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A PROPOSED OCCUPATIONAL SAFETY AND HEALTH MANAGEMENT SYSTEM MODEL INCORPORATING EUROPEAN FOUNDATION OF QUALITY MANAGEMENT (EFQM) MODEL

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Abstract

Despite the fact, that occupational accidents and resulting injuries and deaths sorely weaken human capital, and negatively influence the productivity and competitiveness of firms, there is a scarcity of preventive procedures and an absence of safety management systems among companies. Moreover, there is very little research done where the concept of Total Quality Management (TQM) as a business excellence strategy, which integrates the concept of occupational safety and health management system (OSHMS). This paper incorporates the concept of OSHMS within the perspective of TQM as a part of corporate culture in order to develop an OSHMS model through integrating OSHMS with the European Foundation of Quality Management (EFQM) Model, and define the critical factors for OSHMS excellence. The proposed model can be applied in different companies regardless of the size, maturity or sector.

Study findings suggest that OSHMS model has a positive impact on people results, OSH performance, financial and non-financial performances. Therefore, deliver an evidence of the linkage between employees' protection and organisation's excellence. A better understanding of implementing OSHMS, and its enablers, will certainly support organizations to strategically deploy resources and concentrate efforts to develop their business performance and safety and health results.

Keywords: Occupational Safety, Health, Total Quality Management, Excellence, European Foundation for Quality Management (EFQM)

INTRODUCTION

Occupational Safety and Health (OSH) refers to a discipline that prevents injuries and diseases at work, and protect and promote the workers' health. The primary aim behind OSH is to enhance the working conditions and environment of workers. Moreover, occupational health involves promoting and maintaining the top level of workers' physical and mental health and social well-being in every occupation (Taderera, 2012).

Based on different studies in literature, occupational safety and health management system (OHSMS) has a key role in addressing the challenges of OSH, enhancing the safety of workers, mitigating risks in the workplace and facilitating optimum conditions in the workplace. In this regard, the process that governs occupational risk assessment and management fundamentally consists of the expectation, appreciation, assessment and control of hazards that stem from the work site that might injure the workers' health and well-being (Taderera, 2012).

The novel aspect comes from the fact that in the globalization era, a new culture is emerging that is concerned with the nature of the enterprise-workers' relationship. Such culture can be described as the need to invest in the work in terms of their training and enhancement of working conditions. Therefore, majority of enterprises have begun to view OSH more than a legal requirement in that they also view it as a means to enhance their productivity.

In business, competitiveness is another factor that determined by product quality and in the past years, concepts and programs linked to quality including quality control, quality circles, total quality and quality assurance have been extensively mentioned (López-valcárcel, 2002). Additionally, if an organization ensures that the health and working environment of the workers are safe, and that they are safeguarded from hazards, accidents and diseases at the workplace, this could lead to their enhanced work efficiency, enhanced perceptions towards their workplace

and this could mean greater recruitment attractiveness for the organization itself (Rebelo et al., 2014; Tsai & Chou, 2009).

With regard to the performance of companies in light of their activities and their outcomes as well as the determination of their strengths and weaknesses, organizations often turn to EFQM Excellence Model as a self-assessment tool. The model can be described as a non-prescriptive framework for continuous quality enhancement that can be applied by any type of organization, nevertheless of sector, size or maturity. The sole components constituting the EFQM are the basic excellence aspects (Akyah, Sumerli, & Uygur, 2013).

In this paper, the researchers aim to integrate business excellence and Occupational Safety and Health via the development of an OSH Excellence Model explaining the relationship between critical success factors of Occupational Safety and Health and business outcomes. The model developed based on the EFQM Excellence Model.

LITERATURE REVIEW

Occupational Safety & Health Management Systems (OSH MS)

Occupational Safety and Health is an essential issue in this time, not only affecting the organization but also the entire society. Abdul Zubar, Visagavel, Deepak Raja, and Mohan (2014) mentioned that safety is important to maintain stable societies and to reach better national economy. This can be enhanced effectively through continuous improvement of safety and health systems, otherwise poor safety management and regulations in workplace results in a disaster (Abdul Zubar, Visagavel, Deepak Raja, & Mohan, 2014)

Occupational safety and health has improved in developed countries, while in developing countries, it receives little consideration with work-related injuries from 10 to 20 times higher than that of developed countries, this is because small and medium enterprises are the majority of companies there with low levels of compliance to OSH standards (Perrow, 1984; Tadesse & Kumie, 2007).

However, researchers have little interest in defining what the exact element forming an effective OSHMS (Santos-Reyes & Beard, 2002). Fernández-Muñiz et al., (2009) mentioned that successful safety management system should be integrated into the organization's system, including policies, strategies and procedures. According to their definition; Fernández-Muñiz et al., (2009) Safety Management Systems aims to control risks and to comply with the related OSH legislation.

Sugawara & Hiroshi, (2014) showed that despite the belief that investing in safety is a cost, it contributes to profit by minimizing losses and adding to the capital value of an organization.

Despite the fact that OSHMSs are widely adopted by organizations, its effectiveness is still under debate. Goh, Love, Stagbouer, and Annesley, (2012) estimated that these systems may have high failure rates as in quality management systems with percentage between 67% and 93%. In contrast, other researchers have posited that the OSHMS is highly beneficial to organization's overall performance. Recent research shows that the OHSMS plays an essential role in tackling OSH challenges, improving the health and safety of workers, and reducing risks at work places (Mohammadfam et al., 2016). OSHMSs are considered as a systematic and influential tool that leads organizations how to manage occupational risks and face occupational safety and health challenges (Granerud & Rocha, 2011). These systems main role is identification related socio-economic issues and promoting best practices related to safety and health (Ramli, Watada, & Pedrycz, 2011). Fernández-Muñiz et al., (2009) analyzed the effect of flawed safety preventive practices, e.g. unsatisfactory management commitment and the absence of safety culture, on a set of indicators of organizational performance namely: safety performance, financial and non- financial performances. They afford a proof of the compatibility between protection of employees and competitiveness. Also, Lo, Pagell, Fan, Wiengarten, & Yeung (2014) find that implementing an OSHMS results in significant increase in safety performance, sales increase, labor productivity, and profitability.

Osh Standards and Legislations

ILO Standard and Conventions

ILO-OSH 2001 present a distinctive international model, this model is well suited with other managerial standards and guidelines. The ILO Guidelines encourage the incorporation of OSHMS with other managerial systems where OSH should be a fundamental part of business management in the organizations (ILO, 2001).

According to the he ILO-OSH 2001 guidelines; OSH management systems has five main parts subsequent the Deming cycle of Plan-Do-Check-Act. These parts are "Policy, Organizing, Planning and Implementation, Evaluation and Action for Improvement". In addition, the guidelines support the incorporation of OSH management system elements into overall management systems and strategies, where OSH is every one responsibility (ILO, 2001).

Occupational Health and Safety Assessment Series (OHSAS 18001)

OHSAS 18001, is a British OSH Standard. It is main objective is to help all types of organizations to have better occupational health and safety performance. It is a widely accepted and the most applied occupational health and safety management system. The OHSAS 18000 standards helps organizations to reach better OSH results and financial performance through

applying effective safety management system that can be linked to other management systems such as total Quality Management. The overall aim of this Standard is to support and maintain best OSH practices, in balance with social and economic requirements (B.S OHSASA 18001, 2007).

Mohammadfam et al., (2016b) showed that the main activities of these systems especially OHSAS 18001 are policy, planning, implementation, checking and management review, each one of these activities has set of attributes affect the system performance.

Occupational Health and Safety Management System (ISO 45001)

ISO 45001:2018 is a global standard for occupational safety and health management systems that provides a real solution for safety at workplace (American Society of Safety Engineers (ASSE), 2018; BSI, 2018; NSAI, 2015; NSF-ISR, 2016). ISO 45001:2018 is the first international standard on OSH which will allow organisations nevertheless of context and size to create a safe and healthy environment for their labours, guests, contractors and others to prevent death, work-related injury, accidents and work-related diseases, and to continually improve its OSH performance.

As stated in the standard ISO 45001: 2018, success factors of the this system are coming from its importance as a strategic and operational decision of the organisation. The success of the OSHMS depends on the leadership, its commitment, and the involvement from all levels of the organization. The critical factors of the OSHMS which lead to successful and effective organisation can include: leadership and its commitment and accountability; developing and promoting OSH culture in the organization; communication; involvement and empowerment of workers, resource allocation for OSH; OSH policies that reflects the organisation's strategies; effective process and prevention measures; continual evaluation and improvement of the OSHMS; and integration of the OSHMS into the organization's business process (ISO 45001, 2018).

Total Quality Management (TQM)

Total Quality Management (TQM) is a group of guidelines that forms the basis of an excellent organization (Besterfield, 1999; Bhuiyan, Rahman, & Shahnewaz, 2014). International Organization for Standardization ISO 9000:1992 also defined TQM as the managerial system to achieve success on the long run, this can be reached through satisfying customers, workers and society (International Organizational for Standardization, 1992; Podgorski, 2000).

The importance of Total quality management (TQM) comes from its role in promoting continuous improvement in all sides of an organization's activities. TQM is a continuous cycle

that identifies key processes, set performance standards, measure actual results, benchmark these results against standards, take corrective actions and identify improvement opportunities. This continuous cycle is called 'PDCA: Plan-Do-Check-Act cycle' which can be applied to occupational safety and health. The TQM philosophy emphasizes the importance of involving all employees in the quality process, and the crucial importance of visible leadership and the need for consistent emphasis on quality improvement throughout the organization (HSE, 2008).

Six proposed TQM factors are based on the some researches. The six TQM elements include Top Management Commitment (Fuentes, Montes, & Fernández, 2006; Meftah Abusa & Gibson, 2013; Saraph, Benson, & Schroeder, 1989), Customer Focus (Bartley, Gomibuchi, & Mann, 2007; Meftah Abusa & Gibson, 2013), People Management (Lau, Zhao, & Xiao, 2004; Meftah Abusa & Gibson, 2013), Supplier Quality Management (Meftah Abusa & Gibson, 2013; Saraph et al., 1989), Continuous Improvement (Fuentes et al., 2006; Meftah Abusa & Gibson, 2013), and Process Management (Meftah Abusa & Gibson, 2013; Saraph et al., 1989).

Any organization cannot achieve high productivity without high quality and high safety (Smith, 2010), However, there is an absence of cross-level linkages between national, organizational, and individual levels relative to the presence of safe behavior and the occurrence of work related accidents, injuries and diseases (Kitaw, 2016). This implies that the use of several management systems in terms of quality and safety is inevitable for the success of an organization or company.

The EFQM Model

The business excellence model produced by the European Foundation for Quality Management (EFQM) shown in Figure 1 is the most popular excellence model in the world, which organizations can use to evaluate their movement towards business excellence and helps them to achieve success and business excellence through continuous improvement and innovation. Regardless of sector, size, structure or maturity, organizations need to establish an appropriate management framework to achieve success (EFQM, 2013).

Bowen and Scudder, (2013) showed that the European Foundation for Quality Management (EFQM) Model is built on nine criteria for quality management. These criteria contain five enablers (criteria covering the basis of what an organisation does, which include leadership, people management, processes, partnership & resources and strategy) and four results (criteria covering what a company achieves which include people results, society results, customer results and business results) (Gómez Gómez, Martínez Costa, & Martínez Lorente, 2011). The result is a model that abstain from advising any one approach, but rather recognizes the diversity in quality management practices.

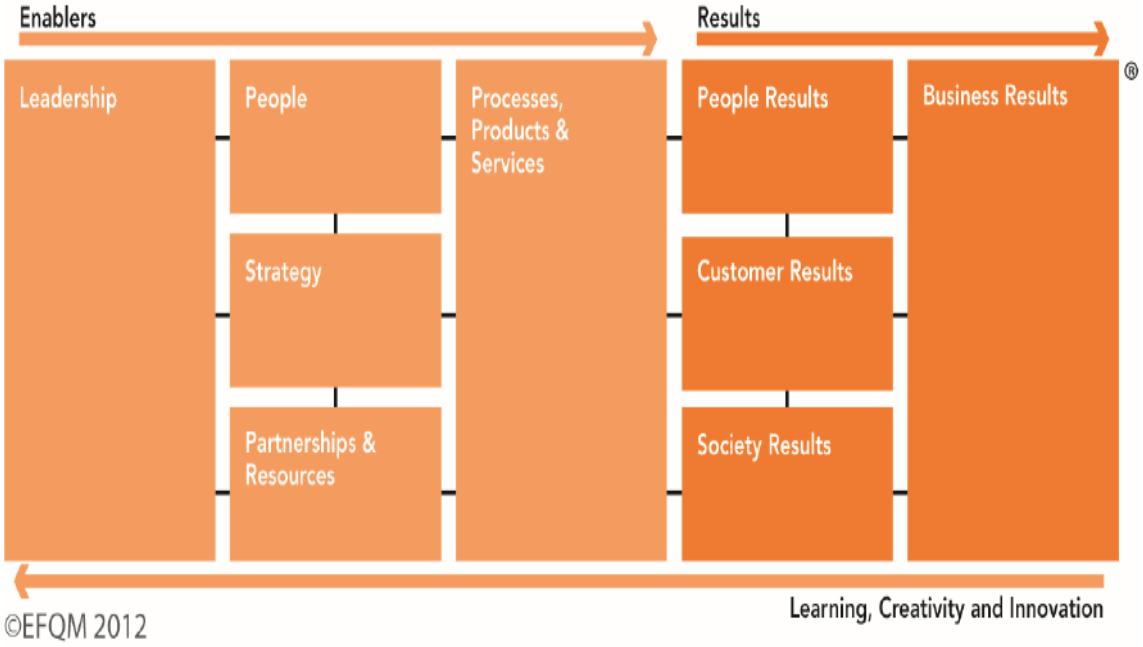

Figure 1: EFQM Excellence Model

Source: EFQM, (2013)

An OSHMS excellence model will be developed depending on the EFQM model which will be a good basis to help organisations to adopt OSHMS as a strategic choice to achieve business excellence.

OSHMS Model Components

- Leadership

Excellent organizations have leaders who create the future of the organization (EFQM, 2013). Chinda & Mohamed (2008) showed that leaders build up and assist the accomplishment of a mission and vision of safety, develop excellence values, and implement them through the proper actions and behaviors. They are concerned about make sure that the organization's safety culture is established and executed. In conclusion, leadership and management commitment to safety are accepted as a vital factor of an organization's safety and health (Dea & Flin, 2001). They can focus on how they themselves are engaged in leading improvement, confirming that every person in the organization, is conscious of their role in continuous improvement towards successful OSH management, recognition and rewarding, providing resources to enhance improvement, and promoting the success of their organization in achieving safety excellence (Wright, Brabazon, Tipping, & Talwalkar, 1999).

- People

Excellent organizations recognize their employees, build a culture that allows accomplishment of personal goals through developing their competencies, and promote justice and equality (EFQM, 2013). The people driver enhance how an organization manages, develop and disseminate the information and full potential of its workers, in order to plan and support the effectiveness of the processes and activities at all levels namely: individual, team-based, and organization-wide levels (Chinda & Mohamed, 2008).

When considering OSH, it is not only management input and participation in safety activities that is important, but also the extent to which management involves the workers (Niskanen, 1994). Involvement of workers can be through different means such as communicating with them, engaging them in a continuous dialogue about safety and risks, and involving them in problem solving (Michael S et al., 1999). Mohamed, (2002) gave an empirical evidence supporting that the level of the workers' involvement in safety activities positively affects the safety culture in the organization.

- Partnership & Resources

Partnership & Resources criterion refers to how an organization plans and manages its external partnerships and different parties, and required resources to support safety related policies and strategies, and the efficient process of its safety procedures (Chinda & Mohamed, 2008). Excellent organizations plan and manage its resources, external partnerships and suppliers, in a way that support their strategy, policies, and the successful operation of processes (EFQM, 2013). Michael and Brabazon (1999) showed that different resources including financial, information and technological, contractors, materials, buildings and equipment should be managed so a safer work environment is reached; safety culture is enhanced; and policy and strategy are supported (Wright et al., 1999).

- Policy & Strategy

Excellent organizations implement their Mission and Vision through stakeholder-focused strategy. These strategies are delivered by developing and deploying policies, plans, objectives and processes (EFQM, 2013). Policy & Strategy enabler shows how the organization implements its mission and vision related to safety through strong stakeholder focused strategies, reinforced by related policies, plans, goals and processes (Chinda and Mohamed, 2008).

According to Michael and Brabazon (1999), Policy & Strategy enabler looks at how the mission, values, and vision reveal positive safety culture and how this is shared with the internal people. Organizations reach its goals by implementing strategies; these goals include employee satisfaction, society expectations for safety performance; satisfying the safety laws and

requirements, and satisfying the shareholders' safety performance expectations (Wright et al., 1999)

- Processes

One of the main targets of excellent organizations is increasing significance for customers and other stakeholders through design, manage and improve processes, products and services (EFQM, 2013). Organizations carry its policy and strategies to completely satisfy, and increase value for, its customers, workers and other stakeholders, this is achieved by design, manage and develop its processes (Chinda & Mohamed, 2008).

Deming's (1993) statement, "We need better and better quality with less and less variation," displays that continuous quality improvement depend managing and conducting the processes in a way aimed to managing and continually reducing variation (Deming, 1993). Decreasing process deviations leads to different paybacks such as increasing output consistency, lessening of rework and errors, decreasing of waste, machine time, and materials (Deming, 1982). According to the underlying the Deming management method: "Process management practices simultaneously result in continuous improvement of quality and employee fulfillment" (Anderson & Rungtusanatham, 1994).

- People Results

Excellent organizations accomplish and endure outstanding outcomes that meet or exceed the requirements and expectations of their internal and external people including employees, customers, and relevant stakeholders (EFQM, 2013). Where objectives, with respect to workers, clients, society and business results, represent the final target the firm attempts to reach as a result of implementing excellence enablers (Chinda & Mohamed, 2008; EFQM, 2013).

In the OSHMS context, people results measure the organization's success in satisfying the health and safety expectations of its employees, such as risk expectations. These measures show how staff has confidence in safety management and feel safe. With respect to customer satisfaction, people results measure the success in satisfying safety legislation and customers' safety expectations, and proactive safety management practices. Where the society results are measured through success in satisfying the health and safety expectations of the community like social responsibility towards the local community to raise its awareness with respect to safety (Wright et al., 1999).

- Business Results

To reach excellence, organizations should achieve and sustain exceptional results that meet or exceed their business stakeholder's expectations (EFQM, 2013).Business results look at success in OSH performance against the predetermined internal and external standards (Wright et al., 1999). According to Fernández-Muñiz et al., (2009), there is a positive effect of

implementing an OSHMS on organization's performance. This performance can be measured in terms of safety performance, competitiveness performance, and economic-financial performance.

RESULTS

Empirical indication recommends that the implementation of comprehensive management models, such as the EFQM Excellence model, has a positive influence on organizational performance (Eskildsen, Kristensen, & Juhl, 2000). In light of this empirical justification, the non-prescriptive EFQM Excellence model is adopted as a suitable basis for the framework for this research study. The proposed model (see Figure 2) in this paper is an OSHMS Model incorporating EFQM Model.

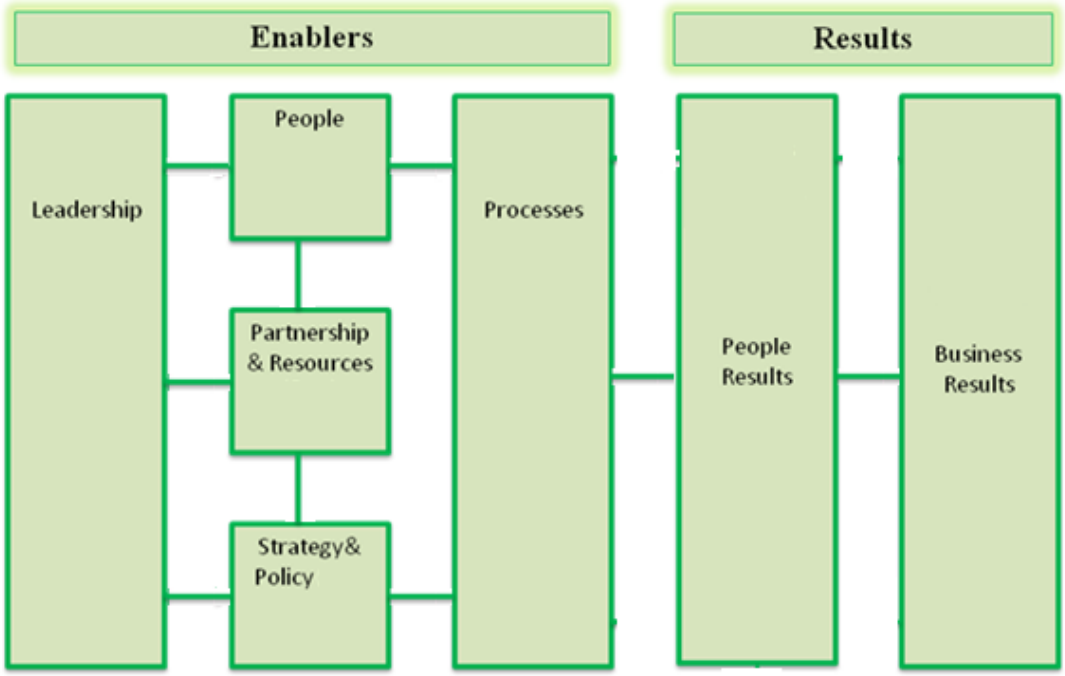

Figure 2: Research Framework

The present study provides insights into the interactions among OSHMS enablers on one hand, and the relation between those enablers and business excellence results namely: people results and business results on the other hand.

The study aims to examine the effect of implementation of OSHMS enablers on the business excellence results (OSH results, financial and non-financial results). A better understanding of implementing OSH management systems, and its key factors (enablers), will

positively help firms to strategically distribute resources and direct their efforts to ensure the development of their overall business results and safety performance.

The proposed model is presented in Figures 2, where it is supposed that leadership drives people management, policy & strategy, and resources. These drivers collectively affect the capability to realize preset people results which lead the organization to its business excellence via the implementation and enhancement of proper processes.

DISCUSSIONS

Although, the literature addresses some aspects of management in the OSHMS, which are limited to focus on creating and maintain safe working environment, and planning and controlling of hazards & risks. However, they lack other important managerial areas such as logics of managerial control, leadership aspects, worker empowerment, teamwork, motivation, reward and recognition, customer satisfaction, supplier quality management, impact on society, stakeholder's oriented policies, and overall business performance, which are the major components of TQM. Hence, there is a need for a comprehensive model that can be developed by integrating the OHS MS and TQM (Kitaw, 2016).

In addition, OSHMS has lately come across a growing expansion within organizations (Bottani, Monica & Vignali, 2009), but the main deficiency with most of safety models is the insufficiency of their combination into general organizational culture models (Choudhry, Fang, & Mohamed, 2007). Hence, to attain excellence in prevention, safety must be combined into all the organization's decisions and activities, and the prevention must be more organizational and strategic, concentrating on the key role that the human factor in the causal sequence of workplace accidents (Fernández-Muñiz et al., 2009; Rebelo et al., 2014).

Accordingly, this study aims to fill this gap by integrating occupational safety and health management system into the organizational business model through the proposed model.

The findings of this study concerning the contributing factors of OSHMS performance at the enterprise level are expected to assist in promoting awareness on OSH management at the level of organization and to formulate effective and efficient policies and strategies that provide safe and healthy working environment for optimum overall business performance, and this will ultimately create a basis for managers of the fact that OSHMS implementation in their companies is a strategic goal that they should reach to be able to compete and survive in the market.

Future studies are suggested to investigate the detailed OSHMS implementation and their determining factors in different types of companies. Organisational occupational safety and health performance results are also areas for further study. Furthermore, the future research

findings can be enriched through improvements in the collecting of suitable and appropriately processed data, the methodologies and procedures used to produce empirical evidence and subjective findings to provide evidence on the impact of implementing OSHMS on the business results and their excellence.

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