

Designing the spectrum of quality management maturity and determining the membership degree of the attributes

Dariush Mohamadi Zanjirani*

Department of Management University of Isfahan, Iran, dar_mohamadi@yahoo.com

Parnaz Pahlavanzadeh

Department of Management, University of Isfahan, p.pahlavanzade70@gmail.com

Purpose: The aim of this study is to develop a dynamic and flexible procedure for designing the spectrum of quality management maturity as well as measuring and determining the membership degree of each quality management characteristic to different levels of this spectrum. The model is essentially based on the evolution of the quality management systems and provides a basis for calculating the organizational maturity in quality management and determining its position in the maturity spectrum.

Design/methodology/approach: The four levels of the spectrum of the quality management maturity have been defined and designed. Then, the fuzzy Kano questionnaire has been developed, followed by examining changes in the membership degree of each attribute to different levels of the maturity spectrum. Based on the analysis of quantitative results from the experts' point of view, relative importance of the degree of quality management characteristics to various levels of the maturity spectrum was determined; in other words, for organizations at higher levels of the quality management maturity, tools/techniques have been considered as fundamental or functional, while for lower levels, they have been considered as motivational and attractive.

Findings: The analysis of quantitative results indicated the relative membership degree of the quality management attributes to different levels of maturity and these differences varied from the motivational aspect to the questionable dimension depend on the competitive position of the organization.

Practical implications: The results of this study was used to prioritize the capabilities associated with the characteristics of each maturity level in those organizations that intended to improve competitiveness while adhering to the prerequisite principle. This study also provided a basis for assessing the maturity of quality management by focusing on the deployment of such characteristics. This study also provided a basis for prioritizing and establishing the needed and relevant capabilities associated with such characteristics based on their interdependencies. In the case study, 28 well known characteristics of quality management were exploited in the competitive environment of Iran. Obviously, the proposed model was found to have the capability of applying different characteristics in higher levels of competitiveness.

Social implications: According to the climatological features of quality management systems at the national level, the terms 'infancy', 'stripling', 'hobbledehoy' and 'adolescent' were also used to classify the levels in the maturity spectrum. Since deploying any of the characteristics and developing the associated capabilities is an improvement project, firms can refer to their maturity level of quality management to invest in and to deploy the quality management characteristics.

Originality/value: Achieving excellence in quality is an incremental process that will often be achieved by adoption and deployment of a set of attributes the quality management (values, methodologies, and tools). Given the fact that achieving higher degrees of quality depends on increase in the adoption of products and services in response to the changing needs of customers, the maturity of quality management is also incremental and can be illustrated and visualized through a spectrum. The dynamics of the quality management systems and the complexity and ambiguity of their measurement have led to challenges in providing the scientific and

* Corresponding author

Copyright © 2020, University of Isfahan. This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by-nc-nd/4.0/>), which permits others to download this work and share it with others as long as they credit it, but they cannot change it in any way or use it commercially.

executive methodologies for measuring quality management maturity, which in turn resulted in some limitations in the theoretical framework. To fill this theoretical gap, in this study, the focus on the indicators of quality improvement was changed for the purpose of investigating maturity. In other words, in order to determine the degree of organization maturity in the field of quality management, the basic focus was on applying and deploying quality management characteristics, i.e. values, techniques and tools, while the proposed methodology opened a new window for future studies.

Keywords: Quality management, Spectrum of maturity, Kano model, Fuzzy logic, Membership degree, Characteristics