

# Developing a hierarchical model to enhance business excellence in hotel industry of Bangladesh

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## Abstract

**Purpose** – The study aims to develop a hierarchical model based on the Malcolm Baldrige National Quality Award to enable the ranking of quality dimensions required for achieving business excellence in the hotel industry of Bangladesh.

**Design/methodology/approach** – The study adopted a sequential mix method approach in which semi-structured interviews with 24 participants were initially conducted during the qualitative stage to identify the quality dimensions. Subsequently, a questionnaire survey was conducted among 40 industry experts to prioritise the identified elements using the relative measurement of the analytic hierarchy process (AHP). In total, 32 respondents were further surveyed to evaluate a selected number of hotels in Bangladesh using the absolute measurement of AHP.

**Findings** – The study uncovered eight criteria, together with 23 corresponding sub-criteria during the qualitative stage. Quality management emerged as the most crucial criterion, while health and safety-security measures were the most important sub-criteria in addressing the quality management criterion. In Bangladesh, five-star hotels were observed to be performing better than three-star and four-star hotels.

**Originality/value** – The developed model is unique and can be used by Bangladeshi practitioners to measure the performance of hotels. Moreover, it can also be applied to measure the performance of hotels in other countries just by incorporating minor modification to the model framework.

**Keywords** Malcolm baldrige national quality award, Hotel industry, Quality dimensions

**Paper type** Research paper

## 1. Introduction

Enhancing excellence in business is vital in today's competitive environment. To remain competitive, hotels require an appropriate performance measurement system. Reviewed literature indicates that various models have been developed to improve hotel services, with emphasis on performance. The reviewed articles also reveal substantial variation in performance measurement methods. Ghalayani and Noble (1996) reasoned the necessity to propose alternative performance measurement methods that integrate various indicators periodically. Abukari and Corner (2010) further confirmed the need to measure performances in accordance with the respective country's setting. To this end, many national and international business excellence models (BEMs) have been launched. For example, there are more than 95 excellence models at the international level, with additional national quality awards in 82 countries ([www.coer.org.nz](http://www.coer.org.nz)).



Achieving organisational goals often requires companies to test a variety of BEMs and select one that applies to their specific circumstances (Bourne *et al.*, 2013). Highly reputed BEMs such as the Deming prize, the Malcolm Baldrige National Quality Award (MBNQA), the European Foundation for Quality Management (EFQM), the Balanced Scorecard (BSC), etc. measures the performance of organisations based on almost the same procedure. It assesses organisations based on their achievement on a predefined set of criteria. The sets of evaluation criteria, as well as their importance, vary from one to another. For instance, the Deming Prize has nine criteria, MBNQA has seven, whereas, EFQM has eight criteria. As these BEMs are too general and unbending, organisations with different structures and needs often face difficulties while adopting it.

Nevertheless, some studies have stated that the MBNQA criteria suit the hotel industry, as it ensures the relationship between total quality management (TQM) practices and quality implementations (Patiar and Wang, 2016). Hence, most Asian countries follow the MBNQA with little modification ([www.coer.org.nz](http://www.coer.org.nz)). To date, the Ritz-Carlton hotel company is the only hotel chain to win the MBNQA. The hotel won the award twice; once in 1992 and again in 1999.

In Bangladesh, BEM has yet to be practised by any sectors. Hence, it is an appropriate time for Bangladesh to develop a BEM for its business sectors. This study highlights a modest attempt to develop a BEM, specifically suited for Bangladesh's hotel industry. The findings in this study will serve as a foundation for developing a more comprehensive BEM that is functional at the national level.

Among various sectors, the hotel industry is a rapidly growing industry that generates a high contribution to the country's economic growth. Nevertheless, most of the hotels in Bangladesh fail to incorporate long-term strategic plan and TQM principles which are necessary to compete internationally. Hence, it is necessary for the hotel industry to develop a BEM which can improve their services and enhance competitiveness. By applying the analytic hierarchy process (AHP) and based on quality dimensions as used in the MBNQA framework, this study intends to develop a new hierarchical model that will enhance business excellence. Accordingly, the objectives of the study are:

- to identify the necessary criteria and sub-criteria that need to be incorporated to develop a new hierarchical model for enhancing business excellence in the hotel industry;
- to prioritise the criteria and sub-criteria while developing the new model; and
- to operationalise the developed model to evaluate the performance level of some selected hotels in Bangladesh.

## 2. Overview of the hotel industry in Bangladesh

The strength of the service sector is now considered a prominent feature in Bangladesh's growth performance. The Bangladesh Economic Review (2017) observed that according to the base year 2005-06, in the fiscal year 2016-17, the share of the service sector to overall Gross Domestic Product (GDP) was 45.15 per cent. The growth in hotel and restaurant sub-sectors were up 6.70 per cent from 6.49 per cent a year earlier. This increasing trend indicates that by fulfilling the latent demand of the huge population together with other related services, the hotel industry can be as an essential contributor to the growth of GDP.

Until recently, Bangladesh had only a few hotels of international standard. The public sector established most of these hotels, as start-ups often involved major capital investments. However, at present, a reverse in trend has occurred. The private sector now

dominates the hotel industry in Bangladesh. The public sector is no longer interested in investing huge amounts in building hotels. They prefer to be engaged as facilitators and regulators that guide the sector on planned growth. As a result, numerous international standard hotels have been launched in Bangladesh recently; and of this only two are state-owned. These sprouting hotels are located in different cities and towns throughout the country.

Bangladesh is now considered a good market for business people. Foreign businessmen frequently visit for varied purposes. Frequent hosting of international sports events has further increased the demand for accommodation. To accommodate the increasing number of foreign guests, the government has given the green light to build 15 five-star hotels over the next three years, consequently helping the hospitality sector to get along with the development thrust as the country pushes on plans to become a middle-income economy by 2021. The upcoming ventures will offer around 4,000 five-star standard rooms and suites apart from other facilities. Nine global hospitality chains have agreed to invest US\$2.0bn for the construction of these 15 new luxury hotels.

### 3. Literature review

#### 3.1 *Need for business excellence*

A BEM is a strategic tool that enables firms to achieve better performance and gain competitive advantage. Moreover, it is a measurement process where people may engage in self-assessment, while organisations find the strengths and identify areas for improvement (Porter and Tanner, 2012). A BEM helps an organisation assess its current performance, search for opportunities for improvement, and secure a competitive position in the market. More importantly, it helps create an environment for continuous improvement through which organisations can sustain (Tsiotras *et al.*, 2016). The model helps organisations identify requirements that must be fulfilled; while providing guidelines that help an organisation remain responsive and modest in the market. It is a comprehensive method through which organisations can understand the interconnected components that increase performance and those that cause problems. A BEM enables organisations to stimulate the functional areas that interplay with each other and ultimately deliver the targeted results (Lasrado and Uzbek, 2017).

Ever since the development of the first BEM called MBNQA, there has been significant growth in terms of further development, refinement, and application of BEMs. In Malaysia alone, over 6000 companies use BEMs to manage their businesses (Islam, 2007).

#### 3.2 *Quality dimensions to enhance business excellence*

Business excellence models are a way for countries to endorse quality awareness at the national level. Almost every country has developed a performance measurement framework targeting continuous improvement of quality and promoting awareness of performance excellence. There are many BEMs such as the Deming Prize, MBNQA, the Australian Business Excellence Award, Canada Business Excellence Award, Singapore Quality Award, and the EFQM. The logic behind the establishment of these models is to gain efficiency, improve effectiveness, and achieve competitive advantage for long-term success. However, comparisons of excellence frameworks show that models have different criteria based on different points of view (Talwar, 2011).

By comparing 16 National Quality Awards, Tan (2002) stated that in the case of BEMs, typically 7 to 10 criteria and 20 to 30 sub-criteria should be considered. Supporting this, Amir and Reiche (2013) highlighted that most BEMs comprise three basic elements which are the driver, system, and results; and seven excellence indicators, namely leadership, planning,

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information, customer, people, process, and results. [Xiang et al. \(2010\)](#) identified the causal relationship between the seven dimensions of the China Quality Award adapted from the MBNQA. The study divided the seven dimensions into five categories: driver (leadership), direction (strategic planning), foundation (information and analysis), system (human resource focus, process management and customer and market focus) and results (business results).

[Miguel and Cauchick \(2005\)](#) investigated the main characteristics of 39 global quality awards and BEMs. They concluded that quality awards should consist of a framework that embeds core values and principles of excellence. A certain number of assessment criteria should be considered when building a model for excellence. The study compared different aspects of the awards such as their mission, initial reference, adopted model, core values, levels of eligibility and recognition, categories and point values (scores). The study found that most of the awards were similar, and minor differences only manifest in how each award deals with new trends such as knowledge, technology and innovation management.

### *3.3 Issues to enhance business excellence in hotel industry*

Quality is a crucial factor in the hospitality industry, especially in events of stiff competition. At present, the demands made by tourists regarding other issues supersede their concern for price. Such changes in priorities and demands among tourists have resulted in the hospitality industry providing better services, while constantly seeking out diversity. This circumstances further encourage many companies to create a quality culture based on efficiency improvement ([Bouranta et al., 2017](#)). However, such changes are only possible if organisations can improve their corporate image, gain competitive advantage, adapt to customer necessities, and explore the opportunity to enter new markets. Hence, the hotel industry has begun to express its concern for developing quality systems to achieve total quality and improve service quality, which in turn ultimately impacts the hotel's image. The quality system has remarkably improved service quality, customer satisfaction, employee morale, market share, sales, and competitive position ([Claver et al., 2006](#)).

Organisations must meet a manifold of challenges to ensure service quality in the hospitality industry. In particular, [Crick and Spencer \(2011\)](#) tried to identify different challenges relevant to service quality in the hotel industry. Challenges may arise in the service delivery process, approaches used to measure service quality, and customer expectations. Meanwhile, [Ahmad \(2015\)](#) stated that small and medium-sized hotels face challenges in the form of stiff competition, increased operating costs, poor demand, and a shortage of efficient employees when they start and operate businesses. Additionally, inadequate hotel facilities, carelessness towards guests' orders, and inappropriate conduct by hotel staff may also be significant issues in hotel management that further hinder business excellence ([Memarzadeh and Chang, 2015](#)).

### *3.4 Application of key business excellence models in hotel industry*

Numerous studies have highlighted the ServQual and Six Sigma as key models to enhance business excellence. ServQual is a valuable tool which possesses useful dimensions of services. However, this scale is not necessarily universal. To make it more effective, it should be amended both for the specific service situation and for the environmental context within which it is applied ([Akan, 1995](#)). [Blesic et al. \(2014\)](#) found seven dimensions to assess the performance of hotel establishments. For measuring the performance of Malaysian hotels, [Mey et al. \(2006\)](#) applied a modified version of the ServQual model. [Cheng et al. \(2012\)](#) explained ServQual with the additional dimension of entertainment for measuring the performance of resort hotels.

Six Sigma is a method that highlights flow-oriented performance improvement. The method focusses on efficiency as the core of the whole management process. The hotel industry can obtain tangible results by applying this method. Numerous researches have been conducted in different industries using the Six Sigma method, but this method is atypical in hotels. Sun (2006) highlighted that with the right recognition and understanding of the Six Sigma method, it would fit the needs of hotel enterprises. Zhu (2006) revealed that hotels with deficiencies in service quality could make use of Six Sigma tool. Bo *et al.* (2009) successfully developed a model specifically for the hotel industry to implement Six Sigma. Through this, continuous improvement in service delivery was observed. Meanwhile, Lee *et al.* (2012) considered Six Sigma as a management philosophy. The hotel industry can implement this to increase productivity and customer satisfaction. Hence, Six Sigma serves as an important strategy by which hotel managers can reduce the defect rate in the core processes, minimise operational costs, and deliver high-quality service; ultimately, achieving superior customer satisfaction (Lu *et al.*, 2017).

### *3.5 Application of analytic hierarchy process in the hotel industry*

Many studies have reported the application of AHP in various areas and industries such as manufacturing, tourism, banking, insurance, transportation and education (Sukcharoensin, 2017; Lok and Baldry, 2016). Some studies have also reported its application in the hotel industry (Dhochak and Sharma, 2016; Navarro *et al.*, 2015). However, the application of AHP method for model development with the utilisation of MBNQA criteria in the context of the hotel industry is still limited (Subramanian and Ramanathan, 2012).

Lai and Choi (2015) applied AHP to develop a performance measurement hierarchy for hotels by considering four dimensions namely, education support, brand enhancement, financial performance, and facilities performance. Lin and Lin (2010) proposed a model by adapting BSc and AHP for evaluating the international tourist hotels' organisational performance. Additionally, based on the basic theories of forewarning of hotels, Li-Ping (2013) developed a multi-level index system to judge the performance of hotels.

The AHP has also been applied in the field of hotel industry to prioritise the social network service factors (Park *et al.*, 2013), identify the competitive marketing strategies (Lin and Wu, 2008), enhance the location selection (Juan and Lin, 2011), evaluate the knowledge capitals through core competencies (Zhang, 2013), assess the hotel service quality (Shi and Su, 2007), calculate the degree of importance of different factors which influence hotel investment decision-making (Newell and Seabrook, 2006) and measure the competitive benchmarking of luxury hotels (Min and Min, 1996).

### *3.6 Theoretical framework*

Several studies have highlighted the adaptation of various excellence models (EFQM, Deming Prize, ISO, and BSc) for measuring the performance of the hotel industry (Tsiotras *et al.*, 2016; Wang *et al.*, 2011). For instance, Sozuer (2011) discovered EFQM as the best model to evaluate the performance of hotels. Wang *et al.* (2011) addressed the application of ISO in the hotel industry for improving the quality of services. Meanwhile, Sainaghi (2010) described the application of BSc as a model to measure the success of the hotel business. However, although BSc is a widely applied model to measure the performance of hotels, it has its drawback; whereby, the components of BSc are infrequently prioritised despite the fact they may be deemed to have different importance levels. Hence, developing a model considering AHP methodology will alleviate the deficiencies observed in BSc.

Some studies have also addressed the universal applicability of the Baldrige award criteria as a valid, reliable, and sound method to measure a hotel's performance

(Mellat-Parast, 2015). Sumarjan *et al.* (2013) highlighted that the MBNQA model with its seven criteria as the most suitable approach to TQM. Like other industries, the hotel industry can also use the MBNQA model for continuous improvement.

Despite the availability of numerous studies that use BEMs, continuous improvement through TQM practices in the context of the hotel industry is still limited (Amin, *et al.*, 2017; Bouranta *et al.*, 2017). It is reiterated that each existing BEMs has its own, unique purpose. For example, ISO 9000 is more suited to establish a quality management system. Meanwhile, the weighting scheme used in MBNQA and EFQM may not be applicable to all industries. Hence, there is a pressing need to develop a BEM, uniquely suited for the hotel industry. This study intends to fill this existing research gap.

#### 4. Research design

As mentioned, this research aims to develop a model based on quality dimensions to enhance the business excellence in the hotel industry. A sequential mixed method research strategy was applied in this study as a procedure for collecting, analysing and dealing with both the qualitative and quantitative data (Creswell, 2014). This strategy enables the use of quantitative data and results to assist in the interpretation of the qualitative findings (Creswell, 2014). The qualitative approach was specifically applied to address the first research objective. Meanwhile, in the quantitative stage, the relative measurement of AHP was applied to achieve the second research objective. Finally, the absolute measurement of AHP was used to address the third research objective.

##### 4.1 Usefulness of analytic hierarchy process for the model development

Several methods can be used to prioritise the criteria and sub-criteria of quality dimensions to enhance the performance of the hotel industry. The most common ones are AHP and Interpretive Structural Modelling (ISM). However, compared to ISM, AHP is more appropriate for this study, because ISM provides only the ranking of the criteria and sub-criteria, and does not assign weights to the importance of items. Meanwhile, AHP assigns priorities to items. Dhochak and Sharma (2016) highlighted that AHP calculates the priorities in a given situation and incorporates the subjectivity and sensitivity of elements, thus enabling final decision-making. Further, AHP provides a rule that checks consistency in judgments. Using AHP, the decision is made consistently, whereby the decision maker gradually makes hierarchical moves to deal with the given situation. Thus, it enables the researchers to have a clear view of what is essential. Saaty (2008) argues that AHP does not need advanced technical knowledge and almost everyone can use it. In AHP, judgements are based on people's feelings and their thoughts; it deals with both tangible and intangible factors, and AHP does not take for granted the measurements on scales.

The AHP has been used as a managerial decision-making tool in many industries for strategy evaluation, performance assessment, product and process design, risk evaluation, system selection, cost/benefit analysis, quality evaluation and measurement of objectives (Sipahi and Timor, 2010). In this study, AHP was used as a decision tool to prioritise the criteria and sub-criteria of hotels' performance measurement model based on various stakeholders' feedbacks.

##### 4.2 Data collection and sample

The study followed a total of three phases of data collection. The first phase involved the collection of qualitative data. The purpose of this phase was to identify the necessary criteria and sub-criteria for measuring hotel performance. Semi-structured interviews were conducted in this phase, as it enhanced the understanding of an issue from the respondents'

perspectives and the cognition behind them (King, 2004). A total of 24 respondents from different categories, namely, hotel executives, policymakers, quality experts and hotel guests were selected as respondents for the interview. The study used a stratified purposive sampling method to seek the respondents' opinion.

The criteria and sub-criteria identified in the first phase required to be assigned to priorities using the AHP. Therefore, a questionnaire survey through structured interviews was used in the second phase of the study. In this stage, a total of 40 industry experts were asked to rank or prioritise the quality dimensions by relative importance. The industry experts included policymakers, regulators, hotel guests, top-level hotel executives, hotel owners, etc., all of whom were equipped with sufficient expertise in hotel management. In the third and final phase of data collection, the developed business excellence model was applied using the absolute measurement of AHP. In this phase, a total of 32 respondents (four respondents from each hotel) participated. The respondents came from eight selected hotels which comprised two five-star hotels, three four-star hotels and three three-star hotels in Bangladesh. Respondents were chosen from the hotel itself as the evaluation was based on self-assessment. Usually, self-assessment scores are verified by external auditors. Respondents were both from the top and middle-level executives (at least manager) of the selected hotels. While selecting the respondents, the researcher ensured that respondents have adequate experience (at least five years) in the particular field. Thus, in total, 96 respondents participated in this study to address the three research objectives in three phases.

Herath (2004) contended that AHP required an analytical, rather than a statistical manner of sampling. According to Lam and Zhao (1998), this technique does not require many participants. A small sample size is adequate, provided that participants were experts in the field of the study (Shrestha *et al.*, 2004). Using an enormous sample size in the AHP may lead to a very high degree of inconsistency (Wong *et al.*, 2008). Moreover, it is not necessary to make a statistical generalisation as AHP involves a huge number of pair-wise comparisons (Fageha and Aibinu, 2016). Table I provides details on the profiles of the respondents for all the three phases.

As shown in Table I, more than nine in ten of the respondents (above 90 per cent) are males, consistent with the fact that males dominate the employee base of Bangladesh's service sector. As for the age group, more than 50 per cent of the respondents for all the three phases were above 50 years of age. The outcome is deemed appropriate as age indicates an individual's maturity level. Apropos of the educational background, most of the respondents in each phase had Master/MBA degrees and above. To better understand the importance of total quality management in hotels, it was imperative to focus on respondents with these educational qualifications. Meanwhile, when looking at the number of years of experience, Table I shows that more than 60 per cent of the respondents in each phase has a minimum of 10 years of working experience. These experiences allowed the respondents to view and understand situations, identify and elaborate on criteria and sub-criteria to enhance business excellence in the hotel industry, and realistically compare the identified criteria and sub-criteria for their relative importance.

## 5. Data analysis and results

### 5.1 Validity and reliability of the study

Several approaches to validity and reliability strategies were applied in the qualitative stage of the study to enhance the accuracy of the findings. For instance, member checks, using rich and thick description to convey the findings, and peer debriefing were applied for the validity test (Creswell, 2014). Whereas, accurate transcription of the interview recordings,

Item	Phase 1 (Interview) (N = 24)		Phase 2 (AHP Relative Measurement) (N = 40)		Phase 3 (AHP Absolute Measurement) (N = 32)	
	Frequency	(%)	Frequency	(%)	Frequency	(%)
<i>Respondent category</i>						
Industry experts			40	100.00	32	100.00
Top and middle Level Hotel Executives	16	66.67				
Policy makers	1	04.17				
Quality management experts	4	16.67				
Experienced hotel guests	3	12.50				
<i>Gender</i>						
Male	23	95.83	39	97.50	31	96.9
Female	1	4.17	1	2.50	1	3.1
<i>Age group</i>						
≤ 40 years	3	12.50			1	3.13
41-50 years	8	33.33	8	20.00	11	34.37
51-60 years	9	37.50	25	62.50	15	46.88
≥ 61 years	4	16.67	7	17.5	5	15.62
<i>Highest level of education</i>						
Bachelors	2	8.33	9	22.50	13	40.63
Masters/MBA	18	75.00	25	62.50	18	56.25
PhD	4	16.67	6	15.00	1	3.12
<i>Year of experience</i>						
Bellow 5 years	3	12.50			7	21.88
5 to 10 years	6	25.00	4	10.00		
Above 10 years	15	62.50	36	90.00	25	78.12

**Table I.**  
Respondents'  
demographic profile



setting up a detailed qualitative protocol and cross-checking of identified codes were used to fulfil the requirements of reliability during the qualitative stage (Gibs, 2007).

The reliability of the AHP data was determined by the AHP consistency ratio (CR). The CR is incorporated to measure the degree of consistency among the pairwise comparisons or judgments made by the respondents (Ho, 2008). The AHP allows a certain level of overall inconsistency. However, as per the rule of thumb, the acceptable value of CR is  $\leq 0.10$ . If the CR value is lower than the acceptable value, the results are reliable, and if the CR value is larger than the acceptable value, the results are deemed inconsistent, thus halting further analysis. Saaty (2008) stated that the application of CR helps the researcher investigate the extent to which a pairwise comparison matrix is randomly arranged.

### *5.2 Identification of quality dimensions*

In the first phase, respondents were asked to identify the quality dimensions, i.e. criteria and sub-criteria that can be used to form the BEM for the hotel industry in Bangladesh. Thematic analysis (Boyatzis, 1998) was chosen here as a method to analyse this qualitative data, specifically in identifying the elements. Creswell's (2014) six stages, namely, organising and preparing the data for analysis, reading through all the data, performing the detailed analysis with a coding process, themes and descriptions, interrelating themes and interpreting the meaning of themes were applied to analyse the interview data set. The outcomes from the interviews were synthesised into a list, and a total of 73 items were initially identified from the respondents. Eight criteria and 23 sub-criteria (named quality dimensions) were extracted after clustering all these items (Table III). The identified criteria and sub-criteria were then deployed to develop the instrument for the AHP stage according to the specifications suggested by Creswell (2014).

### *5.3 Prioritisation of quality dimensions using analytic hierarchy process*

The four stages of AHP as suggested by Saaty (2008) were applied to compare the criteria and its corresponding sub-criteria. To derive weights from a Pairwise Comparison Matrix (PCM), respondents were asked to compare categories with regard to their importance to the desired goal. The relative importance was determined using a number between 1 and 9 to explain the extent to which one element is dominant over another, corresponding to the criterion to which they were compared (Saaty, 2008). Here, 1 indicates equal importance between the two items, and 9 signifies the extreme importance of one item over the other in a pair. Once all the pairwise comparisons were completed, an average pairwise comparison matrix was constructed representing the judgements of all the respondents for the criteria and sub-criteria. The geometric mean method was used to aggregate the responses of group judgements which encompassed the responses of all individual respondents (Islam, 2010; Saaty, 2008). Then, the relative weights of all the items were computed by Superdecision software, version 2.8. The overall normalised weights of all criteria and sub-criteria of hotels' performance measurement were then obtained.

The global weights can help to identify the priority/rank of hotels in Bangladesh. However, it is not possible to measure the performance level of each hotel by only considering the global weights. Hence, the overall assigned points of criteria and sub-criteria derived from all respondents was computed. The allocation of assigned points is based on the importance of the criteria and sub-criteria. Each hotel can have a maximum of 1,000 points.

#### 5.4 Points allocated to quality dimensions

Each of the eight criteria identified in the previous section was divided into several sub-criteria. In turn, each sub-criterion addressed a few areas. Respondents were asked to compare elements pairwise, relative to their importance. At each level, the pairwise comparison methodology required the respondents to compare the criteria and sub-criteria according to its relative importance to a higher-level element. Notably, the judgements provided by the respondents were based on their experiences and knowledge on the issues concerning hotels' performance. Table II shows a sample pairwise comparison matrix formed by a respondent to compare the set of eight criteria.

For each pair of criteria, the respondents were required to respond to basic questions such as, 'which one is more important for measuring the performance of hotels, Criterion 1 (C1-Top Management Commitment and Leadership) or Criterion 2 (C2-Strategic Planning)?'. As mentioned above, the rating for the relative importance for the criteria is by assigning a number between 1 and 9, whereas, the reciprocal of this value is assigned to the other criterion in the pair. For example, as demonstrated in Table II, if C1 is very strongly more important over C4 (Employee Focus), then  $a = 7$ . The reciprocal number is then automatically assigned when C4 is compared with C1, therefore,  $b = 1/7$ . All the remaining pairwise comparison matrices are formed by following the same procedure. Table III provides the name of the criteria, the individual sub-criteria of a criterion, and their corresponding weights.

The first and second number within parenthesis represents overall weight and local weight of criteria and sub-criteria, respectively. For example, quality leadership receives an overall 63 points when it is compared pairwise with corporate social responsibility. As the consistency ratio (CR) value for the criteria and their respective sub-criteria is less than 0.1, hence, it can be said that the pairwise comparisons or judgments given by respondents in this study are consistent and acceptable.

The results in Table III shows that quality management, customer/guest focus, and communication are more important criteria for measuring the performance of hotels in Bangladesh. The points assigned to these criteria are 186 (wt. 0.186), 170 (wt. 0.170), and 147 (wt. 0.147), respectively. The three least important criteria ranked by all the respondents were employee focus, top management commitment and leadership, and strategic planning; each with the respective points of 92 (wt. 0.092), 89 (wt. 0.089) and 79 (wt. 0.079). The following were the most important items/sub-criteria for each criterion in the present BEM:

	Criteria							
	C1	C2	C3	C4	C5	C6	C7	C8
C1	1	1/8	1/7	$a = 7$	1/8	1/9	1/9	1/5
C2	8	1	8	1/8	1/9	1/8	1	1/7
C3	7	1/8	1	6	1/8	1/6	1/9	1/9
C4	$b = 1/7$	8	1/6	1	1	1/7	1	1/6
C5	8	9	8	1	1	1	1/7	1/8
C6	9	8	6	7	1	1	1/6	1
C7	9	1	9	1	7	6	1	1/7
C8	5	7	9	6	8	1	7	1

**Table II.**  
pairwise comparison  
matrix for the criteria  
with regard to the  
overall goal

**Notes:** C1 = Top Management Commitment and Leadership; C2 = Strategic Planning; C3 = Service Process Management; C4 = Employee Focus; C5 = Customer/Guest Focus; C6 = Quality Management; C7 = Communication; C8 = Business Results

**Table III.**  
Overall weights of  
the criteria and sub-  
criteria

Criteria and sub-criteria	Criteria points (Weights)	Rank of criteria	Sub-criteria points (Weights)	Rank of sub-criteria
<i>Top management commitment and leadership (LED.COMIT)</i>				
Quality Leadership (QL)	89 (0.089)	7	63 (0.710)	1
Corporate Social Responsibility (CSR)			26 (0.290)	2
<i>Strategic Planning (STR.PLAN)</i>				
Vision, Mission and Goal (VMG)	79 (0.079)	8	42 (0.533)	1
Strategy Development and Implementation (SDI)			37 (0.467)	2
<i>Service Process Management (PROS.MNG)</i>				
Process Design (PD)	95 (0.095)	5	18 (0.192)	4
Performance Metrics (PM)			23 (0.244)	3
Competitor Business Analysis (CBA)			26 (0.270)	2
Promotional Policy (PP)			28 (0.294)	1
<i>Employee Focus (EMP.FOC)</i>				
Employee Development (ED)	92 (0.092)	6	53 (0.573)	1
Employee Satisfaction (E.SAT)			39 (0.428)	2
<i>Customer/Guest Focus (CUS.FOC)</i>				
Customer/guest Relationship Management (CRM)	170 (0.170)	2	68 (0.397)	1
Customer/Guest Retention (CR)			42 (0.247)	3
Customer/Guest Satisfaction (C.SAT)			60 (0.356)	2
<i>Quality Management (QUIL.MNG)</i>				
Quick and Expected Service Delivery (QESD)	186 (0.186)	1	54 (0.289)	3
Health and Safety-Security Measures (HSSM)			76 (0.407)	1
Environment Management (EM)			56 (0.304)	2
<i>Communication (COM)</i>				
Internet/digital Service (DS)	147 (0.147)	3	86 (0.582)	1
Networking Facilities (NF)			61 (0.418)	2
<i>Business Results (BUS.REST)</i>				
Return on Investment (ROI)	142 (0.142)	4	19 (0.134)	5
Quality Management (QM)			24 (0.165)	3
Employee Satisfaction (ES)			23 (0.164)	4
Customer/Guest satisfaction (CS)			45 (0.319)	1
Leadership Performance (LP)			31 (0.219)	2
Total	1,000		1,000	

quality leadership (wt. 0.710) for top management commitment and leadership; vision, mission and goal (wt. 0.533) for strategic planning; promotional policy (wt. 0.294) for service process management; employee development (wt. 0.573) for employee focus; customer/guest relationship management (wt. 0.397) for customer/guest focus; health and safety-security measures (wt. 0.407) for quality management; internet/digital service (wt. 0.582) for communication; and customer/guest satisfaction (wt. 0.319) for business results. Figure 1 depicts the hierarchical model on the priority values of the criteria and their corresponding sub-criteria assigned by all categories of respondents.

5.5 Measuring the performance of selected hotels

Absolute measurement of AHP is used to evaluate alternatives, especially if the number of alternatives is quite large. However, this study evaluated only eight hotels to show the functionality of the developed method. To measure the performance of hotels in Bangladesh, respondents were asked to evaluate eight hotels (one at a time) with respect to 23 sub-criteria (details are in Table IV) based on the intensities to obtain global weights. Intensities indicate the proximity of each alternative to the ideal state (Saaty, 2008). Five intensities were considered to reflect the hotels' performance. The scoring method used a letter grade (EX-excellent, G-good, A-average, S-satisfactory, P-poor), and the following were the weights; EX-0.510, G-0.255, A-0.119, S-0.077 and P-0.039. These evaluation scores were generated through discussion with experts. To specify the performance of the hotels, respondents used a legend when answering each item. By using the intensity weights, the criterion weights were synthesised to obtain the local weights, and finally the global weights. An AHP synthesis involves putting the values together as a whole. Global weights are finally used to rank the alternatives. Table IV shows the synthesised global weights of the intensities.

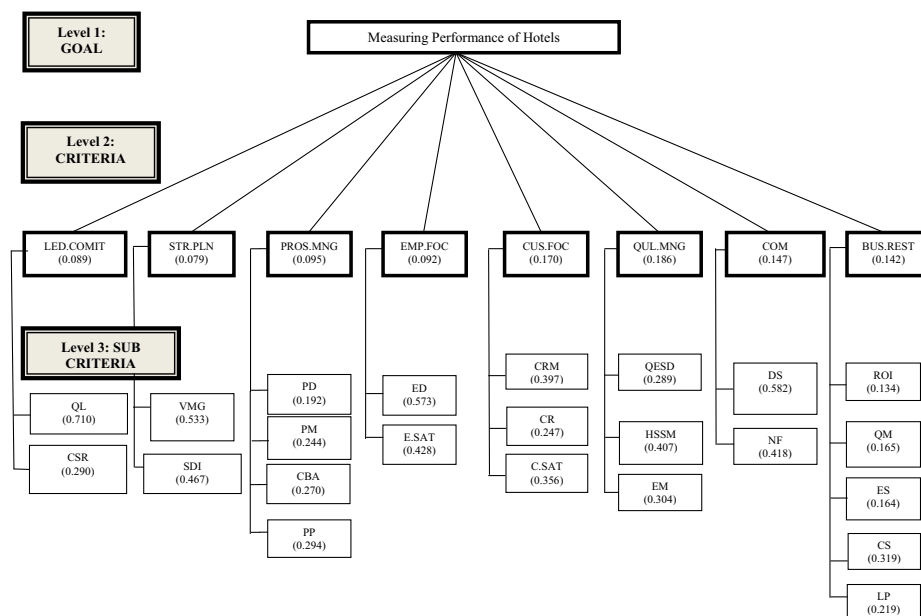


Figure 1. Hierarchical model for measuring performance of hotels

Criteria and Sub-criteria (Weights)	EX (0.510)	G (0.255)	A (0.119)	S (0.077)	P (0.039)
<i>LED.COMIT (0.089)</i>					
QL (0.71)	0.0322*	0.0161	0.0075	0.0049	0.0025
CSR (0.29)	0.0132	0.0066	0.0031	0.0020	0.0010
<i>STR.PLN (0.079)</i>					
VMG (0.533)	0.0215	0.0107	0.0050	0.0032	0.0016
SDI (0.467)	0.0188	0.0094	0.0044	0.0028	0.0014
<i>PROS.MNG (0.095)</i>					
PD (0.192)	0.0093	0.0047	0.0022	0.0014	0.0007
PM (0.244)	0.0118	0.0059	0.0028	0.0018	0.0009
CBA (0.27)	0.0131	0.0065	0.0031	0.0020	0.0010
PP (0.294)	0.0142	0.0071	0.0033	0.0022	0.0011
<i>EMP.FOC (0.092)</i>					
ED (0.572)	0.0269	0.0134	0.0063	0.0041	0.0021
E.SAT (0.428)	0.0201	0.0100	0.0047	0.0030	0.0015
<i>CUS.FOC (0.170)</i>					
CRM (0.397)	0.0344	0.0172	0.0080	0.0052	0.0026
CR (0.247)	0.0214	0.0107	0.0050	0.0032	0.0016
C.SAT (0.356)	0.0309	0.0154	0.0072	0.0047	0.0024
<i>QULMNG (0.186)</i>					
QESD (0.289)	0.0274	0.0137	0.0064	0.0041	0.0021
HSSM (0.407)	0.0386	0.0193	0.0090	0.0058	0.0030
EM (0.304)	0.0288	0.0144	0.0067	0.0044	0.0022
<i>COM (0.147)</i>					
DS (0.582)	0.0436	0.0218	0.0102	0.0066	0.0033
NF (0.418)	0.0313	0.0157	0.0073	0.0047	0.0024
<i>BUS.REST (0.142)</i>					
ROI (0.134)	0.0097	0.0049	0.0023	0.0015	0.0007
QM (0.165)	0.0119	0.0060	0.0028	0.0018	0.0009
ES (0.164)	0.0119	0.0059	0.0028	0.0018	0.0009
CS (0.318)	0.0231	0.0116	0.0054	0.0035	0.0018
LP (0.219)	0.0159	0.0079	0.0037	0.0024	0.0012

**Notes:** \*Overall weights = (criteria weight\*sub-criteria weight\*intensity weight) = (0.089\*0.71\*0.510) = 0.0322; (LED.COMIT = Top Management Commitment and Leadership, STR.PLN = Strategic Planning, PROS.MNG = Service Process Management, EMP.FOC = Employee Focus, CUS.FOC = Customer/Guest Focus, QULMNG = Quality Management, COM = Communication, BUS.REST = Business Results, QL = Quality Leadership, CSR = Corporate Social Responsibility, VMG = Vision, Mission and Goal, SDI = Strategy Development and Implementation, PD = Process Design, PM = Performance Metrics, CBA = Competitor Business Analysis, PP = Promotional Policy, ED = Employee Development, E.SAT = Employee Satisfaction, CRM = Customer/guest Relationship Management, CR = Customer/Guest Retention, C.SAT = Customer/Guest Satisfaction, QESD = Quick and Expected Service Delivery, HSSM = Health and Safety-Security Measures, EM = Environment Management, DS = Internet/digital Service, NF = Networking Facilities, ROI = Return on Investment, QM = Quality Management, ES = Employee Satisfaction, CS = Customer/Guest satisfaction, LP = Leadership Performance

**Table IV.**  
Global weights of the intensities of various sub-criteria

The average global weight of intensity for each sub-criterion is obtained by adding the numeric scores of all responses and dividing it by the total number of respondents. Thus, the total global weight for a hotel was computed by adding all the individual global weights of sub-criteria. [Table V](#) provides the detailed individual scores of all the eight hotels. The last row of the table provides the ranking of the hotels.

Table V.

Weights and ranks of eight sampled hotels

Sub-criteria	Hotels of Bangladesh							
	<i>H1</i>	<i>H2</i>	<i>H3</i>	<i>H4</i>	<i>H5</i>	<i>H6</i>	<i>H7</i>	<i>H8</i>
QL	0.0242	0.0282	0.0322	0.0322	0.0201	0.0220	0.0161	0.0260
CSR	0.0099	0.0066	0.0083	0.0099	0.0055	0.0099	0.0065	0.0074
VMG	0.0161	0.0188	0.0134	0.0115	0.0107	0.0107	0.0079	0.0115
SDI	0.0141	0.0141	0.0118	0.0094	0.0105	0.0093	0.0082	0.0141
PD	0.007	0.0070	0.0059	0.0059	0.0070	0.0041	0.0028	0.0059
PM	0.0074	0.0118	0.0074	0.0089	0.0059	0.0074	0.0051	0.0074
CBA	0.0115	0.0098	0.0057	0.0073	0.0065	0.0098	0.0082	0.0065
PP	0.0107	0.0089	0.0071	0.0071	0.0077	0.0107	0.0097	0.0089
ED	0.0235	0.0269	0.0134	0.0202	0.0202	0.0184	0.0099	0.0150
E.SAT	0.0151	0.0176	0.0151	0.0133	0.0074	0.0066	0.0069	0.0112
CRM	0.0344	0.0344	0.0172	0.0278	0.0301	0.0215	0.0142	0.0258
CR	0.0187	0.0214	0.0134	0.0161	0.0161	0.0107	0.0105	0.0161
C.SAT	0.0309	0.0232	0.0270	0.0232	0.0270	0.0172	0.0166	0.0309
QESD	0.0274	0.0240	0.0240	0.0206	0.0171	0.0187	0.0135	0.0206
HSSM	0.0338	0.0338	0.0290	0.0290	0.0290	0.0167	0.0241	0.0264
EM	0.0252	0.0216	0.0161	0.0169	0.0252	0.0125	0.0161	0.0216
DS	0.0327	0.0327	0.0189	0.0353	0.0382	0.0273	0.0273	0.0244
NF	0.0235	0.0235	0.0073	0.0214	0.0175	0.0115	0.0235	0.0157
ROI	0.0085	0.0085	0.0049	0.0043	0.0073	0.0019	0.0073	0.0061
QM	0.0104	0.0119	0.0075	0.0023	0.0060	0.0044	0.0044	0.0075
ES	0.0104	0.0119	0.0089	0.0059	0.0051	0.0021	0.0033	0.0059
CS	0.0231	0.0174	0.0202	0.0145	0.0202	0.0145	0.0085	0.0202
LP	0.0159	0.0139	0.0159	0.0139	0.0119	0.0109	0.0065	0.0089
Total	0.4342	0.4277	0.3302	0.3564	0.3519	0.2785	0.2570	0.3437
Ranking	1	2	6	3	4	7	8	5

*H1* (five-star) received the highest weight (0.4342), followed by *H2* (five-star) with 0.4277 and so on. Hence, it could be deduced that among the eight hotels considered in this evaluation exercise, *H1* ranked top in Bangladesh.

The global weights helped identify the priority/rank of the hotels. However, measuring the performance level of each hotel by only considering the global weights is not the end. The following section shows the computation of total points received by each sampled hotel based on the criteria weights; through this, the level of performance of a hotel can be discerned.

The assigned total points on each sub-criterion was multiplied by the weight of the sub-criterion and then divided by the maximum weight of the intensity (Table IV) for each sub-criterion. Assuming that all the respondents rated a particular hotel on a sub-criterion as 'Excellent', then the maximum score of the hotel will eventually be the total points of the sub-criterion.

Finally, the hotels were ranked based upon the individual points received under each sub-criterion, and the total points were calculated within the gamut of a maximum 1,000 points. Table VI provides this details.

The results in Table VI shows that the two five-star hotels, namely, *H1* and *H2*, hold the first and second positions in ranking with 852 and 839 points, respectively. However, the ranking of four-star and three-star hotels showed mixed results. Hence, it can be concluded that five-star hotels in Bangladesh performed better than four-star and three-star hotels.

Sub-criteria	Sub-criteria points	Hotels of Bangladesh							
		H1	H2	H3	H4	H5	H6	H7	H8
QL	63	47	55	63	63	39	43	32	51
CSR	26	20	13	16	20	11	20	13	15
VMG	42	31	37	26	23	21	21	15	23
SDI	37	28	28	23	19	21	18	16	28
PD	18	14	14	11	11	14	8	5	11
PM	23	14	23	14	17	12	14	10	14
CBA	26	23	19	11	14	13	19	16	13
PP	28	21	18	14	14	15	21	19	18
ED	53	46	53	26	40	40	36	19	30
E.SAT	39	29	34	29	26	14	13	13	22
CRM	68	68	68	34	55	60	43	28	51
CR	42	37	42	26	32	32	21	21	32
C.SAT	60	60	45	52	45	52	33	32	60
QESD	54	54	47	47	41	34	37	27	41
HSSM	76	67	67	57	57	57	33	48	52
EM	56	49	42	31	33	49	24	31	42
DS	86	65	65	37	70	75	54	54	48
NF	61	46	46	14	42	34	22	46	31
ROI	19	17	17	10	8	14	4	14	12
QM	24	21	24	15	5	12	9	9	15
ES	23	20	23	17	11	10	4	6	11
CS	45	45	34	39	28	39	28	17	39
LP	31	31	27	31	27	23	21	13	17
Total	1,000	852	839	648	699	690	546	504	674
Ranking		1	2	6	3	4	7	8	5

**Table VI.**  
Ranks of eight  
sampled hotels on the  
basis of points

### 6. Discussion of results

Performance is an intriguing issue as highlighted by [Israeli et al. \(2006\)](#). The reason, among others, is the presence of subjective factors in the performance evaluation process. However, the present application of the absolute measurement of AHP has simplified the process. Further, the so-called bias in the performance evaluation process has been minimised by taking the average score of multiple opinions from the performance evaluators.

A set of distinct, independent, and non-overlapping criteria are required for developing a robust BEM. The criteria incorporated in the developed model were important and effective in evaluating a hotel's performance. The criteria were based on the MBNQA framework and some additional dimensions which were absent in MBNQA. Based on this study's qualitative approach, eight criteria and 23 sub-criteria were identified from the interviews data set, and it subsequently helped to address the first research objective.

Assigning appropriate weights to each dimension is crucial for the effectiveness of any BEM. There are different techniques available for assigning weights. Earlier studies on hotels' performance measurement revealed that [Leong \(2008\)](#) used average weight assigned by sixteen experts, [Giannotti et al. \(2010\)](#) assigned arbitrary weights, while [Min et al. \(2008\)](#) used data envelopment analysis (DEA) to determine the priority of various dimensions. However, to address the second research objective, the AHP technique developed by [Saaty \(2008\)](#) was used to assign weights to different criteria and sub-criteria. The researchers approached 40 industry experts and sought their opinions on the importance of each criterion and sub-criterion in regard to performance measurement for the hotel industry.

Based on the criteria of BEM, the authors expected business results and top management commitment and leadership to receive higher priority. However, the AHP data analysis revealed that quality management received the highest importance, followed by customer/guest focus and communication. It is contended that results will automatically manifest if hotels ensured quality services, focussed on customer satisfaction and established a strong communication system. Under quality management, health and safety-security measures received the highest priority compared to environment management and quick and expected service delivery. This was expected, as the hotel industry in Bangladesh is extremely vulnerable in terms of safety and security threats.

A number of researchers had followed the criteria and sub-criteria of MBNQA, EFQM, ISO, BSC and Deming Prize to measure the performance of hotels (Sanlioz-Ozgen, 2016; Legrand *et al.*, 2014). Nevertheless, only a few researchers applied AHP when adopting these established models and empirically testing it in different business sectors (Jaeger *et al.*, 2013). This research is however unique in the sense that it has considered some criteria and sub-criteria which have not been considered before.

The testing of the developed model on eight hotels in Bangladesh by applying AHP absolute measurement can be further considered as a new contribution from this study. The results from the absolute measurement revealed that all the eight hotels in Bangladesh scored more than average (500 points), ranging from 504 to 852 out of 1,000 points. This results indicate that the upper-class hotels such as three-star, four-star, and five-star hotels of Bangladesh are performing well.

## 7. Implications of the study

An appropriate BEM is necessary for hotels to compete in the rapidly changing markets worldwide through continuous improvement. Many countries in the world have implemented different types of BEMs as self-assessment framework and treated these as guidelines for effective quality management. However, organisations may face a considerable number of challenges when they try to measure their performance, find the strengths and areas of improvement, and prioritise efforts. These challenges are apparent when it comes to implementing BEMs in business sectors such as the hotel industry. This study contributes by developing a BEM for the hotel industry using the key dimensions which were extracted from literature and experts' opinions. The model developed is novel and can be considered as a useful theoretical contribution to the literature.

In addition, the AHP relative measurement approach has prioritised the quality dimensions at different levels of the developed hierarchical model. The method guides hotel to prioritise the most crucial quality dimensions to achieve excellent business results. Consequently, the AHP absolute measurement approach helps to determine the global weights of each criterion, and subsequently the total score of each hotel. The process allows management to compare hotels with each other and identify their strengths and weaknesses. Consequently, hotels may adopt more effective strategies and benchmark the best hotel in each criterion.

Furthermore, the results of the study equip hotel practitioners with useful insights on how to prioritise different quality dimensions. It provides insights regarding which quality dimension plays the crucial role in overall performance evaluation. The ranking of hotels allows the hoteliers to know their competitive position within the industry, which can help them to improve their performance through continuous improvement. Subsequently, the improvement in the hotel industry benefits the society and the government.



## 8. Limitations and future research

Several limitations have been identified in this study. First, as the research data represented a single country, this limited the scope and generalisation of the results to other countries in the region and beyond. Additional studies could incorporate respondents from other countries to examine the differences between countries and cultural effects, which could lead to improved understanding of the BEM across cultures. Second, the number of participants involved was relatively small, though it was consistent with the requirement of samples in qualitative research and AHP. Third, the participants in this study comprised of only a few categories. If the number of respondents and representatives from different categories could be increased in additional studies, the results would be more robust. Last, as compared to MBNQA, which gives the highest priority for business results followed by senior leadership, respondents in this study assigned low priority for business results and top management commitment and leadership, in contrast to the other criteria presented in the developed model. This situation appears as a limitation and needs to be investigated in other countries or other service areas to confirm the results.

## 9. Conclusion

A BEM is a comprehensive framework for organisations that start from the top management leadership, process management, customer results, and to the key business results. It is a self-assessment tool for appraising an organisation's progress towards TQM. The present study addresses the various issues faced by the hotel industry in a comprehensive manner, and it also provides a structured hierarchical model which enables hotels to evaluate their performance. These issues are considered as criteria and sub-criteria of the developed model that are of interest and importance to hotels. In consequence, the BEM was developed considering eight criteria and 23 sub-criteria.

Subsequently, applying AHP relative measurement, the study prioritised the identified criteria and their corresponding sub-criteria based on assigned weights. Finally, AHP absolute measurement was applied to achieve the final hotel ranking. The results showed that quality management appeared as the most critical criterion for enhancing the business excellence of hotels. In addressing the quality management criterion, health and safety-security measures played the most important role. Also, the total individual scores and the final rankings of the eight selected hotels showed that five-star hotels performed well in Bangladesh, as compared to three-star and four-star hotels.

Observing this issue from Bangladesh's perspective, the findings revealed that hoteliers needed to consider some essential aspects to improve the overall performance of hotels. Among the aspects that require attention are, setting the appropriate vision, mission and objectives, monitoring continuous improvement and service process management, analysing competitors' business, providing special facilities for staff development, increasing guest engagement, fostering and sustaining a culture of safety-security, continuous monitoring of communication systems, and testing and reporting the performance results. Hotels can achieve business excellence through the implementation of this set of proposed activities. Moreover, if the model is applied in this manner, it is then expected that the hotels' actual performance will be known; hence, further allowing the development of proper action plans to overcome any weaknesses that may surface.

At present, the model has been implemented in a small number of upper-class hotels. It can be also applied to measure the performance of numerous upper-class and budget hotels in Bangladesh or even hotels in other countries, just by incorporating a minor modification to the criteria framework and the associated weighting scheme. Avenues for future research could include investigations on whether the criteria and sub-criteria interact with one another, and if they do, then Analytic Network Process can be applied to prioritise the criteria and sub-criteria set.

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