



# The role of New Forms of Work Organization in developing sustainability strategies in operations



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## ARTICLE INFO

### Article history:

Received 19 March 2012  
Accepted 17 September 2013  
Available online 25 September 2013

### Keywords:

Sustainability  
New Forms of Work Organization  
Action programs  
Training  
Teamwork

## ABSTRACT

This paper aims to study whether Human Resource Management and the organizational practices related to New Forms of Work Organization (NFWO) (e.g., teamwork, training, and employee involvement) should be implemented to attain higher environmental and social sustainability performance. This potential connection is analyzed using the International Manufacturing Strategy Survey 2009 database containing data on the assembly industry. Several hierarchical regression models are used to study the direct impact of the considered practices on sustainability performance and their interactions with sustainability action programs. The results show that some of the practices related to NFWO are linked to sustainability performance. In particular, training has a direct positive effect on environmental and social sustainability performance and creates a positive interaction between social sustainability action programs and performance. Additionally, employee involvement and incentives have a direct positive impact on social sustainability performance. Finally, teamwork is a relevant practice for the successful implementation of environmental sustainability action programs.

This paper contributes by empirically extending the knowledge on the role of organizational practices and the understanding of environmental and social sustainability achievement at the operational level. Moreover, we highlight the complexity of these relationships within different sustainability dimensions, showing the need for more qualitative studies about this topic.

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## 1. Introduction

Sustainability is becoming a key business imperative. An increasing number of companies have recognized the importance of considering the future of both people and the planet for their long-term success (Hay et al., 2005; Kleindorfer et al., 2005). Given the impact of the manufacturing industry on the three “pillars of sustainability” (i.e., profit, people, and planet) (Elkington, 1994), operations management (OM) provides the industry with new opportunities to significantly contribute to sustainability.

The OM literature primarily focuses on the adoption of environmental sustainability action programs, such as environmental management standards (ISO 14001 and similar), along with specific programs for reducing pollution and consumption. More recently, specific social initiatives, such as employee well-being programs or philanthropic activities, have become relatively commonplace in companies. Despite the growing literature on green

and sustainable supply chain management, which is also fundamental to the OM research field, we decided to focus on the effective development of sustainability in internal operations and on the related contributions in the literature.

Companies pursue sustainability through a variety of activities that are often insufficient for achieving compelling sustainability performance (Aragon-Correa and Sharma, 2003; Mohrman and Worley, 2010). Guidance on how to design the internal operations system while considering the triple bottom line is still limited (Kleindorfer et al., 2005; Waage et al., 2005; Hutchins and Sutherland, 2008; Jabbour et al., 2010a).

Furthermore, a recent survey conducted by Accenture (2010) on CEOs who had embraced the United Nation's Global Principles revealed that even if firms have programs and initiatives for sustainability, few of them implement all the changes in organizational design and management that are necessary to fully achieve their goals. Moreover, as highlighted by Jabbour et al. (2008) in their study in Brazilian companies, the experts in charge of human resource management and organizational design do not have substantial knowledge of how to support sustainability achievement. Therefore, companies need to understand how organizational structure and practices should be designed to develop

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capabilities and provide the knowledge, skills and mindset to effectively achieve sustainability (Accenture, 2010; Jabbour et al., 2010b; Mohrman and Worley, 2010).

A number of authors suggested that Human Resource Management (HRM) and organizational practices may play a relevant role moving companies in this direction (Angell and Klassen, 1999; Daily and Huang, 2001; Govindarajulu and Daily, 2004; Boudreau and Ramstad, 2005; Bettley and Burnley, 2008; Jabbour and Santos, 2008; Daily et al., 2012; Jabbour et al., 2012). Employee empowerment, involvement, training, and knowledge development foster organizational learning and provide an effective context for the development of the dynamic capabilities (Teece, 2007; Wright et al., 2001) needed to adapt to the continually changing sustainability needs of organizations (Mohrman and Worley, 2010).

However, the literature lacks a comprehensive framework based on empirical evidence for the role of HRM and organizational practices in the achievement of sustainability performance (Govindarajulu and Daily, 2004; Jabbour and Santos, 2008). In fact, little of the research has studied the link between organizational practices and sustainability performance at the operational level (Rothenberg, 2003; Brío et al., 2007). In addition, the papers that have studied this link are primarily conceptual (Wilkinson et al., 2001; Bettley and Burnley, 2008; Jabbour and Santos, 2008) or are based on case studies (e.g., Brío et al., 2008; Teixeira et al., 2012), and the results need to be tested and generalized. Moreover, most of these studies are focused only on environmental sustainability (e.g., Daily and Huang, 2001; Jabbour and Santos, 2008; Teixeira et al., 2012), even though a broader sustainability framework that also includes the social dimension is increasingly required (Kleindorfer et al., 2005; Waage et al., 2005; Burke and Gaughran, 2007; Pagell and Gobeli, 2009; Gimenez et al., 2012).

Therefore, our aim is to fill this gap and help companies to implement sustainability strategies within their operational processes by empirically analyzing how HRM and organizational practices – and in particular, the so called New Forms of Work Organization (NFWO) (e.g., training, employee involvement, incentives, job enlargement) – can increase environmental and social sustainability performance. In fact, a number of authors suggest that such practices directly affect sustainability performance (e.g., Boudreau and Ramstad, 2005; Schroeder and Robinson, 2010; Daily and Huang, 2001) and, at the same time, improve the effectiveness of specific sustainability action programs (e.g., Daily and Huang, 2001; Jabbour et al., 2012). The research is based on the wide set of empirical evidence from the fifth edition of the International Manufacturing Strategy Survey (IMSS 5).

Our paper is organized as follows. First, we provide the theoretical basis for our study by showing the primary contributions and gaps in the field. Afterwards, we state and support our research hypotheses regarding the role that the HRM and organizational practices related to NFWO can play to achieve sustainability performance. Next, we provide details about the methodology used for the research. Finally, we present the results and discuss the NFWO related practices for achieving higher social and environmental sustainability performance.

## 2. Literature review and hypotheses

### 2.1. Sustainability and OM

Sustainable operations management is the set of skills and concepts that allow a company to structure and manage its business processes for the achievement of sustainability performance (Kleindorfer et al., 2005), which is defined to be consistent with the concept of the triple bottom line – economic, environmental, and social sustainability (Elkington, 1994). The economic

dimension of sustainability is defined as having the ability to generate, at any time, enough cash flow to ensure liquidity and produce a persistent return for the long term, such that the economic needs of the company and its stakeholders are met (Vachon and Mao, 2008; Steurer and Konrad, 2009). Environmental sustainability is obtained if a company consumes natural resources at a rate below the natural regeneration of that resource or consumes a substitute; in addition, the company must generate limited emissions and not engage in activities that can degrade the ecosystem (Vachon and Mao, 2008). Accordingly, environmental performance is often measured through the rate of pollution emission and the consumption of raw material, energy and water (e.g., Labuschagne et al., 2005). Social sustainability refers to two dimensions: internal social sustainability, referring to the impact that the company has on its workforce, and external social sustainability, referring to the impact that the company has on the surrounding communities. Social sustainability is obtained when processes, systems, and structures within the organization actively support the preservation and creation of skills, the capabilities of future generations, and health and a good quality of life inside and outside the company (McKenzie, 2004). Internal social sustainability might be assessed in terms of employee satisfaction and external social sustainability in terms of company social reputation (McKenzie, 2004).

The literature clearly acknowledges the connection between sustainability and operations management (OM) (Angell and Klassen, 1999; Bettley and Burnley, 2008; Kleindorfer et al., 2005). Early studies on sustainable OM primarily focused on environmental and economic performance (e.g., Angell and Klassen, 1999; Pagell et al., 2004; Zhu and Sarkis, 2004), but more recent research includes the social dimension as well (e.g., Pagell and Gobeli, 2009; Gimenez et al., 2012).

Sustainability goals can be pursued by appropriately designing the operational levers and by adopting specific action programs (e.g., Sarkis, 1998; Angell and Klassen, 1999; Klassen and Whybark, 1999; Linton et al., 2007). The examples of environmental sustainability action programs identified by the literature are primarily focused on structural levers (e.g., procurement, logistics, technology). These programs can be classified as environmentally friendly product design (e.g., eco-design, design for environment, and life cycle assessment) (Zhu and Sarkis, 2004), environmental process management (e.g., environmental management standards such as ISO14001, quality management standards, and total quality environmental management), programs for the reduction of material usage and waste or the reduction of energy consumption and pollutant emissions (e.g., Shrivastava, 1995; Fai Pun, 2004; Cagno et al., 2005), and environmental logistics policy (e.g., environmental transportation, packaging, warehousing, and reverse logistics) (Ciliberti et al., 2008). Social action programs are instead related to employees' well-being (e.g., implementing social human resource policies to enhance work conditions, health, and safety), social investment and philanthropy (e.g., supporting community projects) and contributions to the external community (e.g., corporate social activities) (Zairi and Peters, 2002). Fewer contributions within OM consider social sustainability action programs (Veleva and Ellenbercker, 2001). Nevertheless, more recently, studies have mentioned the relevance of internal social sustainability action programs, such as health and safety programs, and requested more attention be focused on these programs (e.g., Das et al., 2008; Hasle et al., 2012).

### 2.2. HRM practices, organizational practices, and sustainability

In addition to specific sustainability action programs, different authors claim that HRM and organizational practices do impact sustainability performance (e.g., Wilkinson et al., 2001; Fernandez

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