt to the external environment (Walker & Dunn, 2006). "[Balanced scorecard] measures should be developed to assess service delivery and effectiveness, operational performance, and the organisation's response to the environment" (Walker & Dunn, 2006, p. 91). Furthermore, Purbey et al. (2007) have reviewed performance measurement systems in health organisations (including the balanced scorecard). Purbey et al. (2007) concluded that the balanced scorecard still lacks flexibility indicators that focus on the future (Purbey et al., 2007). Such measures could help managers predict and evaluate their ability to cope with changes in the demand for health services (Walker & Dunn, 2006). In these cases, the balanced scorecard can help the organisation to expect and make a plan to actively respond to

extraordinary events (Lin Moe et al., 2007), and assess disaster resilience (Ramsey et al., 2016).

4. Attribution theory

It is necessary to differentiate between an organisation's environmental intervention and environmental occurrences (Solomon et al., 2011). Attribution theory connects the effect or outcome with its cause or source (Kruglanski, 1975). An attribution refers to the perception or inference of a cause and the source of the effect (Kelley & Michela, 1980). Attribution theory has been used in management accounting research (Schiff & Hoffman, 1996; Bloomfield & Luft, 2006; Chapman et al., 2006; Coram et al., 2009; Hartmann & Slapničar, 2009; Messier Jr et al., 2011; Franco-Santos et al., 2012). Attribution theory mainly aims to assign responsibility for events (Bradfield & Aquino, 1999). In other words, attribution theory searches for the causes of events, and then defines whether the organisation is responsible or not for those events (Coombs, 2007). The theory thus recognises that people's behaviours (Salehan & Kim, 2016) and organisations' behaviours (Crilly et al., 2016) are ascribed to personal behaviours, and that behaviours partly result from external factors (Salehan & Kim, 2016). Some research for example has employed attribution theory to understand corporate social responsibility and corporate social irresponsibility (Lange & Washburn, 2012; Gond et al., 2017).

Environmental events come from two different sources. Firstly, they may stem from organisational activities which have an effect on the environment. In the case of this study, the hospital has a responsibility to mitigate such impacts. Thus, the performance indicators are needed here to evaluate the hospital's effort to minimize its negative performance on the environment. This will help managers to establish how much responsibility can be attributed to their actors (Figge et al., 2002). On the other hand, some events originate from the environment itself. In this case, the hospital's performance is affected by these events. Despite the knowledge that the hospital is not able to control such external events, performance indicators are required to evaluate the capacity of the hospital to continue to operate effectively. Attribution theory is informative in situations where people or organisations experience both types of these events (Bradfield & Aquino, 1999).

5. Research method

This research utilises an in-depth case study (Yin, 2013). The data was collected from semi-structured interviews. Interviewing helps to get large amounts of rich data quickly (Marshall & Rossman, 1999). Well-designed interview questions help interviewees go beyond "yes-no-maybe" answers (Seale et al., 2004) and they can demonstrate their beliefs in more detail (Seale et al., 2004). Consequently, an in-depth interview enables the researcher(s) to deeply understand the research topic (Cooper & Schindler, 2011).

Participant selection is a critical phase in qualitative research as the best participant refers to a person who can provide the best answers for the research questions (Sargeant, 2012). To select relevant participants who are able to answer the research questions, a site contact person strategy was used in this research. The site contact person refers to an individual who has good knowledge about the research topic. The site contact person for this research was the director responsible for applying and updating the balanced scorecard in this organisation. The main researcher had a series of meetings with the site contact person to identify the right participants. The participants were from different backgrounds, positions, and experience levels. The number of the participants was not predetermined (Sargeant, 2012) in this study. Initially the site contact person nominated 19 participants, but this number later dropped to 17. The site contact person organised all interviews with the participants. Table I lists all participants interviewed. The data was collected through two rounds of interviews. All first-round interviews were conducted at the interviewees' offices except the interview with Participant 17, which was conducted by email. The other interviews were taped and transcribed. The second round interviews were conducted by email due to the impact of COVID-19 and the need to maintain social distancing throughout 2020. The second round interviews[13] were conducted in August 2020.

Qualitative researchers deal and interpret messy and ambiguous data (Marshall & Rossman, 1999) and coding the data is an essential process in qualitative research. Coding the data represents the analytic thinking of the researcher (Marshall &

[13] A number of the initial staff interviewed had either left the hospital system or took up positions with other health care providers. Consequently, their lack of direct involvement in the pandemic-related actions excluded them from the second round of interviews.

Rossman, 1999). In this study NVivo software facilitated the coding of the data. Inductive coding was used in this research which means "the researcher starts the analytic process from the data, working "bottom-up" to identify meaning without importing ideas" (Braun et al., 2019, p. 853). Then thematic analysis was used to define main themes and recognise connections between them (Joffe, 2012).

	Group 1 management, finance and accounting staff
Interviewee code	Participant 1, Participant 2, Participant 3, Participant 4, Participant 5, Participant 6
	Group 2 operational staff
Interviewee code	Participant 7, Participant 8, Participant 9, Participant 10, Participant 11
	Group 3 nursing and medicine staff
Interviewee code	Participant 12, Participant 13, Participant 14, Participant 15, Participant 16, Participant 17

Table 1. List of participants interviewed.

6. Findings

The initial sustainability balanced scorecard model was developed to monitor only environmental interventions that originate from an organisation's actions (Johnson, 1998; Figge et al., 2002; Butler et al., 2011). However, the contemporary approach is to also cover events that are not related to that organisation's operations (e.g. global outcomes) (Hansen & Schaltegger, 2018). The findings of this research support both approaches and show that the balanced scorecard can be used to cover both internally generated environmental activities and externally generated environmental phenomena. Some comments were:

> *Internally generated environmental activities [cover things like] recycling of waste, waste management, electricity, and water usage as these can all be controlled (Participant 12).*

> *Externally generated environmental activities, in the hospital and health context, will largely centre around response(s) to pandemics, climate change or climatic events, disasters, etc. Our structure is established to provide for*

an emergency response and business continuity function. In this way, our response and reporting for external environmental events and activities is contained and readily available (Participant 7).

Thus, there was initial evidence that suggested that the hospital's balanced scorecard attempted to incorporate internal and external environmental interventions.

6.1. Organisational environmental actions

Past research has shown that the balanced scorecard is designed to trace material use, energy use, water use, and emissions (Hubbard, 2009). In this organisation there were active attempts to reflect those five internal environmental actions in the balanced scorecard:

"One of the things that we are working on at the moment is a sustainability balanced scorecard and that will include our waste …, electricity consumption, [and] water consumption and water quality" (Participant 4).

These environmental areas are presented in more detail in the next three sub-sections.

6.1.1. Electricity consumption

Some organisations pay more attention to environmental items that directly impact costs (Länsiluoto & Järvenpää, 2010). In this organisation for example, "the energy consumption would be huge" (Participant 12) and "it costs a lot of money" (Participant 4). Participant 7 estimated out how much the electricity cost was at this organisation:

We pay four, five million dollars per year across the whole health service. If we could generate a seven or eight per cent saving across the whole thing, that turns into quite a lot of money and a saving for the taxpayer.

The participants indicated that the hospital decided to embed energy consumption in the balanced scorecard "because all of that translates into an economic saving" (Participant 7). This suggests that in this organisation certain environmental activity was prioritised for its relationship to economic measures rather than sustainability outcomes.

6.1.2. Water consumption and water quality

Beside energy consumption, "water consumption is quite critical" (Participant 3) [and] "every drop of water is precious" (Participant 16). The organisation has a responsibility to avoid water shortages in the community (Journeault, 2016). As one respondent reported:

> *Because particularly we are in one of the driest continents on the planet and people underestimate how important it is for us to be conservation minded when it comes to water". Consequently, I am trying to incorporate water use … and I would like to see water consumption reflected in our sustainability balanced scorecard (Participant 7).*

Perhaps using rainwater to clean equipment and increasing waste water recovery is useful in this regard (Journeault, 2016). Indicators like % water reduction (Dias-Sardinha & Reijnders, 2005), m3 of water consumed, m3 of wastewater recuperated, and m3 of rainwater recovered are useful to monitor and manage water consumption (Journeault, 2016). However, participants (7; 8; 6) seemed to pay more attention to water quality than water use:

> *We have things like microbiological issues in water quality which affect the health of our patients and so we have to respond by having systems to filter water. We have to be very careful about which water we use because things like legionella and other microbiological contaminants can cause problems (Participant7).*

> *Environmental concerns for us are around the water quality. […] We have for each facility and water quality risk management plan that talks about the infrastructure, the water infrastructure at that site and then what measures we're taking to make sure we're not hurting our patients (Participant 8).*

> *The priorities are saving lives so really when you think about managing water versus saving a life, we're going to save a life. So from a water perspective, water consumption isn't our issue, water quality is our issue (Participant 6).*

Reducing water impacts leads to increased water consumption. As one respondent said:

From a water quality perspective, we measure regularly the quality of our water coming into the facility at different points that we take tests of. So, in some cases we will flush an amount of water through a system to try and clean it (Participant 8).

These comments highlight the trade-off that is evident in health care organisations where environmental activities have multiple outcomes and benefits. In addition, these comments may reflect the general understanding that good performance on environmental impacts can gather positive reactions from patients and employees (Jones, 2011). For instance, excellent water quality increases the chance of getting positive reactions from customers (Jones, 2011). However, in another empirical study the author observed that the municipality was imposing pressure on X organisation to avoid waste water (Journeault, 2016). In responding to this pressure, the X organisation incorporated only water consumption, not water quality, in its balanced scorecard (Journeault, 2016).

6.1.3. General waste and clinic waste

Another area which was highlighted because of its potential economic benefit was waste. Participant 7 noted that "hospitals have a large amount of waste to dispose of". This participant noted that there are two specific types of waste: "There is the clinical waste which can be quite harmful, infectious diseases and then there is general waste". Our respondents asserted that both general waste and clinical waste need to be incorporated in the balanced scorecard: "There is lots of opportunities in the waste space" (Participant 3). In this organisational context, economic opportunities are clearly identified in general waste. For example, Participant 14 noted that "[in the food area] we can easily waste four or five hundred thousand dollars a year of food". On the other hand, social responsibility was more explicitly recognised in regards to clinical waste:

From a hospital point of view, probably the big area is the clinical waste. The clinical waste is really those sorts of items we're looking at where there's a potential for any disease transmission if someone was exposed to that waste. So, it might be your sharps. If someone used a sharp on a patient, there's residue blood and if that wasn't handled properly there's a chance that

someone could get pricked from that sharp and there could be disease transmission. So, the clinical waste is more about the disease transmission risk (Participant 9).

The problem here is "the clinical waste can't just be taken to the dump" (Participant 4) because "we have to appropriately dispose of in a responsible and proper way" (Participant 11). As a result, "it's not a monetary value which drives waste; it's more about compliance to legal and they apply a fine" (Participant 11). Consequently, hospital waste was seen as an important element of the balanced scorecard and also served as an opportunity to display the organisation's social responsibility. As one interviewee pointed out:

We need to be more socially responsible to report on things like waste. […] I think because it's 2018 we should be looking outside of the traditional balanced scorecard and looking more at the things [waste] (Participant 2).

This section has explored that organisational environmental actions that should be incorporated into the BSC. The next section identify the non-organisational environmental actions.

6.2. Non-organisational environmental actions

This section identifies the main external environmental areas that were reflected in the balanced scorecard. The study results provided evidence of a recognition of "a greater focus on risks related to uncontrollable events" (Participant 2). For example, "COVID-19 has changed the way the health service operates and has made many external environmental impacts more visible" (Participant 2). Secondly, the participants nominated climate change and natural disasters as requiring specific performance indicators. More specifically, the hospital's performance is acutely affected by climate change. As Participant 9 stated:

There's a lot of bigger picture issues that people need to start thinking about, particularly in the emergency space and the business continuity space, because climate change will have a big impact on hospitals in that area. […] [It] is something that the hospitals really need to take seriously and think

about very hard and look at what they can do, both in stopping ... doing what they can to minimise global warming and things like that, but also preparing for the effects of when it does happen.

Participants in this study were realistic about the future implications of climate change. They articulated that possible impacts include higher patient admissions, more natural disasters and different disease threats. They also noted that these impacts were already visible: "last year was a particular bad one, we're expecting this year to be equally bad" (Participant 7). One respondent explained how this was considered a challenge:

We have things like global epidemics, flu, other diseases which are microbiological phenomenon which can influence our business continuity and it leads to emergency preparedness, as well. […] So, each year we have a flu season, cold and flu season. […] And that really puts pressure on our hospitals because we have so many people who are sick (Participant 7).

For example, in normal cases, the hospital can service 500-700 patients per day. However, in a flu season, for example, this number grows to 1000-1500 patients. In this scenario, patients are concerned about waiting times (both before and after they enter the service delivery process) (Ballantine et al., 1998), which ultimately will reflect on their opinions about the hospital's performance. Particularly responding to such events must be done in a timely fashion (Anderson & McAdam, 2004).

Participant 12 observed that the capability of the hospital to treat inpatients was also affected by the impact of climate change:

We have issues with extremes of temperatures especially heat where the aged can't cope. We have to make sure in a hospital that we have the proper air conditioning and climate control because when our patients are sick so they're more vulnerable to temperatures, both cold and heat.

These comments reflect the need for the performance measurement system to incorporate dimensions of flexibility including hospital-specific measures, such as

system capacity flexibility (Morlok & Chang, 2004) and delivery speed flexibility [14] (Ballantine et al., 1998). This will allow the organisation to effectively manage its capacity so that it is able to cope with new business conditions (Chen et al., 2013). Having information about the organisation's capacity to deal with such events is imperative (Nelson et al., 2007). As two participants observed:

> *[With] climate change, we can put different things in the [balanced scorecard] to help manage that externally so it doesn't impact on the health care system. So, you could look at more primary health care measures to better manage. To look at plans across five, ten years to know what you're dealing with climate change and then put in models of care in the [balanced scorecard] to help manage that so that it doesn't impact on the hospital setting (Participant 12).*

> *Certainly Participant 7 and I have a plan…to develop a sustainability organisation. […] The sustainability [balanced scorecard] which we will be developing the climate change adaptation plan. […] We are … looking at a first phase risk assessment at what are some of the potential risks that we need to be aware of as an organisation in the environmental space (Participant 3).*

The second non-organisation environmental event that was discussed was the impact of natural disasters on the hospital's operations. Natural disasters may have significant effects and it was evident that the hospital was pro-actively working towards incorporating relevant measures in the balanced scorecard. As three respondents clarified:

> *We'd probably look at it from a point of view of looking at disasters. […] We do look at supply chain issues and then redundancies for supply. So, that's looked at from a disaster management business continuity perspective of having plans in place that if a particular facility is isolated in any way that we have the means and ways of being able to supply clinical services and then also provide the support services that help provide that (Participant 8).*

[14] There are several types of flexibility such as professional flexibility, instrument flexibility, and process flexibility (see e.g. Purbey et al., 2007).

There is disaster plan and disaster management exercise conducted to address environmental impacts should they occur- e.g. fires, floods, major accidents- to ensure we can manage a full-scale emergency and catastrophe on larger scales (Participant 12).

Participant 7 elaborated on the necessity of this information in more detail:

The world climate change results in higher frequency of flood events and in the HHH[15] roads flood all the time - more often and we can't move patients between hospitals or we can't get food supplies into hospitals. Those sorts– that effects whether we can continue business. So, there's business continuity effects. If we're getting more storms or more flooding we could – we've got facilities that are vulnerable to that. So, G [Hospital] is a good example of that. It sits right on the bank of the M River and we need to have a plan that if the flow regimes or the flooding frequencies in the M River change our hospital might get flooded one day. What do we do in that – we don't have a plan for that at the moment. Would we have to quickly move the hospital to a different facility? […] If there was something in [balanced scorecard] that meant you recognised climate change you might have processes there about evacuations for your hospital. Or you might have processes there for services from a different location or something like that. Those processes might not exist if you don't recognise the driver of it because these to me are more responses because you end up with the right process or you end up delivering the right health care.

Finally, while "there is a greater focus on risks related to uncontrollable events", COVID-19 has changed the way the Health Service operates and has made many external environmental impacts more visible" (Participant 2). The impact of COVID-19 in 2020 will be felt for many years. This environmental shock will impact organisational policies and actions in every corner of the globe. The effect of the pandemic may be less evident in regional areas as population density drives infection rates, based on Queensland Government COVID-19 statistics as at 27/08/2020 (Queensland Department of Health, 2020). Furthermore, the widespread common

[15] The actual name has changed to protect the identity of the hospital.

characteristics of pandemics (or endogenous phenomena) such as COVID-19 require a centralised planning strategy in a corporate BSC. The relevance of a sub-unit tool, such as the balanced scorecard, may be limited in certain situations.

The evidence provided here indicates that the hospital was acutely aware of two categories of environmental events – organisational and non-organisational. There was a recognition that both must be reflected in the balanced scorecard despite the fact that the origin of non-organisational events was uncontrollable. The ability to monitor and evaluate the impacts of such events was seen as the primary way to manage future actions. In addition, there was a general understanding that the indicators should help provide early warning information and predict future conditions and trends (Gallopin, 1997).

7. Discussion and conclusion

The purpose of this research was to identify which organisational environmental actions and non-organisational environmental actions the hospital's balanced scorecard should include. The research was conducted in the Queensland public healthcare sector. The study suggested five internal environmental actions: energy consumption, water use, water quality, general waste, and clinic waste. The study also found that the hospital recognised two external environmental events: climate change and natural disasters.

Classifying environmental issues into organisational environmental actions and non-organisational environmental actions is consistent with the work of Solomon et al. (2011), who suggests separating the organisation's environmental interventions from environmental impacts caused by others. The participants recognised that the hospital's actions and performance affected the environment. In turn, the hospital's performance was affected by climate change and natural disasters. Accounting researchers use attribution theory when decision makers discern the causes of different behaviours (Rupar, 2017). Attribution theory assigns the behaviour to its cause and explains this behaviour (Malle, 2011). Furthermore, this theory divides actions into internal actions that are ascribed to the organisation's disposition, and external actions that are ascribed to situational actions outside the organisation's control (Lin-Hi & Blumberg, 2018). Consequently, the interviewees stated that the hospital's balanced

scorecard had to consider indicators which would monitor the hospital's environmental practices, and indicators to adapt to climate change impacts and natural disasters. This finding is consistent with Figge et al. (2002) who recommended that balanced scorecard designers trace the source of environmental problems and establish responsibility for environmental interventions. This would reflect the actions required by managers (Atkinson et al., 2012). Managers need indicators to evaluate the efforts of the hospital in minimising energy use, water use, and waste. They also need indicators to assess the hospital's efforts to adapt to climate change and deal with natural disasters.

This study has reinforced the recognition that public health organisations are subject to extraordinary conditions (Jacobs & Cuganesan, 2014). Observations pertaining to climate change confirm that the severity of catastrophic events such as cyclones, bushfires, floods, and droughts is more likely to increase in general Australian districts and in rural and remote areas in Queensland in particular (Weaver et al., 2010; Garnaut, 2011). Such organisations cannot be viable without adapting to their environment (Duncan, 1972), and precautions to cope with the extraordinary conditions are required (Beck, 1992).

Incorporating climate change and natural disasters throughout the balanced scorecard still requires choosing specific performance indicators. Organisations should consider the role of flexibility indicators, which enable the organisation to operate successfully under changing conditions (Harrigan, 2017). Flexibility indicators are important to capture the ability of the organisation to respond to external and uncontrollable actions while maintaining satisfactory performance (Morlok & Chang, 2004). In particular, health care organisations inevitably need to have a proper plan to deal with such serious events (Cosford, 2009). In this context, Van Looy and Shafagatova (2016) have observed that the internal business processes perspective needs to be extended and incorporate flexibility indicators such as process flexibility, general flexibility, and flexibility of service systems to meet particular customer needs. Such indicators will compel managers to respond quickly to environmental changes (Brozovic, 2018). The delivery speed flexibility can be measured by the number of treated patients within a particular time frame (Ballantine et al., 1998). In this regard, providing the service within that time frame is a good indicator of customer satisfaction or loyalty (Kaplan & Norton, 2001). Ultimately, there is a strong link between patient

satisfaction and delivery flexibility (Fitzgerald et al., 1991). Finally, the research found that there was a need to develop sustainability indicators to cope with natural disasters.

This study has explored how both organisational environmental actions and non-organisational environmental impacts and phenomena can be incorporated into the balanced scorecard. The findings of this research help to answer some questions posed in the literature. For example, Steccolini, (2019, pp. 267-8) has encouraged public sector accounting researchers to answer questions such as: What is the role of accounting under extraordinary conditions? How can it support and foster creative organisational and policy responses? Furthermore, the use of attribution theory to inform the development of balanced scorecard environmental indicators has not been done before. Environmental indicators are new and little prior research has discussed the significance of integrating flexibility information into performance measurement systems (Purbey et al., 2007).

The accounting and environmental literature acknowledges that environmental performance indicators enable organisations (Henri & Journeault, 2008): (i) to monitor and improve environmental actions, (ii) to guide the decision makers, and (iii) to report on external environmental impacts. In addition, this study has recognised that appropriate environmental indicators should help organisations to adapt to extraordinary conditions such as climate change and natural disasters. This study is subject to several limitations. It was conducted in a regional Australia public hospital over a period of two years. Different perspectives may be gained over a different time frame or in a different environmental context. As it is a case study, there is limited generalisability and replication is not possible. It is important for future research to identify suitable environmental performance indicators which capture both organisational and non-organisational events in the balanced scorecard. The literature suggests a number of conceptual frameworks to integrate organisational environmental activities into the balanced scorecard (Hahn & Figge, 2018). However, there is as yet no evidence on how to integrate non-organisational environmental impacts into balanced scorecard.

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5.3 Chapter summary

The research presented in this chapter emphasised the distinction between organisational (recognised as endogenous activities generated by internal operations) and non-organisational (recognised as exogenous) environmental actions and events. The findings suggest that the BSC is effective as a means of monitoring the hospital's environmental practices, and also enables the organisation to manage the impacts of non-organisational phenomena such as climate change and natural disasters, as well as a pandemic. The next chapter presents conclusions, implications, and limitations of the findings of the three studies, which combine to investigate, fully, the three research questions of this research.

CHAPTER 6: CONCLUSION: IMPLICATIONS AND LIMITATIONS OF THE FINDINGS

6.1 Introduction

The issue of environmental performance has received much attention in the accounting literature over the past two decades (Lamberton, 2005; Farneti & Rammal, 2013). Researchers have claimed that excluding environmental dimensions from organisational performance reporting has huge negative impacts, such as on financial results, reputation, managerial responsibility, and organisational survival (Epstein & Wisner, 2001; Hsu & Liu, 2010; Alewine & Stone, 2013; Wynder et al., 2013). The global attention on environmental problems has led to extensive discussion on how to appropriately bring environmental issues into the BSC (Johnson, 1998; Burritt & Schaltegger, 2001; Länsiluoto & Järvenpää, 2008; Hubbard, 2009; Kaplan & Wisner, 2009; Länsiluoto & Järvenpää, 2010; Hansen & Schaltegger, 2016; Journeault, 2016; Hahn & Figge, 2018; Hansen & Schaltegger, 2018; Kaplan & McMillan, 2020). This topic has also attracted increasing attention in the hospital sector (Naylor & Appleby, 2012). Australian hospitals in particular are under increasing pressure to reduce their environmental impact (Naylor & Appleby, 2012). However, very few research studies have been conducted that address the use of a BSC in the Australian public hospital sector (van de Wetering et al., 2006). Therefore, this study aimed to answer the following research questions:

RQ1: *How can the BSC be adapted to incorporate environmental performance in a health care context?*

RQ2: *What are the barriers and motivations to adopting a decision to integrate environmental performance into the BSC?*

RQ3: *What organisational environmental actions and non-organisational environmental actions should be incorporated into the BSC?*

This thesis adopted a thesis by publication format and has developed three coherent academic papers that address these three research objectives. **The first paper** explored how the BSC can be adapted to incorporate environmental performance in a health care context. The **second paper** explored the barriers and motivations to adopting a decision to integrate the environmental dimension into the BSC. Finally, the **third paper** explored how the environmental performance indicators for organisational and non-organisational environmental actions should be developed for a public hospital's BSC.

The rest of this chapter is structured as follows. Section 6.2 provides a summary of findings of this thesis. Section 6.3 presents the implications of the research. Limitations and suggestions for future research are presented in the final section.

6.2 Main Findings

The first paper (chapter 3) explored the ways in which the BSC could be adapted to incorporate environmental performance in a health care context. The respondents suggested various techniques for the inclusion of environmental dimensions in the BSC: fully integrated, partially integrated, a separate additional perspective, and differentiation based on the origin of the environmental activities and events. In relation to the stakeholder theory, the findings of paper one suggest that healthcare providers recognise the critical nature of environmental performance in creating value for both internal and external stakeholders. Such findings may encourage organisations to clearly identify their target stakeholders before developing a bespoke BSC.

This study confirms that integration of environmental elements throughout existing BSC perspectives is considered a viable approach. The study also provided justifications for using this model. One of the advantages of this approach is that it does not ignore the relationship between the environmental performance itself and other BSC perspectives. The full integration model is also suitable if environmental performance is not explicitly identified as a key organisational priority. Full integration does not require major amendments to the existing BSC. Furthermore, applying this approach is not costly compared to other approaches. However, a fully

integrated approach would not be appropriate in all cases. In some cases, integrating environmental measures under one or more existing BSC perspectives is reasonable. However, adding an additional fifth perspective is a viable option for an organisation that carefully scrutinises the environmental consequences of its activities. This can also help to improve the organisation's capability to gain support from its stakeholders (Dobbs & Van Staden, 2016). Finally, the research suggested a new and interesting model which endorses a new perspective for climate change coupled with other environmental aspects integrated into the financial perspective. Previous research has not discussed this approach, which differentiates between endogenous and exogenous environmental aspects.

The **second paper** (chapter 4) was developed to answer the second research question. This paper found that the regional public healthcare organisation in Queensland had excluded environmental issues from its BSC until the end of 2018. However, participants observed that since then institutional pressures were exerted to integrate environmental issues into its BSC. Typically the BSC reflects the organisation's vision and the indicators provide a means to monitor attainment of the organisational objectives (Kaplan & Norton, 2001; Niven, 2008). Some organisations may explicitly expand the scope of their vision by adding environmental and social issues to minimise unwanted behaviour (Journeault, 2016). In this case organisations may incorporate environmental and social measures into their BSC to get feedback about their environmental activities (Journeault, 2016). However, respondents in this study noted that environmental measures were not prioritised in their organisation. Ultimately, without having an environmental vision, it was difficult to integrate environmental issues into a BSC because the environmental vision is an essential building block in achieving environmental sustainability (Journeault, 2016). Furthermore, while there is support to include environmental issues in the BSC (Hahn & Figge, 2018), other commentators note that the BSC is not the only mechanism that can be used in this regard. These include the GRI, annual reports, environmental reports, CSR reports or sustainability reports, and websites (Sutantoputra et al., 2012). In this study some participants acknowledged that annual reports were regarded as an appropriate approach for the organisation to monitor its environment activities.

Paper two also provided insight around the role of organisational champions. BSC champions are internal and external actors who influence the implementation of BSC practice (Edwards, 2001; Andon et al., 2005; Carr & Gratton, 2013; Zawawi & Hoque, 2020). Such actors have a powerful influence on organisational change and development (Thakhathi, 2018) and any amendment in the BSC may be driven by such champions (Zawawi & Hoque, 2020). Thus the perceptions of BSC champions as influential factors in change processes (Andon et al., 2007; Carr & Gratton, 2013). As a result, raising awareness about environmental problems is an effective way to motivate the inclusion of environmental issues in the BSC. However, this research has found that BSC champions in the organisation under investigation had no desire to consider environmental issues as part of BSC information. Additionally the ability to access environmental information is a necessary prerequisite to successfully integrate environmental issues into the BSC (Butler et al., 2011; Journeault, 2016). This requires the development of organisational knowledge (Journeault, 2016). The lack of access to environmental data was one of the challenges of including environmental issues in the BSC for the Australian health organisation under study.

Organisational culture has a prominent role to play in either adopting a new accounting system or amending an existing accounting one (Dent, 1991; Andon et al., 2007; Gupta, 2016). More precisely, changing the BSC depends on organisational culture (Hansen & Schaltegger, 2018). Organisational culture has three main dimensions: assumptions, values, and artefacts (Parker & Bradley, 2000). In some cases, the existing organisational culture frustrates the updating of a BSC (Kasurinen, 2002). Alternatively, considering environmental measures as part of a BSC requires making sustainability issues part of the organisational culture (Hansen & Schaltegger, 2018). However, this research found that the organisational culture limited the incentives to embed environmental elements in the BSC. Finally, this study noted that the hospital did not have sufficient environmental commitment practices.

Paper two also provided evidence that in this organisation there was evidence of renewed efforts to integrate environmental aspects into the BSC at the beginning of 2019. The interviewees noted a number of factors that had prompted this change. In this organisation 2019 was the fourth year of a strategic planning cycle. During this year, the hospital had expanded the scope of its strategies by adopting a sustainability

vision. Furthermore, external forces, such as political influence, had motivated the organisation to develop an SBSC (Bieker & Waxenberger, 2002). Realising financial benefits from well-managed environmental sources also motivated a move from BSC to SBSC (Campbell et al., 2018). Additionally, personnel with BSC experience related to environmental issues joined the organisation. These members were keen to consider environmental issues in the BSC. All these factors acted to support a move from a reactive strategy to a sustainability strategy in the BSC.

The **third paper** (chapter 5) was developed to answer the third research question. This paper identified that environmental problems can be ascribed to organisational behaviour and external behaviour. Consistent with prior research, organisations need to distinguish between their environmental intervention and external environmental interventions (Solomon et al., 2011). Organisational behaviour or performance affects the environment and in turn, organisational behaviour or performance is affected by others' environmental interventions. **Paper three** also noted that public health organisations were vulnerable to extraordinary conditions (Jacobs & Cuganesan, 2014). Participants in this study explicitly noting the effect of climate change while commentators have noted that the severity of catastrophic events such as cyclones, bushfires, floods, and droughts is more likely to increase in rural and remote areas in Queensland in particular (Weaver et al., 2010; Garnaut, 2011). Such organisations cannot remain viable without adapting to their environment (Duncan, 1972), and precautions to cope with the extraordinary conditions are required (Beck, 1992). Health care organisations inevitably need to have a proper plan to deal with such serious events (Cosford, 2009). Thus, having sustainability indicators (Mead et al., 2000, p. 4) and flexibility indictors have become necessary to preserve organisational success under changing conditions (Harrigan, 2017). Hence the study provides evidence that the BSC should be used not only to monitor organisational environmental practices (e.g., energy use, water use, and general waste), but also to assess the ability of the organisation to adapt to the impacts of non-organisational impacts and phenomena, such as, climate change, natural disasters, and pandemics (e.g., COVID-19).

6.3 Implications

Sustainability issues, including environmental issues, can be seen as either wicked problems or "grand challenges" (Calic et al., 2020). Past BSC-based research that has examined the use of the BSC in the public health sector has not focused on investigating the ways that environmental dimensions may be integrated into the BSC; unlike research conducted in the private sector. Consequently, past public health sector research may not have identified the potential benefit from four methods to integrate environmental dimensions into the BSC. Further, it is unclear why some organisations are inclined to integrate environmental issues into their BSC while others do not embrace this approach.

The findings from paper 1 identify a number of approaches to include the environmental dimensions in the BSC. Therefore, the first implication of the research is that the approach selected by organisations may be contingent upon the importance of organisational vision and environmental strategy as formative factors.

Paper 2 provided evidence of a number of sources of resistance to incorporating environmental performance dimensions in the BSC. The findings also revealed that organisations may employ techniques such as updating the information system, appointing sustainability champions, articulating financial motivations, and recognising external pressures to mitigate these sources of resistance. The employment of these mitigating actions should be useful for other public health sector providers embarking on a similar project, which is the second implication of this project.

A third implication relates to the identification and management of the impact of the factors as found in paper 3. That is, the BSC design should identify and gather data so the organisation can manage not only internally generated environmental activities (endogenous activities) but also externally generated environmental events (endogenous activities). These findings from paper 3 should extend the foci of management beyond the internally generated environmental activities to incorporate information that may be used to help the organisation continue to operate under externally generated conditions.

The next sub-sections outline the contributions of this study.

6.3.1 Contributions to the literature

Prior research has identified environmental disclosure practices by private organisations in Australia and internationally (see Guthrie & Farneti, 2008; Lodhia et al., 2012; Lodhia & Jacobs, 2013; Domingues et al., 2017; Kaur & Lodhia, 2019). Section 2.2.6 (chapter 2) has identified some important literature gaps such as: (1) limited research examining public hospitals' BSCs design and structure and (2) prior SBSC research still being theoretical, and not empirically validated yet. Also, section 1.1 (chapter 1) has outlined some significant motivations to investigate these gaps in the body of knowledge in the literature. That is, the public sector is still in its infancy in terms of dealing with environmental sustainability issues (see Guthrie & Farneti, 2008; Lodhia et al., 2012; Lodhia & Jacobs, 2013; Domingues et al., 2017; Kaur & Lodhia, 2019). Specifically, no single empirical study has yet explored the potential to incorporate environmental issues into a BSC in the public sector (Journeault, 2016). Moreover, limited case studies have been conducted in the public health sector (Grigoroudis et al., 2012). This thesis therefore contributes to the public health sector literature. To the best of the researcher's knowledge, this is the first in depth study in an Australian public hospital.

The majority of the available research about the integration of environmental activities into BSCs is theoretical and normative; there is limited empirical verification (Tsalis et al., 2013). This study contributes to the literature by adding an understanding of internal stakeholders' views regarding the viability of incorporating environmental elements in the BSC within the health care context. The research also provides an important analysis of which environmental elements, from an internal process perspective, may be incorporated in the BSC. In addition, it will assist healthcare industries to understand stakeholder perspectives and assess their own performance by embedding environmental information in their reporting. Finally, this research offers insights into the ways the Australian hospital sector can overcome organisational obstacles to incorporating environmental performance measures in the BSC.

Many issues pertaining to the design, implementation, use, and evolution of a sustainability performance measurement system have not been addressed in previous research (Searcy, 2012). This thesis has attempted to explore some of these issues.

From an implementation perspective, it is unclear why organisations do not incorporate environmental issues into their BSC (Hansen & Schaltegger, 2016). This study has provided empirical evidence of the barriers that make it difficult to effectively implement environmental elements into the BSC. The study has also provided new justifications for developing structures within the BSC which enable this. In addition, the suggestion to consider a climate change perspective in the BSC has not been discussed in prior research.

6.3.2 Practical contributions

This study has provided contributions which provide a practical benefit to organisations operating in the public health sector. Firstly, this thesis has explained, with empirical evidence, the approach used by a public health organisation to prioritise the integration of environmental issues into its BSC. Other public health sector providers considering the customising of their BSC may wish to consider similar strategies depending upon the design of their current performance measurement and strategic management systems. The study also identified a number of institutional barriers which influence the incorporation of environmental issues in the BSC. This evidence included the organisation recruiting change agents with insight about the problems that they may confront when seeking to include environmental information in the BSC. The research provides suggestions for interventions (such as BSC champions) which may support the transformation.

This research has identified several internal and external institutional factors which motivate health care organisations to include environmental elements throughout the BSC (Journeault, 2016). However, properly recognising environmental issues in a BSC is costly, difficult and complex (Lipe & Salterio, 2000; Bieker, 2003) and requires new data (Möller & Schaltegger, 2005). This study provides insights which assist managers to select the appropriate method for their institutional context. In general, identifying the appropriate BSC perspectives and relevant key performance indicators is still a major concern for managers in health organisations (Porporato et al., 2017). This study alerts managers to the need to properly identify both endogenous environmental performance indicators and exogenous environmental performance indicators.

6.4 Limitations and future research

Despite this research providing useful knowledge related to the public hospital sector and the balanced scorecard, no research is free from limitations. This case study was conducted in a large public health organisation and the findings cannot be generalized to other contexts. Secondly, the organisation in this study was located in a regional area. Participants working in urban or metropolitan health organisations may possess different views. Hence, future research in an urban setting may provide complementary evidence to support these findings. Expanding the research to cover other Australian or international regions could constitute insightful future research. A large scale quantitative survey could also provide important information. In addition, a comparative study in the private hospital sector would be worthwhile as well.

This study has suggested potential approaches to integrating environmental issues into a hospital's BSC. One recommendation involves adding a fifth BSC perspective for environmental elements. However, there is still limited understanding as to what criteria is suitable to inform decision making about when to increase the number of BSC perspectives (Panayiotou et al., 2009). This needs further research. Furthermore, while this study suggested different approaches to incorporate the environmental performance into the BSC, the data did not support the researchers to determine the advantages and disadvantages of each the suggested approach. Moreover, there is scope to further develop the understanding of how flexibility indicators and survivability indicators can be effectively used in the BSC. Finally, this study did not investigate the relationship between the BSC and the identification and quantification of environmental indicators. Additional research is needed to establish the most useful and appropriate environmental performance measurement indicators (Searcy, 2012). This may include selection criteria, and data to be included in the measurement system (Searcy, 2012).

In summary, claims are made in the literature that excluding environmental dimensions from organisational performance reporting has huge negative impacts, such as on financial results, reputation, managerial responsibility, and organisational survival The findings of this first paper of this research project (chapter 3) .identify fur different types of environmental dimension models. The second paper (chapter 4)

of this thesis provides evidence that the regional public healthcare organisation in Queensland had excluded environmental issues from its BSC until the end of 2018 due to several barriers or lack of motivational factors. However, the inclusion of environmental indicators into its BSC occurred due to institutional pressures and motivation factors. Finally, the environmental activities associated with organisational behaviour as well as environmental events external to the organisation should be included into an organisation's BSC. The third study (chapter 5) provides evidence that the BSC should be used not only to monitor organisational environmental practices but also the impacts of non-organisational impacts and phenomena, such as, climate change, natural disasters, and pandemics (e.g., COVID-19).

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Appendix 1: Ethics approval

OFFICE OF RESEARCH
Human Research Ethics Committee
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UNIVERSITY OF SOUTHERN QUEENSLAND

6 October 2017

Mr Khaleel Khalid

Dear Khaleel

The USQ Human Research Ethics Committee has recently reviewed your responses to the conditions placed upon the ethical approval for the project outlined below. Your proposal is now deemed to meet the requirements of the *National Statement on Ethical Conduct in Human Research (2007)* and full ethical approval has been granted.

Approval No.	H17REA211
Project Title	Exploring the environmental dimension of the Balanced Scorecard in an Australian public hospital setting
Approval date	6 October 2017
Expiry date	11 September 2020
HREC Decision	**Approved**

The standard conditions of this approval are:
(a) Conduct the project strictly in accordance with the proposal submitted and granted ethics approval, including any amendments made to the proposal required by the HREC
(b) Advise (email: human.ethics@usq.edu.au) immediately of any complaints or other issues in relation to the project which may warrant review of the ethical approval of the project
(c) Make submission for approval of amendments to the approved project before implementing such changes
(d) Provide a 'progress report' for every year of approval
(e) Provide a 'final report' when the project is complete
(f) Advise in writing if the project has been discontinued, using a 'final report'

For (c) to (f) forms are available on the USQ ethics website:
http://www.usq.edu.au/research/support-development/research-services/research-integrity-ethics/human/forms

Yours sincerely,

Samantha Davis
Ethics Officer

Appendix 2: Information sheet

Participant Information for USQ Research Project Interview

Project Details	
Title of Project:	**Exploring the environmental dimension of the Balanced Scorecard in an Australian public hospital setting**
Human Research Ethics Approval Number:	

Research Team Contact Details	
Principal Investigator Details	**Supervisor Details**
Mr. Salim Khaleel Khalid Email: u1073121@usq.edu.au Telephone: Mobile: 0469954692	Dr. Bonnie Hampson Email: Bonnie.Hampson@usq.edu.au Telephone: (07) 3470 4142 Prof. John Sands Email: John.Sands@usq.edu.au Telephone: (07) 4631 5385 Dr. Claire Beattie Email: Claire.Beattie@usq.edu.au Telephone: (07) 4631 1289

Description

This project is being undertaken as part of, PhD Project.

The purpose of this project is to explore the potential for incorporating the environmental components within the balanced scorecard (BSC) for the Australian hospital sector.

The researcher and his supervisory team request your expertise to explore ways the Australian hospital sector can incorporate environmental performance measures into the BSC structure.

Participation

Your participation in an interview that will take around 40 to 90 minutes of your time.

The interview can be arranged to occur at a time and venue that is convenient to you.

OR

The interview may be undertaken by teleconference at a date and time that is convenient to you.

Some questions will include inquiries about ways the Australian hospital sector can be incorporate environmental performance measures into the multi-dimensional performance measurement system such as a BSC structure. Other questions will inquiry about your understanding of the importance of incorporating the environmental performance measures within the internal process performance evaluation system (known as the internal perspective in BSC in reporting performance) in the rural and regional hospital sector.

The interview will be recorded to minimise the time needed to conduct the interview. Each recording will be allocated an unidentifiable code (e.g., interview 01/6218).

Your participation in this project is voluntary and the information stored on an anonymous basis.

If you decide to take part and later change your mind, you are free to withdraw from the project at any stage. You may also request that any data collected about you to be destroyed by contacting the researcher and his supervisory team (contact details at the top of this form).

Your decision whether you take part, do not take part, or to take part and then withdraw, will in no way impact your current or future relationship with the University of Southern Queensland

Practitioners should have at least three-years' experience working in in healthcare organizations.

Expected Benefits

This study will provide at least five contributions. Firstly, this study would contribute to the literature by understanding the benefits of including the environmental components as a part of BSC for health care industries. Moreover, it will add new avenues in the sustainability accounting literature through expanding in BSC literature. It also would explore the most important and unique environmental elements within the internal process perspective to be incorporated in BSC. In addition, it would assist healthcare industries to understand stakeholder requirements and assess their own performance by focusing on environmental cost information in their reporting. Finally, it will help to explore ways the Australian hospital sector can incorporate environmental performance measures into the BSC structure.

Risks

There are no expected risks associated with the participation in this project. Patient-related information is outside the scope of this study.

Privacy and Confidentiality

All comments and responses will be treated confidentially unless required by law.

- the collected data through the interview will be audio-recorded and transcribed in a complete manner by an expert transcriber
- the recording will not be used for any other purpose (i.e. as a teaching/ instructional tool)
- No participants will be singled out by their names rather they will be as pseudo.

Any data collected as a part of this project will be stored securely as per University of Southern Queensland's Research Data Management policy.

Consent to Participate

We would like to ask you to sign a written consent form (enclosed) to confirm your agreement to participate in this project. Please return your signed consent form to a member of the Research Team prior to participating in your interview.

Questions or Further Information about the Project

Please refer to the Research Team Contact Details at the top of the form to have any questions answered or to request further information about this project.

Concerns or Complaints Regarding the Conduct of the Project

If you have any concerns or complaints about the ethical conduct of the project you may contact the DDHHS HREC Coordinator on 07 4616 6696 or email: DDHHS-RESEARCH@health.qld.gov.au

You also may contact the University of Southern Queensland Manager of Research Integrity and Ethics on +61 7 4631 2214 or email researchintegrity@usq.edu.au. The Manager of Research Integrity and Ethics is not connected with the research project and can facilitate a resolution to your concern in an unbiased manner.

Thank you for taking the time to help with this research project. Please keep this sheet for your information.

Appendix 3: Consent form

Consent Form for USQ Research Project Interview

Project Details	
Title of Project:	**Exploring the environmental dimension of the Balanced Scorecard in an Australian public hospital setting**
Human Research Ethics Approval Number:	

Research Team Contact Details	
Principal Investigator Details	**Supervisor Details**
Mr. Salim Khaleel Khalid Email: u1073121@usq.edu.au Telephone: Mobile: 0469954692	Dr. Bonnie Hampson Email: Bonnie.Hampson@usq.edu.au Telephone: (07) 3470 4142 Prof. John Sands Email: John.Sands@usq.edu.au Telephone: (07) 4631 5385 Dr. Claire Beattie Email: Claire.Beattie@usq.edu.au Telephone: (07) 4631 1289

Statement of Consent

By signing below, I am indicating that I:

- Have read and understood the participation information document regarding this project.
- Have had any questions answered to my satisfaction.
- Understand that if I have any additional questions I can contact the research team.
- Understand that the interview will be recorded.
- Understand that I will not be provided with a copy of the transcript of the interview for my perusal and endorsement prior to inclusion of this data in the project.
- Understand that I can withdraw from the interview process at any time or decline from answering questions that I feel would provide sensitive information.

- Understand that I can contact the University of Southern Queensland Manager of Research Integrity and Ethics on +61 7 4631 2214 or email researchintegrity@usq.edu.au,
  or the DDHHS HREC Coordinator on 07 4616 6696 or email:
  DDHHS- RESEARCH@health.qld.gov.au.
  If I have any concern or complaint about the ethical conduct of this project.
- Am over 18 years of age.
- Agree to participate in the project

Participant Name	
Participant Signature	
Date	

Email:_____

Please return this sheet to a Research Team member prior to undertaking the interview.