Benchmarking Sustainability Management Systems in Global Business Organizations

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1 Abstract

A model has been developed to allow quantitative benchmarking of sustainability management systems. The model uses a six-part definition of sustainability that covers organizational governance; quality of service or product; social impacts; organizational reputation management; environmental impacts; and economic impacts.

The model itself has seven elements that are arranged sequentially (but with interrelated feedback mechanisms) to assess and promote the organization's ability to deliver continuous improvement in sustainability performance. The elements are: sustainability aspects and impacts; best practice; policy and planning; management system scope and interfaces; organizational standards; value chain management; and system assurance and performance measurement. Each of these seven elements is (in turn) applied to all of the six aspects of organizational sustainability (as above).

Within each element there are sets of defined requirements, or attributes for the management system, and these are measured (benchmarked) using a matrix that tests both the complexity and quality of the system in its various aspects, and the extent of implementation. This allows for quantified, comparative assessment of a management system. Although the model has been developed for application in global business organizations, it also has applications in organizations with a smaller scale or scope.

Initial validation has been performed via independent peer-group application of the model in one global business organization with a well understood management system. Feedback from this process has been used to refine the model, and the scoring system. The paper describes the model and the development of the detailed benchmarking process now associated with it. Feedback from the initial peer-group testing is presented and discussed, together with details of the continuing evolution of the model and the associated benchmarking process.

2 Introduction

Recent work by Bearns (Bearns et. al., 2009) suggests that a significant number of executives in large, or multinational and global business believe that sustainability (management) is important to their organizations. The same survey indicated that sustainability processes should be applied throughout the business value chain, but that most of the responding organizations had not yet developed a clear business case, or a framework, for sustainability management.

Sustainability as a management issue is different to environmental management, and local businesses have usually a very different agenda and approach to its management to global businesses. Hence, it is reasonable to question the use of an environmental management system designed to support for local or national businesses when it comes to the management of sustainability in a global business. As a result, and notwithstanding the relative merits of existing systems, a management system assessment tool has been developed as part of a research program working on the development of sustainability management systems (SMSs) in global business organizations (GBOs). For this research work we use a definition of a GBO (Sealy et. al, 2009) that reviews global distribution of revenue, employees, R&D expenditure, headquarter office locations, and manufacturing sites and that also assesses management diversity and aspirations for global presence and performance in order to determine whether or not an organization is truly global in nature.

Our management system model started by considering Oskarsson's six-aspect SMS model (Oskarsson & von Malmborg, 2005) and addresses six groups of organizational impacts: ethics; ecology; social; (service or product) quality; economic, and perspective. Further, it requires: (partial or complete) integration with the organizations core management system; use of continual improvement (Plan-Do-Check-Act) quality management principles, and the use, when appropriate, of external codes & standards. It is also designed to be adapted to organizations in any industrial sector or of any size (as GBOs are not by definition large organizations) and to offer clear leadership in sustainability performance (Sealy et. al., 2008, 2010).

Benchmarking is defined as a process to "compare processes with others who do the same and determine best methods" (Blakeman, 2002). This SMS model facilitates that comparison process by providing a standard, or reference model for comparison of sustainability management processes between organizations, or against a know reference (the model).

Having developed the system, the research work is now directed towards assessing its effectiveness and to the development of a benchmarking process to allow users of the SMS to measure the progress of their implementation programs.

3 A Research Definition of Sustainability Management

This management system uses a definition of sustainability that is broader than the 'triple-bottom-line' approach (social, environmental, economic) that was popularized by Elkington (Elkington, 1997). Our definition of sustainability embraces the integrated quality, health, safety, & environment (QHSE) approach used in many large business organizations today, and embraces the 'triple-bottom-line' concept, and the growing importance of ethical and reputational management for businesses. This system is therefore designed to manage six sustainability aspects of an organization as follows:

1. Governance: establishing and managing organizational ethic standards, and organizational values

2. Quality: internal and external customer service quality, and (where applicable) product quality

3. Social: direct (employee) and indirect (customer, or external stakeholder) aspects of health and safety performance

4. Reputation: organizational brand (both for customers, and for other stakeholders), stakeholder relations, and management of organizational reputation

5. Environment: impacts of the organization's activities on the natural environment

6. Economic: direct and indirect economic impacts of the organization – shareholder returns, government taxes, local supply chain expenditure, economic benefits of employment

Sustainability Management is, therefore, the consistent, sustained and evolving management of these issues. It is important to note that we recognize that in some organizations these aspects are managed via a single, fully integrated system whilst

in other organizations they are managed via two (or more) separate, or partially integrated systems.

4 The Sustainability Management System (SMS) Research Model

The field of management systems to address specific issues, and the standards to be attained for the certification or verification of its compliance, is populated, and maybe characterized, by an array of acronyms. The environmental management system ISO14001:2004 (ISO, 2004) started as an offspring of the quality management ISO 9001 standard (ISO, 2008) and to date remains the single most popular standard globally, far outperforming its EU rival, the Eco-Management and Audit Scheme (EU, 2009). Both ISO standards follow the Plan-Do-Check-Review (PDCR) process closely, as does the relatively recent BS 8900 (BSI, 2006) designed to support companies in their quest to manage Sustainable Development. In fact, BS 8900 is perhaps closest in content to the SMS discussed here, although it does not cover brand issues, reputation management and customer services quality in as elevated a position as the standard presented here, and is not designed for system certification use. There are other standards that impinge on the subject area here, notably the forthcoming ISO 26000 and ISO 31000, covering the management of risk. Neither are designed (or intended) for management system certification purposes

The management system has seven components (Fig. 2) that function as a "plan-do-check-act" continual improvement process. The system is designed to manage the sustainability impacts of the organization on all of its stakeholders, throughout the business "cylinder of influence" (Sealy et. al., 2008, 2010) or business value chain. It is important to note that for each management system component, sustainability implies the complete range of six organizational impacts described above.

1. Identification & Assessment of Sustainability Aspects & Impacts

   The organization identifies all of the significant sustainability aspects of its business, and then performs a risk assessment and risk ranking of those aspects. This process should be implemented both at the corporate and the operational levels of the organization.

2. Identification & Incorporation of Best Practice:

   The organization identifies, assesses and reviews external sustainability codes, standards, etc. and which (if any) of these codes and standards should be incorporated into the SMS.

3. Sustainability Management Policy & Planning

   This establishes the organization's sustainability policy (or policies) and implementation plans. It includes the setting of sustainability plans, and objectives in order to implement those plans.

4. Sustainability Management System (SMS) Scope, Interfaces, & Boundaries

   This SMS that derives from the sustainability policy is developed and implemented. It requires that the scope and limits (boundaries) of the system are identified, and establishing the interfaces between the SMS and other business systems (finance, supply chain, personnel, etc.).

5. Organizational Sustainability Management Standards

   This component develops and implements standards for the significant sustainability aspects of the organization. These standards provide for consistent management of sustainability exposures across the organization. There is also a feedback process for this element, to check the relevance of the standards to the organization's activities.

6. Value Chain Sustainability Management Processes

   This component manages the application (and interfacing) of the organization's SMS to suppliers, customers, and other stakeholders throughout the business process (i.e. value) chain. It is designed to ensure the SMS addresses all aspects of its business process, and all (significant) stakeholders.

7. Sustainability Management System Assurance, Performance Measurement & Continual Improvement Processes

   This addresses the need for internal (and if required, external) audit, performance measurement and review, identification of improvement opportunities, and management review. This addressed the provision of assurance of performance, and continually improves its management system.

Our model differs from the few existing academic and public domain sustainability (as distinct from environmental, social, safety, or other single-domain) management and index or assessment models in important ways as explained in Table 1. We have not included single-domain environmental standards or models (e.g. ISO14001) as our definition of sustainability extends (far) beyond their scope.

Table 1: Attributes of Existing Sustainability Management & Index Models

AA 1000 (AccountAbility, 2008)	Scope is limited to stakeholder engagement & management of stakeholder interests throughout the organization's business value chain
ADVANCE Project / Sustainable Value	Assesses organizational sustainability performance in monetary terms, combining (monetary values for) environmental, economic, and social impacts
BS 8900:2006 Guidance for managing sustainable development (BSI, 2006)	Proposes four management principles and offers guidance on measuring maturity of implementation of those principles. Not a management system model
BSI Entropy (proprietary system) (Mead, 2006)	Include five sustainability aspects (limited economic component). Traditional four-component PDCR process is limited (when compared with this seven-component model)

Dow Jones Sustainability Index (Knoepfel, 2001)	Assesses impacts, performance and activities– not management system – in three areas: economic, environmental, social (equally weighted)
IIT Flygt Sustainability Index (Pohl, 2006)	Performs sustainability impact assessment of subject organization, scores positive and negative impacts, weights & aggregates those impacts. Not a system model.
SA 8000 (Social Accountability International)	Scope is limited to employment conditions & practices in the organization & in its supply chain
SIGMA Guidelines (Project SIGMA, 2001-2006)	Five sustainability aspects: environment, society, people, assets, economic. Uses a PDCR-based SMS development process with sixteen components

5 Management System Benchmarking Process

The assessment checklist tool that is used for benchmarking is shown in Table 2 (note that for IPR reasons, this table presents an abbreviated version of the tool). There are seven sections – one for each management system component. Each section contains a (variable) number of requirements and there are 72 requirements in total. These requirements have been developed from the system components in order to facilitate the use of the model.

Each requirement has two metrics, as illustrated in Fig 1, below. The first measurement is used to assess the stage of development of the required process. This is based on stage models, suggesting that more complex, more advanced and more sophisticated management systems indicate a greater engagement with the issues concerned. The second metric is used to assess the extent of implementation of the required process.

Each of the two metrics is benchmarked on a scale from 1 - 3 where Level 1 is the lowest, and Level 3 is the highest. Reference statements are provided in each of the rows to allow the user to select the level of achievement that is applicable (in the opinion of the user) to the organization that is being benchmarked.

It is possible that a well developed process may have only limited implementation, and vice-versa. It is also possible that the organization being assessed will have very limited implementation of some of the components of this management system but have very mature systems in place for other requirements. The benchmarking process has therefore been designed to accommodate these variables.

Figure 1: Example of Benchmarking Scales

	System Attribute		Level 1	Level 2	Level 3
1a1	Formal process for identification of organization's stakeholders exits	**Stage of development**	Informal development of this aspect & its associated impacts	Partially developed formal process	Fully developed and documented, credible, & known. Results integrated in system.
		Extent of implementation	Implemented in less than 50% of organization	Implemented in over 50% of organization	Fully implemented throughout organization

The benchmarking process requires that the user(s) assess both of the above metric for each of the 72 requirements. They cover stakeholder evaluation, sustainability aspects assessment, best practice identification, innovation, policy and planning, the SMS itself, links between the SMS and other aspects, the management process of change, minimum requirements, supply chain management and assurance of the validity and evolution of the SMS itself. The (numeric) results of this process can then be used to provide a benchmark of system development, system implementation, or overall system status.

6 Testing, Validation & Development of the Model

This SMS model has been tested via a process of application, both directly (by one of the authors – the reference case) and using independent peer group assessors, to a known management system in a GBO. The data is shown in Charts 1 and 2 below. Feedback from this process included:

- The importance of the two dimensional assessment process that measures both development, and implementation, which all peer-group reviewers considered to be important. However feedback also indicates that there may be a need to differentiate between the geographical extent and the organizational extent of the implementation of a requirement. Furthermore some of the SMS requirements are defined in such a way that they are applicable to all of the sustainability aspects (while others are aspect-specific) and this too results in difficulty in measurement of implementation.

- The possibility of adding a metric to assess the degree of integration of the SMS: this would vary between points where all sustainability aspects are managed by a single, fully integrated SMS to a point where each aspect is managed by a discrete system, and there is no integration of business systems in the organization. Some respondents indicated that they had difficulty in deciding how to assess a requirement when the system is not fully integrated.

- The applicability or relevance of each requirement to the organization being benchmarked. Should there be a test of relevance for each requirement, and should the final benchmark result be normalized if some requirements are not assessed.

Once testing and calibration of the model against a single SMS has been completed (more peer reviews are scheduled), it will be validated by testing it against SMSs in a selection of other GBOs in order to confirm that it widely applicable.

Chart 1: Peer Group Assessment Data – SMS Development

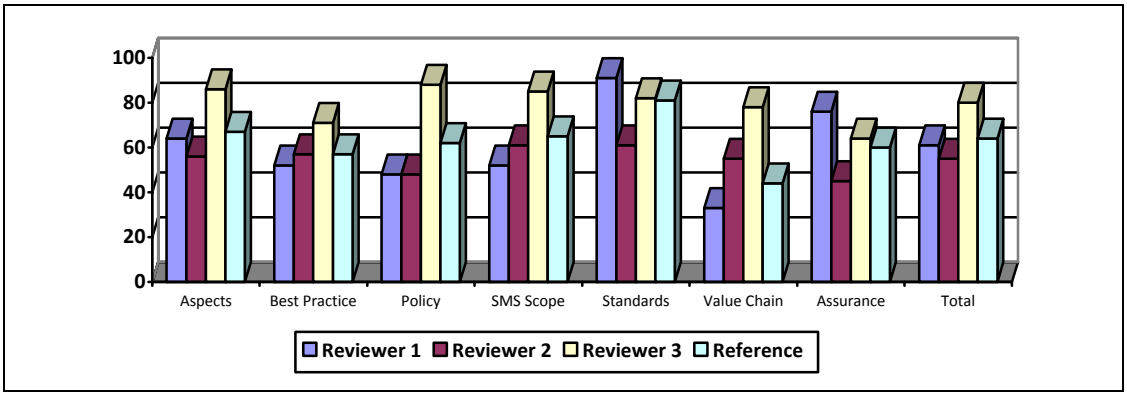
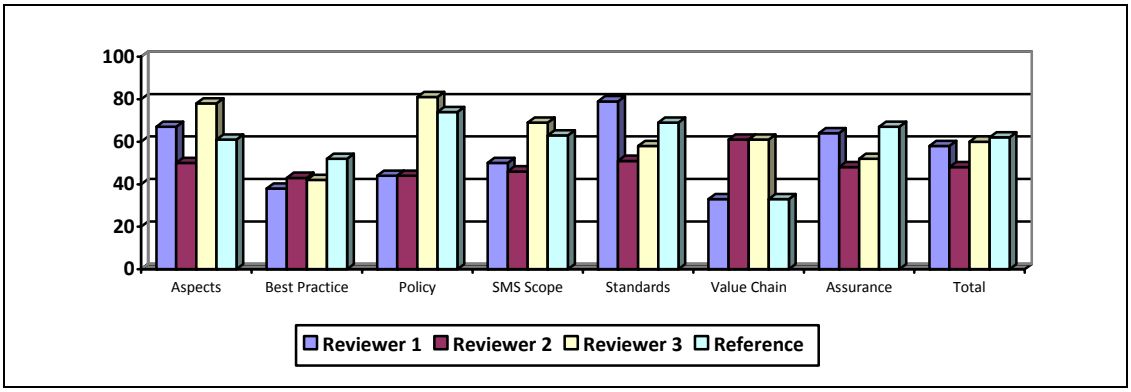


Chart 2: Peer Group Assessment Data – SMS Implementation



7 Conclusions

The notion that a management process can aid the implementation of better practices is as inherent to modern approaches towards environmental and sustainability management as it is ubiquitous. Still, the separation between content and process in management has its limits, so that systems designed to support the environmental performance can only work to some extent to improve, say, stakeholder engagement processes. This also explains the diversity of different management systems, covering environmental management, risk, health & safety, sustainable development and quality in bespoke approaches, leaving companies that wish to have standards in more than one of these areas with the vexing dilemma: to run several systems in parallel, leaving scope for integration between these systems, or to use one standard to manage one issue very well, and several others less well?

This paper does not make a recommendation on this, instead, it proposes a – empirically reviewed and to some extent validated - management system that owes its existence to two distinct differences: Process-wise, organizations with a truly global

scope do not have a national template to start from, yet a diversity of socio-cultural, regulatory and technology frameworks, emphasizing the need for an approach that is both locally suitable as well as globally applicable.

In terms of content, sustainability is a distinct intersection of social, environmental, economic, governance and risk issues, which need to be managed in an integrated whole. The SMS presented here is one way of addressing this, and it has the advantage that it has some empirical support. It is somewhat different from the mainstream ISO-approach, which is a reflection of the need to account for its globalised use, and the need to evaluate and track performance quickly and usefully.

This model is a significant advance over existing public domain and practical models. It allows organizations to develop an SMS from first principles, or to evolve their SMS from existing business management processes. It embraces the full range of stakeholder sustainability impacts throughout the business value chain (Cylinder of Influence model, Sealy et. al). It provides sufficient detail for practical implementation: a feature that is not found in other models or systems.

The SMS measurement system embedded in the model allows testing of development and implementation. The model could also be used to benchmark the maturity of development of the SMS: this concept was developed by Crosby (Crosby, 1979) in the context of quality management system development. (The three levels (Fig. 1) – Crosby's grid has five levels - could be used as a measure of management system maturity). The SMS model is now being further developed to refine the measurement process and provide improved detail and repeatability.

Figure 2: A Sustainability Management System for Application in Global Business Organizations

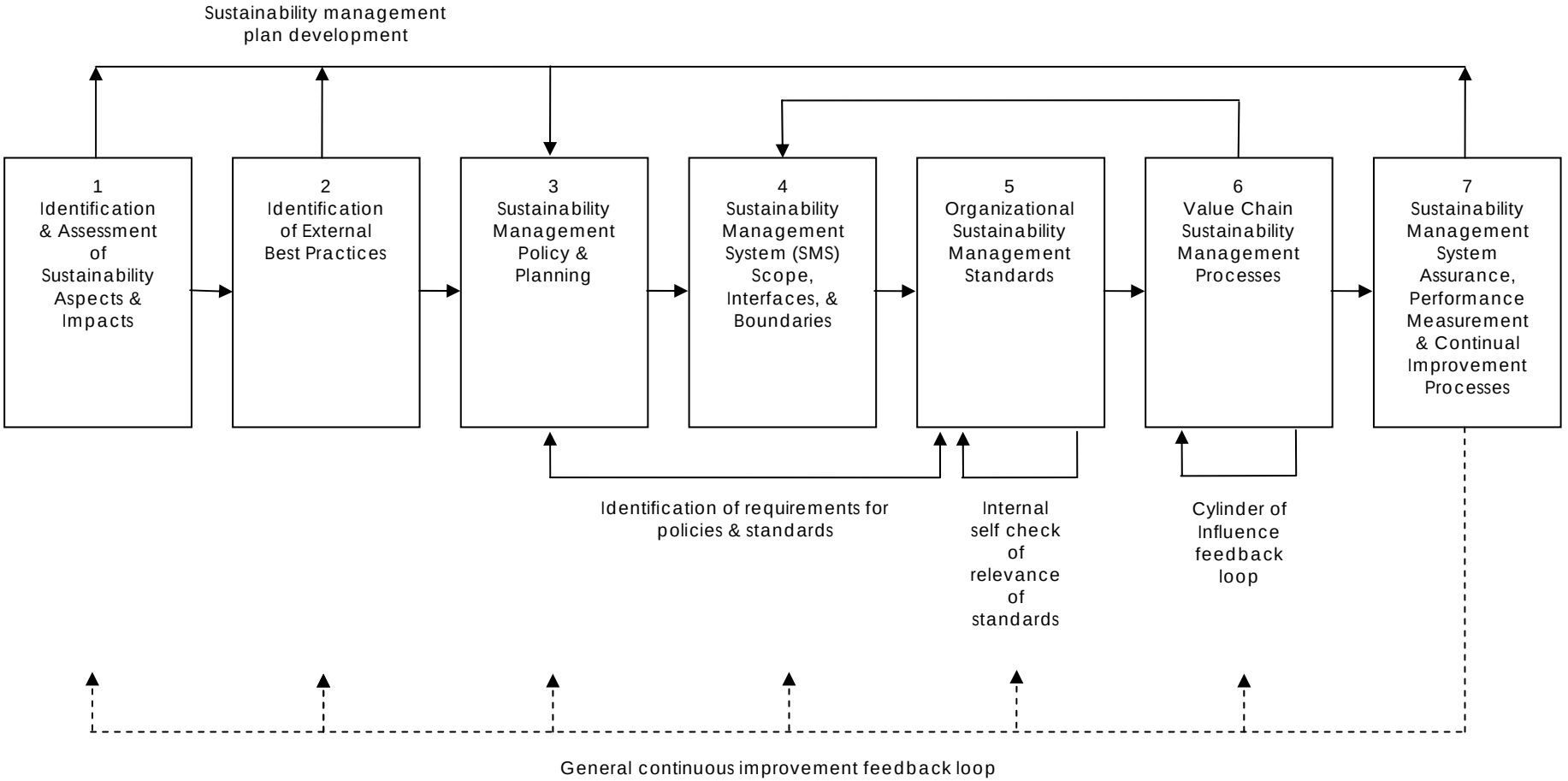


Table 2: System Assessment and Benchmarking Matrix

As noted in the text, this Table presents a version of the full SMS that has been edited for intellectual property reasons, and to minimize space

System Component 1 - Identification & Assessment of Sustainability Aspects & Impacts **Identification of significant sustainability aspects of the organization, risk assessment, and risk ranking of those aspects. An organizational sustainability risk assessment and review, implemented at the corporate, and operational levels of the organization. (12 requirements)**					
	System Attribute	**Development & Implementation**	**Level 1**	**Level 2**	**Level 3**
1a	**Identification & assessment of stakeholders (2 requirements)**	**Stage of development**	Informal development of this aspect & its associated impacts	Partially developed formal process	Fully developed and documented, credible, & known. Results integrated in system.
		Extent of implementation	Implemented in less than 50% of organization	Implemented in over 50% of organization	Fully implemented throughout organization
1b	**Formal, ranked, *identification & assessment of aspects & impacts* in each of the following sustainability areas (10 requirements)**	**Stage of development**	(As 1a)	(As 1a)	(As 1a)
		Extent of implementation	(As 1a)	(As 1a)	(As 1a)

System Component 2 - Identification & Incorporation of Best Practice **Identification, assessment and review of external sustainability codes, standards, etc. and incorporation (or not) into the SMS. A process to determine what (if any) external practices should be adopted by the organization. (7 requirements)**					
	System Attribute	**Development & Implementation**	**Level 1**	**Level 2**	**Level 3**

2a	**Identification & Communication of Internal Best Practice (1 requirement)**	**Stage of development**	Informal process used	Formal process, partially developed	Fully developed and documented, credible, & known. Results integrated in system.
		Extent of implementation	Implemented in less than 50% of organization	Implemented in over 50% of organization	Fully implemented throughout organization
2b	**Identification & Assessment of External (NGO, Government, industry) Sustainability Codes & Systems (e.g. ISO, World Bank, UN, WBCSD, etc.) (3 requirements)**	**Stage of development**	(As 2a)	(As 2a)	(As 2a)
		Extent of implementation	(As 2a)	(As 2a)	(As 2a)
2c	**Innovation & Substitution (1 requirement)**	**Stage of development**	(As 2a)	(As 2a)	(As 2a)
		Extent of implementation	(As 2a)	(As 2a)	(As 2a)
2d	**Peer Identification & Assessment (1 requirement)**	**Stage of development**	(As 2a)	(As 2a)	(As 2a)
		Extent of implementation	(As 2a)	(As 2a)	(As 2a)
2e	**Benchmarking (1 requirement)**	**Stage of development**	(As 2a)	(As 2a)	(As 2a)
		Extent of implementation	(As 2a)	(As 2a)	(As 2a)

System Component 3 - Sustainability Management Policy & Planning Establishing the organization's sustainability policy (or policies) and implementation plans, including periodic sustainability objectives, to meet the expectations of the policy. The process by which the organization determines its high-level policy, and establishes the plans to implement that policy. (9 requirements)					
	System Attribute	**Development & Implementation**	**Level 1**	**Level 2**	**Level 3**
3a	**Establish organizations sustainability policy (3 requirements)**	**Stage of development**	Limited, informal process	Assessment performed, but not thoroughly integrated into process	Detailed, formal process, used as foundation for policy development process
		Extent of implementation	Implemented in less than 50% of organization	Implemented in over 50% of organization	Fully implemented throughout organization
3b	**Sustainability Policy Development (2 requirements)**	**Stage of development**	Limited, informal process	Process exists but not consistent or integrated	Rigorous process which is clearly linked to business case & external codes
		Extent of implementation	(As 3a)	(As 3a)	(As 3a)
3c	**Management System Improvement Process (Using Data from System Components 1, 2, 5, & 7) (4 requirements)**	**Stage of development**	Limited, informal process	Plan exists but is inadequate	Plan is comprehensive, time bound
		Extent of implementation	(As 3a)	(As 3a)	(As 3a)

System Component 4 - Sustainability Management System (SMS) Scope, Interfaces, & Boundaries Development of a management system (from the sustainability policy). Setting the scope and limits (boundaries) of the system, and establishing the interfaces between the SMS and other business systems (finance, supply chain, personnel, etc.). Providing documentation for communication and development of the system. (16 attributes)					
	System Attribute	**Development & Implementation**	**Level 1**	**Level 2**	**Level 3**
4a	**Defined scope and detailed description of management system (SMS) for each of the following (sustainability)**	**Stage of development**	Scope inadequately defined for this aspect	Scope defined but not aligned with existing system	Effective & appropriate definition of scope, periodically reviewed

	aspects (6 requirements)	**Extent of implementation**	Implemented in less than 50% of organization	Implemented in over 50% of organization	Fully implemented throughout organization
4b	**Boundaries & interfaces between the SMS and other business management systems (8 requirements)**	**Stage of development**	Boundary and interface to corresponding system inadequately defined	Boundary and interface are defined, but control of interface is limited	Effective definition of SMS boundary & interface with effective interface process
		Extent of implementation	Implemented in less than 50% of organization	Implemented in over 50% of organization	Fully implemented throughout organization

4c	**Management of Change (2 requirements)**	**Stage of development**	Process to identify & assess requirements for changes to SMS is limited	Change process exists, but implementation is incomplete or ineffective	Fully developed change process exists
		Extent of implementation	Implemented in less than 50% of organization	Implemented in over 50% of organization	Fully implemented throughout organization

System Component 5 – Organizational Sustainability Management Standards
Develops and implements standards for the significant sustainability aspects of the organization. Development of tools to provide for consistent management of sustainability exposures across the organization. There is also a feedback process for this element, to check the relevance of the standards to the organization's activities. (11 attributes)

	System Attribute	**Development & Implementation**	**Level 1**	**Level 2**	**Level 3**
5a	**Identification of Requirements for Standards (using input from Module 2) (1 requirement)**	**Stage of development**	Process is missing, informal, incomplete or otherwise inadequate	Process exists but is not embedded in SMS	Process is a routine, integral part of SMS
		Extent of implementation	Implemented in less than 50% of organization	Implemented in over 50% of organization	Fully implemented throughout organization
5b	**Specific Minimum Requirements and, or Organizational Standards for the following (9 requirements)**	**Stage of development**	Requirement is missing, inadequate or incomplete	Requirement is managed, but not embedded in SMS	Requirement completely developed in SMS
		Extent of implementation	Implemented in less than 50% of organization	Implemented in over 50% of organization	Fully implemented throughout organization

5c	**Review Process to Check for Relevance (1 requirement)**	**Stage of development**	Process is missing, informal, incomplete or otherwise inadequate	Process exists but not embedded in management system	Process is a routine, integral part of management process
		Extent of implementation	Implemented in less than 50% of organization	Implemented in over 50% of organization	Fully implemented throughout organization

System Component #6 – Value Chain Sustainability Management Processes
The application of the SMS to suppliers, customers, and other stakeholders throughout the business process (i.e. value) chain. How the organization ensures the SMS addresses all aspects of its business process, and all (significant) stakeholders. (6 attributes)

	System Attribute	Development & Implementation	Level 1	Level 2	Level 3
6a	**Supplier Chain (2 requirements)**	**Stage of development**	Process is missing, informal, incomplete or otherwise inadequate	Process exists but is not embedded in SMS	Process is an integral part of SMS
		Extent of implementation	Implemented in less than 50% of organization	Implemented in over 50% of organization	Fully implemented throughout organization
6b	**Internal Business Process (1 requirement)**	**Stage of development**	Process is missing, informal, incomplete or otherwise inadequate	Process exists but is not embedded in SMS	Process is an integral part of SMS
		Extent of implementation	Implemented in less than 50% of organization	Implemented in over 50% of organization	Fully implemented throughout organization
6c	**Customer Chain (2 requirements)**	**Stage of development**	Process is missing, informal, incomplete or otherwise inadequate	Process exists but is not embedded in SMS	Process is an integral part of SMS
		Extent of implementation	Implemented in less than 50% of organization	Implemented in over 50% of organization	Fully implemented throughout organization
6d	**Management of Stakeholder Influence (1 requirement)**	**Stage of development**	Review process is missing, informal, incomplete or otherwise inadequate	Review process exists but is not embedded in SMS	Review process is an integral part of SMS

		Extent of implementation	Implemented in less than 50% of organization	Implemented in over 50% of organization	Fully implemented throughout organization

System Component #7 – Sustainability Management System Assurance, Performance Measurement & Continual Improvement Processes **Internal (and if appropriate, external) audit, performance measurement and review, identification of improvement opportunities, and management review. How the organization provides assurance of performance, and continually improves its management system. (11 attributes)**					
	System Attribute	**Development & Implementation**	**Level 1**	**Level 2**	**Level 3**
7a	**Internal audit, assessment & assurance process (1 requirement)**	**Stage of development**	Process is missing, informal, incomplete or otherwise inadequate	Process exists but is not embedded in SMS	Process is an integral part of SMS
		Extent of implementation	Implemented in less than 50% of organization	Implemented in over 50% of organization	Fully implemented throughout organization
7b	**External (i.e. regulatory) audit, assessment & assurance process (1 requirement)**	**Stage of development**	Process is missing, informal, incomplete or otherwise inadequate	Process exists but is not embedded in SMS	Process is an integral part of SMS
		Extent of implementation	Implemented in less than 50% of organization	Implemented in over 50% of organization	Fully implemented throughout organization
7c	**Process to identify, capture & implement lessons learned (1 requirement)**	**Stage of development**	Process is missing, informal, incomplete or otherwise inadequate	Process exists but is not embedded in SMS	Process is an integral part of SMS
		Extent of implementation	Implemented in less than 50% of organization	Implemented in over 50% of organization	Fully implemented throughout organization
7d	**Performance Measurement (3 requirements)**	**Stage of development**	Use of indicators is missing, informal, incomplete or otherwise inadequate	Indicators are identified , not part of performance management system	Comprehensive SMS indicators in performance management system
		Extent of implementation	Implemented in less than 50% of organization	Implemented in over 50% of organization	Fully implemented throughout organization

7e	**Management Review (3 requirements)**	**Stage of development**	Limited or no review process	Incomplete or inconsistent review process	Review process integrated into performance management system
		Extent of implementation	Implemented in less than 50% of organization	Implemented in over 50% of organization	Fully implemented throughout organization
7f	**Review and Testing of Management System (2 requirements)**	**Stage of development**	Process is missing, informal, incomplete or otherwise inadequate	Process exists, but implementation is incomplete or ineffective	Process exists & is fully integrated into business management system
		Extent of implementation	Implemented in less than 50% of organization	Implemented in over 50% of organization	Fully implemented throughout organization

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