

An organizational sustainability performance measurement framework

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Abstract— This paper addresses the sustainability performance measurement framework as a strategic management approach to integrate social, environmental and economic issues into organizational practice. Resulting on empirical research, the paper presents four broader dimensions that build up the framework: stakeholders, strategies, processes and capabilities. This paper, therefore, proposes an approach to manage and measure the implementation of sustainability strategies of an organization. Opportunities for further research are highlighted in the paper as well.

Keywords: - *organizational sustainability; sustainability performance measurement framework, stakeholder, quality*

1 Introduction

Over the last decade, there has been an increased pressure on organizations to broaden the focus of sustainability and accountability in business performance beyond that of financial performance [1]. Based on the WCED definition [2], as well as on influences from the strategy and management literature, a variety of subsequent definitions emerged of sustainability in relation to organizations, also referred to as corporate sustainability. These definitions vary on the degree to which they classify corporate sustainability [3] as either mainly ecological concern [4] or as social responsibility of an organization [5].

The concept of corporate sustainability increasingly impacts the nature of organizations' operations [6]. Green management in organizations has to go beyond regulatory compliance and needs to include conceptual tools such as pollution prevention, product stewardship and corporate social responsibility [7].

Hence, the sustainability of a company is judged according to its economic, environmental, and social performance [8]. Moving towards sustainable development, therefore, is now a major concern in most of the developed countries, resulting in stricter regulations concerning the impact of the products during their manufacturing, use and end of life, including the obligation to define reverse logistics strategies and systems [9, 10, 11].

Sustainability is a critical part of most major corporations today. Furthermore, environmental and social demands from shareholders and stakeholders are contributing to the pressure for organizations to consider

sustainability issues more seriously [1]. Companies have long used standard financial indicators to determine their business success. Only recently have a growing number of firms begun to use environmental, health and safety, and social indicators [12].

The objective of a sustainable measure is to assess corporate contribution to sustainability comprising all three dimensions, environmental, social, and economic [13]. In order to measure the progress toward sustainability, several indicators have increasingly been used. Indicators are typically numerical measures that provide key information about a physical, social or economic system [14]. They go beyond simple data to show trends or cause-and-effect relationships. Indicators have three key objectives [14]: (1) to raise awareness and understanding; (2) to inform decision-making; and (3) to measure progress toward established goals.

A sustainability performance management and measurement system could be defined as: "the measurement and management of the interaction between business, society and the environment" [15]. As stated by Henri and Journeault [16], organizations are increasingly being held responsible for environmental actions, as reflected by the growing number of laws, regulations, and penalties in this area. Consequently, organizations are now obliged to measure, control, and disclose their environmental performance.

On the other hand, the business case for sustainable development is strongest when companies incorporate a sustainable development performance into mainstream business strategy [17]. As stated by Schaltegger and Wagner [15]: "Management of sustainability

performance in all of its perspectives and facets requires a sound management framework which, on the one hand, links environmental and social management with the business and competitive strategy and management and, on the other hand, integrates environmental and social information with economic business information”.

Corporate SPMSs have been the subject of extensive research. For example, case studies on the development of SPMSs in individual corporations have been presented by several authors, including [18, 19, 20, 21].

A growing number of scholars and managers agree on the relevance of identifying and fulfilling stakeholders’ needs, expectations and desires [22, 23]. For this purpose, the performance prism model was developed, aimed to integrate stakeholder perspective [24]. In fact, the organization must be able to identify stakeholders and their needs, because the starting point for deciding what to measure is established with the following question: “*Who are our key stakeholders and what do they want and need?*” [25]. This is somewhat consistent with the system approach to integration of management systems, indicating that process of integration starts from the identification of relevant stakeholders [26].

Moreover, well-known performance management system developed by Kaplan & Norton [27] also recognize the need to broaden the model to include stakeholders’ interests and needs: “All stakeholder interests, when they are vital for the success of the

business unit’s strategy, can be incorporated in a Balanced Scorecard”.

The purpose of this work is to examine the sustainability practices, in particular within the context of performance measurement framework, as a way to integrate sustainability principles into business practices.

2 Methodology

2.1 Data collection

This paper draws upon the results and findings of the preliminary research [28] carried out with aim to examine the key determinants of sustainability practices, named as sustainable quality management determinants, within the context of organizational performance. A random sample of 1000 Slovenian organizations was included in the survey. Among the received responses, 77 were used as input data for the further statistical analysis.

2.2 Research instrument development

In the first step, an extensive literature review was conducted to identify relevant constructs. On the basis of previous studies, a pool of items was generated. In total, 50 items corresponding to the five dimensions of SQM were developed. For the purpose of this study, 25 items (named as SQM practices) were taken for further analysis.

Table 1. Construct items and factor loadings

SQM practices	Factor 1	Factor 2	Factor 3	Factor 4
We strive to improve energy efficiency	,763			
During the product development we consider the principles of sustainable development and product life cycle	,743			
Top management accepts responsibility for environmental protection	,724			
We incorporate different environmental protection practices (waste separation and recycling, reducing energy consumption / water, introducing the principles of sustainable development, etc.)	,704			
We strive to improve efficiency of material consumption	,650			
We have developed a strategy for environmental protection	,629			
We follow-up on environmental legislation and other requirements	,603			
Top management is committed to promoting a concept of sustainable development		,786		
We are aware of customer requirements and expectations		,738		
Top management is committed to promoting a culture that encourages innovation and risk-taking		,729		

Top management is committed to an open, participatory process of continuous improvement, focused on the long-term economic performance of the organization		,709		
We encourage and develop the ability to create and <i>acquire</i> the internal source of knowledge		,691		
Top management accepts responsibility for quality		,611		
Security and employees' well-being is a priority of our organization			,848	
Our employees are encouraged to continuously develop their talents and capacities			,824	
Employees are loyal to our organization (low turnover and absenteeism rate)			,771	
Workers are valued and their work is organized to conserve and enhance their efficiency and creativity			,700	
We have developed a strategy for corporate social responsibility				,741
Our organization is involved in the local community				,651
% of Variance	53,108	7,848	5,972	4,421

Factor analysis (Table 1) was applied with the aim of data reduction and therefore simplification of a large number of intercorrelated measures of sustainability to a few representative constructs or factors. A cut-off of 0.6 was made on the rotated factor loadings in order to get reliable factors (meet a criterion for statistical significance) regarding the interpretation and further analysis. To summarize the main findings, factor analysis implicated four primary factors accounting for most of the variance: Green development and environmental aspects, Top management commitment, Employee support, CSR and local community engagement.

Therefore, the input for framework development encompasses findings from preliminary empirical research as well as findings from literature review. The overall body of literature was used to identify some of the specific aspects of sustainability implementation and sustainability performance measurement.

3 An organizational sustainability performance measurement framework

This section presents a conceptual framework as a guide for addressing stakeholders wants and needs in the view point of sustainability (framework is presented in Table 2).

3.1 Phase 1 (stakeholder identification)

First perspective on sustainability performance is the stakeholder satisfaction perspective. Understanding how individuals or groups are or can be affected by an organization's decisions and activities will make it possible to identify the interests that establish the

relationship with the organization (ISO 26000). What organizations have to ascertain here is who the most influential stakeholders are and what do they want and need?

3.2 Phase 2 (strategies)

After stakeholders have been addressed it is possible to progress to the second perspective on sustainability performance – strategies. The key question underlying this perspective is what strategies should the organization adopt to ensure that the wants and needs of its stakeholders are satisfied? Apart from stakeholders' wants and needs, an organization vision provides the basis for making strategic decisions as well.

3.3 Phase 3 (processes)

The third step addresses the question of which processes one has to put in place in order to allow our strategies to be delivered? An organization that has aligned its processes perfectly with strategy has the potential to provide significant benefits to overall organizational performance.

3.4 Phase 4 (capabilities)

The following step is associated with the capabilities that are required to operate these processes. By developing capabilities, organization can ensure that employee skills and efforts are directed toward achieving organizational goals and strategies.

Table 2. Sustainability performance measurement framework

<i>Perspective</i>	<i>Theme</i>	<i>Sub-theme</i>
Top management commitment CSR and local community engagement	Stakeholders	Identification of key stakeholders Wants and needs of key stakeholders
Top management commitment CSR and local community engagement	Strategies	Strategic decision-making process (scanning the environment, plan for sustainability change) Developing strategies to support sustainable business management and innovation Establish a foundation for sustainability centred culture Determine sustainability initiatives
Green development and environmental aspects	Processes	Clean Technology Green supply chain management Pollution Prevention Product Stewardship Environmental compliance Sustainability practices
Employee support	Capabilities	Capabilities for integrating business, environmental and social problems Capability to develop employees' talents and capacities Capabilities to develop alternative business models, to enable systemic innovation

4 Discussion

This paper contributes to efforts to address measuring and managing the drivers of corporate sustainability by presenting a conceptual framework for structuring the corporate sustainability performance indicators.

It is evident that factors identified with preliminary research, could be linked to the following three dimensions, as follows: strategies, processes and capabilities. This structure is also consistent with the Performance Prism created by Nelly and Adams [24]. The performance prism was presented with a prevalent focus on both stakeholder satisfaction and contribution,

as the core of the search for success in an organization [25]. Furthermore, Frederico and Cavenaghi [29] suggest that evaluating organizational relationships with its main stakeholders and their links to strategies, processes and competencies can be a way to leverage and improve corporate performance.

Stakeholder identification has shown to be particular relevant in the phase 1 of the proposed framework. Not only is such approach necessary for the application of any sustainability performance model, it is also consistent with modern stakeholder theory [30]. Moreover, it has been emphasized that the green new product and service development process appears to extensively involve external stakeholders [31, 32].

As far as strategies are concerned, it is essential that strategic planning is in first place linked to stakeholders [25] as well as to organization's vision [33]. As Dudok van Heel et al. [17] note, the business case for sustainable development is strongest when companies incorporate a sustainable development performance into mainstream business strategy. Bonn and Fisher [33] argue that for organizations to become more sustainable, managers must address the different dimensions of sustainability at the strategic level, both during the strategic decision-making process and as part of the strategy content at the corporate, business and functional levels. Developing an organization that regards sustainability as a cornerstone for doing business requires a strategic approach that integrates economic, environmental and social considerations in all aspects of business on an on-going basis [33].

Green development and environmental aspects appears to fit with the "processes" dimension (phase 3). Green management in organizations has to go beyond regulatory compliance and needs to include conceptual tools such as pollution prevention, product stewardship and corporate social responsibility [33]. Indeed, Banerjee [35] highlighted that environmental initiatives lead to benefits for organization which in most cases meant reduction in waste, cost savings, and improvements in product and process quality. Therefore, the efforts to improve business operations that are aligned with sustainability concepts are part of the larger continuous pursuit of corporate sustainability. This can be substantiated by the work of Rao and Holt [36], who indicate that greening the inbound function, as well as greening production, significantly lead to greening outbound, as well as to competitiveness and economic performance of the firm.

Employee support is the next category that is aligned with the phase 4 ("capabilities"), which capture the common underlying dimension of sub-theme related to

capabilities that foster the competence by business to operate in ways that are more sustainable as well as more innovative [37]. According to the resource-based view of the firm, resources (i.e. inputs for the production of goods and provision of services) and organizational capabilities (i.e. intangible assets that are based on skills, learning, and knowledge in deploying resources) can be sources of competitive advantage [38].

5 Conclusions

This paper discusses an organizational sustainability framework as a strategic tool for the implementation of sustainability issues into an organization.

The literature review conducted revealed that only limited attention has been given to the development of performance sustainability measurement systems that simultaneously integrate social, environmental and economic perspectives. For this reason, the framework which involves an integration of stakeholders' wants and needs in order to shape organization's strategy, was suggested. Hence, the framework presented in this paper explicitly suggests that corporate sustainability performance measurement system should reflect stakeholders' perspectives within three broad dimensions: strategies, processes and capabilities.

Future research could be focused on the development of sustainability indicators with a particular emphasis on the specific sub-themes of the proposed framework. Future research could also investigate the application of the suggested framework, particularly in the essence of designing and implementing such framework in the case study organization. As such, future work needs to increase the understanding of how sustainability performance framework could be used as a potential inclusive tool that strives to improve overall organizational performance.

References

- [1] K.H. Lee and R.F. Saen, "Measuring corporate sustainability management: A data envelopment analysis approach", *International Journal of Production Economics*, 2011.
- [2] World Commission on Environment and Development (WCED), "Our Common Future", Oxford University Press, Oxford, 1987.
- [3] M.K. Linnenluecke and A. Griffiths, "Corporate sustainability and organizational culture", *Journal of World Business* 45, 357–366, 2010.
- [4] A.B. Carroll, "Corporate social responsibility: Evolution of a definitional construct", *Business and Society Review*, 38(3): 268–295, 1999.
- [5] P. Shrivastava, "The role of corporations in achieving ecological sustainability", *Academy of Management Review*, 20(4): 936–960, 1995.
- [6] K.H. Lee, "Why and how to adopt green management into business organizations? The case study of Korean SMEs in manufacturing industry", *Management Decision*, vol.47, no.7, pp.1101-1121, 2009.
- [7] S. Hart, "Innovation, creative destruction and sustainability", *Research Technology Management*, September-October, pp. 21-7, 2005.
- [8] F. Figge and T. Hahn, "Sustainable Value Added—measuring corporate contributions to sustainability beyond eco-efficiency", *Ecological Economics* 48, 173–187, 2004.
- [9] Q. Gou, L. Liang, Z. Huang and C. Xu, "A joint inventory model for an open-loop reverse supply chain", *International Journal of Production Economics*, vol. 116, pp. 28–42, 2008.
- [10] I.H. Hong, J.C. Ammons and M.J. Realf, "Decentralized decision-making and protocol design for recycled material flows", *International Journal of Production Economics*, vol. 116, pp. 325–337, 2008.
- [11] S. Kumar and V. Putnam, "Cradle to cradle: reverse logistics strategies and opportunities across three industry sectors", *International Journal of Production Economics*, vol. 115, pp. 305–315, 2008.
- [12] V. Veleva and M. Ellenbecker, "A proposal for measuring business sustainability: addressing shortcomings in existing frameworks", *Greener Management International*, vol. 31, pp. 101–119, 2000.
- [13] G. Lawrence, "Indicators for sustainable development", In: Dodds, F. (Ed.), *The Way Forward: Beyond Agenda 21*. Earthscan, London, pp.179–189, 1997.
- [14] V. Veleva, M. Hart, T. Greiner and C. Crumbley, "Indicators of sustainable production", *Journal of Cleaner Production*, vol. 9, pp. 447–452, 2001.
- [15] S. Schaltegger and M. Wagner, "Managing sustainability performance measurement and reporting in an integrated manner", *Sustainability accounting as the link between the sustainability balanced scorecard and sustainability reporting*. In S. Schaltegger, & M. Bennett, & R. Burritt (Ed.), *Sustainability accounting and reporting*, Dordrecht: Springer, 681–697, 2006.
- [16] J.F. Henri and M. Journeault, "Environmental performance indicators: an empirical study of Canadian manufacturing firms", *Journal of Environmental Management*, vol. 87, pp. 165–76, 2008.
- [17] O. Dudok van Heel J. Elkington and S. Fennel, "Buried treasure: uncovering the business case for corporate sustainability", *SustainAbility*, London, 2001.
- [18] J. Keeble, S. Topiol and S. Berkeley, "Using indicators to measure sustainability performance at a corporate and project level", *Journal of Business Ethics*, vol. 44, pp. 149–158, 2003.
- [19] U. Palme and A.M. Tillman, "Sustainable development indicators: How are they used in Swedish water utilities?", *Journal of Cleaner Production*, vol. 16, pp. 1346–1357, 2008.
- [20] C. Searcy, D. McCartney and S. Karapetrovic, "Sustainable development indicators for the transmission system of an electric utility", *Corporate Social Responsibility and Environmental Management*, vol. 14, no. 3, pp. 135–151, 2007.
- [21] C. Searcy, S. Karapetrovic and D. McCartney, "Application of a systems approach to sustainable development performance measurement", *International Journal of Productivity and Performance Management*, vol. 57, no. 2, pp. 182–197, 2008.
- [22] M.B.E. Clarkson, "A stakeholder framework for analyzing and evaluating corporate social performance", *Academy of Management Review*, 20(1), 92–117, 1995.
- [23] S. Ayuso, M.Á. Rodríguez, R. García-Castro and M. Ángel Ariño, "Does stakeholder engagement promote sustainable innovation orientation?", *Industrial Management & Data Systems*, 111(9), 1399–1417, 2011.
- [24] A. Neely and C. Adams, "Perspectives on Performance: the performance prism", In: *Handbook of Performance Measurement*. London: Bouine, 2000.
- [25] A. Neely, C. Adams and P. Crowe, "The performance prism in practice", *Measuring Business Excellence*, vol. 5, no. 2, pp. 6–11, 2001.
- [26] M. Asif, E.J. de Bruijn, and O.A.M. Fisscher, "Meta-management of integration of management systems", *The TQM Journal*, 22(6), pp. 570–582, 2010.
- [27] R. S. Kaplan and D. P. Norton, "The strategy-focused organization: how balanced scorecard companies thrive in the new business environment", Boston: Harvard Business School Press, 2001.
- [28] M. Maletič, D. Maletič and B. Gomišček, "Can Sustainable Quality Management contribute to the organizational performance? African Journal of Business Management", vol. 5, no. 9, pp. 3723–3734, 2011.
- [29] G.F. Frederico, and V. Cavenaghi, "The Measurement of Organizational Performance with a Focus on Stakeholders: A Performance Prism Approach" In Mark D. Hanna (ed.). *POMS 20th Annual Conference*. Orlando, Florida U.S.A. May 1 to 4, 2009.

- [30] K.J. Foley, "Meta-management: a stakeholder/quality management approach to whole-of-enterprise management", Sydney: SAI Global, 2005.
- [31] P.H. Driessen and B. Hillebrand, "Integrating Multiple Stakeholder Issues in New Product Development: An Exploration", *Journal of Product Innovation Management*, 2010. Retrieved Januar 20, 2012, from <http://www.ru.nl/fim/driessen>.
- [32] M.J. Polonsky and J.A. Ottman, "I Stakeholders' Contribution to the Green New Product Development Process", *Journal of Marketing Management*, 14 (6), 1998.
- [33] I. Bonn, and J. Fisher, "Sustainability: the missing ingredient in strategy. *Journal of business Strategy*", vol. 32, no. 1, pp.5-14, 2011.
- [34] S.L. Hart, "Innovation, creative destruction and sustainability", *Research-Technology Management*, vol. 48, no. 5, pp. 21-7, 2005.
- [35] S.B. Banerjee, "Managerial perceptions of corporate environmentalism: interpretations from industry and strategic implications for organizations", *Journal of Management Studies*, 38(4), pp. 489-513, 2001.
- [36] P. Rao and D. Holt, "Do green supply chains lead to competitiveness and economic performance? ", *Int. J. Oper. Prod. Man.* 25(9): 898-916, 2006.
- [37] J.A.G. Van Kleef and N.J. Roome, "Developing capabilities and competence for sustainable business management as innovation: a research agenda", *Journal of Cleaner Production*, vol. 15, pp. 38-51, 2007.
- [38] R. Wilden, S. Gudergan and I. Lings, "Dynamic Capabilities and Organisational Performance", Accessed April 26 2011 from <http://epress.lib.uts.edu.au/research/bitstream/handle/10453/3131/2006010085.pdf?sequence=1>, 2007.