

Can excellence management models encompass “cleaner production” and “sustainable business” revolution? (European Foundation for Quality Management as a case study)

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Abstract “Environmental issues” along with raising awareness of people about the value of ecological systems and the growth of environmentalism have affected businesses systems and models by introducing new concepts and models for business such as sustainable business model. European Foundation for Quality Management (EFQM) Excellence Model provides a clear path for a company to follow in order to achieve its planned results which can be called sustainable business. The purpose of this study is to explore whether the mentioned model is suitable for the businesses that are based on cleaner production and sustainable business models. The method used in this study is an explorative one based on the literature review and exploration of the adaptability of EFQM Excellence Model (2013), including its fundamental concepts and its criteria, to eight archetypes of sustainable business. The results showed that out of eight fundamental concepts of this model, four are aligned with sustainable business model and four need redefining. Moreover, it was found that environmentalism should be added to the five enablers of the model, and results criteria of it needed to be restructured and redefined. In conclusion, it was shown that despite adoptability of the fundamental concepts of EFQM Excellence Model, there were some lacking criteria for adapting them to sustainable business model. Having this

in mind, a modified type of model with the new defined criteria was proposed in this study.

Keywords Green manufacturing · Environmental protection · Sustainability · Quality management · Cleaner production

Introduction

“Environmental issues” (United Nations Office for the Coordination of Humanitarian affairs, 2007/2008) such as climate change and global warming (Bandyopadhyay 2015) (have raised alarm of vulnerability and unsustainability of environmental resources (Randers 2012) along with raising people awareness about the value of ecological systems. The growth of environmentalism (Stern et al. 1999) has affected businesses systems and models by introducing new concepts and models of business like sustainable business model (Bocken et al. 2014) and green manufacturing (Deif 2011) or cleaner production (United Nations Environment Programme 2007; Fresner 1998).

Businesses are responsible for consuming maximum share of energy, production of greenhouse gases and wastes and posing damages to the environment. Consumerism culture that is advertised by business (Kotler 1971) is another concern to the speedy growth of environmental damage. Mitigation of environmental damage and degradation significantly and sufficiently to have a remarkable impact requires fundamental changes in the industrial systems, and an integrated approach that reconceives how businesses operate can align interests of all stakeholder groups including the environment and society as key stakeholders (Bocken et al. 2014).

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Sustainable business focuses on sustainability which is defined as “meeting the needs of the present generation without compromising the ability of future generations to meet their own needs” (World Commission on Environment and Development 1987). The term “green manufacturing” refers to a new manufacturing paradigm that applies different green strategies and techniques to become more eco-efficient (Deif 2011). Cleaner production has been defined by UNEP as “the continuous application of an integrated preventive environmental strategy to processes, products, and services in order to increase the overall efficiency, and reduce the risks to humans and the environment. Cleaner Production can be applied to the processes used in any industry, to products themselves and to various services provided in society” (Sustainable Business Association 2007). It refers to a series of initiatives by organizations in order to protect the environment and is intended to minimize waste and emissions and maximize products output (Yacooub and Fresner 2006). There is a conceptual connection between cleaner production and sustainability through assisting the industrial sector to engage in achieving sustainability goals (Geiser 2001). Cleaner production and green manufacturing are the concepts incorporated in the heart of sustainable business models (Yacooub and Fresner 2006; Almeida et al. 2015).

Development of a method for analyzing and improving sustainability of a society has been claimed to assist the advance of transitional process toward increasing sustainability (Nielsen and Jorgensen 2015). Since 1950, much attention has been paid to quality management and its analysis (Gómez Gómez et al. 2011), which later on resulted in generation of excellence business management models or systems in order to improve the management and business results (del Mar Alonso-Almeida and Fuentes-Frías 2012). Deming Prize in Japan, the Malcolm Baldrige National Quality Award (MBNQA) in the USA, the European Foundation for Quality Management (EFQM) Award in Europe, the Ibero-American Management Excellence Model in Latin America and the Australian Quality Award in Oceania (del Mar Alonso-Almeida and Fuentes-Frías 2012) are examples of such improvements. EFQM is a model which is used extensively in many Asian countries including Iran. This model is based on principles of total quality management (TQM) (Calvo-Mora et al. 2012) and is a step forward after ISO 9000 certification (Gómez Gómez et al. 2011).

The elements of the EFQM Excellence Model provide a clear path for a company to follow to achieve its planned results. In fact, 50 % of a company score depends on its results with customers, workers, society and its key results. In addition, EFQM can be useful as a self-evaluation tool for each organization (Van der Wiele et al. 1996; Samuelsson and Nilsson 2002; Ahmed et al. 2003)

The EFQM presents a flexible framework for analysis of the relationship between organization processes and systems and the results that it can achieve (Ghobadian and Woo 1996). The EFQM Excellence Model claims that it can provide a “holistic tool” for assessing effectiveness of any business in developing and delivering a stakeholder-focused strategy. However, with the emergence of new concepts and models like sustainable business model (Bocken et al. 2014) and green manufacturing (Deif 2011) or cleaner production (Fresner 1998), adoptability of this model as a useful tool for bringing excellence to these new models is a matter of concern. The excellence model proposed for cleaner production has a limited perspective and cannot be generalized to more comprehensive model such as sustainable business model (Sustainable Business Association 2007). Therefore, the purpose of this study is to explore whether EFQM Excellence Model is suitable for businesses that are based on cleaner production and sustainable business models.

Materials and methods

The method used in this study is an explorative one based on the literature review and exploration of the adaptability of EFQM Excellence Model (2013) to sustainable business models. EFQM is based on eight fundamental concepts and nine criteria (Five “Enablers” and four “Results”) (European Foundation for Quality Management 2013). The eight fundamental concepts include “adding value for customers,” “creating a sustainable future,” “developing organizational capability,” “harnessing creativity and innovation,” “leading with vision, inspiration and integrity,” “managing with agility,” “succeeding through the talent of people” and “sustaining outstanding results” (European Foundation for Quality Management 2013). Also, the five enablers in this model include leadership; people; strategy; partnerships and resources; and processes, products and services (European Foundation for Quality Management, 2013). Moreover, the four results criteria include customer results, people results, society results and business results (European Foundation for Quality Management 2013). The fundamental concepts and criteria of EFQM were used in exploring the adaptability of EFQM Excellence Model to cleaner production and sustainable business models in this study.

Bocken et al. (2014) have introduced the eight archetypes of sustainable business, which make the basis of sustainable business models in this study. “Maximizing material productivity and energy efficiency” is defined as “doing more with fewer resources, generating less waste, emissions and pollution.” “Creating value from waste” means that “turning waste streams into useful and valuable

input to other production and making better use of under-utilized capacity.” “Substitution with renewables and natural processes” refers to reducing environmental impacts and increasing business resilience by addressing resource “limits to growth” associated with non-renewable resources and current production systems. “Delivering functionality, rather than ownership” means “providing services that satisfy users’ needs without having to own physical products.” “Adopting a stewardship role” refers to engaging with all stakeholders proactively in order to ensure their long-term health and well-being. “Encouraging sufficiency” means finding “solutions that actively seek to reduce consumption and production.” “Repurposing the business for society/environment” means “prioritizing delivery of social and environmental benefits rather than economic profit (i.e., shareholder value),” and finally “developing scale-up solutions” means “delivering sustainable solutions at a large scale to maximize benefits for society and the environment” (Bocken et al. 2014). These eight key archetypes were used in exploring the adaptability of EFQM Excellence Model to cleaner production and sustainable business models in this study.

Results and discussion

The present study, for the first time, theoretically examined the EFQM Excellence Model comprehensiveness to encompass emergence of new business models like sustainable business model. For this purpose, eight fundamental concepts of EFQM and nine criteria (five enablers and four results) of EFQM Excellence Model were considered to examine its adaptability to eight archetypes of sustainable business model developed by Bocken et al. (2014).

Adapting EFQM fundamental concepts to sustainable business model

Adding value for customers

Increase in individual level of understanding about the importance of environmental protection and sustainability as well as social movements toward environmentalism forces firms to value and respect the need and demand of customers for enhanced efficiency in use, product longevity/durability, energy efficiency (Bocken et al. 2014) and more eco-friendly productions (Engardio et al. 2007). Therefore, to adapt this concept to sustainability models, new emerging values of customers should be considered or new values such as sustainability and sufficiency should be promoted actively by the firms among the customers.

Creating a sustainable future

This concept aligns with the concepts of sustainable business model which emphasize that businesses should consider advancement of economic, environmental and social conditions. Under this concept, all the concepts related to maximizing material productivity and energy efficiency, investment on waste and waste as value, creating renewables and natural processes, minimizing the non-renewable resources, delivering functionality instead of ownership, and sufficiency to maximize benefits for society and the environment could be incorporated and defined.

Developing organizational capability

By “re-purposing the business for society/environment” (Bocken et al. 2014), many new capabilities are required to be created within and beyond the organizational boundaries. Within the organization, capabilities related to productivity, efficiency, creating resources out of wastes, innovations to be substituted with renewables and natural processes are required to be generated; and beyond the organizational boundaries, capabilities for a shift in receiving “functionality rather than ownership” as well as “enhancing sufficiency” (Bocken et al. 2014) are required to be generated among all stakeholders. It is mentioned that in order to adapt to sustainable business practice, organizations should strive to develop internal capabilities to become economically, ecologically and socially sustainable (Seidel et al. 2010).

Harnessing creativity and innovation

Creativity and innovation is essential for repurposing the business for society/environment in order to maximize material productivity and energy efficiency, to substitute the current products with renewables and natural processes, to deliver functionality and encourage sufficiency (Bocken et al. 2014) and finally to reduce, control, eliminate and prevent waste (Deif 2011) or turn waste into resources (Bocken et al. 2014). It is claimed that sustainability initiatives should differ due to their ambiguous, multi-dimensional and multi-functional nature (Fust and Walker 2007).

Leading with vision, inspiration and integrity

Creating a sustainable business should be the vision and inspiration of management systems and leaders of each business. Leadership should integrate and deploy systems that encourage minimization of consumption and maximization of societal and environmental benefits, and create a system where nothing is allowed to be wasted or

discarded into the environment (reuses, repairs and remakes). Such a system emphasizes delivery of functionality and experience, designed to provide fulfilling and reward experiences for all that enhances human creativity/skills, and is built on collaboration and sharing rather than aggressive competition (Bocken et al. 2014).

Managing with agility

Effective response to emerging issues related to sustainability of businesses is an opportunity available to each business, which should be recognized and addressed vigilantly.

Succeeding through the talent of people

Considering community as a key stakeholder in sustainable business models (Bocken et al. 2014) necessitates the creation of an empowerment culture in order to create a mutual collaboration for protection of environment by transforming the behavior and preference toward goals of sustaining business models.

Sustaining outstanding results

Sustainability of a business is the key component for addressing needs of all stakeholders in each business.

Table 1 shows the concepts of EFQM Excellence Model that are aligned with sustainable business model or need redefining to become aligned with it.

The excellence model for cleaner production proposed in this study offers eight fundamental concepts as leadership and management commitment; employee's motivation; pollution prevention; recycling, reusing and recuperation; energy efficiency; economic sustainability; social responsibility and continuous improvement (Sustainable Business Association, 2007). However, these concepts need to be extended to sustainable business model as explained above.

Adapting EFQM criteria to sustainable business model

The five enabler criteria in EFQM are leadership; people; strategies; partnership and resources; and process, procedures and services, which cover what and how an organization performs (European Foundation for Quality Management 2013). These enabler criteria can be elaborated as follows:

Leadership: Sustainability of a business mainly depends on the leaders or managers who shape the future, define values and systems based on sustainability, and harmonize the desired results of a company with the benefits of all stakeholders including environment and community, as key stakeholders, who consider their human resources health and well-being and their customers as their collaborators in preserving the environment. The leader should create a nurturing and enabling environment for all stakeholders, and repurpose and reshape the business values and ethics toward sustainability. Fust and Walker (2007), emphasized that companies with successful sustainability initiatives should have credible leaders who combine sustainability issues and opportunities into the company's achievement.

People: Overall well-being and comprehensive health, empowerment for enhancing productivity and efficiency, encouraging creativity for generating cleaner production and eliminating waste and turning it to resources, creating a culture of mutual collaboration for sustaining business in an atmosphere of fairness and making commitment to use their skills and knowledge for sustaining the business are people enablers of a sustainable business model.

Strategy: Strategy is defined as “plan, method, or series of maneuvers or stratagems for obtaining a specific goal or result” (Modern Language Association, 2014). Vision, mission, policies, plans, objectives and processes, in the firms that follow sustainable models of business, are developed to deliver cleaner production, to promote health among human resources and general community, and to encourage productivity as enabler strategies. Fust and Walker (2007) emphasized that in the sustainable business models, execution strategies are required to involve numerous functions and disciplines, and also to provide an understanding about the multiple interrelated issues that should be managed simultaneously.

Partnership and resources: Partnership in an atmosphere of collaboration and not aggressive competition (Bocken et al. 2014) is a key element in creating sustainability. Partnership for reusing waste as raw material and resource, for supplying more eco-friendly raw material and technologies, for providing cleaner production, for reducing waste in the form of damaged products or over products or over processing and for joint use of energy are necessary in establishing a sustainable business through close partnership between the firm and local communities and other stakeholder groups (Bocken et al. 2014).

Process, procedures and services: Process, procedures and services should be designed to be clean and green and to promote sustainability for all stakeholders including

Table 1 Concepts of EFQM Excellence Model which are either aligned with sustainable business model or needing to be redefined to become aligned with it

EFQM basic concepts	Consistent with sustainable business model	Need redefining	Example of concepts to be considered or incorporated
Adding value for customers		*	Considering the need of customers for enhanced efficiency in use, product longevity/durability, energy efficiency and more eco-friendly production
Creating a sustainable future	*		Maximizing material productivity and energy efficiency Investment on waste and waste as value Creating renewables and natural processes Minimizing the non-renewable resources Delivering functionality instead of ownership; sufficiency to maximize benefits for society and the environment
Developing organizational capability		*	Capabilities related to productivity, efficiency, creating resources out of wastes, innovations to be substituted with renewables and natural processes, shift in receiving functionality rather than ownership and enhancing sufficiency
Harnessing creativity and innovation		*	Creativity and innovation for repurposing the business for society/environment
Leading with vision, inspiration and integrity		*	Creating a sustainable business as the vision and inspiration of management system Integration and deployment of a system that encourages minimization of consumption and maximization of societal and environmental benefits Creating a system where nothing is allowed to be wasted or discarded into the environment A system that emphasizes delivery of functionality and experience, designed to provide fulfilling Rewarding work experiences for all that enhance human creativity/skills Building on collaboration and sharing, rather than aggressive competition
Managing with agility	*		Effective response to emerging issues related to sustainability of businesses as an opportunity
Succeeding through the talent of people	*		Empowerment of protection of environment, and transforming the behavior and preference toward goals of sustaining business model
Sustaining outstanding results	*		Sustainability of a business as a key component

* Shows the category

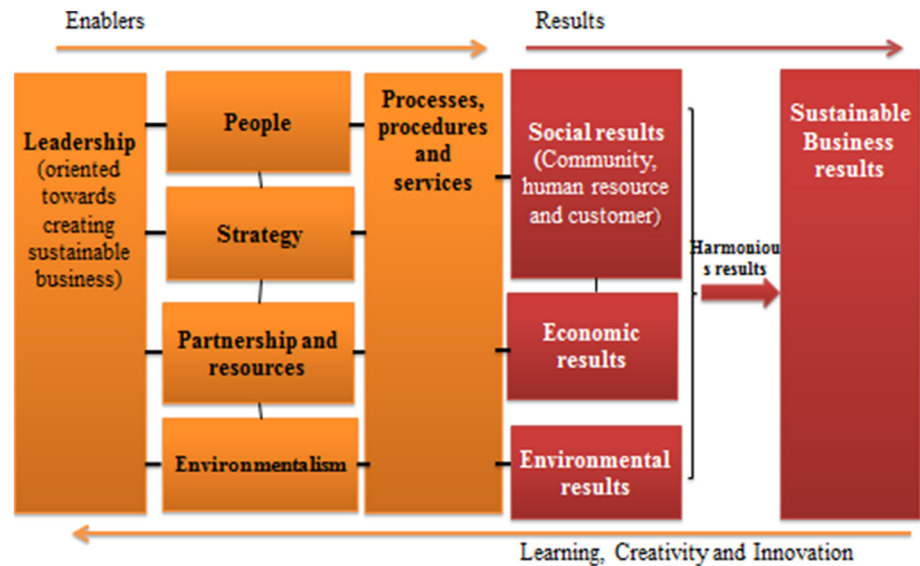
customers, community, environment and value sustainability as core value of the business.

Considering the five above-mentioned enablers of EFQM Excellence Model, it is concluded that they can be adapted to create sustainable business model; however, environmental preservation activities and environmentalism both in collaboration by society or by the firm itself can

be considered as a new enabler criterion in sustainable businesses (Fig. 1).

The five enablers in cleaner production excellence model are: policy, strategy, implementation, monitoring and diagnosis (Sustainable Business Association, 2007). However, these five enablers are incorporated into the heart of the general EFQM business excellence Model enablers

Fig. 1 Proposed criteria for EFQM to encompass sustainable business models



and can be adopted to bring excellence to sustainable businesses, as mentioned above.

The four results criteria in EFQM include people results, customer results, society results and the key business results (European Foundation for Quality Management 2013). These four results criteria can be reshaped to meet the needs for sustainability. As in sustainable business models, environment and community are considered as key stakeholders, and their results should be considered as essential criteria and achievements in sustainable business models. Therefore, the modified results criteria are proposed to be social results (including human resource, community and customers), economic results and environmental results, which in harmony and balance form the business results. This harmony is necessary for creating a “win–win situation” that businesses can improve their environmental performance while gaining economic growth (Deif 2011). In this scenario, social results include: human resource results (such as being healthier, safer, more empower, more efficient and more productive), community results (such as being more aware, and more cooperative and collaborative in sustaining the business) and customer results (such as being empowered by new attitudes toward efficient consumption which is more satisfied by more usable products and products that consume less material and energy (Deif 2011), preferring receiving functionality rather than ownership (Bocken et al. 2014) and being a key stakeholder in promoting sustainability). Economic results can be achieved through saving energy, making money of wastes, more productivity and making more value of the products which are eco- and environ-

mental friendly. Environmental results include: cleaner production, less constraint on resources, less waste and more sustainability (Fig. 1). United Nation, which promotes the cleaner production programs, claimed that they can improve competitiveness, productivity and efficiency of enterprises (Willson 2011), which can be considered as business results.

The three results from cleaner production excellence include: environmental results, social results and economic results (Sustainable Business Association, 2007) similar to what proposed in this study. Economic growth results of implementing cleaner production and sustainable business model have been identified and explained in other studies. Khalili et al. (2015) reported that clean production leads to protection of both economic growth and environmental values, specifically in an industrial sector. Gómez Gómez et al. (2011) in a critical evaluation of the EFQM Excellence Model have argued that this model has a shortcoming on its criteria and could not behave as is expected while examined empirically. This study also theoretically examined adoptability of EFQM Excellence Model and showed that despite adoptability of its fundamental concepts, there would be some lacking criteria for adoptability purpose. Therefore, the present study proposed a modified version with the new defined criteria.

Study limitations

The main study limitation is that the proposed model is a theoretical model; empirical researches in different businesses settings are required in order to test the proposed

model, validate it and to identify the weighing factor for the new proposed items.

Conclusion

The present study was the first attempt to examine the adoptability of excellence model, specifically EFQM Excellence Model (2013), in a newly proposed sustainable business model, non-empirically. The proposed eight archetypes of sustainable business model were fitted in the framework and provided by EFQM Excellence Model including its eight fundamental concepts and nine criteria. This study showed that half of the fundamental concepts of EFQM Excellence Model are aligned with sustainable business model and four of them need redefining. Moreover, it showed that environmentalism could be added to the five enablers of EFQM Excellence Model. This study also showed that results criteria of EFQM model needed to be restructured and redefined to include social, environmental and economic results which, in a harmonious growth, could make the business results.

In conclusion, it was shown that despite adoptability of the fundamental concepts of EFQM Excellence Model, there were some lacking criteria for adapting it to the sustainable business model. Therefore, a modified version with the new defined criteria was proposed.

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