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## A Managerial Tool for Environmental Sustainability

Tamara Menichini and Francesco Rosati\*

*Department of Enterprise Engineering, University of Rome "TorVergata", Via del Politecnico 1, Rome 00133, Italy*

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### Abstract

Several frameworks, roadmaps and tools have already been proposed for supporting sustainability management, however, they do not comprehensively consider environmental sustainability and business performance. In order to fill this gap, in this paper a two-dimensional tool is proposed. It is based on two sustainability dimensions: the "Sustainability Progress" dimension and the "Environmental Sustainability" dimension. The "Sustainability Progress" dimension assesses the stage of the CSR-environmental culture evolution in an organization. The "Environmental Sustainability" dimension indicates the firm involvement in CSR-environmental practices. The tool allows positioning a company in terms of environmental sustainability among its competitors and provides strategic guidelines for sustainability improvement.

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### 1. Introduction

The contemporary corporations are increasingly pushed by their stakeholders to achieve a balance between environmental and business needs and to engage, effectively, in environmental protection [1]. Moreover, the recent 'Stern Review on the Economics of Climate Change' [2] and 'The Economist' inquiry on climatic changes [3], just to name a few, show that environmental sustainability is a problem of great relevance for companies [4]; this is true especially for those companies competing in industries with significant environmental impact [5] like the energy industry (e.g. the petroleum industry, the gas industry, the electrical power industry, the coal industry, the nuclear power industry, the renewable energy industry) [6]-[7]. For this

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\* Corresponding author. Tel.: 0039-06-7259-7208; fax: 0039-06-7259-7951.

E-mail address: [francesco.rosati@uniroma2.it](mailto:francesco.rosati@uniroma2.it).

kind of companies, the issue of environmental sustainability is so important that the accountability of their social and environmental policies, which is summarized in the well known acronym CSR (Corporate Social Responsibility) is, first and foremost, the ‘management of sustainability’ [8]. Following this lead, in this paper a tool for assessing environmental sustainability of companies, for positioning company sustainability among competitors and for deciding CSR paths is proposed. Particularly, a sustainability path that a company follows can be identified by repeated observations of its position in the proposed tool. Such analysis of the company CSR evolution supports managers in understanding and handling CSR improvement initiatives. Finally, the tool can be considered as a map for assessing the relationship among firm sustainability vision, operations and company outcomes, turning CSR-driven opportunities in competitive advantages. The paper is organized as follows: in the next section a literature review provides the theoretical foundations of the sustainability management tool, proposed in section 3; lastly, in section 4 some considerations conclude the paper.

## 2. Literature review


‘Sustainability means being able to satisfy current needs without compromising the possibility for future generations to satisfy their own needs’ [9]. It is about the proper use of natural resources by taking into consideration resource consumption on both present and future quality of life [10]. As a consequence, energy companies need to generate balanced and integrated performances in both economic and environmental lines and to satisfy the needs of inter-generational equity. As stakeholders are more and more interested in environmental protection, companies have to assess whether or not their operations are sustainability-driven. Moreover, as many companies still manage their businesses regardless of sustainability and consider it only when preparing environmental reports [11], performance assessment along with sustainability consideration becomes even more urgent. But, as stakeholders are becoming increasingly skeptical about CSR, a generalist and widespread approach to CSR is not able to impact effectively on stakeholders and, therefore, it cannot lead to any sustainable competitive advantage. This is particularly true for energy companies. In this regard it is possible to think, for example, what kind of impact may have, nowadays, generic CSR policies by a company like British Petroleum (BP) on its stakeholders. Actually, although BP has always presented itself as a model of excellence in CSR, it has been responsible for the worst environmental disaster in U.S. history (the Deepwater Horizon oil spill in the Gulf of Mexico) [12]; therefore, a proved inconsistencies among Environmental and Social Reports, CSR ratings and CSR outcomes can be detected and legitimate doubts about utility of generalist approaches to CSR and its reporting can be raised [13]-[14]. Nowadays managers, and especially those of energy companies, need decision support systems for managing intangible outcomes, such as quality, company image and sustainability [15]-[16], according to an efficiency perspective [17]-[18]-[19]: only in this way it is possible to pursue long-term competitiveness and to turn environmental sustainability constraints in business advantages. Only by employing strategy performance management tools for both managing and assessing company sustainability dimensions jointly to economic ones, it is possible to successfully assimilate and apply sustainability needs into energy companies.

## 3. A two-dimensional tool for sustainability management

In this paper, we propose a tool for sustainability management to support managers of companies characterized by a high environmental impact. The two-dimensional tool allows to assess jointly CSR-environmental commitment and competitiveness, for positioning a company among competitors and for suggesting sustainability paths. The two-dimensional tool is based on two sustainability dimensions: the “Sustainability Progress” dimension and the “Environmental Sustainability” dimension. The “Sustainability Progress” dimension assesses the stage of the CSR-environmental culture evolution in an organization [20]-

[21], while the “Environmental Sustainability” dimension measures the company CSR efforts referring to the environmental dimension of the Global Reporting Initiative guidelines [22]. The “Sustainability Progress” dimension emphasizes how competitiveness is strategically related to a CSR-environmental culture in an organization. Indeed, a CSR-environmental culture allows a company to identify and to exploit new business opportunities and to pursue long-term competitiveness turning environmental sustainability constraints in business advantages. This dimension allows positioning companies in their stage of CSR-environmental cultural progress, according to the Carroll and Shabana’s [20] CSR views and Maon et al. [21] model of CSR development stages (Table 1).

Table 1. The Sustainability progress dimension



| CSR views [20] | Stages of CSR development [21] | Perspectives                                      | CSR driven opportunities   |
|----------------|--------------------------------|---|--|
| Broad view     | Transforming stage             | <i>Change the game</i>                            | Competitive Advantage<br>Innovation<br>Differentiation<br>Employee-related benefits<br>Customer-related benefits |
|                | Strategizing stage             | <i>Sustainability</i>                             | Opening new markets<br>Reduced capital costs<br>Risk management  |
|                | Caring stage                   | <i>Stakeholder dialogue</i>                       | Image improvement<br>Cost reductions, efficiency gains   |
| Narrow view    | Capability-seeking stage       | <i>Stakeholder management</i>                     | Image improvement  |
|                | Compliance-seeking stage       | <i>Requirements Reputation &amp; Philanthropy</i> | Cost reductions, efficiency gains  |
|                | Self-protecting stage          |   | License to operate   |
| No view        | Dismissing stage               | <i>Winning at any cost</i>                        | No benefit   |

Maon et al. [21] describe three cultural phases about CSR-environmental progress: “CSR Reluctance”, “CSR Grasp” and “CSR Embedment”. The three phases evolve through seven stages: each stage describes the step by step progress of the CSR-environmental culture in a company and the business opportunities that this cultural evolution could offer (Table 1). The “Sustainability Progress” dimension increases with both the ability to responsibly handle social and environmental issues and the capacity to satisfy the needs of each stakeholder including shareholders. The awareness of their own position in the “Sustainability Progress” dimension enables companies to better exploit CSR-driven opportunities and effectively develop new CSR strategies [23]-[24]. The position of a company in this dimension is determined by its stage of CSR-environmental culture progress (as described in Table 1) determined by means of Content Analysis applied to environmental reporting [25]. The “Environmental Sustainability” dimension is based on the GRI guidelines, which offer objective and standardized evaluation indexes, based on the information disclosed in the company Social Report (Figure 1).

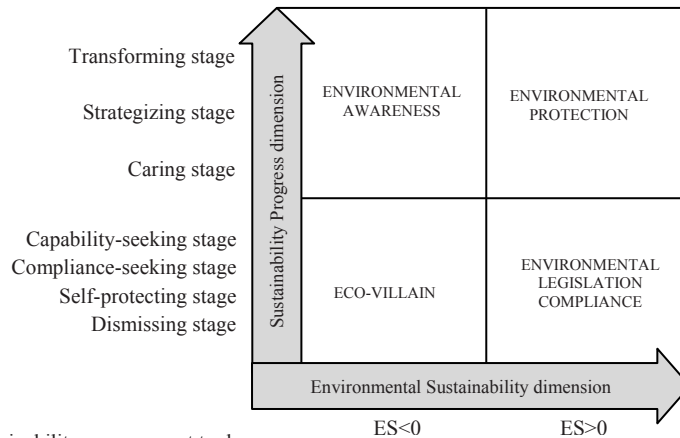


Fig. 1. The two-dimension sustainability management tool

The Environmental Sustainability index (ES) is calculated as the average percentage variation of the 30 GRI environmental indicators ( $EN_i$ ) in the time period ( $t, t+n$ ):

$$ES = \frac{1}{30} \sum_{i=1}^{30} \left[ \frac{EN_i(t+n) - EN_i(t)}{EN_i(t)} \right] \quad (1)$$

The value of ES (1) indicates the firm CSR-environmental efforts and it determines the position of a company on the “Environmental Sustainability” dimension (Figure 1): a positive ES describes a company committed to CSR-environmental practices (positioned on the right side); conversely, companies characterized by a negative ES are placed on the left side.

The position in the sustainability two-dimensional tool defines four typologies of companies:

- “Eco-villain” is characterized by a narrow CSR-environmental view (Table 1). The negative ES index depicts a lack of commitment in environmental sustainability.
- “Environmental awareness” is a company that has been evolving in terms of CSR-environmental culture. The negative ES index reflects the long-run effects of CSR cultural changes on sustainability performance: CSR-environmental practices need time to generate measurable outcomes.
- “Environmental protection” characterizes a company fully involved in environmental sustainability, having crossed all the phases and stages of the CSR cultural progress (Table 1). The positive ES index reflects its noteworthy CSR-environmental efforts.
- “Environmental legislation compliance” describes a company that obtains a positive ES complying with compulsory environmental laws and regulations. In this case environmental sustainability is the result of a law-induced CSR and not the culmination of a CSR cultural growth.

A company can reach the environmental protection position by two different sustainability paths [26]:

1. Culture-induced sustainability path: the company becomes an environment paladin as result of a gradual process of CSR-environmental culture development;
2. Law-induced sustainability path: the company pursues sustainability by complying with environmental laws, becoming aware of environmental issues and, as a consequence, it develops the CSR-environmental culture.

The position of a company in the two-dimensional matrix describes its competitiveness in terms of capacity to turn environmental sustainability in a business opportunity. The sustainability path that the company has been following is identified by repeated observations of its position in the two-dimensional tool over time. The proposed analysis of the company CSR-environmental evolution can greatly support managers

in sustainability management. Finally, the tool can be considered as a roadmap for assessing the relationship between firm sustainability philosophy and company CSR commitment, turning CSR-driven opportunities in competitive advantages.

#### 4. Conclusions

In this paper, we propose a tool for sustainability management to support managers of companies characterized by a high environmental impact. The two-dimensional tool allows to assess jointly CSR-environmental commitment and business opportunities, for positioning a company among competitors and for suggesting sustainability paths. The position that a company occupies in the CSR two-dimensional model describes both its actual CSR-environmental cultural stage and its commitment to environmental sustainability. The analysis evidences that a company can become environmental responsible (“environmental protection”) and gain competitive advantage, following either a law-induced or a cultural-induced evolutionary path.

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