

ECO-EFFICIENCY MANAGEMENT IN THE CONTEXT OF GLOBALIZATION AND GREEN INVESTMENTS

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Abstract: The process of globalization is characterized by complexity and contradictions. But, nevertheless, it offers potential and opportunities to organizations to share their knowledge in different fields around the world. Apart of the scale economy and competitive advantage as the main advantages, the globalized organizations are deeply involved in achieving sustainability and greening the global economy. Furthermore, the globalizations is bringing its contribution to the development of the green investments that are providing the regeneration, recycling, reusing and creativity and are keeping the equilibrium between resources, needs and environment. The green investments, the green market practices of production and consumption transformation and the efficiency regarding less consumed resources, less waste and less pollution are combined in the concept of eco-efficiency. Therefore, in this context, the paper is highlighting an approach of the state of eco-efficiency in the organizations, its forms of evidence and the process of eco-efficiency management.

Keywords: globalization, sustainable development, green investments, eco-efficiency, management

INTRODUCTION

The actual global environment looks like a never-to-end contradiction between the process of globalization lead by the corporations and the resistance of the domestic organizations to conserve their identity. From the common organizations' point of view, the corporations are considered huge monsters that are monopolizing the global markets and the resources to increase their turnover and profits. Aside of the scale economy and competitive advantage as the main advantages, the positive face of the coin is that the global organizations are involved in the sustainable development, sharing the know-how and most of them are sponsoring the society in different ways to emphasise their social responsibility. Being attracted by the sustainable development concept, for their future and economic reasons, the most of the global organizations have revised their strategies to focus on greening their activities. The organizations need to shift from justifying the business case for sustainability, to understanding how to mobilize their intellectual capital to progress towards a more ecological sustainable and socially equitable enterprise and to progress beyond the efficiency (Wasiluk, 2013). A new approach is to measure the environment standards and regulations impact on eco-efficiency of firms (Bremberger, 2014). But, it is not to be forgotten that the global organizations are making the most important green investments that have a fundamental contribution to the global eco-efficiency.

In this context, a briefing of eco-efficiency state-of-the art and some evidence in the global organizations are pointed out and then a process of eco-efficiency management is conceptualized.

1. THE STATE OF ECO-EFFICIENCY

The concept of eco-efficiency was first described by Schaltegger and Sturm (1989) (Ehrenfeld, 2005) and developed in the next years. The World Business Council of Sustainable Development (WBCSD) has strongly promoted eco-efficiency as a concept for businesses to pursue “ways of reducing their impact on the environment while continuing to grow and develop” (WBCSD 2000; Verfaillie and Bidwell, 2000).

The eco-efficiency is broadly defined as the delivery of competitively priced goods and services that satisfy human needs – while progressively reducing the environmental impact and resource intensity of goods and services throughout their lifecycle (WBCSD, 2000).

However, the eco-efficiency is fundamentally a ratio of some measure of economic value added to some measure of environmental impact (Ehrenfeld, 2005) or is a ration between the environmental performance and the economic performance (Müller & Sturm, 2001).

Generally speaking, the efficiency is a ratio between the effects and the efforts. To increase the efficiency is to increase the effects with fewer efforts. Particularly, the eco-efficiency effects could be measured by some indicators, among some of them is quantitative, like: the amount of carbon emissions, the amount of impurities in the water, the surface of the new forests, the quantity of the clean energy and so on, and the others qualitative, like: the knowledge spread around, the people safety or social responsibility. The efforts, on turn, are mostly expressed in terms of costs for cleaning the environment, for recycling, regeneration and reusing, for innovations in the green industry, for green investments and so on. Thus, the eco-efficiency is considered by other authors to be an additional economic success criterion, like productivity, cash flow rate, or cost-effectiveness rate (Scholz & Wiek, 2005). Nevertheless, the eco-efficiency aims to combine notions of ecological with economic efficiency such that firms are able to save money in the production and delivery of goods and services, while simultaneously reducing environmental impacts and resource intensity throughout the life cycle of a product (Pogutz et al., 2011, p.4).

2. THE ECO-EFFICIENCY EVIDENCE IN ORGANIZATIONS

The literature offers plenty of eco-efficiency evidence in organizations and particularly in corporations. This evidence is related to activities involved in environment sustaining. Some works are focused on costs reduction activities, such as: less wasted materials in production, reuse of packages in products delivery, using good parts dissembled from obsolete equipments, collecting discarded electrical and electronic equipment that contains hazardous and toxic materials (Ayres et al, 1997, p.2) or recycling some materials, that can reduce the diffusion of waste by feeding it back into the economy (Cogoy, 2009). Others are focused on aiming at the maximization of the economic utility per environmental impact added (Schaltegger and Sturm 1990) or benchmarking the eco-efficiency in green supply chain (Tseng et al, 2013). The concepts of the ‘factor four’, when doubling in current productivity accompanied by a halving of resource use, and the ‘factor ten’, when entailing a ten-fold increase in resource efficiency, are frequently associated with eco-efficiency (Brady et al, 2000, p.35).

It has been pointed out the confusion between eco-efficiency and sustainability (Scholz & Wiek, 2005). The authors have underlined the opposite opinions that the eco-efficiency is considered, i.e. to be a key to sustainability and, on the contrary, high eco-efficiency is neither necessary nor sufficient for the attainment of sustainability. Even when improvements in environmental performance correlate positively with the associated value-creating process – the overall environmental performance of a firm can still decline (Pogutz et al., 2011, p.4). The focus on efficiency responds to the logic of productivity, and therefore easily fits with managerial routines that legitimize environmental investments, but nature does not respond to this logic (Pogutz et al., 2011, p.16). Moreover, the green management approach is recognized as contributing to a cost reduction by using resources, such as water, energy and raw materials, more efficiently (E. Walker, Redmond, & Giles, 2010).

The influence of eco-innovation supply chain practices on business eco-efficiency has been also highlighted (Azevedo et al. 2012). The authors have investigated the eco-practices, namely: environment collaboration with the suppliers and customers, green purchasing, reverse logistics, eco-product design programs, environmental management systems, innovation production process and the development of the new eco-products and have provided data from USA and Portuguese innovative organizations.

The clean energy appears as being the main factor of greening the world. The foregone benefits attributed to energy efficiency represent the ‘opportunity cost’ of failing to adequately evaluate and prioritize energy efficiency investments (Ryan & Campbell, 2012). But, some other directions of green investments and purchasing are considered in the next section.

As a final remark, it is stressed that the eco-efficiency is poised to become the biggest economic game-changer for organizations over the next 20 years (Dirks and Gurdgiev, 2010, p.4).

3. THE PROCESS OF ECO-EFFICIENCY MANAGEMENT

In order to obtain the optimal eco-efficiency, the organization’s management ought to build a specific process. Using the literature background and the personal observations and judgment, a process of eco-efficiency management is proposed below (fig.1).

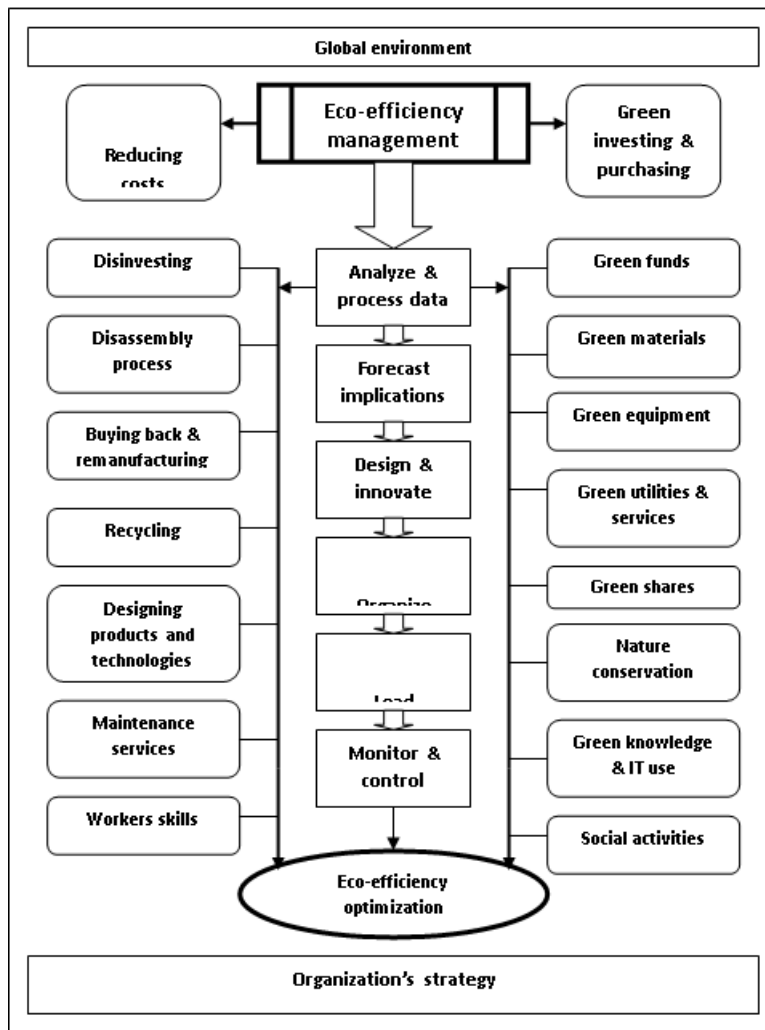


Figure 1. The process of eco-efficiency management

The process implies the following activities:

1. Analyzing and processing the data and information gathered from internal and external environment and setting new strategic objectives regarding the greening the organizations and the community.
2. Forecasting the implications of the data processed on the environment and the organization.
3. Designing the context, establishing the indicators to be fulfilled and innovating green methods, procedures, technologies and products.
4. Organizing the activities, including staff and workers tasks, resources and standards.
5. Leading the whole activities running, having in view the organization's strategic objectives
6. Monitoring and controlling the results and the eco-efficiency.

The eco-efficiency management is focused on two directions:

- Reducing the costs by greening the activities;
- Investing green in: assets, people's knowledge and community and purchasing green: materials, utilities and services.

There is evident that not all the activities mentioned above are ending with the increase of the efficiency on the short term, as green investments are more expensive than the usual ones, but the management main task is to find the equilibrium between reducing the costs and investing green on the long term.

The activities that have been highlighted to reduce the costs are the followings:

- Disinvesting: selling the obsolete equipment and saving money for new investments.
- Disassembly process: turning to good account the metal and other materials or parts that could be reused.
- Buying back and remanufacturing the products with a longer life than a year.
- Recycling the scraps, technological losses of materials, heat, water, wrappings and others.
- Designing products and technologies that are using green materials.
- Maintenance services included in the products price that could be an economy for the producer whether the product reliability is high. On the other hand, these services are the best way to keep the relationship with the customers, to learn about their wishes and needs and to offer them the buying back method to purchase the products.
- Workers skills: hiring workers with multiple skills, such as disassembling, choosing and reusing the good parts, recycling.

Investing green means making investments with green funds in:

- Green buildings: using natural materials (stone, timber).
- Equipment for production, services after sales, delivery and others that are avoiding the environment pollution.
- Equipment for clean energy (sun and wind source; smart grids) and for reused water in production.
- Equipment for measuring the pollution degree (carbon emission, noise and vibrations, water and land contamination).
- Nature remediation and conservation (land, carbon emissions, forests, plants).
- Shares on the stock market on green enterprises.
- People's green knowledge accumulation and IT use for communication and ideas and knowledge sharing. The green knowledge accumulation or as called 'eco-learning' refers to 'the development of ecological insights, knowledge and the associations between past ecological actions, the effectiveness of those actions, and future actions' (Journeault, 2010, p.5). The IT use for communication is not only a means for reducing the carbon emissions, but a tool to ideas and knowledge sharing around the world (Dirks and Gurdgiev, 2010).
- Green social activities: developing social responsibility and investing for community.

The green purchasing is also considered in the contribution to the eco-efficiency. That means that organizations are purchasing the green materials, utilities and services from their suppliers. The cooperation between suppliers and beneficiaries is a matter of spreading around the world the green knowledge.

Even if the green investments are increasing the costs and immobilize capital for a long period of time, the sustainable development is not possible with the lack of investments. The investments efficient return and the eco-efficiency optimization are depending on the

effective management decisions. The balance between the two action directions, i.e. reducing the costs and investing green would be the right strategy in the future.

CONCLUSIONS

The eco-efficiency is currently discussed in the literature and there are plenty of scholars' opinions about it. In brief, the eco-efficiency may be defined as a ratio between the value of the sustainable activities effects and the cost of doing them. The globalization is a process that has positive implications on the greening the global activities.

The process of eco-efficiency proposed in this paper seems to be an ideal statement, because the global organizations are generally focused on obtaining profit with any means. Investing in green activities and assets is an imperative for eco-efficiency. The paper is considered to be an imperative claim for actions. However, the scarce resources and the higher and higher price of energy and oil, are determining the organizations to consider the green alternative of being efficient.

The study may be continued by modeling the decision making on the green investments and/or in the evaluation of the eco-efficiency considering the both ways of acting (reducing costs and investing green) in order to reaching out the optimum.

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