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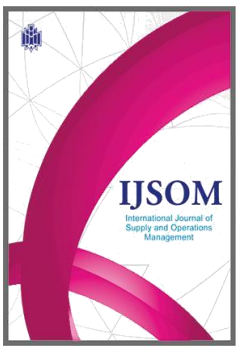

Selecting Total Quality Management (TQM) Best Practices in the Hotel Industry Environment: A Hybrid Model based on DEMATEL and ANP

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Abstract

Recently, developing strategies for sustainable development (SD) in the hotel industry has been seen globally as a crucial issue. Numerous management systems can assist the hotel industry in creating sustainable performance, such as Total Quality Management (TQM) which is well-reputed in the industry. As such, selecting TQM under an evolving hotel industry environment is seen as an important decision from a strategic perspective given it constitutes contradictory practices, thereby making it a multi-criteria decision-making (MCDM) issue. In achieving this aim, a Decision-Making Trial and Evaluation Laboratory (DEMATEL) approach was adopted in determining the inter-relationships between the primary practices and sub-practices in addition to applying the Analytic Network Process (ANP) for examining the weights of primary practices and sub-practices. In other words, this study aims to provide innovative insight to researchers and practitioners to examine the TQM optimal practices to be implemented incrementally in phases within the hotel industry environment.

Keywords: total quality management; sustainable development; multi-criteria decision making; decision-making trial and evaluation laboratory; analytic network process; hotel.

1. Introduction

The fast-paced and revolutionary change within the hotel industry has resulted in many new challenges for management toward sustainable development (SD) (The Sustainable Development Goals Report-United Nations, 2018). This is especially relevant given the hotel industry ill-prepared to adopt sustainability measures given the global economy and competition within the global markets, in addition to new technologies and information systems that are added challenges (Cohen et al., 2015b). As a result, these external factors have brought about internal changes and the evolution of new management strategies, philosophical changes, and practices within the hotel industry.

To remain competitive, operational hotel enterprises should review their strategies regularly to manage and implement different approaches, such as Total Quality Management (TQM) (Sin & Jusoh, 2019; Bouranta, Psomas, & Pantouvakis, 2017). TQM is recognized as sharing corresponding purposes and standard implementation practices regarding the organization's sustainable management system (Nguyen, Phan, & Matsui, 2018). Moreover, TQM enables hotels to differentiate their practices and operations regarding wastage, cost savings, brand recognition, customer loyalty and satisfaction, and competitors (Junior, Lucato, Vanalle, & Jagoda,

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2014). Therefore, it is essential to understand the concept of TQM concerning sustainable performance within this sector.

However, choosing a suitable TQM system for sustainable performance of the hotel industry is complicated given considerations relating to practices, features, requirements, and wide-ranging practices (Bouranta et al., 2017). In addition, those making decisions must choose the most suitable TQM practices, particularly for four and five-star hotels, in addition to deciding on other elements such as the design of services, products, customer relationship management (CRM), process management, management of employees, and leadership. Many of these elements are difficult to express financially, thus making them difficult to quantify (Chen, 2016). As such, choosing a TQM system is a complex multiple-criteria decision-making (MCDM) issue. The decision-making process as portrayed in Figure 1 fits well with TQM best practices selection since the intelligence, design, and choice phases can be vividly determined.

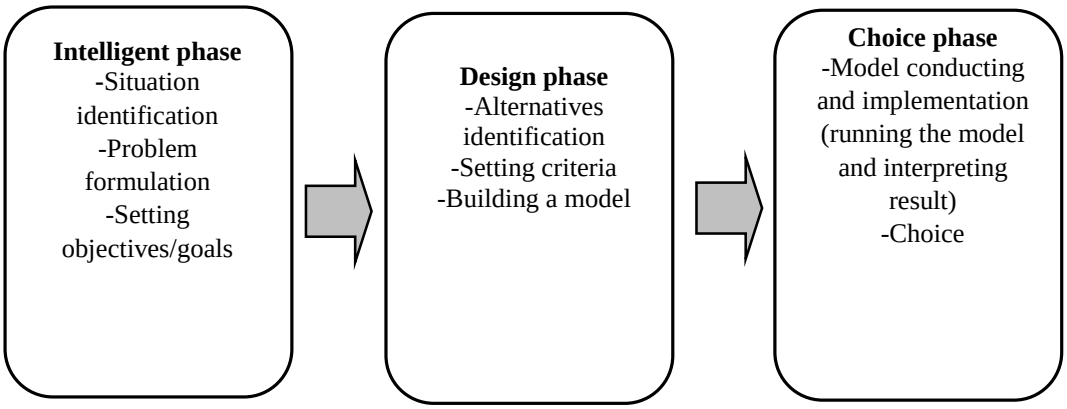

Figure 1. Decision-Making Process
Source: Adapted from Pedersen *et al*. (2016), pg. 27.

In such a complex system, the majority of practices are interrelated, and is challenging for those making decisions to distinguish between both (Hsu, Tsai, & Tzeng, 2018). The preferred approach is to distinguish between these practices into a cause-and-effect category to acknowledge the inter-relationships referred to as interdependency relationships (Gomes, Fernandes, & Soares de Mello, 2014). Accordingly, the present study adopts the MCDM measurement approach to evaluate the benefits of choosing a TQM system to assist management by offering a way to distinguish best practices and to develop and acknowledge interdependencies in multi-attribute decision analysis.

The MCDM approach is applied in numerous fields such as education, finance, economics, environmental protection, medicine, and engineering (Garg, 2019; Gong, Simpson, Koh, & Tan, 2018). Given the many uses and applications, the method has become quite common in operational research and management science (Sin, Jusoh, & Mardani, 2020). Moreover, the MCDM approach is more efficient to assist decision-makers in choosing a discrete set of options and decisions, compared to other conventional measurement tools or numerical approaches (Hsu et al., 2018). Among the different techniques to rank specific alternatives and options, MCDM appears to be the most acceptable, since it can save computing time without forgoing measurement quality (Zamani-Sabzi, King, Gard, & Abudu, 2016).

Accordingly, this study aims to investigate the effectiveness of the MCDM approach regarding the assessment and to choose suitable TQM best practices within the hotel industry in Malaysia by applying DEMATEL (Decision-Making Trial and Evaluation Laboratory) and the ANP (Analytic Network Process). The DEMATEL approach is applied to adapt the assessment item's significance and to gauge the influence of its causal relationship and causes (Altuntas & Dereli, 2015). Whereas, the ANP model was adopted to gauge the significance of the assessment criteria in addition to prioritising the categories involved in the scheduling of problems and project selection (Yang & Tzeng, 2011). The combination of DEMATEL and ANP is expected to offer more standard and proportional weight values, in comparison to conventional approaches that neglect the existence of interrelations between TQM practices (Chen, 2016).

Through this integrated approach, the inter-relationships between the practices, which are not only supported via the literature review but also confirmed by the opinion of experts are analysed. ANP was used to determine the significance of TQM and used to identify how TQM is weighted and prioritised by management representatives