



A COMPARATIVE EVALUATION ON PREVAILING MODELS FOR MEASURING SUSTAINABLE PERFORMANCE

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ABSTRACT

In the twenty first century the term ‘sustainability’ is recognized unanimously as an inherent and important strategy for an organization to operate and achieve long-term competitive edge. Accordingly sustainable key performance indicators (KPI) are identified by manufacturers and introduced for adoption and application in different operational activities. However, the dimensions of the sustainability models adopted by different enterprises are quite diverse as revealed through this investigation. The organizations are found to focus on varieties of strategic aspects rather than adopting identical or uniform strategies when dealing with sustainability issues. This paper aims at reviewing the various models prevailing in the contemporary research papers along with presentation of an in-depth analysis exposing the similar and dissimilar aspects. The contribution of this review is twofold: various models for sustainable performance (SP) are critically analyzed followed by a comparative evaluation with a view to proposing a general model suitable for adoption by manufacturing enterprises. The unified model as proposed in this paper comprises of three major components related to the social, financial and environmental domains.

Keywords: sustainability, performance, contemporary, model, evaluation.

INTRODUCTION

Nowadays, more and more companies are emphasizing the context of sustainability as an opportunity and a source of competitive advantage that must be developed in core business processes [1]. Sustainability is one of the important strategies for the sustainable performance [9]. According to Norazlan *et al.* (2014a) [9], performance measurement can assist an organization to monitor their progress using options that are available, understand its current situation, move towards its goals and address any key issues that are hindering the goal-achievement process. The current unpredictable economic context has made the issue of sustainability more crucial for organizations across all sectors [8]. According to Zharfpeykan (2014) [14], the concept of sustainability is generally considered to be a key topic in many countries. However, even though the term corporate sustainability has gained increased attention over the past few years, there is no universal definition for the concept [11]. The importance of the sustainability areas has been significantly growing which increases the need to measure organizations’ effects in this regard. The ultimate goal or purpose of this paper is to demonstrate the different models that researchers adopt to measure the sustainability in the manufacturing organizations. It may be mentioned here that sustainable development (SD) does not focus solely on the environmental issues; rather it encompasses the three general policy areas namely economy, environment and society [5]. Upon carrying out a critical evaluation of the contemporary models, a general multi-dimensional approach for SP is to be introduced. The paper starts with a discussion on the importance of sustainability, provides an overview of the four models on

sustainable performance and proposes a model for SP with the significant concerns or dimensions.

LITERATURE REVIEW

Successful organizations have to maintain their performance over time, not just for the short term or through good economic periods [8]. Sustainability generally refers to a firm’s economic, environmental and social initiatives in ensuring the future [10]. Isik (2009) [4] states that effective performance measurement will help employees carry out their tasks efficiently, work under control, ensure customer satisfaction, and achieve goals. An operations-based strategy, such as lean manufacturing (LM), can provide the basis for a sustainable competitive advantage and overall excellence [6]. Issues of sustainability are likely to encourage the growth of niche or “craft” producers who can take advantage of market proximity to obviate or preclude environmental impact of long supply chains. Sustainable manufacturing is a growing area [7] and consequently various models have been proposed in recent times with the address of the important dimensions.

CONTEMPORARY MODELS FOR SUSTAINABILITY

The four models proposed in recent literatures to illustrate the main pillars of organizational sustainability are briefly discussed. The pillars are the vital elements which are to enable an organization to manage the operations on the long run. As depicted in Figure-1, though the vital components or pillars of the four models appear to be dissimilar due to the use of different terminologies, but there is some commonality among them



in the context of the core concept. In some model the representation is brief with simple link while for the other

the structure is elaborate with a complex relationship.

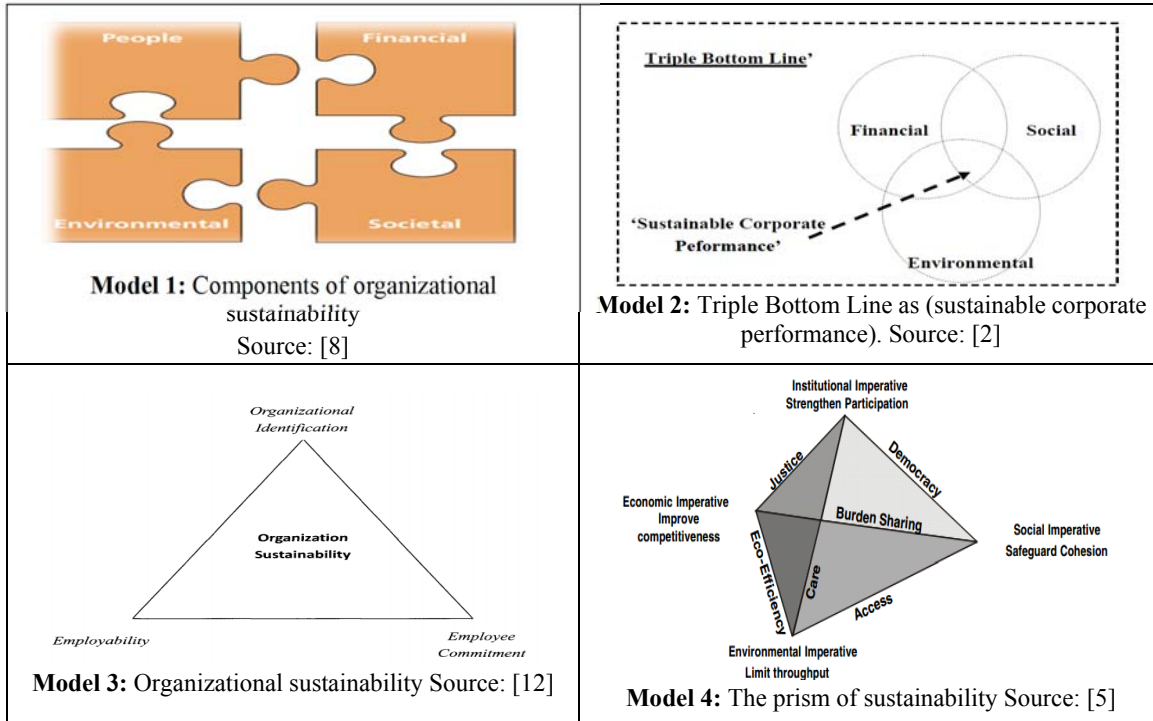


Figure-1. Schematic representation of the four models.

Model 1: considers four components of organizational sustainability in the form of a puzzle [8]. The Chartered Institute of Personnel and Development defines sustainability as the organization's people, financial, environmental and societal (PFES) contribution over time [8]. They argue that there is no universally agreed definition of sustainable organization performance.

Model 2: proposed by Fauzi *et al.* (2010) is the triple bottom line (TBL) measuring the sustainable corporate performance [2]. As illustrated by an arrow the level of sustainable corporate performance (SCP) of an organization improves as an interaction of three measurable components involving (i) financial, (ii) social and (iii) environmental functions.

Model 3: shows the organizational sustainability as a triangular interaction of organizational identification, employability and employee commitment [15]. It is argued that sustainability comprises of economic, social and environmental components and emphasizes that a company should have liability to make profit and grow the business, and demonstrate socially responsible behavior [13]. According to this model no matter what challenges organizations suffer, employees are the foundation and the trigger to drive changes [12]. Thus, the model is proposed in a practitioner point of view for organizational sustainability emphasizing the need for organizational

identification, commitment of employees, and employability of the employees.

Model 4: appears to be very complex in the form of a prism in which four components such as economic, environmental, social and institutional imperatives are to be in action through practice of democracy, justice, eco-efficiency, cooperation or burden sharing, care and access. This defines sustainable development (SD) with the help of four components namely, economy, environment, society and institution in which the inter-linkages such as care, access, democracy and eco-efficiency need to be looked at closely as they show the relationship between the dimensions which could eventually translate and influence policy and outcome of an organization. In each dimension of the prism, there are imperatives (as norms for action). Indicators are used to measure how far one has actually achieved in comparison to the overall vision of sustainable development.

COMPARATIVE EVALUATION OF THE MODELS

The models presented in this paper are theoretical in nature. To have deeper understanding of these models for SP and the status of the dimensions, it is important to conduct a critical evaluation to identify the similarities and dissimilarities of the dimensions, with an emphasis on various constructs and items. Model 1 is designed as a puzzle. Both models 1 and 2 have similarities in



identifying the components or focal parameters. However, model 2 is designed on the basis of overlapping circles to represent participation of people as indicated through corporate performance. However, model 3 presents a triangle to illustrate that the base comprising of both the employability. The commitment of the employees is considered as a major focal aspect for achieving the sustainability on the long run. In this context, employability means that the firms' employees should be the graduates with skills related to the social and environmental responsibility. In addition, organizational identification is placed on the top of the triangle since every organization needs to market its identity through

focusing on the vision, mission, its values, branding aspects, messaging and strong leadership. It is clear that model 3 is different from the models 1 and 2 in determining the main focal components. However, model 4 presents an extended view in the form of a prism consisting of the sustainability components. Model 4 is similar with models 1 and 2 while identifying the three core components namely social, financial and environmental dimensions. However, this model includes the institutional imperatives for the vital components in the sustainability concept. Table-1 shows a comparative view of the main common points and the differences among the models.

Table-1. Aspects of similarities and dissimilarities among the models.

Similarities aspects among the models	Dissimilarities aspects among the models
<ul style="list-style-type: none"> Accommodate sustainability using multi-dimensional approaches 	<ul style="list-style-type: none"> Number of components is different between models
<ul style="list-style-type: none"> Focus on integration principle between the different vital components 	<ul style="list-style-type: none"> The interaction process (mechanism) is different
<ul style="list-style-type: none"> Can be applied to different sectors either manufacturing or service firms 	<ul style="list-style-type: none"> Only model 4 focuses on new components such as justice, democracy, care and efficiency
<ul style="list-style-type: none"> Collaboration between the main components 	<ul style="list-style-type: none"> Only model 3 focuses on the main identities of the organization such as vision and mission
<ul style="list-style-type: none"> Sustainability can be achieved on the long run 	<ul style="list-style-type: none"> Model 3 is the only model that does not address the social performance.
<ul style="list-style-type: none"> All models have theoretical basis 	<ul style="list-style-type: none"> Model 3 is proposed on 2011 while Model 4 is proposed on 2007
<ul style="list-style-type: none"> Models 1 and 2 are proposed on 2010 	

A PROSPECTIVE GENERALIZED MODEL

Based on commonality of the various issues and aspects addressed in the four models, a generalized model is proposed. Prior to presenting the model, the common

components or features considered in the prevailing models are identified and presented in the matrix in Table-2.

Table-2. Comparison of the models in terms of common features.

Model	Components of sustainability						
	Environmental	Financial	Social	People	Identification	Employability	Institutional
Model 1	√	√	√	√	X	X	X
Model 2	√	√	√	X	X	X	X
Model 3	X	X	X	√	√	√	X
Model 4	√	√	√	X	X	X	√
√ = Applied, X = Not applied							

After reviewing the fundamental elements and considerations addressed in the available approaches for sustainable performance, a multi-dimensional model is suggested to achieve the organizational sustainability

along with the provision of measuring the key performance indicators. As shown in Figure-2, this model comprises of three main components which is consistent with the earlier models.



Figure-2. Proposed model for SP.



To assess the SP model in a precise manner, the Key Performance Indicators (KPI) for the proposed model are to be clustered into three groups to measure the three factors as per the hierarchical structure in Figure 3. For example, the financial performance can be measured as net

profit, turnover ratio, the environmental impact can be assessed through carbon footprint reduction, while the social benefit can be evaluated by the employment opportunity, poverty alleviation etc.

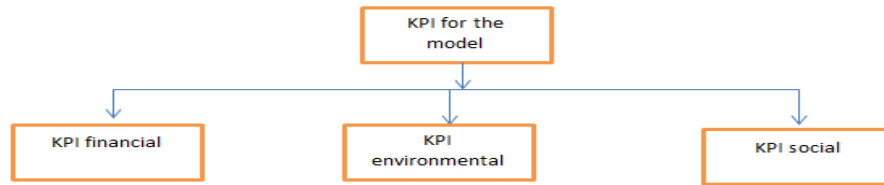


Figure-3. KPI for the proposed SP model.

CONCLUDING REMARKS

Depending on various operational aspects and strategies the initiatives for sustainability undertaken by an organization are expected to be different. Thus a firm, irrespective of whether manufacturing or service, can use different methodologies and dimensions in measuring its sustainable performance. While some organizations may use one dimension, others may adopt multiple dimensions. The challenge that managers face is how to ensure and make their firms more sustainable and innovative as sustainability is the driver for the innovation. Besides this, prevailing models help us greatly in understanding the concept of sustainability and its various facets. Nevertheless achievement of SD requires more effective, open, and productive association among the people themselves. Models guide us on how to gather, share, and analyze information; they help coordinating work; and educate and train professionals, policymakers, and the public in general. This paper is intended to critically analyze the salient features of the four different models for sustainable performance so that managers may adopt in their organizations to achieve the competitive advantage. However, despite the introduction of a comprehensive summary of different prevailing models this paper suffers from limitations in the sense that these models are not empirically investigated and tested. The future direction of this paper is to identify the key performance indicators based on the proposed integrated model for measuring the sustainable performance and to empirically assess its validity using techniques from Structural Equation Modeling.

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