Promotion and evolution of sustainability performance measurement systems from a perspective of business process management

From a literature review to a pentagonal proposal

Silvia Inês Dallavalle Pádua
Business Administration Department, College of Economics, Business and Accounting at Ribeirão Preto FEA-RP, University of São Paulo, Ribeirão Preto, Brazil, and
Charbel José Chiappetta Jabbour
UNESP – Univ Estadual Paulista (Sao Paulo State University), Bauru, Brazil

Abstract

Purpose – The purpose of this paper is to create a conceptual proposal that considers the relevant aspects to guide the promotion and evolution of corporate sustainability performance measurement systems (SPMSs) from a perspective of business process management.

Design/methodology/approach – This study is divided into two phases. The first phase is a literature review with the study question was, “Which aspects need to be considered for promoting and evolving SPMS with a focus on business processes?” The second phase involved comparing these approaches and presenting a conceptual proposal with the relevant aspects for promoting and evolving a corporate SPMS.

Findings – In the literature review, the following aspects were considered relevant to promoting sustainability: strategy, integration, stakeholders, evolution over time and business processes. The conceptual proposal found each aspect relevant and complementary presented consideration for each, forming one SPMS pentagon.

Research limitations/implications – The comparison between the approaches is conceptual.

Practical implications – This study can help organizations address the evolution of their measurement systems systemically.

Originality/value – The summaries of the main considerations and evaluation issues provide starting points for organizations, researchers and students involved in sustainability-related matters. The discussion presented here can help organizations identify the strengths and weaknesses of their measurement systems and provide a basis for the promotion and implementation of improvements.

Keywords Sustainability, Business process management, Corporate strategy, Measurement of performance, Pentagonal framework, Promotion of sustainability

Paper type Conceptual paper

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1. Introduction

The concept of corporate sustainability has taken on importance in recent years (Hahn and Figge, 2011; Linnenluecke and Griffiths, 2010). The term sustainability has been used in reference to an organization’s skill at maintaining and concomitantly demonstrating positive economic, social and environmental performance over the long term (Jamali, 2006). This approach is also named “Triple Bottom Line” (TBL) concept, as proposed by Elkington (2004). There is a gap between the concept and practice of sustainability because many organizations work with the three dimensions of TBL, but they do not explore their interconnections (Venkatraman and Nayak, 2010).

In this context, putting corporate sustainability into effect is challenging. As stated by Jamali (2006), the challenge lies in managing the trade-offs of the three dimensions of TBL, that is, the management of potentially conflicting relationships among the three dimensions of TBL. Presumably, this challenge can be won by sustainability management through business processes (Sarkis et al., 2006). Thus, studies tying processes to sustainability issues have been developed by many authors, including Asif et al. (2008), Chee Tahir and Darton (2010), Hall and Wagner (2012), Hoesch-Klohe and Ghose (2010) and Johanna et al. (2010). Asif et al. (2008) suggest that the tools and techniques used to integrate sustainability into business processes normally have an environmental focus and fail in the integration of all aspects of sustainability.

With an environmental focus, Wagner (2007) raises the need to study tools for integrating the processes for improving sustainability performance. Along this line, Hall and Wagner (2012) show that companies that construct their business model with management by processes or a cross-functional approach for solving problems have a better performance in the economic dimension and more positive association with the environmental dimension, which could be true for the manufacturing sector as well as other sectors of the economy.

Kujansivu and Lonnqvist (2008) underscore that management by processes aims to improve business process fluidity and eliminate activities that do not add value. The work by Munstermann et al. (2010) complements this concept, affirming the significant impact of process standardization on general performance, considering execution time, cost and process quality. González et al. (2010) agree with this assumption and demonstrate that an organization’s processes must be improved to improve performance.

To know which processes are more sustainable or which processes need improvement to achieve sustainability-related goals, capacity is necessary for measuring sustainability in a qualitative and/or quantitative manner. This encompasses a broad range of themes (Fiksel et al., 1999). Searcy (2011) states that to monitor corporate sustainability, it is necessary to have a sustainability performance measurement system (SPMS) that measures progress toward identified goals and has a long-term focus while addressing those issues associated with the TBL.

Corporate SPMS has been the object of many studies. For example, a case study on the development of SPMS at individual organizations was presented by various authors, including Krajnc and Glavic (2005). Within the sector scope, some sets of sustainability indicators have been suggested for several industries, including production (Krajnc and Glavic, 2005; Veleva and Ellenbecker, 2001) and the institute of higher education (Fonseca et al., 2011), among others.

For Searcy (2011), the main focus of research has been on the choice of proper performance indicators. However, many other issues need to be addressed, including data, data requirements, attributions of responsibility, communication and the pragmatic use of these indicators. Most of all, the SPMS should be addressed as
a systemic business process to be integrated in an effective manner into the company’s strategic planning and day-to-day operations.

According to Kujansivu and Lönnqvist (2008) and Neubauer (2009), business process management (BPM) enables organizations to adapt quickly and, according to Rohloff (2011), it is an important practice for organizational transformation and change. Kohlbacher (2010) adds that the most reported effects in analyzed studies from organizations that adopt BPM as a process management model are as follows: reduction in product or service lead time to the client, improvement in customer satisfaction, improvement in product quality, cost cuts and improvement in the organization’s financial performance.

In this work, we assume that the BPM approach is becoming increasingly scientific and is contributing to the development of managerial knowledge around the world. BPM is receiving attention from scientific journals and conferences and is a research subject in many universities (Houy et al., 2010).

Bititci et al. (2005) state that any performance measurement system should be balanced and integrated, inform the strategy, implement the strategy, focus on business processes that add value, be specific for business units, include competences and contribute toward stakeholders. Joseph (2012) notes that, in relation to promoting sustainability in organizations, an important gap exists between stakeholder interests and the organization’s goals from a profit perspective. This research gap is critical because the lack of such care generates ambiguity and opposing interests.

Many studies have been published with various significant contributions concerning the design of an SPMS, but according to Searcy (2011), special care must be taken in how the SPMS evolves over time. This research gap is critical because corporate sustainability imposes itself as a dynamic challenge by virtue of the continuous changes in priorities.

Thus, although many authors have published many important contributions in relation to SPMS (e.g. Fiksel et al., 1999; Searcy, 2011; Van Aken et al., 2005), publications were not found that focussed on the promotion and evolution of a corporate SPMS with a focus on the continuous management of business processes; thus, another research gap needs to be addressed.

If the actual promotion of sustainability, including a fitting system for measuring performance for the organization, should evolve in response to the changes that take place inside and outside the corporation, the question this study seeks to answer is: Which aspects need to be considered for promoting and evolving SPMS with a focus on business processes?

The objective of this study is to create a conceptual proposal that considers the relevant aspects to guide the promotion and evolution of corporate SPMSs from a perspective of BPM.

The word evolution is used in this study in the sense of updating and monitoring the SPMS and considering necessary changes. The word promotion refers to facilitating, driving and creating favorable conditions for sustainability and management by processes.

2. Sustainability and BPM
Sarkis et al. (2006) affirm that it is possible to evaluate business processes from an environmental sustainability perspective, which consists of evaluating costs and analyzing multi-criteria to evaluate improvement alternatives in business processes. Nowak et al. (2011) present a taxonomy of parameters for measuring the sustainability of business processes according to the following aspects: first, organizational structure
and customer needs (social dimension); second, reduced gas emissions in processes, software, hardware and infrastructure (environmental dimension); and third, organization competitiveness (economic dimension). They also underscore that the restructuring of business processes, with a focus on sustainability, can guarantee the conception of business processes based on ecological indicators, integration of processes and infrastructure, evaluating the trade-off between ecological indicators and performance indicators, and finally, valorization of human factors and optimization of energy consumption.

Hoesch-Klohe and Ghose (2010) state that it is possible to improve sustainable performance of processes through restructuring when functional objectives are achieved and environmental impacts are reduced. For that to happen, in the same study, the authors also recommend detailing the specifications for processes and their effects, correlating business process objectives to the ability to seek alternative processes through modeling.

This study will consider the strategic objectives rather than the functional objectives, following Burlton’s (2010) line, which states that the strategy becomes more tangible when products and services are analyzed, as well as the exchanges with stakeholders and what one intends to exchange in the future with each external stakeholder. For Joseph (2012), an inherent tension exists between the organization’s profit goals and the perspective of interested parties, resulting in ambiguities when promoting sustainability because such norms consider the stakeholders’ objectives as ends in themselves. With that perspective, the challenge resides in considering the need for equality in the economic and social environments. Thus, Burlton (2010) states the importance of consolidating strategic criteria as follows: first, find inconsistencies and conflicts among stakeholder visions; second, gain agreement through criteria for evaluating alternatives, prioritizing the allocation of resources and removing personal bias in search of a project for solutions; and third, balancing the strategic direction with stakeholder criteria.

Therefore, any performance measurement system should be fully balanced and should inform the strategy. It should implement the strategy with a focus on business processes that add value; it should be specific to the business units and should include competences and stakeholder contributions (Bititci et al., 2005). Burlton (2010) identifies important steps for identifying performance measurements as follows: first, identify those performance indicators to be used in each process; second, associate the indicators in process architecture with the strategic objectives and satisfaction measures for all stakeholders, while prioritizing change processes; third, determine the traceability of measures throughout the value chain; and fourth, identify which measures appear in the processes caused by other processes executed previously.

Therefore, the processes need to be managed using a management by processes approach, which does not merely analyze, design, develop and execute business processes, but should also consider the interaction between these processes, control them, analyze them and optimize them, as affirmed by Kohlbacher (2010). Furthermore, Trkman (2010) states that the BPM could help in the execution of a strategic program, permitting improved correspondence between organizational strategy and the company’s business processes. Consequently, it is important to validate the strategic direction, determine the relationship between stakeholders, develop the architecture for the processes, align process governance, prioritize processes for change considering all stakeholders, align the capacities with people, technology, installations and finally, establish a transformation portfolio (Burlton, 2010).
Although many organizations are involved in process improvement initiatives, only a small number of them follow a holistic vision and focus on the level of organizational processes (Neubauer, 2009). This occurs because changing the company’s functional management approach to a management by process approach implies defining responsibilities for process progress (Palmberg, 2010), minimizing transfers and thus reducing errors and waiting time, maximizing the grouping of activities and reducing efforts (Antonucci and Goek, 2011; Paim et al., 2008). In the functional approach, processes are managed in isolation, and the organization has silo characteristics with low capacity for coordination and low market orientation (Paim et al., 2008).

3. Method
This study is divided into two phases. The first phase of the study consisted of a literature review. The study question was “Which aspects need to be considered for promoting and evolving SPMS with a focus on business processes?” Based on that question, a generic search string was elaborated, which was later adapted to the two databases used in the study (ISI/Web of Science; Scopus). The generic string used for the literature review was as follows: <Sustainability Performance Measurement Systems> OR <Sustainability Performance> AND <“process orientation” OR “business process” OR “management by process”>. English was used for the search.

Two criteria of inclusion (CI) were used to select the studies:
- CI 1 – present a measurement approach or system for corporate sustainability based on TBL; and
- CI 2 – consider the organization’s business processes for creating the measurement system.

After conducting the search in the ISI/Web of Science and Scopus databases, the studies underwent two research filters: filter 1 (F1) consisted of reading the title, abstract and key words; filter 2 (F2) encompassed the complete reading of the paper and the references. The studies selected met two CI established previously, and the data extracted were summarized to identify the relevant aspects for creating a corporate SPMS.

The second phase involved comparing these approaches and presenting a conceptual proposal with the relevant aspects for promoting and evolving a corporate SPMS. The proposal presented in this research was developed based on the following: first, literature review about sustainability and BPM: Burlton (2010), Sarkis et al. (2006), Hoesch-Klohe and Ghose (2010), Joseph (2012); second, the current proposals for SPMS showed in the literature review: Fiksel et al. (1999), Searcy (2011), Chee Tahir and Darton (2010); third, the recommendations to identify performance indicators aligned to process management in firms (Burlton, 2010); and fourth, key aspects highlighted in Phase 1 and presented in Section 4.2. The proposal presented in this research is designed based on a table divided into various aspects identified as relevant. For each of these aspects, a set of considerations is presented. These considerations can be found in the literature review on sustainable performance measurement, suggested approaches toward SPMP elaborations, and also in the literature review on alignment between business strategy and BPM.

4. Measurement of sustainability performance
Organizations try to improve their performance in relation to sustainability, collecting measurable and traceable data with the purpose of, according to Olsthoorn et al. (2001), generating and disseminating relevant and accurate information for decision making.
To this end, the indicators should permit an analysis of the cause and effect relationship tendencies and thus go a step beyond primary data (Farrell and Hart, 1998).

For Veleva and Ellenbecker (2001), choosing indicators is not a trivial activity, and therefore, it should be carried out through an ample process and with stakeholder participation for defining the dimensions, unit of measurement, type of measurement (rate or absolute) and period of measurement. Generating sustainability indicators through organizational processes is quite difficult (Fonseca et al., 2011), and thus, it is important to know what information is necessary and how it can be used, in practice, to guide indicator selection (Farrell and Hart, 1998).

According to the level of analysis intended in the measurement process, the types of indicators can be divided into dimension, aspect and sub-aspect and indicator. Dimension can be defined as a broad area of economic, environmental and social areas of stakeholder interest. Aspect and sub-aspect are located under dimension and correspond to more specific categories of evaluation. Indicator is a specific measure of a given aspect to be used to demonstrate its level of performance (GRI, 2006). In the next section, approaches will be presented for constructing a SPMS or process.

4.1 Approaches for constructing SPMSs

Fiksel et al. (1999) detail a method that divides the performance measurement process into three phases: planning, implementation and review (Table I). The planning phase aims at providing direction to tasks involved in performance measurement, contributing toward successful evaluation, presentation and improvement of sustainability. The implementation phase requires planning. The review phase consists of reviewing and improving the performance measurement process.

Searcy (2011) developed a framework to structure the evolution of an SPMS (Table II), which provides practical and useful advice and can be easily understood by specialists and non-specialists alike, on how to update the SPMS. The table is divided into three phases: planning for evaluation, conducting the evaluation and monitoring evaluation results.

Following a different approach than Searcy (2011), Chee Tahir and Darton (2010) describe a method to evaluate the degree of sustainability in terms of indicators related to the impacts of sustainability on their private activities. The method considers the impact on capital that resides in three domains: environmental, economic and human and social capital, and it is divided into five steps shown in Table III.

This section introduced three different approaches for identifying performance indicators. The next section will present the discussion through a comparison of these approaches.

4.2 Discussion and comparison of approaches

In the literature review, the following aspects were considered relevant in promoting sustainability: strategy (Bititci et al., 2005; Fiksel et al., 1999), integration (Bititci et al., 2005; Joseph, 2012); stakeholders (Joseph, 2012; Veleva and Ellenbecker, 2001) evolution over time (Searcy, 2011) and business processes (Sarkis et al., 2006; Fiksel et al., 1999; Farrell and Hart, 1998; Chee Tahir and Darton, 2010).

The approaches by Fiksel et al. (1999), Searcy (2011), Chee Tahir and Darton (2010) have complementary characteristics in aspects of strategy, integration, stakeholders, evolution over time, processes that add value and competences. Table IV shows a comparative analysis of the approaches by Fiksel et al. (1999); Searcy (2011) and
Chee Tahir and Darton (2010) regarding strategy, integration, stakeholders, evolution and business process with the following three levels of intensity: absent, moderate and present. Among the challenges in the performance measurement process, Searcy (2011) underscores the need to ensure that it is continuous. Joseph (2012) points to the need to align the organization’s strategy to stakeholder interests, and Bititci et al. (2005) reiterate the need to focus on processes that add value. The difficulty in including sustainability indicators without first thinking of how the process can improve to eliminate rework and mainly fit necessary changes thus becomes clear.

Considering the strategy aspect, also highlighted by Bititci et al. (2005) and Joseph (2012), Fiksel et al. (1999) approach begins with the need to establish a policy for sustainability. If one does not exist, the organization should articulate a policy, establishing objectives for improvement without any mention of strategy. Searcy’s (2011) approach suggests reviewing internal digitalization policies, plans, programs and procedures, and reviewing priorities for corporate sustainability. Chee Tahir and Darton (2010) consider strategy lightly when they suggest an in-depth review of business

<table>
<thead>
<tr>
<th>Phase</th>
<th>Steps</th>
<th>Key representative considerations</th>
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<tbody>
<tr>
<td>Planning</td>
<td>Step 1: develop a sustainability policy</td>
<td>If there is no planning, the organization should articulate a sustainability policy. This declaration generally provides the basis for a strategic transformation of the business from a linear model of development to a more holistic and cyclical model</td>
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<td>Step 2: identify the main aspects</td>
<td>In the second step, the following question should be answered: What are the performance’s most important aspects?</td>
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<td>Step 3: set objectives</td>
<td>For a subset of aspects identified in Step 2, the company should set objectives for improvement. It is advisable to select a small number of key aspects that provide the basis for sustainability objectives</td>
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<td>Step 4: select indicators</td>
<td>The most challenging step is selecting sustainability indicators that correspond to the declared objectives</td>
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<td>Step 5: define goals</td>
<td>To complete the planning phase, managers should set specific performance goals that represent milestones for improving sustainability over the short and long term</td>
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<td>Implementation</td>
<td>Step 6: obtain support</td>
<td>Following the development and demonstration of the measurement board, line manager support should be obtained for successful implementation</td>
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<td>Step 7: integration with business processes</td>
<td>The tools and procedures associated with sustainability measurement must be integrated to existing systems and processes</td>
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<td></td>
<td>Step 8: performance monitoring and report</td>
<td>Monitor progress according to specified goals and report the results to top management and interested external parties</td>
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<td>Step 9: improve performance</td>
<td>Based on performance measurement results, organization teams focus on changes that will improve performance</td>
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<td>Review</td>
<td>Step 10: ask for feedback</td>
<td>Ask for organizational feedback on the measurement process; often, reveal inconveniences or gaps in the existing process</td>
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<td>Step 11: review the planning steps</td>
<td>The organization should periodically review and improve selected aspects, indicators, metrics and goals</td>
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**Source:** Adapted from the text by Fiksel et al. (1999)
<table>
<thead>
<tr>
<th>Phase</th>
<th>Sub-steps</th>
<th>Key representative considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planning</td>
<td>Environmental</td>
<td>Review internal digitalization policies, plans, programs and procedures; review priorities for corporate sustainability. Identify changes in the corporate structure that could affect objectives. Review goals and objectives tied to the SPMS. Evaluate data collection capacities and reports. Identify important regulatory changes for SPMS review. Review important voluntary initiatives for SPMS. Study the changes made by the main competitors. Identify the main interested parties, internal and external. Prioritize stakeholder requirements for the SPMS.</td>
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<td></td>
<td>conduct</td>
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<td></td>
<td>Develop objective</td>
<td>Explain the purpose of the SPMS evaluation. Define the limits for SPMS evaluations. Identify the main focal points in the SPMS evaluation. Identify the life cycle stages included in the evaluation. Decide whether the evaluation will include external benchmarking. Determine the capacities required by the evaluation team. Develop a project draft for evaluating SPMS.</td>
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<td>and scope</td>
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<td></td>
<td>Develop an action</td>
<td>Determine the extension of the participation of interested parties in the evaluation. Identify the specific interested parties that should be consulted. Develop a preliminary timetable for the participation of the SPMS evaluation of the main stakeholders, internal and external. Establish the SPMS evaluation team. Offer training for the evaluation team; if necessary, explain the roles and responsibilities of the evaluation team. Identify the resources needed to complete the SPMS evaluation.</td>
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<tr>
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<td>plan</td>
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<td>Evaluation</td>
<td>Prepare for the</td>
<td>Review the previous evaluation results for the SPMS. Conduct a complete review of the existing SPMS. Gather the data needed to support the evaluation. Develop goals in accordance with the stakeholders. Determine methods for engaging stakeholders. Develop clear material in a concise manner for consultation. Schedule consultations with stakeholders. Provide consultation material for stakeholders.</td>
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<td>evaluation</td>
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<td></td>
<td>Evaluate the SPMS</td>
<td>Conduct SPMS evaluations at specified levels (that is, individual measures, measures of the SPMS as a whole, and/or the relationship of SPMS to the operational environment). Consult interested parties for the complete evaluation. Collect data needed to conclude the evaluation. Develop a summary of the main results, including SPMS strengths and weaknesses.</td>
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<td>at specified levels</td>
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<td></td>
<td>Evaluate the SPMS</td>
<td>Conduct evaluations of the SPMS at specified stages (that is, conception, implementation and/or use) Consult interested parties for the complete evaluation. Collect data needed to conclude the evaluation. Develop a summary of the main results, including SPMS strengths and weaknesses.</td>
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<td></td>
<td>Follow-up</td>
<td>Consider recommendations that address all levels and phases of the life cycle that were included in the SPMS evaluation. Evaluate the feasibility for implementing each recommendation. Prioritize the recommendations. Develop a clear reason for all recommendations. Develop communication plans for primary and secondary stakeholders. Inform the communications for all interested parties.</td>
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<td></td>
<td>Develop recommendations</td>
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Table II.
Key considerations in the SPMS update

(continued)
operations and stakeholder interests, and they also define sustainability and derive business perspectives.

Considering the aspect of integration, Step 7 in the work by Fiksel et al. (1999) seeks to integrate the sustainability measurement system with existing systems and processes. Searcy (2011) recommends conducting SPMS evaluations at specified levels (that is, individual measures and/or of the SPMS as a whole, and/or the relationship of SPMS for the operational environment). Chee Tahir and Darton (2010) focus on guaranteeing the indicators and metrics developed are applicable to the business operation and reviewed using field evaluations and consultation with specialists and interested parties.

Regarding stakeholders, the study by Fiksel et al. (1999) does not explicitly consider them. The evaluation phase of Searcy’s (2011) study includes several exchanges with stakeholders invited to evaluate the measurement system, develop recommendations, develop action plans and implement recommendations. Chee Tahir and Darton’s (2010) approach considers that within the context of a commercial operation’s sustainability
evaluation, the owners and those responsible for capital can be defined as business stakeholders identified in Phase I.

The three approaches focus on the evolution aspect. Step V in the approach by Chee Tahir and Darton (2010) focuses on verifying and modifying, which is repeated until a refined set of indicators and metrics is obtained, as those are necessary and sufficient to monitor the business’ performance in sustainability. Fiksel et al.’s (1999) approach takes the same care. Searcy’s (2011) study delves deeper into this aspect by presenting a set of questions to support the life cycle of the performance measurement system.

In the business process aspect, the approach elaborated by Chee Tahir and Darton (2010) considers the understanding of the process twice: in Steps I and IV. Interestingly,
this approach asserts that to guarantee the indicators developed are applicable to business operations, to the indicators must be verified and reviewed through field evaluations and consultations with specialists and interested parties. The term “business process” is absent from Searcy’s (2011) approach. Fiksel et al. (1999) consider Step 7 to integrate tools and procedures associated with sustainability measurement to existing systems and processes. There is no analysis and diagnosis of processes and projects for alternative processes before including indicators in any of the three approaches. According to Hoesch-Klohe and Ghose (2010), it is necessary to detail the specifications for processes and their effects, correlating business process objectives to the ability to seek alternative processes through modeling. They also do not consider the evaluation of a trade-off between ecological indicators and performance indicators, as revealed by Nowak et al. (2011).

Significantly, it is very difficult to alter a functional management approach to a management approach focussed on processes. According to Paim et al. (2008), in the functional approach, the processes are managed separately; the organization has characteristics of silos with low coordination capacity, and there is low market orientation. In this point, the three approaches do not focus on developing process architecture to begin a systemic view of business processes avoiding the functional vision.

5. Conceptual proposal

The five aspects identified in the theoretical foundation and in the discussion should be explored to create a performance measurement system aligning sustainability and business processes. For the strategy aspect, the following points should be valued: associate indicators to strategic objectives and uncover inconsistencies and conflicts between stakeholder visions; gain agreement through criteria for evaluating alternatives, prioritizing the allocation of resources and removing personal bias in search of a solutions project; balance the strategic direction with stakeholder criteria and analyze the products and services through exchanges with stakeholders, which should occur in the future with each external stakeholder.

The following points should be considered for the integration aspect: identification of measures that appear in the processes caused by other processes carried out before; integration between processes and infrastructure; evaluation of a trade-off between ecological indicators and performance indicators; consideration of human factors and the optimization of energy consumption.

For the stakeholder aspect, it is necessary to associate the indicators in process architecture with stakeholder satisfaction measurements and to invite stakeholders to evaluate the measurement system.

For the evolution aspect, it is important to review and modify the SPMS and consider the changes needed in day-to-day management of the process.

Finally, for the business aspect, it is important to accomplish the following tasks: identify the performance indicators to be used in each process; associate the indicators in process architecture; determine the traceability of measurements in the entire supply chain; be specific for business units, including competences and stakeholder contribution; detail the specifications for processes and their effects, correlating business process objectives to the ability to seek alternative processes through modeling and focus on business processes that add value.

The conceptual proposal values the five aspects: strategy, integration, stakeholders, evolution and business processes as presented in Figure 1. The pentagon of SPMS shows that the five aspects discussed are relevant and have complementarities, such as
6. Conclusion

In recent years, corporate performance measurement systems that consider sustainability have been the focus of many studies. However, few studies address corporate SPMSs considering business processes. This is a significant gap because any corporate SPMS should evolve continuously in face of the quick change that occurs in organizations.

This study raised the approaches for creating a measurement system that focusses on business processes. This study identified sustainability measurement system approaches, their ties to the broadly recognized theory and their explicit emphasis on structuring updates using different levels and phases of the life cycle for a measurement system with a focus on processes aligned with the stakeholders’ strategy and interests. In a second phase, the following aspects were identified, analyzed and compared: strategy, integration, stakeholder, evolution over time and business process approaches. Based on this analysis, a conceptual proposal for promoting and evolving SPMS with a focus on the business process was developed and presented.

The benefits of having a measurement system will diminish over time if it does not reflect the changes in the organization processes. If an update and a focus on business processes are lacking, decision makers and the main stakeholders will have difficulties in determining whether the company is achieving continuous progress toward its corporate sustainability goals. Drawing on a management by processes perspective and the research conducted by Chee Tahir and Darton (2010), Fiksel et al. (1999) and Searcy (2011), to guide the promotion and evolution of a corporate SPMS, it is possible to conclude the following for each of the aspects:

1. Strategy: there is no formal phase for validating strategic direction and determining the relationship between stakeholders and the strategy.

2. Business process: there is no recommendation for developing process architecture to begin a systemic view of business processes avoiding the functional vision.

Figure 1.
Pentagon of SPMS promotion and evolution with a focus on business processes

Source: The authors
**Strategy**
- Associate indicators to strategic objectives and uncover inconsistencies and conflicts between stakeholder visions.
- Gain agreement through criteria for evaluating alternatives and prioritize the allocation of resources and remove personal bias in search of a solutions project.
- Balance the strategic direction with stakeholder criteria.
- Analyze the products and services, exchanges with stakeholders, which are intended to be exchanged in the future with each external stakeholder.

**Integration**
- Identify which measures appear in the processes caused by other processes carried out before (Burton, 2010).
- Integration between processes and infrastructure.
- Evaluation of a trade-off between ecological indicators and performance indicators.
- Consider human factors and the optimization of energy consumption.

**Stakeholders**
- Associate the indicators in process architecture with stakeholder satisfaction measurements.
- Invite stakeholders to evaluate the measurement system.

**Evolution**
- Review and modify the SPMS.
- Consider the changes needed in day-to-day management of the process.

**Business Process**
- Identify the performance indicators to be used in each process.
- Associate the indicators in process architecture.
- Determine the traceability of measurements in the entire supply chain.
- Be specific for business units, include competences and stakeholder contribution.
- Detail the specifications for processes and their effects, correlating business process objectives to the ability to seek alternative processes through modelling.
- Focus on business processes that add value.

**Source:** The authors
There is also no recommendation for aligning process governance; for prioritizing processes for change considering all stakeholders; for aligning capacities such as people, technology, installations and finally, for establishing a transformation portfolio.

(3) Integration: an evaluation of a trade-off between environmental indicators and performance indicators is not considered. There is a lack of recommendations for the following: first, identifying those performance indicators to be used in each process; second, associating the indicators in process architecture with the strategic objectives and stakeholders; third, determining the traceability of measures throughout the value chain; and fourth, identifying measures that appear in the processes caused by other processes executed previously.

(4) Evolution: all approaches consider the evolution of the measurement system, but without day-to-day process management, it is difficult to enable the evolution of the entire measurement system complex.

(5) Stakeholders: all approaches consider the stakeholders, and there is also a lack of recommendations on the discovery and treatment of inconsistencies and conflicts between stakeholder visions and on equilibrium between strategic direction and stakeholder criteria.

Importantly, a presented proposal should not be static, but rather should adapt to different types of organizations. The proposal can be used as a basis for new research on how to raise stakeholder needs; how to relate the strategic objectives; how much time is necessary to promote a measurement system or how to describe business processes from the client’s perspective. Another suggestion is to conduct action research on promoting sustainability and the possible barriers. For future research, the discussion developed in this paper will provide a useful starting point to help center attention on key areas of all phases for promoting sustainability, considering management of the business processes.

This study can help organizations address the evolution of their measurement systems in a systemic manner. The summaries of the main considerations and evaluation issues provide starting points for organizations, researchers and students involved in sustainability-related matters. The discussion presented here can help organizations identify the strengths and weaknesses of their measurement systems and provide a basis for promoting and implementing improvements.

References


Further reading


About the authors

Dr Silvia Inês Dallavalle Pádua is an Associate Professor at the University of Sao Paulo (USP), Business School at Ribeirao Preto. She has a PhD on Mechanical Engineering. She has interests on business process management. Dr Silvia Inês Dallavalle Pádua is the corresponding author and can be contacted at: dallavalle@fearp.usp.br

Dr Charbel José Chiappetta Jabbour is an Associate Professor of General Management at the UNESP – Sao Paulo State University at Bauru. He has a PhD on Production Engineering. He has several articles published in Journal of Cleaner Production, International Journal of Production Economics and others.

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