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Operations sustainability maturity model: preliminary findings of financial services in developing and developed countries

David William Parker, Alicia Loh, Delroy Chevers, Indianna Minto-Coy and Luca Zeppetella

Summary

Purpose – This paper aims to develop and apply a measurement instrument to identify a comparative metric that identifies operational sustainability maturity across sectors and countries.

Design/methodology/approach – Using structured interviews to complete the operations sustainability maturity model (OSMM) in financial services organisations, data were compared to show differences for developed and developing countries.

Findings – The preliminary findings indicate that there is no significant difference in the sustainability maturity index between countries. However, size and profitability are strong indicators of sustainability maturity.

Research limitations/implications – These findings represent preliminary findings drawn from the financial services sector in a limited number of countries. Expansion of the data set will give greater confidence of results.

Practical implications – The OSMM is an empirical tool used to collect data that allows statistical evaluation of sustainable strategies used by firms in various sectors and in different countries.

Social implications – Sustainability is of critical importance in the economic development of all countries. The OSMM embraces fiscal, operational and environmental considerations. The research gives new insights to alternative strategic imperatives.

Originality/value – With increased awareness of organisational sustainability, academics have developed a number of tools, approaches and strategies to ensure commercial viability. However, few corporations have successfully institutionalised ongoing sustainability. OSMM is unique. Its wider application to embrace additional industry sectors and countries will bring new insight to strategic intent.

Keywords Sustainability, Business strategy, Company performance, Environment

Paper type Research paper

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1. Introduction

Sustainability, while often associated with environmental aspects, embraces a range of factors critical to its continuing viability: commercial and economic (Xie and Hayase, 2007), and social and environmental (Shmelev and Rodríguez-Labajos, 2009). Over the past decade, while the sustainability literature has increased exponentially, comparatively little research exists into its effect in developing countries, such as those in the English-speaking Caribbean (Bos-Brouwers, 2010). This is somewhat concerning when it can be argued that sustainability has greater relevancy and immediacy of impact in many developing countries than for developed countries (Gray *et al.*, 2014). The broader understanding of sustainability as espoused here, and which focuses attention at the organisational level, is particularly relevant for the English-speaking Caribbean in a world that has formally accorded a role to the region's business and the private sector in growth and development

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(Goodbody *et al.*, 2002; Hill *et al.*, 2006; Lawrence, 2015). Furthermore, a more cohesive view of sustainability at the organisational level is critical for the region in which the vulnerabilities associated with organisations in small island developing states need to be mitigated. The region is characterised by fragile markets, natural and man-made disasters, low human resources and lack of diversification (Shirley, 2009). Nonetheless, for the English-speaking Caribbean sustainability has largely been interpreted in environmental, socio-cultural and (social) developmental terms (Minto-Coy and Rao-Graham, 2016; Goodbody and Thomas-Hope, 2002; Hill *et al.*, 2006; McGregor *et al.*, 1998). Even though the region's label as a grouping of small developing island states has motivated attention to sustainability, the emphasis has mainly applied to climate change and disaster risk resilience (Minto-Coy and Rao-Graham, 2016). Where sustainability is considered in business and commerce, the tendency is to view it mainly through the lens of corporate social responsibility with the emphasis on the environment and philanthropy (Surendra and Ron, 2010). As with the growing recognition of the need for disaster risk resilience into business and commerce practices, so too is the need to regard the wider principles of operational sustainability as critical factors for organisational growth and survival in the Caribbean. This lack of focus may be due to the lack of consensus on *what* is sustainability and *how* can it be measured (Banerjee, 2002). Moreover, operational sustainability is a complex issue and difficult to define (Labuschagne *et al.*, 2005).

Ambiguity has resulted in a number of tools and approaches being developed (Robèrt *et al.*, 2002), yet despite these efforts, relatively few organisations have pursued sustainability for their operational systems (Vogel, 2005). Much of the problem seems to be that "a standardised method to measure sustainability does not exist" (Montiel and Delgado-Ceballos, 2014, p. 127). Acknowledging operational sustainability importance to organisational resilience and longevity is a serious concern. However, there is little understanding of what *type* of organisations fair better; nor do we know how developing countries compare with developed countries. Furthermore, others argue that there is a need for "more clarity on how corporations must change to meet the sustainability challenge, and how the necessary changes may be achieved" (Millar *et al.*, 2012, p. 491). However, for the purpose of our study, we define operational sustainability as:

A state of operational maintenance and viability; that demonstrates the inclusion of a corporation's economic, social and environmental performance which then reflects the value created from the optimal use of resources, the responsibility upheld towards the community's well-being, and the conservation efforts from responsible decision-making.

In response to such calls to action, we have applied a previously developed operations sustainability assessment instrument (Loh and Parker, 2016) that measures sustainability intent and progress along a maturity trajectory. The maturity model measures progression using a structured analytical process (Gasparatos, 2010). As we are particularly interested in comparing and contrasting organisations in developing countries (English-speaking Caribbean specifically) with developed countries, we have collected data from the financial sector in several countries. The overall purpose of our research is to answer the question:

RQ1. Do financial services in developed countries outperform those in developing countries, specifically English-speaking Caribbean, as they pursue sustainable operations?

We begin this research by reviewing the literature to understand the term sustainability, and to focus on its acknowledged features of fiscal continuity, innovation and intra/entrepreneurship, resilience and environmental and social considerations. Then, from this review, we develop a conceptual framework, identify hypotheses for testing in the field and explain the rationale of our research method. Next, we describe how our procedure for data collection involving our interview technique and selection of organisations. We then examine the data using a range of statistical techniques so that the hypotheses can be explored. Finally, in our conclusions, we discuss our results with respect to our research

question. The implications for policy and practice are also discussed, and we offer an agenda for future research.

2. Literature review

For most developed countries, 70 per cent of gross domestic product (GDP) is derived from services, 25 per cent industrial, with the remaining 5 per cent from agriculture (IMF, 2017). Jamaica's GDP, ranked 117 from 188 countries, comprise 65 per cent from services, 30 per cent industrial and 5 per cent agriculture, a somewhat similar profile to developed countries. In contrast, but as might be expected, China's, GDP, second only to the USA, comprises only 45 per cent services, 44 per cent industrial and 11 per cent agriculture. Notwithstanding China's current (but changing) economic profile, services are clearly a dominant source of wealth creation in most countries, therefore requiring a greater research focus on sustainability. On the whole, no matter the country, "firms focussing on entrepreneurial orientation are positively associated with sustainability and employment growth, one of the primary policy goals worldwide" (Madsen, 2007, p. 185). It is also acknowledged that economic growth in developing countries results from "micro- and macro-economic interactions at local or regional levels, based on clustering and networking principles, in which sustainability also plays a core role" (de Noronha Vaz and Nijkamp, 2009, p. 27).

Change is inevitable in the pursuit of sustainability (Lozano, 2006), as organisations seek to adjust and improve in various functional aspects. Initiatives include techno-centric aims, such as reducing environmental impacts, improving eco-efficiencies and productivity effectiveness programmes (Drake and Spinler, 2013). Invariably, the underlying motivation driving sustainability initiatives, given that they are typically resource-intensive (Epstein and Buhovac, 2014), are characterised by compliance determined by domestic regulators, agencies and international pressure (Hynds *et al.*, 2014). Berns *et al.*'s (2009) survey of 1,500 global executives and managers concerning their perspectives on the intersection of sustainability and business strategy, identifies two tangible benefits of sustainable developments include cost savings and new sources of revenue. They also list six intangible benefits as follows:

1. improved brand image;
2. employees' satisfaction, morale and retention;
3. product, service and market innovation;
4. business process and model innovation;
5. effective risk management; and
6. enhanced stakeholder relations.

Additionally, sustainable developments can increase demand for products and services, attract more socially responsible consumers and reduce prices (Hillman and Keim, 2001). Better stakeholder relations can also mitigate negative regulatory, legislative or fiscal action (Wilkinson *et al.*, 2001). Of concern, however, is the lack of research addressing sustainability development in developing countries.

It has been argued (de Noronha Vaz and Nijkamp, 2009; Epstein and Buhovac, 2014; Hill *et al.*, 2006; Lawrence, 2015) that organisations in developing countries face additional sustainability challenges to that identified in developed countries. Moreover, it is argued that there has been insufficient research of sustainability in developing countries (Lawrence, 2015) and, therefore, the indices measured need to reflect these differences. Our current, exploratory, research while focusing solely on Jamaica as an example of a developing country, has allowed a generic survey instrument to be tested that captures sustainability maturity in both developing and developed countries.

We argue that, while the literature may focus on mature industrialised, developed countries, a clear need has emerged for sustainable strategic intent using a discrete model more suitable to developing countries. Hence, our initial starting point is to perform a comparative evaluation of sustainable developments in financial services organisations from developed countries and Jamaica. To this end, we draw on the work of [Loh and Parker \(2016\)](#), as explained next.

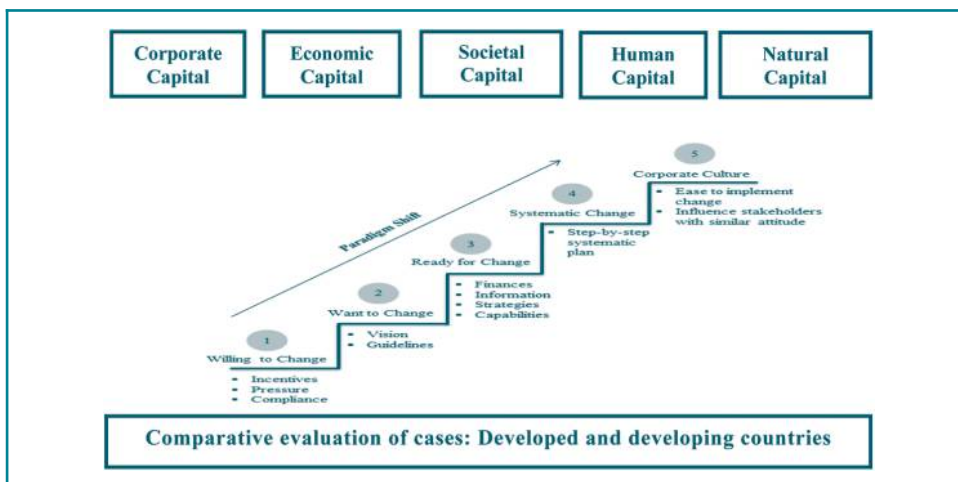
An entry stage to sustainable development is demonstrable *willingness to change*. For assessment, it is important to reveal the fundamental motivation that is driving sustainable initiatives given that they are typically resource-intensive. So, for the next level, the organisation must demonstrate it *wants to change*, which can lead to the developmental third stage, *readiness for change*. Fundamentally, sustainability developments are an investment that requires resources ([Cheng et al., 2014](#)). Such resources also include technical and managerial expertise ([Wilkinson et al., 2001](#)), creativity and innovativeness ([Ramus, 2001](#)) and human resources regarded as knowledge assets. Stage 4 is identified by *systematic change*. A methodical approach towards planning is required because of the complexity and diversity of stakeholders ([Szekely and Knirsch, 2005](#)). Stage 5 is the final sustainable development level. It is recognised as having numerous on-going sustainable processes embedded in the organisational culture. So that organisations embrace continuous change, create innovation and use employees' knowledge to develop sustainability, it is important that organisational hierarchies that stifle progress are removed ([Maher, 2000](#)). Sustainability is highly dependent on the values and ideological underpinnings of the corporations' culture because it can affect the implementation and outcomes ([Linnenluecke et al., 2009](#)). [Linnenluecke and Griffiths \(2010\)](#) argue that surface changes, such as publishing corporate sustainability reports, integrating sustainability measures in employee performance evaluations and training employees can play a part in changing employees' values and beliefs while achieving a sustainability-oriented culture. The staged and progressive maturity model described above is appropriate to our research, as it describes the progress of a specific capability of an organisation over time. Moreover, it allows a comparison to be made between similar organisations from different geographical locations.

Sustainability initiatives can be driven from an organisational, functional or at a staff-level within organisations ([Stoughton and Ludema, 2012](#)). While organisational-driven initiatives follow a top-down approach, in which sustainability progression is initiated by senior leaders, functional-driven progression adopts a catalytic approach where sustainability initiatives are initiated by managers of different functional areas ([Martin, 1992](#)). Moreover, the operationalisation of sustainability can be influenced by the way organisations' perceive what sustainability is ([Linton et al., 2007](#)). As [Bansal \(2002\)](#) illustrates, non-profit organisations and government agencies take sustainability initiatives that encompass economic, social and environmental aspects because they define sustainability as the intersection of economic, social-equity, and environmental principles. However, the for-profit organisations benefit from economic sustainability initiatives to realise economic benefits because they define sustainability by economic principles. Translating concepts of sustainability into practical actions remains challenging for many organisations ([Lee and Saen, 2012](#)). Consequently, advocates emphasise the need for organisations to set measurable goals and adopt robust assessment tools to evaluate their improvement initiatives and monitor their sustainability performance ([Epstein and Buhovac, 2014](#); [Nguyen and Slater, 2010](#)). Overall, assessment tools are vital to pursuing sustainability because they provide a better understanding of sustainability progress, thus helping inform decision-making ([Searcy, 2012](#)). Typical of such assessment tools are the Accountability 1,000 Standard, International Standards Organisation (ISO) 14000 series, and the Global Reporting Initiative. These tools provide sustainability reporting guidelines and an international standard and guideline for corporate sustainability reporting ([Unerman et al., 2007](#)). As well, the Dow Jones Sustainability Index allows for the benchmarking of

sustainability investments (Singh *et al.*, 2009), while the Life Cycle Assessment, focusses on production and consumption of goods and services to assess product-related sustainability (Ness *et al.*, 2007). Finally, is cost-benefit analysis that economically assesses a project's costs and benefits to reflect opportunity costs (Munasinghe, 1993). The greatest limitations of these assessment tools relate to their dimensional focus, measurement and the effort required to use them during corporate sustainability assessments. Single dimensional assessment tools have been criticised for their inability to comprehensively assess enterprise-wide sustainability (Graymore *et al.*, 2008; Ramos and Caeiro, 2010). Hence, assessment tools should be integrated when companies measure the economic, social and environmental aspects of organisations. Moreover, while qualitative information may provide richer insights into sustainability practices, they may hinder the quantifying and benchmarking processes that occur resulting from the evaluations (Phillis and Andriantiatsaholiniaina, 2001). Therefore, assessment tools should quantitatively assess corporate sustainability.

From the preceding literature review and considering existing sustainability assessment tools, it can be concluded that operational sustainability is, arguably, a multi-dimensional construct that can manifest in different ways. However, the literature illustrates several attempts to encourage a holistic appreciation of enterprise-wide sustainability performance through integrating the economic, social and environmental aspects of triple-bottom line (Banerjee, 2002; Bansal, 2005; Collados and Duane, 1999). The rationale underpinning such a simultaneous consideration to evaluate overall success lies within the principles of both corporate responsibilities to stakeholders and performance of ethical business practices (Norman and MacDonald, 2004). Moreover, Chabowski *et al.* (2011) have shown that organisations that embrace all three sustainability aspects perform better. Likewise, Goyal *et al.* (2013) conclude that as a result of the growing interest in holistic, enterprise-wide sustainability assessments, there is a shift from a single dimensional, to an integrated sustainability, assessment. Therefore, the sustainability assessment tool developed as part of this research would certainly meet this growing demand. Figure 1 shows that the schematic view of this research of sustainability is treated as a latent construct that incorporates five domains: corporate factors, economic considerations, societal aspects, the human dimension and natural capital. Each construct can be numerically assessed against a scale of 1 to 5 to indicate relative progression towards to an optimum maturity, with an aggregated metric indicating an overall sustainability maturity index (SMI).

Figure 1 Schematic overview of research: paradigm shift



3. Conceptual framework

In response to increasing political and social influences, the notion of corporate sustainability has undergone an evolving journey (Linnenluecke and Griffiths, 2010). The environmental and conservation movement with its eco-system conservationists seek to protect natural resources (Drake and Spinler, 2013). It does so by targeting the behaviour and performance of corporations predominantly with social action and interventions (Pacheco and Dean, 2015). As a result, there is a proliferation of corporate sustainability definitions. Most of these corporate sustainability definitions proposed in sustainability-related literature are guided by the economic, social and environmental principles of sustainability (Millar *et al.*, 2012). The three pillars of sustainability (Fifka and Drabble, 2012), triple bottom line (Norman and MacDonald, 2004) or triple P framework (Virakul, 2015) are examples that incorporate definitions of corporate sustainability. Drawing from numerous research examples, for our research, we define corporate sustainability as:

Activities that demonstrate the inclusion of economic, social and environmental considerations in the normal business operations and in its interaction with stakeholders.

To test and compare the maturity of corporate sustainability of organisations in developed countries with developing countries we propose the following hypothesis:

H1. Developed countries' corporate sustainability has a higher maturity index.

This metric reflects the extent of the economic, social and environmental value being created from the optimal use of resources, the responsibility upheld towards the community's well-being and the conservation efforts from responsible decision-making.

Economic capital includes financial, tangible and intangible assets (Tate *et al.*, 2010) that need perpetuating to ensure long-term sustainability. Economic capital can generally be attained by implementing value-creating strategies or practices that are invariably associated with intra/entrepreneurial activities (Bansal, 2005). Extant literature identifies an array of definitions, from which we define perpetuation of economic capital as:

Economic capital is an illustration of the organisation's efforts in instigating value-creating strategies, resource optimisation and creating value-adding activities.

To measure and compare the maturity of the economic capital creation of organisations in developed countries with developing countries we propose the following hypothesis:

H2. Developed countries' economic capital has a higher maturity index.

This metric assesses how well-developed an organisation's operations are to value-creating strategies and practices that maintain its total economic capital within the limitations and constraints of its resources (Cawley and Gillmor, 2008).

Societal capital focuses on the maximising the social impacts on the local communities within which the organisation operates (Dyllick and Hockerts, 2002). Societal capital is developed through social relations and social structures (Bansal, 2005). In particular, the external dimension of social responsibility is addressed, wherein corporations are required to build stakeholder relationships, maintain a sound corporate governance structure and be proactively involved in the community (Epstein and Buhovac, 2014). Through these initiatives, corporations establish networks of strong personal relationships based on trust, and established between the organisation and their respective communities. These are generally transitive and spread through extensive networks, thereby serving to counteract the increased public distrust often held towards corporate practices (Putnam, 2001). For our research, we define societal capital as:

Societal capital is an accumulation of the corporation's public networks and social relations in the community in which it operates. It can be acquired through the corporation's efforts to address societal concerns and the maximising of social benefits to the community.

To quantify and compare the maturity of societal capital creation of organisations in developed countries with developing countries we propose the following hypothesis:

H3. Developed countries' societal capital has a higher maturity index.

This metric assesses how mature an organisation's operations are to stakeholder relationship-building strategies and practices, social responsibility and corporate governance.

Human capital captures people skills, motivation and the loyalty of employees and corporate partners (Dyllick and Hockerts, 2002). It has been described as "[. . .] practical knowledge, acquired skills, and learned abilities of an individual that make him or her potentially productive and thus equip him or her to earn income in exchange for labour" (Farley and Costanza, 2002: 252); and "[. . .] is a resource that is fundamental to knowledge creation through learning by doing and is not readily expropriate by rival firms" (Hatch and Dyer, 2004, p. 1157). Human capital addresses the internal dimension of corporate social responsibility whereby corporations are required to invest in their employees to increase their competency and expertise at work (Blundell *et al.*, 1999). The investment initiatives can include on-the-job training, schooling opportunities and increasing productive wages whereby employees learn new skills, acquire new knowledge and qualifications and experience greater emotional and physical well-being (Becker, 1962). Additionally, relations with corporate partners in the industry would also facilitate knowledge-sharing that can potentially enhance human capital (Yli-Renko *et al.*, 2001). For our research, we define human capital as:

Human capital is an accumulation of knowledgeable, skilful, and competent individuals in the corporation. Human capital can be acquired through the corporation's efforts to encourage internal and external learning, and the building of internal loyalty.

To quantify and compare the maturity of human capital of organisations in developed countries with developing countries we propose the following hypothesis:

H4. Developed countries' human capital has a higher maturity index.

This metric assesses how mature the organisation's operations in developing staff, on-going learning and knowledge sharing.

Natural capital encompasses features of ecologically and environmentally considered operations. Of the numerous descriptions, those fitting our work include "[. . .] the stock of environmentally provided assets (such as soil, atmosphere, forests, water, wetlands), which provide a flow of useful goods and services; these can be renewable or non-renewable, and marketed or non-marketed" (Goodland, 1995, p. 14) and "[. . .] all natural assets (i.e. everything that is not human-made). It can be altered by humans, and its reproduction can be enhanced by humans, but it cannot be created by humans" (Collados and Duane, 1999, p. 445). Natural capital within any country's economy can take several forms, including renewable, exhaustible and non-depletable. Because we cannot restore the environment's condition to a prior idealised state, the priority is placed more on maintenance than enhancement of natural capital. Process-driven initiatives include the use of recycled or environmentally friendly input, effective waste disposal strategies (Collados and Duane, 1999) and redesigning of production systems to prevent pollution (Bansal, 2002). Conversely, product-driven initiatives include producing new types of environmentally friendly goods or services, and producing output that reduces environmental impact (Gilley *et al.*, 2000). For our research, we define natural capital as:

Natural capital of a corporation is an illustration of its conservation efforts aimed to reduce environmental impacts and initiation of responsible decision-making to promote or maintain the well-being of the planet.

To quantify and compare the maturity of natural capital of organisations in developed countries with developing countries. we propose the following hypothesis:

H5. Developed countries' natural capital has a higher maturity index.

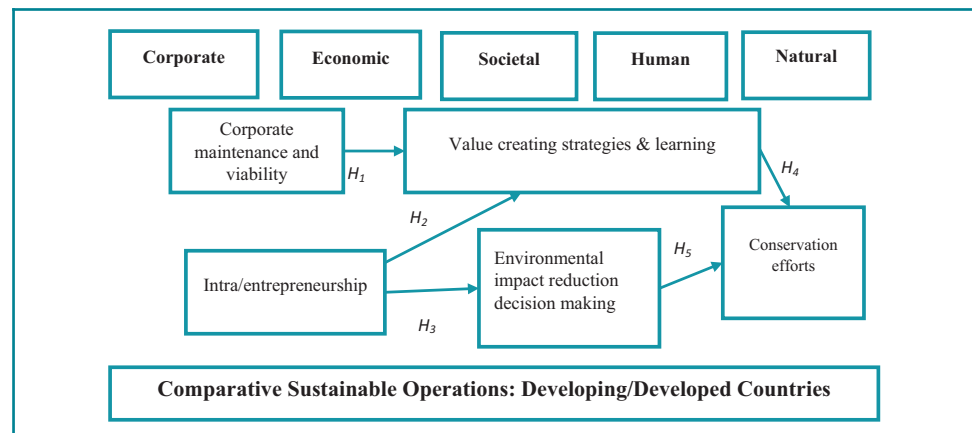
This metric assesses how mature the organisation's operations are to environmental considerations and conservation to optimise resources and reduce waste.

In summary, our literature review of extant literature and development of definitions integral to operations sustainability supports our research focus. The five domains (corporate, economic, societal, human and natural capital), when considered as part of a conceptual five-stage progressive model, frames our research. Testing the hypotheses from primary data collected in developed and developing countries allows the answering of our initial research question. The conceptual framework of our research is depicted in Figure 2.

4. Data collection method

Guidelines offered by Anderson and Gerbing (1991) on data collection were used in our research to compensate for the subjectivity that arises from qualitative assessment (Murphy and Saal, 1990). Moreover, such a standardised measurement allows an organisation's sustainability intent and performance to be quantified; this permits industry players to be compared more objectively (Murphy and Saal, 1990). Our first research step involved "specifying the domains of the construct" (Churchill, 1979, p. 67). Because operations sustainability is a latent construct that may not easily be observed, we needed to use multiple item scales (Cronbach and Meehl, 1955). Our literature selection used domain sampling because we knew that existing sustainability measures come with limitations (Churchill, 1979). Initially, a total of 121 item statements were generated from the literature. While it is typical to generate an initial longer list of items, we produced a final 95 statements by refining the list using a series of validation procedures. The response alternatives available to the informants corresponded to the five maturity levels (Figure 1). Two research conditions were applied: first, we required our informants to judge the properties of each item without referring to other similar items (Cooper and Schindler, 2008); and second, there was no indication of the distance between any two points on the scale (Nunnally, 1967). A rating scale was thus deemed most appropriate. This is fitting because Comrey (1988, p. 758) states that scale developers are encouraged to use a "quantitative answer scale with at least five numerical response categories" to permit sufficient variance to be generated. The scale of operations sustainability is 5 = embedded in culture, 4 = systematic change, 3 = ready for change, 2 = want to change and 1 = willing to change. Additionally, because we were interested in sustainability-related behaviour, we formulated a series of statements to establish "what they do". As we were also interested in the characteristics of both the operations and the informants, we formulated appropriate statements that could measure these aspects (de Vaus, 2002).

Figure 2 Conceptual framework: comparative sustainable financial services operations



Given that our questionnaire was designed to facilitate a panel discussion (i.e. not used as a questionnaire), we identified executives and managers as likely respondents as they play a prominent role in developing of sustainability (Boudreau and Ramstad, 2005).

A two-stage expert-panel review was conducted to maximise the face and content validity of the scale and statements (Noar, 2003). Face validity refers to experts' accepting that the instrument appears to be sound and relevant in that it should "look like what it is" intended to measure (Nunnally, 1967). We assessed face validity to obtain acknowledgement that the items generated represent corporate sustainability; criticism of the item's appropriateness, interpretation and brevity; and feedback on the length, format and scale. The initial list of 121 items was reduced to 95, thus representing 34 items on corporate sustainability (CS), 19 on the economic capital (EC) domain, 12 on societal capital (SC), 22 on human capital (HC) and 8 representing natural capital (NC). Our next procedure was to conduct a Q-sort study to examine each item's relevance to respective domains of interest and constructs (Eggert and Ulaga, 2002). Appendix 1 shows the final structured interview instrument.

An alignment and mapping of hypotheses to the 95 items was completed to facilitate statistical evaluation and, ultimately, to answer the overarching research question.

4.1 Interviews

To date, 33 companies' data have been collected across three SIC sector classifications. However, for this paper, we have focused only on companies within the SIC classification range 6000-6799 Finance, Insurance and Real Estate. This comprises 11 organisations located in Australia, the UK and Jamaica. Table I shows their profiles.

Each company agreed in writing to be part of this research if their anonymity could be guaranteed. As Table I illustrates, the companies differ by capital size, market focus and financial performance. However, we argue that they have sufficient commonality to allow data to be used for operational comparison.

In addition to the survey instrument's completion, a rich array of qualitative information was also recorded for each organisation. During the panel interviews, often taking several hours spread over numerous days (ranging from 2 to 9 days) in the case of the large companies, the topic of operational sustainability generated a wide range of discussion. For example, one company director stated: "This research has really made us think about sustainability and how we are not really building day to day systems to address it. And really, it is just excellent business strategy".

5. Statistical analysis

The completion of the structured interview with senior staff (see Appendix 1) for the 11 financial services companies, culminated in an aggregated 12×119 data matrix. This represents 12 columns of financial profile data, 35 columns corporate sustainability data, 20 columns economic capital data, 13 columns societal capital data, 23 columns human capital data and 9 columns natural capital data. Table II shows a summary of the total data. Company ID, 10 and 11, are the two Jamaican financial organisations that represent developing countries.

Additional analyses of these descriptive data are shown in Appendices 2-5. Of particular interest is A2, which ranks SMI and corresponding data, is that two organisations reached the highest SMI equally, one from the developed countries and the other from the developing country (Jamaica). However, these two organisations' respective other rankings show that they achieved much lower scores. From the literature (Linnenluecke and Griffiths, 2010), it could have been expected of these two organisations that their high SMI would be associated with high rankings in natural capital (Rank 2 and 3, respectively), high net margin per cent (Rank 3 and 9, respectively) and a high return on assets per cent (Rank

Table I Financial services company profiles

Company ID code	Region centre	Employees	Operating income 2014 AU\$m	Net margin %	EBT %	Return on assets %	Return on equity %
2013-003-FS-bnk	Australia	41,849	7,955	23.3	33.37	0.67	12.87
2013-004-FS-bnk	UK	24,600	2,443	23.8	35.41	0.52	11.66
2013-007-FS-bnk	UK	264,000	29,706	22.6	25.04	0.52	7.35
2014-009-FS-ins	Australia	963	220	11.7	17.28	8.97	12.79
2014-010-FS-inVman	Australia	1,200	443	32.21	35.03	9.58	18.92
2015-015-FS-divF	Australia	503	350	7.86	43.04	2.11	4.99
2015-19-FS:ins	Australia	1,600	173	20.5	34.63	6.44	15.45
2015-20-FS:hs	Australia	47	38	20.06	29.73	3.95	3.97
2016-001-FS-AssManP	Australia	54	16	26	2319.45	15.75	14.45
2016-002-FS-bnk	Jamaica	2,600	524	20	26.78	2.4	2.76
2016-007-FS-bs	Jamaica	1,600	32	21.67	20.48	1.51	

Table II Summary of the total data

ID no.	Company ID code	Employees	Rank	Operating income AU\$m	Rank	Net margin %	Rank	EBT %	Rank	Return on assets %	Rank	Return on equity %	Rank	Total corporate	Rank	Total economic	Rank	Total societal	Rank	Total human	Rank	Total natural	Rank	Maturity index	Rank
1	FS-bnk	41,849	2	7,955	2	23.30	4	33.37	5	0.67	9	12.87	5	156	3	77	4	55	4	98	4	38	4	326	3
2	FS-bnk	24,600	3	2,443	3	23.80	3	35.41	2	0.52	10	11.66	7	159	1	90	3	57	2	103	2	36	2	342	1
3	FS-bnk	264,000	1	29,706	1	22.60	5	25.04	8	0.52	10	7.35	8	113	6	72	6	41	5	73	6	26	5	252	5
4	FS-ins	963	8	220	7	11.70	10	17.28	11	8.97	3	12.79	6	74	8	54	8	23	8	54	9	14	8	165	8
5	FS-inVman	1,200	7	443	5	32.21	1	35.03	3	9.58	1	18.92	1	94	7	57	7	28	7	69	7	20	7	199	7
6	FS-divF	503	9	350	6	7.86	11	43.04	1	2.11	7	4.99	9	72	9	54	8	21	9	68	8	13	9	160	9
3	FS-ins	1,600	5	173	8	20.50	7	34.63	4	6.44	4	15.45	3	120	5	73	5	37	6	80	5	22	6	252	5
8	FS-ins	47	11	38	9	20.06	8	29.73	6	3.95	5	3.97	10	48	10	32	10	15	11	49	10	8	11	103	11
9	FS-AssManP	54	10	16	11	26.00	2	23.00	9	9.45	2	15.75	2	46	11	32	10	17	10	46	11	11	10	106	10
10	DEV-FS-bnk	2,600	4	524	4	20.00	9	26.78	7	2.40	6	14.45	4	169	1	92	1	56	3	104	1	35	3	342	1
11	DEV-FS-bs	1,600	5	32	10	21.67	6	20.48	10	1.51	8	2.76	11	150	4	91	2	58	1	103	2	27	4	326	3

10 and 6, respectively). Such research invariably espouses the financial benefits of pursuing an environmental strategy.

As identified in A3, A4 and A5, a highest rank in net margin per cent, return on assets per cent and return on equity per cent, had a corresponding SMI Rank of 7, 7 and 7 respectively. We suggest, therefore, that a high SMI does not necessarily result in better financial performance.

Table III shows data for the five operations sustainability domains, their total scores, respective ranks and the final SMI rank.

Table III illustrates that there is no consistency in the ranks for the five domains measured for the 11 organisations.

5.1 Analysis of variance and regression

Table IV shows summary statistics for each of the selected data variables under scrutiny in this research. It includes measures of central tendency, variability and shape. No values of these statistics fall outside the range of -2 to $+2$, thus indicating a significant departure from normality. This would tend to invalidate many of the statistical procedures we applied to this data. That is, no variables show standardized skewness values outside the expected range.

Table V shows Pearson product moment correlations between each pair of key variables. p -values (below 0.05) indicate statistically significant non-zero correlations at the 95.0 per cent confidence level. The following pairs of variables have p -values below 0.05: total corporate and total economic, total societal, total human and total natural. Also of significance are total economic with total societal, total human and total natural. Additionally, of significance are total societal with total human and total natural, and total human and total natural.

Table III Summary of domains, SMI and ranks (ID 10 and 11 Jamaican)

ID no.	Total corporate	Rank	Total economic	Rank	Total societal	Rank	Total human	Rank	Total natural	Rank	SMI total	Rank
1	156	3	77	4	55	4	98	4	38	1	326	3
2	159	1	90	6	57	5	103	6	36	5	342	1
3	113	6	72	6	41	5	73	6	26	5	252	5
4	74	8	54	8	23	8	54	9	14	8	165	8
5	94	7	57	7	28	7	69	7	20	7	199	7
6	72	9	54	8	21	9	68	8	13	9	160	9
3	120	5	73	5	37	6	80	5	22	6	252	5
8	48	10	32	10	15	11	49	10	8	11	103	11
9	46	11	32	10	17	10	46	11	11	10	106	10
10	159	1	92	1	56	3	104	1	35	3	342	1
11	150	4	91	2	58	1	103	2	27	4	326	3

Table IV Multiple-variable analysis

Parameter	Net margin %	EBT %	Return on assets %	Total corporate	Total economic	Total societal	Total human	Total natural
Count	11	11	11	11	11	11	11	11
Average	20.8818	29.4355	4.19273	108.273	65.8182	37.0909	77.0	22.7273
SD	6.54166	7.68356	3.72464	44.193	21.8258	17.2015	22.2845	10.5933
Coefficient of variation (%)	31.327	26.1031	88.8357	40.8163	33.1607	46.3765	28.9409	46.6106
Minimum	7.86	17.28	0.52	46.0	32.0	15.0	46.0	8.0
Maximum	32.21	43.04	9.58	159.0	92.0	58.0	104.0	38.0
Range	24.35	25.76	9.06	113.0	60.0	43.0	58.0	30.0
Standard skewness	-0.798727	0.081362	0.785052	-0.2055	-0.497879	0.0972831	-0.0163299	0.20177
Standard kurtosis	0.78026	-0.403602	-1.04643	-1.10042	-0.69059	-1.27055	-1.07499	-0.954658

Table V Correlations between key variables

Parameter	Total corporate	Total economic	Total societal	Total human	Total natural
Total corporate		0.9700 (11) 0.0000	0.9856 (11) 0.0000	0.9788 (11) 0.0000	0.9653 (11) 0.0000
Total economic	0.9700 (11) 0.0000		0.9563 (11) 0.0000	0.9593 (11) 0.0000	0.8964 (11) 0.0002
Total societal	0.9856 (11) 0.0000	0.9563 (11) 0.0000		0.9691 (11) 0.0000	0.9534 (11) 0.0000
Total human	0.9788 (11) 0.0000	0.9593 (11) 0.0000	0.9691 (11) 0.0000		0.9230 (11) 0.0001
Total natural	0.9653 (11) 0.0000	0.8964 (11) 0.0002	0.9534 (11) 0.0000	0.9230 (11) 0.0001	

Table VI is of particular interest to our research, as it shows generally argued that a strategy driving environmental awareness will bring financial benefits in the form of improved return on assets (Linnenluecke and Griffiths, 2010). The p -value tests the statistical significance of the estimated correlations, with p -values below 0.05 indicating statistically significant non-zero correlations at the 95.0 per cent confidence level.

Table VII shows details of the model for SMI as the dependent variable, with independent variables: net margin per cent, EBT per cent, return on assets per cent, and return on equity per cent.

The equation of the fitted model is:

Table VI Correlation of total return on assets % and total natural

Parameter	Return on assets %	Total natural
Return on assets %		-0.6181 (11) 0.0427
Total natural	-0.6181 (11) 0.0427	

Notes: Correlation; (sample size); p -value

Table VII Multiple regression model of SMI

Parameter	Estimate	Standard error	t statistic	p-value	
CONSTANT	299.621	102.675	2.91815	0.0267	
Net margin %	0.571425	3.33152	0.171521	0.8695	
EBT %	-3.2643	2.61867	-1.24655	0.2590	
Return on assets %	-28.5483	6.80687	-4.19404	0.0057	
Return on equity %	12.5621	5.14809	2.44015	0.0505	
Analysis of variance					
Source	Sum of squares	df	Mean square	F-Ratio	p-value
Model	65054.5	4	16263.6	4.68	0.0468
Residual	20856.4	6	3476.06		
Total (Corr.)	85910.9	10			

Notes: R -squared = 75.7232%; R -squared (adjusted for df) = 59.5387%; Standard error of Est. = 58.9582; Mean absolute error = 35.0022; Durbin-Watson statistic = 1.66273 (p = 0.2918); Lag 1 residual autocorrelation = -0.0326081

$$\begin{aligned} \text{Sustainability Maturity Index (SMI)} = & 299.621 + 0.571425 \times \text{net margin per cent} \\ & - 3.2643 \times \text{EBT per cent} - 28.5483 \\ & \times \text{return on assets per cent} + 12.5621 \\ & \times \text{return on equity per cent} \end{aligned}$$

As the p -value in the ANOVA table is less than 0.05, there is a statistically significant relationship between the variables at the 95.0 per cent confidence level. The R-squared statistic indicates that the model as fitted explains 75.7232 per cent of the variability in SMI. The adjusted R -squared statistic is 59.5387 per cent. The standard error of the estimate shows the standard deviation of the residuals to be 58.9582. The mean absolute error (MAE) of 35.0022 is the average value of the residuals. The Durbin–Watson (DW) statistic tests the residuals to determine whether there is any significant correlation based on the order in which they occur in our data file. As the p -value is greater than 0.05, there is no indication of serial autocorrelation in the residuals at the 95.0 per cent confidence level.

In determining whether the model can be simplified, it is notable that the highest p -value on the independent variables is 0.8695, belonging to net margin per cent. As the p -value is greater than 0.05, that term is not statistically significant at the 95.0 per cent or higher confidence level. Consequently, we should consider removing net margin per cent from the model.

5.2 Testing of hypotheses

The overall purpose of our work is to answer *RQ1*. From the data collected as part of this field research, the answer is “no”. Intuitively, this may be surprising if we consider that developed countries would have greater external pressure from competitors, customers, lobbyists and the media to develop more vigorous sustainable strategies, particularly regarding environmental imperatives (that we term Natural Capital).

The average index for developed countries was 98.0 (SD 42.22) and average index for the developing country (Jamaica) was 154.5 (SD 6.36). While $H1$ is not validated (i.e. developed countries have not got a higher maturity index), we recommend caution because of the small number of data for Jamaica. However, all countries have significant correlation coefficients between variables.

The average index for developed countries was 60.11 (SD 19.845) and average index for the developing country (Jamaica) was 91.5 (SD 0.707). Therefore, $H2$ is not validated.

The average index for developed countries was 32.66 (SD 15.76) and average index for developing country (Jamaica) was 57.0 (SD 1.41). Hence, $H3$ is not validated.

The average index for developed countries was 71.11 (SD 20.15) and average index for developing country (Jamaica) was 103.5 (SD 0.707). Hence, $H4$ is not validated.

The average index for developed countries was 20.88 (SD 10.74) and average index for developing country (Jamaica) was 31.0 (SD 5.656). Hence, $H5$ is not validated.

6. Conclusions, limitations and further research

The study explored the widely held view that financial services in developed countries out-perform those in developing countries in pursuit of sustainable operations. Much of the literature supports the notion that strategic sustainable-intent accrues improved commercial performance. By comparing organisations’ using a comprehensive survey instrument a series of hypotheses were statistically tested to assess whether these assumptions held some truth. The results allowed an operations SMI to be identified for each organisation. In summary, initial results indicate that there are no significant differences between financial services operations in developing countries and developed countries in pursuit of sustainable operations.

A previously validated survey instrument was used to structure interviews with senior staff in financial services organisations. The interviews were conducted over several days in each organisation; and supported the appraisal of detailed cases that measured a range of constructs: commercial and economic; and social and environmental. The numerical encoding culminated in an operations SMI that allowed inter-organisation comparison.

Completing the structured interview instrument in the 11 financial services organisations has allowed several assumptions and intuitive hypotheses to be statistically tested. For example, it was expected that organisations pursuing an environmentally considerate strategy (i.e. a high score in “natural aspects”) would accrue financial benefits, particularly to their overall operating income net margin percentage and, especially, to their return on assets percentage. However, this was not apparent.

- H1.* This reflects the extent of the economic, social and environmental value being created from optimal use of resources, the responsibility upheld towards the community’s well-being, and the conservation efforts from responsible decision-making. The hypothesis was not statistically validated, i.e. developed countries do not have a higher maturity index.
- H2.* This metric assesses how developed the organisation’s operations are to value-creating strategies and practices to maintain its total economic capital within the limitations and constraints of its resources. The hypothesis was not statistically validated.
- H3.* This assesses how mature the organisation’s operations are to stakeholder relationship building strategies and practices, social responsibility and corporate governance. The hypothesis was not statistically validated.
- H4.* This metric assesses how mature the organisation’s operations are to staff development, on-going learning and knowledge sharing. The hypothesis was not statistically validated.
- H5.* This metric assesses how mature the organisation’s operations are to environmental considerations and conservation to optimise resources and reduce waste. The hypothesis was not statistically validated.

The five sustainability elements of sustainability: corporate, economic, societal, human and natural, showed strong correlation in all countries. During the interviews, while some respondents said that the aspects identified in the research reflected their strategic intent, they did not always monitor or record impacts.

The standardised nature of the instrument allows for objective comparisons between and among corporations. Over the past 20 years, there has been an exponential increase in references to corporate sustainability and sustainability strategy, and widespread recognition that sustainability is not limited to the commercial setting. However, there is still widely held views on how operations sustainability are best achieved and what the concept actually includes.

In terms of social implications, we have developed a standardised operations sustainability assessment instrument that measures sustainability intent and progress (maturity). The maturity model describes progression in a structured analytical process. Given the importance of sustainable operations to optimize resources, this research is clearly important to society. For practitioners, the implications of this work include the opportunity to measure and explore various operational strategies to bring about optimum sustainable results. The survey instrument has been rigorously tested to ensure face validity and is now made available for other researchers to use. It is hoped that by expanding the instrument’s application across countries, a Web-based collegiate network of users might be established. In future, there is opportunity for cross-sector, multi-national operations SMIs to be derived – thereby identifying best practice. The development and application of this survey instrument and interviewing protocols is unique. This work represents a method to

bring new insights to performance and productivity management – with a focus on sustainable operations.

The limitation of the current research is in the small data set. To date, while larger numbers of manufacturing data have been captured, in view of the importance of services to economies, additional effort will be made to attract more service organisations.

While there is an opportunity to make the structured survey available to researchers worldwide, we are mindful of the risks related to using secondary data.

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Further reading

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Appendix 1. Structured Interview

Operations Sustainability Maturity Model Questionnaire

This questionnaire is split into five sections, with each section aimed at measuring one domain of operations sustainability. There are a total of 95 statements, with each signifying an initiative for the accumulation of operational sustainability. They are split into these sections which requires you to rate them according to the following criteria:

5	Embedded in culture	Your corporation has embedded the sustainability initiative in its corporate culture.
4	Systematic change	Your corporation has established a systematic guide for the deployment of the sustainability initiative.
3	Ready for change	Your corporation has established an actionable plan for the sustainability initiative and has gathered all the required resources for the deployment of plan.
2	Want to change	Your corporation is motivated to pursue sustainability and is at its preliminary stage of planning for the initiative.
1	Willing to change	Your corporation does not exhibit tangible sustainability initiative but is motivated to make a change for the pursuit of sustainability.

Please read the following definitions as it will help you understand the questions better.

1.0 Corporate Sustainability	Corporate sustainability is a state of corporate maintenance and viability. It demonstrates the inclusion of corporation's economic, social, and environmental performance which then reflects the value created from optimal use of resources, the responsibility upheld towards the community's well-being, and the conservation efforts from responsible decision making.
2.0 Economic Capital	Economic capital is an illustration of the corporation's efforts in instigating value creating strategies and the practice of resource optimisations.
3.0 Societal Capital	Societal capital is an accumulation of the corporation's public networks and social relations in the community in which it operates in. It can be acquired through the corporation's efforts to address societal concerns and the maximising of social benefits to the community.
4.0 Human Capital	Human capital is an accumulation of knowledgeable, skilful, and competent individuals in the corporation. It can be acquired through the corporation's efforts to encourage internal and external learning, and building of internal loyalty.
5.0 Natural Capital	Natural capital of a corporation is an illustration of its conservation efforts aimed to reduce environmental impacts and initiation of responsible decision making to promote or maintain the well-being of the ecosphere.

(continued)

1.0 Corporate Sustainability

Rate the following statements:		5	4	3	2	1
1.1	Your corporation has change agents and those with nominated responsibilities to affect sustainable practice.					
1.2	Your corporation has individuals identified who regularly update the organization on risks of non-compliance with current legislation, possible future legislation and public opinion.					
1.3	Your corporation conducts workshops or meetings to define compliance roles					
1.4	Your corporation has staff training systems that embrace aspects of sustainability					
1.5	Your corporation has a clear understanding of business ethics across the organization					
1.6	Your corporation has evidence of working towards a comprehensive sustainability strategy					
1.7	Your corporation has a culture that fosters an individual sense of responsibility for the environment and the need to be alert to potential sources of pollution and resource waste					
1.8	Your corporation has a positive relationships with community and government					
1.9	Your corporation has established volunteer relationships					
1.10	Your corporation assists public authorities in establishing well-founded environmental regulations					
1.11	Your corporation identifies environmental obligations of members of its supply chain/network					
1.12	Your corporation has developed a systematic approach to the management and pursuit of efficiency; and looks for small wins and use these gains to spread the project, create a more programmatic approach					
1.13	Your corporation's incentive schemes reward employee performance and so builds social capital					
1.14	Your corporation builds new capabilities though shared learning experiences with other organizations					
1.15	Your corporation scans the environment (present and future) to identify (a) potential threats to the sustainability of existing products and services; (b) potential opportunities for creating innovative sustainability products/services					
1.16	Your corporation has aligned the corporate vision on sustainability with practical policies and strategies for action					
1.17	Your corporation conducts strategic competitor analysis					
1.18	Your corporation encourages staff engagement in community activities					
1.19	Your corporation ensures ongoing compliance through implementing ISO 9000 or similar standards					
1.20	Your corporation assesses in advance the environmental and human sustainability implications of new processes, products and other activities					
1.21	Your corporation has ongoing/is establishing enabling organizational structures - teams, virtual teams and networks					
1.22	Your corporation has leveraged partnerships for sustainability such as communities of practice					

(continued)

1.23	Your corporation re-examines organization values against changing external expectations by actively work-shopping with stakeholders					
1.24	Your corporation provides advice on the safe handling, use and disposal of the company's products/services					
1.25	Your corporation has pressed suppliers to be compliant to appropriate standards through face-to-face meetings/or restricting through controlled preferred supplier list					
1.26	Your corporation has it aligned supply chains, stakeholders and logistics systems - examined e-commerce potential					
1.27	Your corporation has built strong collaborative networks between internal and external change agents to create momentum on progressing sustainability					
1.28	Your corporation has built on sustainability achievements of previous stages					
1.29	Your corporation has communicated achievements to employees, community and other organizations and share learning with alliance partners - build reputational capital					
1.30	Your corporation has developed a sustainability plan which covers the management and operation of facilities and the design, manufacture and delivery of products and services					
1.31	Your corporation has generated cost savings via the pursuit of efficiencies in ecological and human sustainability areas					
1.32	Your corporation has cross-functional sustainability integration teams					
1.33	Your corporation has triple bottom line (TBL) reporting or balanced scorecard					
1.34	Your corporation has a continuous improvement as witnessed by ongoing/prior projects					

2.0 Economic Capital

Rate the following statements:		5	4	3	2	1
2.1	Your corporation's vision or goals embrace sustainability ethos.					
2.2	Your corporation develops a corporate-wide plan for sustainability.					
2.3	Your corporation's management team has commitment to the sustainability strategy.					
2.4	Your corporation benchmarks itself against industry's best practices.					
2.5	Your corporation develops a systematic approach to the management and pursuit of efficiency.					
2.6	Your corporation initiates strategic competitor analysis.					
2.7	Your corporation develops new market opportunities.					
2.8	Your corporation encourages its employees to contribute new ideas which can be utilised to facilitate growth.					
2.9	Your corporation develops a corporate-wide approach that seeks to shift from cost to innovation.					
2.10	Your corporation generates cost savings through the pursuit of efficiency.					
2.11	Your corporation develops a flexible corporate structure that is easily adaptable to change.					
2.12	Your corporation develops or uses established approach and program to increase efficiency.					
2.13	Your corporation optimises its human resources by developing systems to utilise their knowledge.					

(continued)

2.14	Your corporation build on sustainability achievements of previous stages.					
2.15	Your corporation minimises risk using a precautionary approach.					
2.16	Your corporation promotes research and development for next-generation of products and services.					
2.17	Your corporation calculates cost-benefit ratios for human resources.					
2.18	Your corporation aligns its vision on sustainability with practical policies and actionable strategies.					
2.19	Your corporation keeps a lookout for new opportunities through environmental scanning.					

3.0 Societal Capital

Rate the following statements:		5	4	3	2	1
3.1	Your corporation establishes a clear understanding of business ethics across the board.					
3.2	Your corporation does voluntary work in the community.					
3.3	Your corporation invests in community projects.					
3.4	Your corporation develops relationships with relevant regulators.					
3.5	Your corporation makes fund donations to the community.					
3.6	Your corporation encourages active community engagement.					
3.7	Your corporation assists smaller corporations to be more responsible through knowledge sharing.					
3.8	Your corporation works on relationship building with external stakeholders.					
3.9	Your corporation ensures that contractors working on its behalf apply acceptable societal sustainability standards.					
3.10	Your corporation engages with key stakeholders through dialogue and symbolic activities.					
3.11	Your corporation assesses the societal implications of its new process, products, and their activities in advance.					
3.12	Your corporation establishes positive industrial relationships.					

4.0 Human Capital

Rate the following statements:		5	4	3	2	1
4.1	Your corporation establishes learning platforms for its employees.					
4.2	Your corporation encourages its employees to exchange learning experiences with other corporations to enhance their knowledge.					
4.3	Your corporation develops incentive schemes that recognises and rewards employees' performance to build human capital.					
4.4	Your corporation delivers on-job-training.					
4.5	Your corporation develops systems of knowledge sharing among employees.					
4.6	Your corporation provides a pleasant working environment.					

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4.7	Your corporation conducts culture-building activities.					
4.8	Your corporation adopts a family-friendly policy.					
4.9	Your corporation takes employees' suggestions and feedback into account.					
4.10	Your corporation implements employee training programmes for Occupational Health & Safety (OH&S).					
4.11	Your corporation implements a Human Resources Information System (HRIS) to track human resource performance.					
4.12	Your corporation builds human capacity through collaborative arrangements with other corporations.					
4.13	Your corporation focuses on developing other employees' skill sets.					
4.14	Your corporation establishes systems for employee empowerment.					
4.15	Your corporation implements interpersonal skills training.					
4.16	Your corporation develops systems for training, development, and transfer of knowledge focusing on core competencies.					
4.17	Your corporation provides work-life balance support to its employees.					
4.18	Your corporation provides its employees with the tools and motivation to innovate and express values at work.					
4.19	Your corporation develops flexible workplace practices.					
4.20	Your corporation ensures that its employees' contributions are not valued based solely on employment status, and so supports participative decision making.					
4.21	Your corporation provides educational grants to employees.					
4.22	Your corporation implements environmental awareness programmes to educate its employees on how to be more environmental friendly in their daily practices.					

5.0 Natural Capital

Rate the following statements:		5	4	3	2	1
5.1	The corporation's culture fosters an individual sense of environmental responsibility in its employees.					
5.2	The corporation enlists Non-Governmental Corporations (NGOs) to monitor its environmental initiatives.					
5.3	The corporation establishes an environmental management system that links to its corporate-wide systems.					
5.4	The corporation assesses and reports environmental impacts that exceed compliance requirements.					
5.5	The corporation assesses the environmental implications of its new process, products, and other activities in advance.					
5.6	The corporation ensures that contractors working on its behalf apply acceptable environmental sustainability standards.					
5.7	The corporation practises resource savings in the office.					
5.8	The corporation minimises adverse environmental impacts that result from corporate activities.					

END of interview

Table A1 Ranked sustainability maturity index and corresponding data

ID no.	Company ID code	Employees	Operating income AU\$m	Rank	Net margin %	Rank	Return on assets %	Rank	Return on equity %	Rank	Total corporate Rank	Total economic Rank	Total societal Rank	Total human Rank	Total natural Rank	Maturity index	Rank					
2	FS-bnk	24,600	2,443	3	23.80	3	0.52	10	11.66	7	159	1	90	3	57	2	103	2	36	2	342	1
10	DEV-FS-bnk	2,600	524	4	20.00	4	2.40	6	14.45	4	159	1	92	1	56	3	104	1	35	3	342	1
1	FS-bnk	41,849	7,955	2	23.30	4	0.67	9	12.87	5	156	3	77	4	55	4	98	4	38	1	326	3
11	DEV-FS-bs	1,600	32	10	21.67	6	1.51	8	2.76	11	150	4	91	2	58	1	103	2	27	4	326	3
3	FS-bnk	264,000	29,706	1	22.60	5	0.52	10	7.35	8	113	6	72	6	41	5	73	6	26	5	252	5
3	FS-ins	1,600	173	8	20.50	7	6.44	4	15.45	3	120	5	73	5	37	6	80	5	22	6	252	5
5	FS-inVman	1,200	443	5	32.21	1	9.58	1	18.92	1	94	7	57	7	28	7	69	7	20	7	199	7
4	FS-ins	963	220	7	11.70	10	8.97	3	12.79	6	74	8	54	8	23	8	54	9	14	8	165	8
6	FS-divF	503	350	6	7.86	11	2.11	7	4.99	9	72	9	54	8	21	9	68	8	13	9	160	9
9	FS-AssManP	54	16	11	26.00	2	9.45	2	15.75	2	46	11	32	10	17	10	46	11	11	10	106	10
8	FS-ins	47	38	9	20.06	8	3.95	5	3.97	10	48	10	32	10	15	11	49	10	8	11	103	11

Table All Ranked net margin % and corresponding data

ID no.	Company ID code	Employees	Rank	Operating income AU\$m	Rank	Net margin %	Rank	EBT%	Rank	Return on assets %	Rank	Return on equity %	Rank	Total corporate Rank	Total economic Rank	Total societal Rank	Total human Rank	Total natural Rank	Maturity index
5	FS-nVman	1,200	7	443	5	32.21	1	35.03	3	9.58	1	18.92	7	94	57	28	69	20	199
9	FS-AssManP	54	10	16	11	26.00	2	23.00	9	9.45	2	15.75	2	46	32	17	46	11	106
2	FS-bnk	24,600	3	2,443	3	23.80	3	35.41	2	0.52	10	11.66	7	159	90	57	103	2	342
1	FS-bnk	41,849	2	7,955	2	23.30	4	33.37	5	0.67	9	12.87	4	156	77	4	98	4	326
3	FS-bnk	264,000	1	29,706	1	22.60	5	25.04	8	0.52	10	7.35	6	113	72	41	73	6	252
11	DEV-FS-bs	1,600	5	32	10	21.67	6	20.48	10	1.51	8	2.76	11	150	91	58	103	2	326
3	FS-ins	1,600	5	173	8	20.50	7	34.63	4	6.44	4	15.45	3	120	73	37	80	5	252
8	FS-ins	47	11	38	9	20.06	8	29.73	6	3.95	5	3.97	10	48	32	10	49	10	103
10	DEV-FS-bnk	2,600	4	524	4	20.00	9	26.78	7	2.40	6	14.45	4	159	92	56	104	1	342
4	FS-ins	963	8	220	7	11.70	10	17.28	11	8.97	3	12.79	6	74	54	23	54	9	165
6	FS-dvF	503	9	350	6	7.86	11	43.04	1	2.11	7	4.99	9	72	54	8	68	13	160

Table AIII Ranked return on assets % and corresponding data

ID no.	Company ID code	Employees	Operating income AU\$m		Net margin		Return on assets		Return on equity		Total corporate		Total economic		Total societal		Total human		Total natural		Maturity index	
			Rank	income AU\$m	Rank	%	Rank	EBT%	Rank	%	Rank	%	Rank	corporate	Rank	economic	Rank	societal	Rank	human	Rank	natural
5	FS-nVman	1,200	7	443	5	32.21	1	35.03	3	18.92	1	94	7	57	7	28	7	69	7	20	7	199
9	FS-AssManP	54	10	16	11	26.00	2	23.00	9	15.75	2	46	11	32	10	17	10	46	11	11	10	106
4	FS-ins	963	8	220	7	11.70	10	17.28	11	12.79	3	74	8	54	8	23	8	54	9	14	8	165
3	FS-ins	1,600	5	173	8	20.50	7	34.63	4	15.45	3	120	5	73	5	37	6	80	5	22	6	252
8	FS-ins	47	11	38	9	20.06	8	29.73	6	3.97	10	48	10	32	10	15	11	49	10	8	11	103
10	DEV-FS-bnk	2,600	4	524	4	20.00	9	26.78	7	14.45	4	159	1	92	1	56	3	104	1	35	3	342
6	FS-divF	503	9	350	6	7.86	11	43.04	1	4.99	7	72	9	54	8	21	9	68	8	13	9	160
11	DEV-FS-bs	1,600	5	32	10	21.67	6	20.48	10	2.76	11	150	4	91	2	58	1	103	2	27	4	326
1	FS-bnk	41,849	2	7,955	2	23.30	4	33.37	5	12.87	9	156	3	77	4	55	4	98	4	38	1	326
2	FS-bnk	24,600	3	2,443	3	23.80	3	35.41	2	11.66	7	159	1	90	3	57	2	103	2	36	2	342
3	FS-bnk	264,000	1	29,706	1	22.60	5	25.04	8	7.35	8	113	6	72	6	41	5	73	6	26	5	252

Table A1V Ranked Return on equity % and corresponding data

ID no.	Company ID code	Employees	Operating income AU\$m		Net margin		Return on assets		Return on equity		Total corporate		Total economic		Total societal		Total human		Total natural		Maturity Index	Rank			
			Rank	income AU\$m	Rank	%	Rank	%	Rank	%	Rank	%	Rank	economic	Rank	societal	Rank	human	Rank	natural					
5	FS-inVmen	1,200	7	443	5	32.21	1	35.03	3	9.58	1	18.92	1	94	7	57	7	28	7	69	7	20	7	199	7
9	FS-AssManP	54	10	16	11	26.00	2	23.00	9	9.45	2	15.75	2	46	11	32	10	17	10	46	11	11	10	106	10
3	FS-ins	1,600	5	173	8	20.50	7	34.63	4	6.44	4	15.45	3	120	5	73	5	37	6	80	5	22	6	252	5
10	DEV-FS-bnk	2,600	4	524	4	20.00	9	26.78	7	2.40	6	14.45	4	159	1	92	1	56	3	104	1	35	3	342	1
1	FS-bnk	41,849	2	7,955	2	23.30	4	33.37	5	0.67	9	12.87	5	156	3	77	4	55	4	98	4	38	1	326	3
4	FS-ins	963	8	220	7	11.70	10	17.28	11	8.97	3	12.79	6	74	8	54	8	23	8	54	9	14	8	165	8
2	FS-bnk	24,600	3	2,443	3	23.80	3	35.41	2	0.52	10	11.66	7	159	1	90	3	57	2	103	2	36	2	342	1
3	FS-bnk	264,000	1	29,706	1	22.60	5	25.04	8	0.52	10	7.35	8	113	6	72	6	41	5	73	6	26	5	252	5
6	FS-divf	503	9	350	6	7.86	11	43.041	2-11	7	4.99	9	72	9	54	8	21	9	68	8	13	9	160	9	
8	FS-ins	47	11	38	9	20.06	8	29.73	6	3.95	5	3.97	10	48	10	32	10	15	11	49	10	8	11	103	11
11	DEV-FS-bs	1,600	5	32	10	21.67	6	20.48	10	1.51	8	2.76	11	150	4	91	2	58	1	103	2	27	4	326	3