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NEED/IMPORTANCE OF THE STUDY

STATEMENT OF THE PROBLEM

OBJECTIVES

HYPOTHESES

RESEARCH METHODOLOGY

RESULTS & DISCUSSION

FINDINGS

RECOMMENDATIONS/SUGGESTIONS

CONCLUSIONS

SCOPE FOR FURTHER RESEARCH

ACKNOWLEDGMENTS

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APPENDIX/ANNEXURE

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CONTRIBUTIONS TO BOOKS

- Sharma T., Kwatra, G. (2008) Effectiveness of Social Advertising: A Study of Selected Campaigns, Corporate Social Responsibility, Edited by David Crowther & Nicholas Capaldi, Ashgate Research Companion to Corporate Social Responsibility, Chapter 15, pp 287-303.

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ANALYSIS OF CUSTOMER SATISFACTION OF THE HOTEL INDUSTRY IN INDIA USING KANO MODEL & QFD

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ABSTRACT

The hotel industry is a new developing growing service with huge potential in India for next decade. So far, it has already been an industry of highly ripe development, and the orientation is served in hotel Industry. However, with the improvement in the competition, hotel industry must offer good quality services to customers. In this study an investigation is carried out about quality of service being received by the customers from hotel industry. Unlike other traditional approaches of measuring product or service quality, a method is used which integrates the Kano model into the quality function deployment (QFD) to identify the critical quality elements. This study conducts a survey about customers' perception by using a questionnaire which consists of 34 service quality factors of hotel industry. The quality factors are classified according to Kano categories and the satisfaction increment index (SII) and dissatisfaction decrement index (DDI) are calculated, which in turn those indices are applied to compute the weights of the QFD for a better understanding of the voice of the customer (VOC). To do so, QFD engineers can use the analytical results to build the house of quality (HOQ) and to further identify the critical quality techniques.

KEYWORDS

Customer satisfaction, Hotel industry, Kano model, Quality function deployment, Service quality.

INTRODUCTION

In the past decade, service industries in India were growing up fast, especially in recreation activities. With the advance in technology and the change of people living style, the points of economic activities have been changed from a world of products to a realm of services. It has becomes exceedingly difficult for a company to gain consumers' recognition while offering services rather than products. Typical service providers such as hotel industry particularly face this problem. Indian government's statistical report points out that the hotel industry has high profits and recoverable cost for less than one year. This leads to more and more companies to join setting up hotels. Facing the competitive environment, companies are constantly introducing new services such as e-service, diversification of food and audio rooms, discount, and registering the audio room through internet or cell-phone. The key for companies to succeed is to offer the products or services that fulfill customers' needs. To do so, companies are able to improve their competitiveness and profit rate. A useful method for designing efficient service is to clearly understand what service quality of items that consumers want and to know how customers compare the service performance with other competitors.

Because the management environment of the hotel industry changes, strengthening the quality of serving has become the important issue. The traditional measure of the quality elements are according to the customer satisfaction of quality elements. The degree of customer's satisfaction is from very satisfied to very unsatisfied to divide into 5-7 scales, and this measure implied the influence of quality elements to customer's satisfaction is linear (Huiskone & Pirttial, 1998). The one-dimension quality model focuses on one quality element. It states that if the quality element is of sufficiency then the customer is satisfied, otherwise the customer is unsatisfied. Kano et al. (1984) first reported two-dimension quality model. The two-dimension quality model argued that quality elements sufficiency may not enough to satisfy the customer's quality expectation. Sometimes it may result in unsatisfied or no feeling for the customer. This is the core concept of the two-dimension quality model.

QFD is a method for defining design qualities that goes with customer expectations and then translates the customer requirements into design targets and critical quality assurance points. In recent years, a number of researchers began to use Kano model integration with QFD (Matzler & Hinterhuber, 1998; Tan & Shen, 2000; Shen et al., 2000; Tan & Pawitra, 2001), there were only discussions to the method but few discussions to the service industry. This paper is based on the integration method that was proposed by Tan & Pawitra (2001), to set up a model which is suitable for the hotel industry and to effectively manage the service quality of the hotel.

LITERATURE REVIEW

SERVICE QUALITY: Mostly service qualities have both poor and versatile characteristics because service quality is based on the customers' feelings. Therefore, the evaluation of service quality is more difficult than that of the product quality. Parasuraman et al. (1988) developed the instrument SERVQUAL for measuring customers' perceptions of service quality. SERVQUAL is based on the conceptualization of service quality as the difference between customers' expectations and perceived performances. In other words, the assessment of service quality is conceptualized as a gap between what the customer expects from a class of service providers and their evaluations of the performance of a particular service provider within that class. Service quality is presented as a multi-dimensional construct that is measured by SERVQUAL along the five dimensions as given below:

(1) Tangible-physical facilities , equipment , and the appearance of personnel ;
(2) Reliability-ability to perform the promised service accurately and dependably ;
(3) Responsiveness-willingness to help customers and to provide prompt service ;
(4) Assurance-knowledge and courtesy of employees and their ability to convey trust and confidence ;
(5) Empathy-caring and individualized attention to customers.

From the widespread applications published, the benefits of SERVQUAL can be summarized as follows:

- It is good at eliciting the views of customers regarding service encounters, e.g. Customer relative importance, expectations and satisfaction.
- It is also able to alert management to consider the perception of both management and customers.
- SERVQUAL is able to identify specific areas of excellence and weaknesses.
- It is able to prioritize areas of service weaknesses.
- It provides benchmarking analysis for organization in the same industry.
- SEVAQUAL can trace the trend of customer relative importance, expectation, and perception, if applied periodically.

This research is focused on how to improve service quality and at the same time provide input into an innovation process. Kano's model is proposed to be integrated into SERVQUAL in order to eliminate the linearity assumption and to also provide innovative inputs. Kano's model categorizes the attributes of a product or service based on how well the attributes are able to satisfy customer needs (Kano et al., 1984). It is therefore, able to help SERVQUAL to prioritize the

improvement of an organization's weakness based on the category of need that can lead to the highest customer satisfaction. The following section describes how Kano's model categorizes the attribute of a product or service based on their ability to satisfy customer needs.

KANO'S MODEL: Kano et al. (1984) developed a model to categorize the attributes of a product or service based on how well they are able to satisfy customer needs. The **Kano model** is a theory of product development and customer satisfaction developed in the 80s by Professor Noriaki Kano which classifies customer preferences into five categories: (i) Attractive, (ii)One-Dimensional, (ii)Must-be, (iv) Indifferent,(v) Reverse. The one-dimension quality model focuses on one quality element. It states that if the quality element is of sufficiency then the customer is satisfied, otherwise the customer is not satisfied. Two-dimension quality model argued that quality elements sufficiency may not enough to satisfy the customers' quality expectation. Sometimes it may result in unsatisfaction or no feeling for the customer. This is the core concept of the two-dimension quality model. The concept of the two-dimension quality is proposed by Herzberg in 1987. Kano called the Herzberg's Motivator-Hygiene theory as the quality's (Motivator-Hygiene) M-H theory. Due to this terminology is too complicate to use it. Kano redefines the quality's M-H theory as attractive quality and must-be quality, and distinguishes the service quality in terms of attractive quality elements, one-dimension quality elements, must-be quality elements, indifferent quality elements and reverse quality elements. The following are the quality elements categories:

These categories have been translated into English using various different names (delighters/exciters, satisfiers, dissatisfiers, etc.), but all refer to the original articles written by Kano (see Figure 1).

1. Attractive Quality: These attributes provide satisfaction when achieved fully, but do not cause dissatisfaction when not fulfilled. These are attributes that are not normally expected, For example, a thermometer on a package of milk showing the temperature of the milk. Since these types of attributes of quality unexpectedly delight customers, they are often unspoken.

2. One-dimensional Quality: These attributes result in satisfaction when fulfilled and dissatisfaction when not fulfilled. These are attributes that are spoken of and ones which companies compete for. An example of this would be a milk package that is said to have ten percent more milk for the same price will result in customer satisfaction, but if it only contains six percent then the customer will feel misled and it will lead to dissatisfaction.

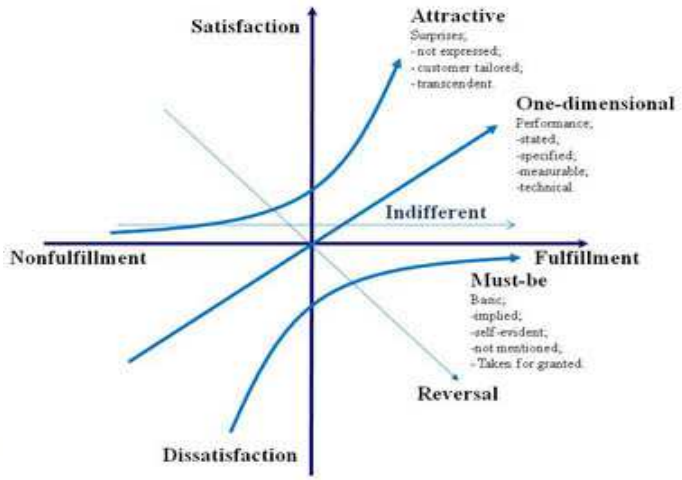
3. Must-be Quality: These attributes are taken for granted when fulfilled but result in dissatisfaction when not fulfilled. An example of this would be package of milk that leaks. Customers are dissatisfied when the package leaks, but when it does not leak the result is not increased customer satisfaction. Since customers expect these attributes and view them as basic, then it is unlikely that they are going to tell the company about them when asked about quality attributes.

4. Indifferent Quality: These attributes refer to aspects that are neither good nor bad, and they do not result in either customer satisfaction or customer dissatisfaction.

5. Reverse Quality: These attributes refer to a high degree of achievement resulting in dissatisfaction and to the fact that not all customers are alike. For example, some customers prefer high-tech products, while others prefer the basic model of a product and will be dissatisfied if a product has too many extra features.

The Kano model offers some insight into the product attributes which are perceived to be important to customers. The purpose of the tool is to support product specification and discussion through better development team understanding. Kano's model focuses on differentiating product features, as opposed to focusing initially on customer needs. Kano also produced a methodology for mapping consumer responses to questionnaires onto his model.

FIGURE 1 KANO'S MODEL



Considering the function of Kano's model, integrating it into SERVQUAL can help the latter to prioritize which service gaps to focus efforts on. The entire service development process can be further improved if periodic measurements can be systematically deployed into pragmatic ways of improvement. This is where quality function deployment (QFD) can be Useful.

QUALITY FUNCTION DEPLOYMENT: QFD was developed in Japan, by Yoji Akao in 1972.QFD is define as a system for translating customer requirements into appropriate technical requirement at every stage of a product's life cycle, from product conception to sales to service. Quality Function deployment (QFD) makes use of the Kano model in terms of the structuring of the Comprehensive QFD matrices. Mixing Kano types in QFD matrices can lead to distortions in the customer weighting of product characteristics. For instance, mixing must-Be product characteristics --such as cost, reliability, workmanship, safety, and technologies used in the product--in the initial House of Quality will usually result in completely filled rows and columns with high correlation values. Other Comprehensive QFD techniques using additional matrices are used to avoid such issues. Kano's model provides the insights into the dynamics of customer preferences to understand these methodology dynamics.

To survive in the market, companies have to produce exactly the product the consumer has been waiting for at the moment the consumer wants it without making concessions to the quality of the product. Moreover, time-to-market is becoming increasingly important for the success of new products. These developments call for an efficient and new structured service or product development process. One method to organize the new service or product development process is the QFD method. QFD is an adaptation of some tools used in Total Quality Management (TQM). It is a method to encourage product development team members to communicate more effectively with each other using a complex set of data. It helps teams to formulate business problems and possible solutions (Cohen, 1995).

QFD is a method for structured product / service planning and development that enables a development team to specify the consumer ' s demands and needs , and to evaluate the proposed product / service systematically in order to determine its impact on meeting these needs . The QFD method consists of the construction of one or more matrices. QFD employs several matrices to clearly establish relationships between company functions and customer satisfaction. These matrices are based on the "what-how" matrix, which is called HOQ (House of Quality). For detailed discussion, readers can refer to Donald & Mark (1998), Hauser & Clausing (1998) and Sullivan (1988).

Despite the benefits, there are also the following limitations are reported by Bourchereau and Rowlands (1999) and shen et al. (2000):

- There can be ambiguity in the voice of customer.

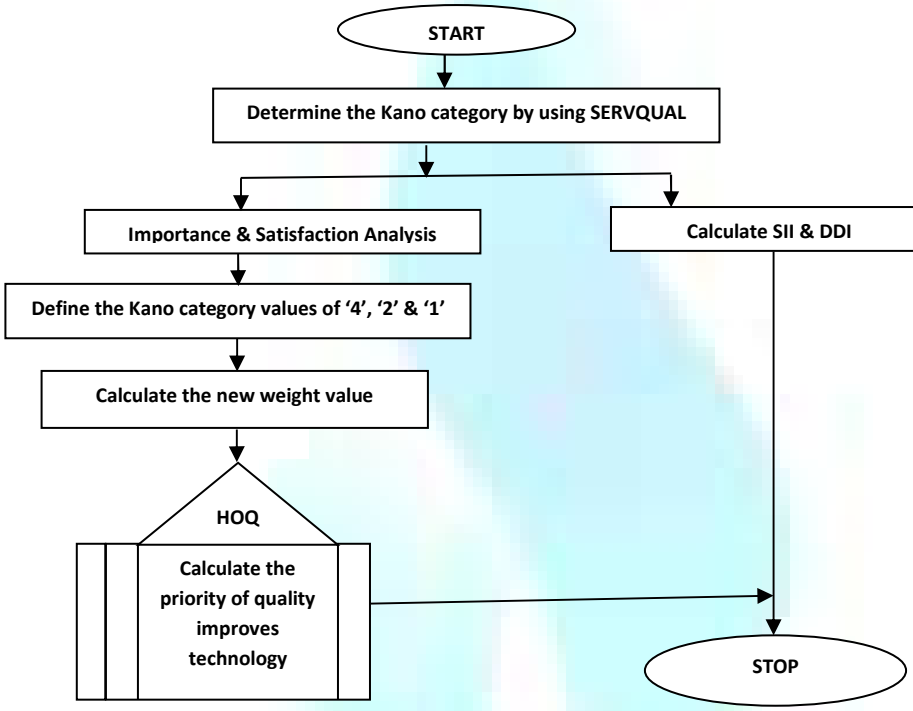
- There is the need to input and analyze large amounts of subjective data.
- The manual input of customer survey information into the HOQ is time consuming and difficult.
- THE HOQ can become large and complex. Setting target values in the HOQ is imprecise.
- QFD is not qualitative.
- QFD assumes that the relationship between customer satisfaction and product /attributes performance is linear.

The integration of SERVQUAL and Kano's model into QFD is able to overcome some of the above limitations.

METHODOLOGY

FRAMEWORK: This paper is based on the integration method involving SERVQUAL, Kano's model, and quality function deployment, which are proposed by Tan & Pawitra (2001). Figure 1 depicts the framework that illustrates how Kano's model and SERVQUAL can be integrated into QFD for a better understanding of customers' voices. First, Based on SERVQUAL to determine the appropriate Kano category for each attribute involving attractive, one-dimensional, must-be, indifferent, reverse quality elements. Second, analyze the hotel industry service quality between importance and satisfaction that customer perceived. Third, use the Kano categories to calculate customer satisfaction (CS) coefficient involving calculate satisfaction increment index (SII) and dissatisfaction decrement index (DDI). Forth, assign multiplier values of 4, 2, and 1 to the attractive, one-dimensional, and must-be categories, respectively. Fifth, combine the predicted service score of SERVQUAL to calculate new weight value and feed into the HOQ. Finally, calculate the priority of quality improves technology.

FIGURE 2: THE FLOWCHART OF THE RESEARCH METHOD



QUESTIONNAIRE DESIGN

We use questionnaire to obtain the customer's demand for the quality elements of hotel industry. The questionnaire design follows Parasuraman et al. (1988). This questionnaire is divided into five parts as follows: the individual basic data involving sex, occupation, income, education, expenditure, date of goes to hotel recently, and times of goes to hotel per year; Kano two-dimension positive quality questionnaire; Kano two-dimension negative quality questionnaire; the importance of service quality; and the satisfaction of service quality.

METHODOLOGY DESCRIPTION

We apply Cronbach's α to test the questionnaires' consistency. If Cronbach's α exceed the value 0.70, the reliabilities are acceptable (Nunnally, 1978). Moreover, we follow Matzler & Hinterhuber (1998) to apply the Kano classifications to divide the quality elements into attractive, one-dimensional, must-be, indifferent, and reverse quality elements (See Table 1).

TABLE 1: KANO EVALUATION TABLE

Product requirement → / Functional form of the question ↓		Dysfunctional form of the question				
		I like that way	It must be that way	I am neutral	I can live with it that way	I dislike that way
Functional form of the question	I like that way	Q	A	A	A	O
	It must be that way	R	I	I	I	M
	I am neutral	R	I	I	I	M
	I can live with it that way	R	I	I	I	M
	I dislike that way	R	R	R	R	Q

(Matzler & Hinterhuber, 1998)

[Note]: A: attractive, O:one-dimensional, M:must-be, I: indifferent , R:reverse, Q:question

The customer satisfaction (CS) coefficient follows Berger et al. (1993). The customer satisfaction (CS) coefficient is divided into two parts as follows: satisfaction increment index (SII) is the calculation of the average impact on satisfaction it is necessary to add the attractive and one-dimension columns and divide by the total number of attractive, one-dimensional, must-be, and indifferent response; dissatisfaction decrement index (DDI) is the calculation of the average impact on dissatisfaction, add the one-dimension and must-be columns and divide by the total number of attractive, one-dimensional, must-be, and indifferent response .Mathematically it is expressed as.

Satisfaction increment index $$SII = \frac{A + O}{A + O + M + I} \quad (1)$$

Dissatisfaction decrement index $DDI = -\frac{M + O}{A + O + M + I}$ (2)

The positive CS coefficient ranges from 0 to 1; the closer the value is to 1, the higher the influence on customer satisfaction. A positive CS coefficient which approach 0 signifies that there is a very little influence. At the same time, however, one must also take the negative CS coefficient into consideration. If it approaches -1, the influence on customer dissatisfaction is especially strong as the analyzed product feature is not fulfilled. A value of about 0 signifies that this feature does not cause dissatisfaction if it is not met (Matzler & Hinterhuber, 1998).

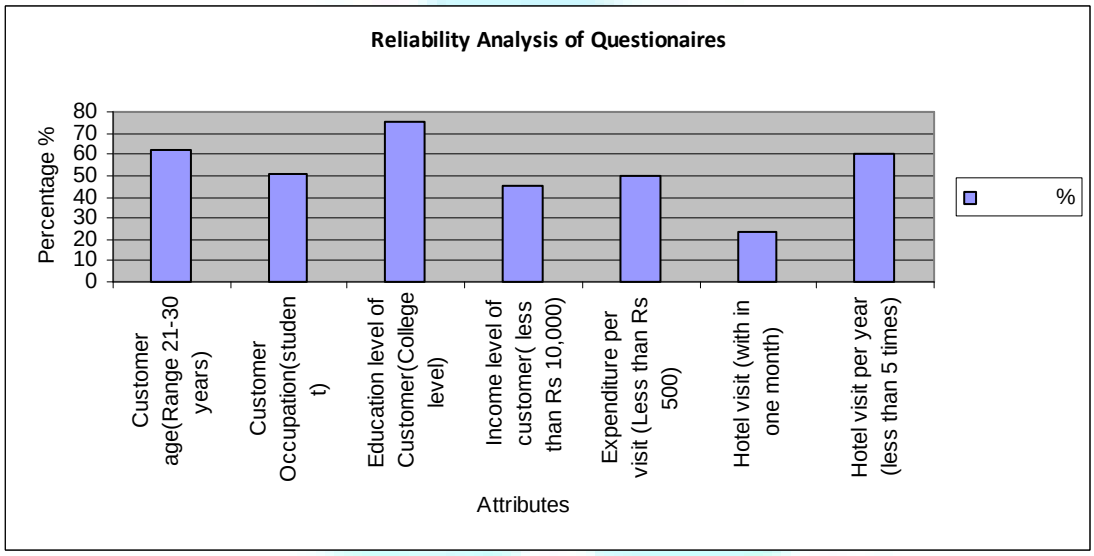
RESULTS

SAMPLE AND QUESTIONNAIRE RELIABILITY

This study includes approximately 250 consisting male and female customers. According to sex attributes, the no. of female respondent is more than that of male respondent. The percentage distributions across the attributes are also included. The reliability study based on this data is conducted as follows. As to age attribute, most of the customers are in the range of age group of 21-30 (62.2%) years. With respect to occupation, the students population forms 51%, whereas considering the level of education, most of the customers belong to college going which comes to be 75.6 percent similar study was conducted consisting of employed customers whose income is less than Rs. 10,000 which comes to be 45.2% of the total population of the data. The expenditure per visit average below Rs. 500 is maximum and forms 49.5% of the total whereas based on number of visits per year less than 5 times; the total percentage comes to be 60.3%.

To test the reliability analysis of this above responses using Cronbach's alpha formula, the consistency of the questionnaire was examined. The result using Cronbach's alpha is obtained and equal to 0.71. Which is in between 0.7073 to 0.8962.This value is very near to excellent category of consistency of the questionnaire. Therefore, the data may further be used for other analysis such as finding service quality, Customer satisfaction coefficient, importance and satisfaction analysis and to develop house of quality of the hotel.

FIGURE 3: RELIABILITY ANALYSIS OF QUESTIONNAIRES



HOTEL SERVICE QUALITY

According to the Kano two-dimension quality model, the service quality of the hotel industry is analyzed by summarizing into 34 quality elements as shown in Table 2, Where no one sorted as "one-dimensional", "reverse", and "question" quality elements. There are 2 essential quality factors be classified as "attractive quality elements". 28 quality items are classified as "must-be quality elements". Finally, find that "indifferent quality elements" have 4 quality essential factors be identified (See Table 2).

CUSTOMER SATISFACTION COEFFICIENT (CS)

According to the formula proposed by Berger et al. (1993), we obtain the customer satisfaction (CS) coefficient was obtained about satisfaction increment index (SII) and dissatisfaction decrement index (DDI) which is shown in Table 2. The result shows that DDI higher than SII in all service quality. It also indicates that hotel industry should improve the service to decrease the dissatisfaction of customer. Especially in "clear and comfortable", "accuracy of settlement", "friendliness services", "disciplined attendants", "thorough fire protection equipment", and "exit direction smooth and clear".

IMPORTANCE AND SATISFACTION ANALYSIS

According to the importance and satisfaction analysis, we extract the top five priorities of service quality which customer perceived. The result shows that importance of service quality are "accuracy of settlement", "exit direction smooth and clear", "thorough fire protection equipment", "clear and comfortable environment", "friendliness services"; and satisfaction of service quality are "diversification of balcony", "clear and comfortable environment", "pleasant lobby or waiting area", "order systems convenient", "disciplined attendants" (See Table 3).

INTEGRATE KANO MODEL AND QFD

In order to integrate Kano model and QFD, first, we extract from important two-dimensional attribution category of service quality involving attractive, one-dimensional, and must-be service quality.

Second, we follow Wasserman (1993) to apply the Quality Attribute Ranking to calculate "Service Quality Factor Weight Value". Quality Attribute Ranking is using the average of importance and satisfaction that minus 3 degreed of new value and ranking. The purpose is to let the average from the range of (1, 5) become (-2, 2). Table 3 lists the data.

TABLE 2: KANO TWO-DIMENSIONAL ATTRIBUTION CATEGORY AND CS COEFFICIENT

Structure	No.	Item	Kano two-dimensional attribution (%)						summarizing	CS coefficient	
			A	O	M	I	R	Q		SII	DDI
Tangibles	7	luxuriously building	29.5	11.2	39.1	18.0	1.6	0.6	M	0.4162	-0.5143
	16	good ambiance	25.1	17.4	44.	10.6	1.8	0.2	M	0.4337	-0.6357
	18	clear and comfortable environment	12.8	33.5	46.3	5.2	1.4	0.8	M	0.4734	-0.8160
	23	enough microphones	30.9	20.2	34.3	12.4	1.0	1.2	M	0.5225	-0.5573
Reliability	4	update new songs quickly	18.8	32.1	39.1	7.6	1.6	0.8	M	0.5215	-0.7295
	21	play songs quickly	18.8	26.3	43.9	7.6	2.0	1.4	M	0.4669	-0.7267
	22	good video tape of MTV	19.0	27.9	45.5	5.6	1.6	0.4	M	0.4786	-0.7490
	24	good audio and video	20.6	26.1	44.7	6.2	1.0	1.4	M	0.4785	-0.7254
	32	accuracy of settlement	11.8	32.3	48.7	5.4	0.4	1.4	M	0.4491	-0.8248
Assurance	1	good honor and impression of the company	25.7	17.2	47.5	7.8	1.0	0.8	M	0.4369	-0.6589
	10	friendliness services	9.6	32.1	51.3	4.6	2.0	0.4	M	0.4273	-0.8545
	11	disciplined attendants	12.0	28.1	52.7	5.6	1.4	0.2	M	0.4075	-0.8211
	12	thorough fire protection equipment	12.4	29.9	50.1	5.6	1.2	0.8	M	0.4316	-0.8163
	13	exit direction smooth and clear	9.8	30.3	51.1	6.2	1.6	1.0	M	0.4117	-0.8357
	15	privacy of balcony	16.4	27.5	45.5	8.0	1.6	1.0	M	0.4507	-0.7495
	17	good deafening	15.6	29.3	46.5	5.4	2.0	1.2	M	0.4638	-0.7831
Responsiveness	26	drinks and foods delivery soon	24.4	17.2	45.3	10.6	1.2	1.2	M	0.4267	-0.6410
	27	attendants come soon when customer push the services button	19.0	20.4	52.1	6.4	1.4	0.6	M	0.4025	-0.7406
	29	attendants ask customer want actively and handle the problems well	30.3	20.0	34.7	11.8	2.4	0.8	M	0.5196	-0.5651
Empathy	2	variety of made reservations	32.9	17.6	37.9	9.4	1.2	1.0	M	0.5164	-0.5675
	3	provide membership personal services	30.1	17.6	30.1	19.2	2.0	1.0	A	0.4918	-0.4918
	5	convenience traffic	23.6	17.8	38.1	17.8	1.2	1.4	M	0.4255	-0.5745
	6	provide free parking space	33.9	16.6	30.5	14.6	3.4	1.0	A	0.5282	-0.4927
	8	pleasant lobby or waiting area	22.6	15.4	46.7	13.8	0.8	0.6	M	0.3858	-0.6305
	9	supply smoking section	17.0	14.0	40.9	19.2	7.2	1.6	M	0.3403	-0.6026
	14	diversification of balcony	28.7	19.0	40.3	9.6	1.0	1.4	M	0.4887	-0.6076
	19	order systems convenient	21.2	26.5	44.1	5.8	1.2	1.2	M	0.4887	-0.7234
	20	find songs easily	22.4	23.8	44.9	5.6	2.4	0.8	M	0.4778	-0.7104
	25	abundant drinks and foods	33.5	13.8	33.9	15.6	2.0	1.2	M	0.4886	-0.4928
	28	attendant understand what customer needs	22.0	23.8	43.5	8.6	1.4	0.6	M	0.4678	-0.6874
	30	set up automatic rating system	27.1	6.0	16.6	42.5	6.8	1.0	I	0.3590	-0.2451
	31	provide record songs service	29.1	6.6	18.0	41.5	3.8	1.0	I	0.3750	-0.2584
	33	abundant and variety dividends choice	29.3	8.0	29.9	30.1	2.2	0.6	I	0.3834	-0.3895
	34	provide call taxi service	29.7	8.4	25.7	32.9	2.4	1.0	I	0.3940	-0.3526

[Note]: A: attractive,O:one-dimensional, M:must-be, I: indifferent ,R:reverse,Q:question

TABLE 3: IMPORTANCE AND SATISFACTION DATA TRANSFERRING

Structure	No.	Importance			Satisfaction		
		Average (before)	Average (after)	Rank	Average (before)	Average (after)	Rank
Tangibles	7	3.70	0.7	29	3.97	0.97	8
	16	4.09	1.09	18	3.95	0.95	9
	18	4.53	1.53	4	4.01	1.01	2
	23	4.03	1.03	22	3.60	0.60	28
Reliability	4	4.37	1.37	12	3.95	0.95	9
	21	4.44	1.44	8	3.80	0.80	22
	22	4.33	1.33	14	3.86	0.86	18
	24	4.38	1.38	10	3.88	0.88	16
	32	4.59	1.59	1	3.85	0.85	19
Assurance	26	3.95	0.95	25	3.65	0.65	27
	27	4.23	1.23	15	3.84	0.84	20
	29	4.10	1.1	17	3.73	0.73	24
Responsiveness	1	4.06	1.06	20	3.98	0.98	6
	10	4.50	1.5	5	3.95	0.95	9
	11	4.47	1.47	6	3.99	0.99	5
	12	4.56	1.56	3	3.94	0.94	13
	13	4.58	1.58	2	3.93	0.93	15
	15	4.34	1.34	13	3.95	0.95	9
	17	4.47	1.47	6	3.87	0.87	17
Empathy	2	3.99	0.99	23	3.98	0.98	6
	3	3.84	0.84	27	3.68	0.68	26
	5	4.08	1.08	19	3.76	0.76	23
	6	3.94	0.94	26	3.20	0.20	30
	8	3.97	0.97	24	4.01	1.01	2
	9	3.66	0.66	30	3.53	0.53	29
	14	4.06	1.06	20	4.08	1.08	1
	19	4.42	1.42	9	4.01	1.01	2
	20	4.38	1.38	10	3.94	0.94	13
	25	3.83	0.83	28	3.70	0.70	25
	28	4.22	1.22	16	3.82	0.82	21

Then, using "improvement index of quality" and "difference index" we can determine the priority of customer's demand. Two principles are used as follows:

(1) Those difference indices are minor (especially in the negative value) should have priority to be improved.

(2) If two or more difference indices are the same, the element with a smaller index of quality has priority to be improved.

Applying these two principles to rank the priority of customer's demands, we can get the standard weights, which are given in Table 4. On the other hand, we determine to the technological structure of service quality which are divided "Management for operation", "Management for information" by interviewing the administrative staff. This technological structure of service quality whole involving 18 quality technology (See Table 5).

TABLE 4: STANDARD WEIGHT OF IMPORTANT SERVICE QUALITY

Structure	No.	Improvement index of quality	Difference index	Original priority weight	Original weigh	Standard weight
Tangibles	7	0.679	21	29	2	0.0043
	16	1.0355	9	25	6	0.0129
	18	1.5453	2	20	11	0.0237
	23	0.618	-6	7	24	0.0516
Reliability	4	1.3015	3	22	9	0.0194
	21	1.152	-14	2	29	0.0624
	22	1.1438	-4	13	18	0.0387
	24	1.2144	-6	8	23	0.0495
	32	1.3515	-18	1	30	0.0645
Assurance	26	0.6175	-2	16	15	0.0323
	27	1.0332	-5	10	21	0.0452
	29	0.803	-7	6	25	0.0538
Responsiveness	1	1.0388	14	26	5	0.0108
	10	1.425	-4	14	17	0.0366
	11	1.4553	1	18	13	0.0280
	12	1.4664	-10	5	26	0.0559
	13	1.4694	-13	3	28	0.0602
	15	1.273	4	23	8	0.0172
	17	1.2789	-11	4	27	0.0581
Empathy	2	0.9702	17	27	4	0.0086
	3	0.5712	1	19	12	0.0258
	5	0.8208	-4	12	19	0.0409
	6	0.188	-4	11	20	0.0430
	8	0.9797	22	30	1	0.0022
	9	0.3498	1	17	14	0.0301
	14	1.1448	19	28	3	0.0065
	19	1.4342	7	24	7	0.0151
	20	1.2972	-3	15	16	0.0344
	25	0.581	3	21	10	0.0215
	28	1.0004	-5	9	22	0.0473

CONCLUSIONS

According to the Kano two-dimension quality model, we analyze the whole quality of the hotel industry. By summarizing 34 quality elements, we found that two essential quality factors be classified as "attractive quality elements"; 28 quality items are "must-be quality elements"; and 4 quality items are "indifferent quality elements". It indicates that hotel service quality really possesses two-dimensional quality rather than simple one-dimensional quality. Also, we analysis the customer satisfaction (CS) coefficient about satisfaction increment index (SII) and dissatisfaction decrement index (DDI). The result showed that DDI higher than SII in all service quality. It indicates that hotel industry should improve the service to decrease the dissatisfaction of customer. Especially in "clear and comfortable", "accuracy of settlement", "friendliness services", "disciplined attendants", "thorough fire protection equipment", and "exit direction smooth and clear". In summary, this paper only analyzed the hotel industry in India.

RECOMMENDATIONS FOR FUTURE RESEARCH

We suggest that in the future. Researchers can follow this concept to compare several different facilities in hotel industry of different countries. In future research involves identifications of the Kano category parameters (i.e. "4", "2"and "1").Presently; this is left to the QFD practitioner's expert opinion. It may be worthwhile to propose a means for objectively determining these numerical values. Its purpose would be to reduce ambiguity for attribute that straddle between two categories. Another recommendation might be to consider incorporation of the customers' future voices.

TABLE

TABLE 5: HOQ OF THE HOTEL

Kano category value A = 4 : Attractive O = 2 : One-dimensional M = 1 : Must-be Relationship symbol ◎ = 5 : Highly relevant ○ = 3 : Medium relevant △ = 1 : Lower relevant		Kano category	Management for operation					Management for information		Weight computation				
			Management of branch service	Capability of create goodwill	Marketing capability	Development of drinks and foods	Design of balcony	Design of order system	Play songs system	Improvement index of quality	Difference index	Original priority weight	Original weight	Standard weight
Tangibles	luxuriously building	M					◎			0.679	21	29	2	0.0043
	good ambiance	M					◎			1.0355	9	25	6	0.0129
	clear and comfortable environment	M	◎				○			1.5453	2	20	11	0.0237
	enough microphones	M					◎			0.618	-6	7	24	0.0516
Reliability	update new songs quickly	M		△	△					1.3015	3	22	9	0.0194
	play songs quickly	M	○					◎	◎	1.152	-14	2	29	0.0624
	good video tape of MTV	M							○	1.1438	-4	13	18	0.0387
	good audio and video	M	△							1.2144	-6	8	23	0.0495
	accuracy of settlement	M	△							1.3515	-18	1	30	0.0645
Assurance	good honor and impression of the company	M	△							0.6175	-2	16	15	0.0323
	friendliness services	M	△							1.0332	-5	10	21	0.0452
	disciplined attendants	M	△							0.803	-7	6	25	0.0538
Responsiveness	drinks and foods delivery soon	M		◎	◎	△	○	△		1.0388	14	26	5	0.0108
	attendants come soon when customer push the services button	M	△							1.425	-4	14	17	0.0366
	attendants ask customer want actively and handle the problems well	M	△							1.4553	1	18	13	0.0280
	variety of made reservations	M	◎				○			1.4664	-10	5	26	0.0559
	provide membership personal services	M	◎				◎			1.4694	-13	3	28	0.0602
	convenience traffic	M	△							1.273	4	23	8	0.0172
	provide free parking space	M					◎			1.2789	-11	4	27	0.0581
Empathy	pleasant lobby or waiting area	M	◎							0.9702	17	27	4	0.0086
	supply smoking section	A								0.5712	1	19	12	0.0258
	diversification of balcony	M						◎		0.8208	-4	12	19	0.0409
	order systems convenient	A	○							0.188	-4	11	20	0.0430
	find songs easily	M	◎							0.9797	22	30	1	0.0022
	abundant drinks and foods	M	◎							0.3498	1	17	14	0.0301
	attendant understand what customer needs	M					◎			1.1448	19	28	3	0.0065
	set up automatic rating system	M						◎		1.4342	7	24	7	0.0151
	provide record songs service	M						◎		1.2972	-3	15	16	0.0344
	abundant and variety dividends choice	M				◎				0.581	3	21	10	0.0215
	provide call taxi service	M								1.0004	-5	9	22	0.0473
quality technology absolute weight			1.9338	0.0734	0.0734	0.1183	1.2392	0.7748	0.4281					
quality technology relative weight			0.1475	0.0056	0.0056	0.0090	0.0945	0.0591	0.0326					
priority of quality improves technology			2	17	17	16	4	8	10					

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