Human factors in the context of excellence models: European Foundation for Quality Management (EFQM) excellence software model and cross-cultural analysis

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Abstract

Organizational excellence models are designed as frameworks for assessing organizations to qualify for awards and to recognize organizations that achieve high levels of performance. All excellence awards normally employ models; models are the frameworks that structure the evaluation measures, as well as encourage improvements and set standard performance benchmarks. Regional schemes based on the EFQM model cover all characteristics of organizational performance, as do other excellence models and awards, such as: the Deming Prize; the European Quality Award and Malcolm Baldrige National Quality Award. In most cases, these models are analysed on the basis of their differences. This research paper shows that they share common elements too, namely human resource (HF). HF turns out to be "the living resource" from the organizations. HF is present in the evaluation criteria of all the excellence models. Models and awards encompass discrete aspects of organizational performance. No matter which of the models is used, it is important to fulfil each criterion, but the most important are the links between these criteria and how they are reflected in the performance of the organization. The paper introduces a self-assessment software tool designed on EFQM excellence model in order to determine an overall index, considering the level of fulfilment of each criterion and the “visible” and “invisible” influences between decisive factors and sub decisive factors of the model. The criteria are analysed according to the HF action, which has the highest incidence at both enablers and results levels. The proposed model provides a comparative basis for cross-cultural analysis regarding the performance of the organizations.

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1. Introduction

In most cases, when researchers compare excellence models, they are analyzed on the basis of differences. We want to show that organizational excellence models also share common elements, namely human factors (HF). HF turns out to be "the living resource" from organizations. HF is present in the evaluation criteria of all common organizational excellence models [1, 2].

Models and awards have been developed to cover various aspects of organizational performance: for example “Investors in People” accreditation is a HF oriented model for organizations with a framework for business improvement through people management [3, 4]. No matter which of the models is used, it is important to fulfill each criterion, but the most important are the links between these criteria and how they are reflected in the performance of the organization. When executed effectively such “integrated management frameworks” define all of the aspects of managing an organization: leadership; premeditated planning; patrons; measurements, analysis, and knowledge management/scientific methods; the workforce/people and human resource development; operations/processes, products and services and organizational powers; and results [5]. The individual components and how they are related with each other defines the achievement of an organization and its general managing system [6].

The design of our self-assessment software tool is based on the European Foundation for Quality Management (EFQM) organizational excellence model. Our approach takes into account the innerorganization of the EFQM, the key relationships among criteria, interrelationships caused by latent factors and their contribution to the overall index [7]. The EFQM model, as a total quality management (TQM) framework, considers that excellence involves satisfying and maintaining a balance between the needs of all the stakeholders, including: employees/people, consumers/customers, partners/suppliers, environment, society, community and so on [8]. The total quality management key concepts are to pursue quality in the implementation of all the spheres within an organization and to integrate the quality culture into the organizational culture. In this way the EFQM (based on TQM) addresses all the aspects of an organization and both parts of the organization and as a whole.

2. The human factor – Common element allowing a differentiation of approaches on excellence models

Excellence models and related prizes are adapted to the local features of organizational cultures in companies which are influenced by their various countries, regions or, even, continents. We are dealing with differing mindsets, heritages, traditions, ways of understanding evolution, performance and progress [9]. Every culture has its performance appraisals models: however the benchmarks based on these, even those from other cultures have similar underlying performance indicators. Mostly the definition of quality is global and the criteria for assessing the quality are based on standardized principles and common human factors.

Today, organizations consider the human factor when making their strategic quality policies because they now view external customers and internal customers (employees) as equally important. Performance, both external and internal is vital and related. Consequently, we see more and more involvement of human factors in models like EFQM.

The Human Factor, even though it is the substantiating item of various models and the main factor in organizations, differentiates the spectrum of excellence models and prizes. The term “Human Factors” is used here to describe the inter-action of individuals with each other, with facilities, and with management systems. Various models treat human factors differently (see Figure 1), and these models are adapted to changes and continuously evolved, according to the local and global conditions [10].

Further, the entire variety of available models dispose of criteria linked to human factor’s action, while its quantification is performed through the intermediate of percentage or points rating methods. These kinds of approaches, intended to quantify the quality of human factors, do not succeed in totally capturing the complexity and variety of human factors in action. For this reason we propose to develop a model that emphasizes the “visible” and “invisible” relations among the EFQM European Model criterion [11]. The main characteristics, criteria and the modeling of the EFQM are described and discussed in the next “Proposed Model” section.
3. The proposed model

The paper proposes a self-assessment software tool based on the EFQM model [11]. Such a tool is required to help organizations self-assess their organizational performance and enable local adaptation of the EFQM model to their own personal needs and criteria. It allows managers to determine a global index as a measure of the organization’s performance, expressing the effectiveness their actions and the degree of continuous improvement. The main characteristics of the proposed tool are:

- An index that highlights the overall performance of the entire organization, taking into account the “visible” and “invisible” links among criteria;
- An analysis function that determines, for each criterion, which actions have the highest impact on both Enablers and Results levels;
- An ability to customize the software tool for the other models in the future, and provide a comparative basis for cross-cultural analyses of performance at different organizations.

The software self-assessment tool based on EFQM has a user-friendly intuitive interface that highlights Enablers, Results and the relationships among them as a diagram, (Figure 2). Computing each element of the model, identifying influences and determining the global index of criteria, using the following equation:

\[
\text{index} = \frac{\sum_{j=1}^{n} \sum_{i=1}^{n} p(j)H(i,j)h(i,j)}{\sum_{j=1}^{n} p(j)\sum_{i=1}^{n} h(i,j)} \times 100
\]  

Fig. 1. Human factor: the link between the EFQM excellence models.
The Enablers nodes in the diagram from Figure 2 are the:
1. Leadership
2. Strategy
3. People
4. Partnerships and resources
5. Processes, products, services

The Results notes in the diagram are:
6. Customer result
7. People result
8. Society result
9. Key Results

and the arcs are the relationships between them.

As can be noticed from the excellence models in Figure 1, “Leadership” appears as a common element in each. This is why we chose to analyze Leadership in the context of our paper. A well-known definition of Leadership, given by Chemers is “a process of social influence in which a person can enlist the aid and support and others in the accomplishment of a common task.” (Here the ‘influence’ is in the society and the willing obedience among the masses; ‘support’ refers to collective support and accomplishing goal as a whole team, not individual aims, and the task ascertained in the strategic planning.) [1].

The global index interpretation is useful when applying the EFQM model for assessing organizational performances. In the context of Total Quality Management, decision-makers are required to focus both on human factor and technical dimensions, considered as drivers of performance. Applying the proposed tool managers can anticipate measures and actions needed in the targeted towards improvement of both human factors and technical dimensions, also maintaining a steady balance.
4. Software prototype

Screen captures of organizational assessment using our EFQM - based self-assessment software tool, are presented in this section. If we want to quantify the influences between criteria, we can use a Predefined Influences pattern (with the possibility to Maximize Influences or Minimize Influences). The user interface shows the influences between Enablers (both criteria and sub-criteria), between Enablers and Results and also between Results (both criteria and sub-criteria).

A first approach implemented in the self-assessment tool is the case with no influences: this demonstration considered only the level of fulfillment of each criterion and their weights in the EFQM model, as presented in Figure 3.

A second approach implemented in the self-assessment tool is the case computing the global index based on the level of fulfillment of each criterion, their weight considered in the EFQM model, and taking into account the predefined influences between criteria, presented in the adjacent matrix, as shown in Figure 4.

![EFQM based Self Assessment Diagram](image-url)

Fig. 3. No Influences case.
The software tool contains means to introduce the fulfillment level of each criterion, as is shown in Figure 5 for the Leadership criterion. The user can either manually introduce this value or can apply a predefined questionnaire.

5. Conclusions

The proposed model can be a useful tool for organizations assessment, enabling a global index computing as a measure of the organization’s performance. We emphasized the influences that may occur between the criteria and sub-criteria of the EFQM model as a means to determine the implications of the human factor in the overall index. Highlighting the influences connected to the human factor actions can lead to improvement solutions, acting on the
fulfillment level of certain criteria by which they influence other criteria. The software tool can be used to simulate cases of increase of fulfillment level of human factor actions, which can generate various interpretations of the human factor actions implications. This software self-assessment tool is a flexible application. The applications are more generic in nature and can be applied to different organizations and cultures. We have implemented and presented in this paper only the European Excellence Model in order to validate the considered methodology, but there can be developed similarly a graph representation and mathematical model for a global index computing for any other excellence model, like Baldridge award model or Deming prize specific model.

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References