

# HRM and KM As Catalysts Of Environmental Performance: A Conceptual Framework

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## ABSTRACT

The purpose of this paper is to develop a theoretical framework to investigate the relationships among human resource management (HRM), knowledge management (KM) and environmental performance (EP). Environmental friendly business activities demand high level of human resource competency in terms of knowledge, skills and capabilities in order to better firm performance. This paper serves to establish the link among HRM, KM, and EP to fill the gap in the current literature. The research model is proposed based on reviews of the literature on HR and KM perspectives on environmental management and performance. Both theoretical and practical implications are discussed in this paper. With new knowledge gained on the associations among HRM, KM and EP, manufacturing firm managers can focus their effort and resources on HRM and KM to deliver better environmental management effectiveness. It is anticipated that this paper will contribute towards sustainability development for a better living environment.

**Keywords:** Human resource management, Knowledge management, Environmental performance, Malaysia.

## I INTRODUCTION

The proliferation of manufacturing activities since the Industrial Revolution (1750s) has caused much environment degradation to the world, e.g. global warming, pollution, soil erosion, etc. Some governments have enacted laws and regulations to reduce environmental problems toward sustainable economic development. In addition, NGOs and environmental movements have shown increasing environmental concerns by initiating environmental and wildlife protection programs. Also, the development of international environmental standards creates environmental awareness among business communities, whereby more and more firms would either implement compliance plans or proactive means to deal with environmental issues. At present, many firms are implementing a proactive environmental program as part of an environmental management system. The International Organization for Standards (ISO) Survey of Certification for 2010 has shown growth of twelve per cent in numbers of ISO 14001 certificate issued in that particular year,

reflects an upward trend of environmental management systems implementation worldwide (The International Organization for Standards, 2011). Nevertheless, the strategic implementation of the environmental management system will inevitably increase capital expenditures and operating expenses of firms in installing, maintaining and operating the said system. In order to meet the end, business leaders have been searching or developing management practices aiming to reduce the costs incurred and technical difficulties in implementing the environmental management systems. Among the management practices employed are HRM, KM, environmental auditing, total quality management, etc. HRM and KM are frequently practiced in firms to act as a catalyst for formation of human capital to lead to higher intellectual capital and competitive advantage. Previous empirical researches on the relationship between HRM and various performance measures have discovered a positive link between HRM and financial performance (Huselid, 1995), HRM and innovation performance (Lam *et al.*, 2011), and organizational performance (Dalaney and Huslid, 1996).

Like any industrialized nations, Malaysia is also experiencing environmental-related problems such as land, air and water pollution. According to Seetharaman *et al.* (2007), environmental concern in developing countries is slow, including Malaysia. Some manufacturing firms echo the call of the government and enforcement of legislations in conserving the environment, though. However, much argument and skepticism have been forwarded by various organizations towards the effect of environmental practices and programs on environmental protection. Furthermore, there has been less research conducted on environmental performance, let alone a study to examine the relationship between HRM and EP, or KM and EP, even though the relationship between HRM and KM is considered well established (Lam *et al.*, 2011). Therefore, there is a need to investigate and understand the association between HRM, KM and EP in order to assist manufacturing industry in attaining enhanced overall organizational performance.

Based on the above rationale, this paper reviews past literature, synthesizes the findings and derives a theoretical model to map the association among HRM, KM and EP. This paper serves as an initiative to close the gap in the domain of environmental management. The content of this paper is layout in a systematic manner as follows: First of all, the authors examine the relationship between HRM and EP, the connection between HRM and KM, and the association between KM and EP. Three propositions and a conceptual research model will be developed from the literature review. Finally, some concluding remarks will be presented, in which both theoretical and practical implications, and recommendations are highlighted.

## II LITERATURE REVIEW

### Theory about Environmental Performance (EP)

Numerous efforts have been initiated by organizations and governments to achieve sustainable development of a nation and the world as a whole. It has been postulated that sound environmental management enables sustainable economic development of the world (World Bank, 1985). In business organizations, environmental management is expected to deliver environmental performance which is deemed one of the essential performance indicators of firms. Organizational performance does not rest on financial indicators alone, others performance indicators impacting the organization or its stakeholders should be emphasized, including environmental performance. It has been evidenced that poor environmental performance is negatively associated with the intangible asset value of organizations (Konar and Cohen, 2001). EP measures the degree of success a firm is involved in implementing programs to minimize and eliminate the negative impact of its manufacturing processes, products and waste on the natural environment (Klassen and McLaughlin, 1996). Measuring environmental performance is increasingly important due to the increasing costs of environmental management, pressures from the market, regulatory bodies and public. In practice, most firms use a combination of measures including lagging indicators, which measure outputs such as pounds of pollutants emitted or discharged; leading indicators, which are in-process measures of performance; and environmental condition indicators, which measure the direct effect of an activity on the environment (Global Environmental Management Initiative, 1998).

Resource-based theory suggests the firms' performance vary due to the firms' resources and how these resources are deployed for sustainability (Russo and Fouts, 1997). Hart (1995) incorporated

opportunities arises from biophysical environment in the resource-based theory which enable the firms to capture competitive advantage towards social goal. In practice, the society are demanding the firms to be more environmental oriented in which stimulating the firms to transform uniqueness in their resources (Russo and Fouts, 1997) to embrace environmental initiatives. Central to the resource-based view; firms implement value-creating strategy to transform its resources to outperform its competitors to generate superior return (Ployhart, 2012). Hence, resource-based theory provides a solid base to explain the proposition which firms contribute to environmental performance.

In the industry, most firms lack systems for measuring and managing cost of environmental management, as well as accounting for environmental performance (Joshi *et al.*, 2001). However, there have been some researches done on measuring EP of a firm (s) since 1980s (Ingram and Frazier, 1980; Goodall, 1995; Azad *et al.*, 2008). Among others, some of the EP indicators employed were product and process redesign, recycling, returnable packaging, waste segregation, etc (Melnyk *et al.*, 2003). Russo and Harrison (2005) measured EP of U.S. electronics firms as reduced plant-level toxic emissions. Hence, EP is considered an important focus of environmental-conscious firms, as it is purported to lead to revenue improvement and cost reduction through minimizing materials waste (Schmidheiny, 1992). Russo and Fouts (1997) concluded that higher environmental performance is associated with higher financial performance, as measured by return on assets (ROA) of firms.

### A. Relationship between HRM and EP

According to Stone (2009), HRM is the productive utilization of manpower in attaining the organization's objectives. In most organizations, HRM practices implemented by line managers and staff managers are staffing, training and development, performance management, compensation and rewards, safety and health and industrial relations (Mondy, 2010). Wright *et al.* (2001) propose that HRM practices shape the foundation for knowledge management, dynamic capability, and intellectual capital, leading firms to the attainment of competitive advantages. Employees' knowledge, skills, abilities, values, attitudes and behaviors are molded through HRM practices of a particular firm. In this regard, HRM practices are expected to shape environmental friendly human capital and culture of a firm through hiring pro-environment employees, training

employees with skills and competency in technology and innovation, as well as providing rewards and incentives for making environmental management a success. By and large, a positive relationship between HRM and organizational performance was found in past research (Dalaney and Huslid, 1996).

However, the fine tuning of HRM practices of firms to improve the effectiveness of environmental management, or termed “green HRM” by some researchers are unknown until recent years. In 2008, Renwick, Redman, and Maguire concluded that a precise grouping of green HRM practices can be clearly seen. Workplace stakeholders have opportunities to engage in HRM practices aimed at enhancing environmental management. The green HRM practices identified by Renwick *et al.* (2008) are recruitment; performance management and performance appraisal; training and development; employment relations; and pay and reward. HR factors such as environmental training, teamwork, rewards systems, etc have been identified as the key components of environmental management for sustainability (Daily and Huang, 2001). Therefore, the link between HRM practices and environment management effectiveness is much anticipated.

In tandem with the above findings, empirical support has been found that lean production, which is associated with waste and pollution reduction is complementary to environmental performance (King and Lenox, 2001). Referring to the above literature review and our insight, we postulate that HRM practices would have a positive influence in improving organizational performance in which EP is one of the key performance indicators. Therefore, the formulated proposition is:

***P1: A higher level of implementation of HRM practices will lead to a higher level of EP in manufacturing firms.***

## **B. Relationship between HRM and KM**

The significance of sustainability growth and its relation to environmental preservation are two major concerns in today’s business agenda. The notion of sustainability is driven by an effective human resource management practices and its expanding interest in managing knowledge in organization. Knowledge is vital for a firm’s survival. Nonaka (1994) regards knowledge as the firm’s most significant strategic asset. Knowledge management is a process of developing, sharing and applying

knowledge within firm to gain and sustain a competitive advantage (Petersen and Poulsen, 2002). HRM practices serve to promote incomparable attributes in human resource that aid an organization to obtain a competitive advantage and improve its performance (Guest *et al.*, 2003).

Many scholars have debated that knowledge management is dependent on human, specifically HRM issues. For instance recruitment, selection, training and development, performance management and compensation are critical issues in managing knowledge within an organization (Carter and Scarbrough, 2001; Currie and Kerrin, 2003; Shih and Chiang, 2005; Edvardsson, 2008).

According to Scarbrough and Carter (2000), human resource practices could best contribute to managing knowledge by emphasizing the congruence and human capital approaches. Through the congruence approach, human resource practices need to be consistent internally and able to adapt to the external business environment. The human capital approach on the other hand, posits the importance of developing skills, knowledge and ability within the organization to enhance long term survival.

Yahya and Goh (2002) demonstrated an association between human resource practices such as training, decision making, performance appraisal and compensation and reward, and knowledge management to facilitate firms in achieving sustainable competitive advantage. They concluded in their research that (1) knowledge organization requires different management approaches than non-knowledge organization, (2) employee development should focus on achieving quality, creativity, leadership and problem solving skills, (3) compensation and reward system should promote group collaboration, knowledge sharing and innovative thinking, and (4) performance appraisal must emphasize employee knowledge management practices and input for directing knowledge management efforts.

HR practices play a crucial role in facilitating employee’s absorption, transfer, sharing and creation of knowledge (Soliman and Spooner, 2000). Thite (2004) pointed the correlation between HRM and KM at the high end of value chain that lead to the creation and sustenance of a culture that fosters innovation, creativity and learning in organizations. Lin and Kuo (2007) further found that HRM strategies have a direct and significant impact on organizational learning and KM capability.

Referring to the past literatures, we can conclude that the identification of the specific mechanism between HRM practices and KM should be considered as a central issue in this line of research. Therefore, the formulated proposition is:

***P2: A higher level of emphasis on HRM practices will facilitate a higher level of KM in manufacturing firms.***

### C. Relationship between KM and EP

Increasing environmental pollution has raised awareness toward environmental protection. This awareness has led to greater political and social demand on firms to minimize their environmental effect. Firms that are exposed to environmental issues may be vulnerable to economic risk. There is a need for firms to embrace proactive environmental strategies to enhance their environmental performance (Lopez-Gamero *et al.*, 2009). Crals and Vereeck (2005) identify 3P - people, planet and profit - to be realized for the entrepreneurial activity to be sustainable. Hence, firms need to incorporate people with their environment (ecological innovations) to enhance business performance.

Knowledge management has become more important for firms to ponder. Randeree (2006) maintains that competitiveness depends on the effective management of intellectual resources. KM is widely known to increase the firm's competitiveness and proper use of KM would enhance employee potential and accelerate knowledge creation (Liu *et al.*, 2001). Wernick (2002) reported that the usage of environmental knowledge management through knowledge management will improve corporate performance as well as ecological innovation. Hence, effective knowledge management capitalizing on environmental knowledge enables firms to achieve business and environmental sustainability. Furthermore, dissemination of employees' environmental knowledge will enable firms to save cost in consuming raw material and handling waste. Interface Inc. has been utilized the employee know-how for continuous improvement (Boiral, 2002).

Conversion of knowledge to competencies would result in competencies which are unique to organizations (Johannessen and Olsen, 2003). Most literatures in the environment perspectives have discussed knowledge from (1) an individual perspective such as tacit and implicit knowledge; (2) traditional cultural rules and practices, and (3)

formalized process through scientific and research manner (Raymond *et al.*, 2010). Nevertheless, effective use of knowledge provides a solid foundation to improve environmental performance (Vachon and Klassen, 2008) as highlighted under resource-based theory.

As highlighted by Lopez-Gamero *et al.* (2010), environmental performance stimulates development of new firms' resources. Boiral (2002) further mentions that learning new knowledge and practices and developing cleaner technologies are the firms' environmental initiatives. Besides that, strategies to reduce pollution also require new introduction of new methods that involve exploiting knowledge know-how. For instance, ISO 14001 documentation will support environmental knowledge dissemination and preservation in the firm. Without doubt, effective knowledge management involving, acquisition, dissemination and application are important to facilitate creation of organizational knowledge or improvement of knowledge in preventing pollution. Therefore, the formulated proposition is:

***P3: A higher level of application on KM will increase the EP in manufacturing firms.***

## III CONCEPTUAL RESEARCH FRAMEWORK

A model incorporating HRM, KM and EP dimensions is developed to help managers in manufacturing firms to improve their environmental practices.

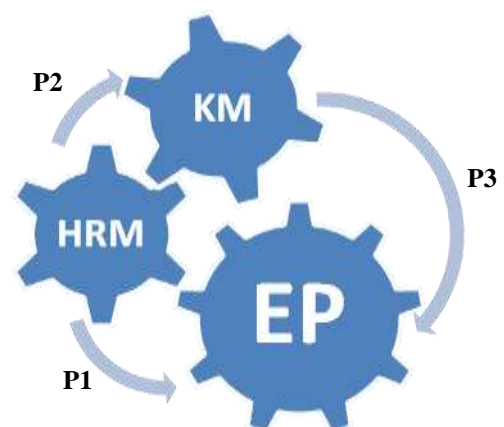


Figure 1: A Conceptual Framework

Figure 1 represents the proposed relationship between HRM, KM and EP. The independent variable, HRM affects the adoption of KM, while both HRM and KM influence the dependant variable of EP.

## IV IMPLICATIONS

### A. Theoretical

The suggested model assists researchers to determine the linkage between KM, HRM and EP. Three propositions have been developed as a result of literature reviews. Effective EP is essential for firms to sustain their competitive advantage through effective KM and HRM. The main contribution of this framework is the integration of people and environment to improve organizational performance and sustain competitive edge in manufacturing industry.

### B. Practical

From managerial point of view, this paper could provide useful insight for managers who are under intense institutional and economic. It will be wise for firms to integrate people and environment together for success. It is crucial for firms to employ the right human capital to create effective and valuable know-how for effective environmental strategies to gain competitive advantage over its competitors since knowledge management is indivisible from human management. Second, effective management of knowledge ensures conversion of knowledge especially tacit knowledge to useful environmental practices that generate greater EP.

## V CONCLUSION

Sustainability is vital for any firms, and one to achieve this is by focusing on environment management. Previous scholars have shown that investment in environmental practices could result in competitive advantage and economic performance (Schoenherr, 2011). The proposed framework identifies the relationship between KM, HRM and EP. Past literatures show that an effective use of KM and HRM are the key for improving EP. This suggested model will be useful for future research.

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