

A yield management model for five-star hotels: Computerized and non-computerized implementation

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Abstract

The purpose of this study was to propose an enhanced yield management (YM) model that was developed based on the previous models and to test the applicability on five-star lodging properties in Turkey to identify the related problems. The proposed model overcomes some of the limitations of previous ones. It was specifically developed for full service, upscale hotels, namely for five-star lodging properties with or without a computerized yield management system (CYMS). Examination of the actual implementation stages provided useful insight in determining the applicability and the problems related to the application of the model. Findings indicated that the proposed YM model can be used by all upscale properties (with or without a CYMS) to manage their revenue and yield. Findings suggested that the application of the model is likely to improve the operational and financial performance for both type of properties.

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1. Introduction

Yield management (YM) is a strategic management tool that was first developed by airlines after the deregulation of the industry in the 1970s. Since then, airlines have refined the techniques of YM. Today, every single airline utilizes YM to maximize capacity utilization, overall revenue and consequently net returns (Donaghy et al., 1995). The hotel industry, too, has started adopting the principles of YM. Like airlines, hotels utilize YM as a profit maximization technique, which aims to increase net yield through the predicted allocation of available room capacity to pre-determined market segments at an optimum price (Huyton and Peters, 1997). Even though hotels have only been referring the attempts to maximize profits as YM since the mid-1980s, hotel managers have long been using various pricing strategies to maximize their profits by bringing the seasonal demand for rooms and capacity limitations into a balance (Choi and Cho, 2000), even before the airlines.

Simply defined, YM is a procedure used to maximize room revenue through systematic and continuous manipulation of rates in response to forecasted patterns of demand (Jauncey et al., 1995; Lee-Ross and Johns, 1997). The main goal of a YM system is to maximize the yield by obtaining a revenue goal that is as close to the potential revenue target as possible (Orkin, 1988). Orkin suggests that to achieve the targeted revenue goal, property management must institute practices and policies that will assist the yield manager in generating revenue from each room sale that will contribute to the established revenue target.

A majority of researchers who examined YM studied its definition (Donaghy et al., 1995; Kimes, 1989b); critical factors that are likely to influence the implementation (Donaghy and McMahon, 1995; Fitzsimmons and Fitzsimmons, 1998; Hiemstra, 1999; Kimes, 1989a, b, 1997; Yeoman and Watson, 1997); and the ethical issues raised by utilization of it (Cross, 1992, 1997; Jauncey et al., 1995; Kimes, 1994; Lieberman, 1993). Several researchers also examined the application of YM in different industries such as the charter boat industry (Bermudez et al., 2004), the restaurant industry (Johns and Rassing, 2004), the healthcare industry (Lieberman, 2004), and the application of YM in visitor attractions (Hoseason, 2004) and in hotel function space pricing (Kimes, 2004). There is also a considerable amount of research that examined the implementation of YM in the hotel industry. Among those, Griffin (1995, 1996, 1997) has defined the *Critical Success Factors* for Computerized Yield Management System (CYMS) in hotels. Combining the *Activity Based Costing* and YM, Noone and Griffin (1997) have proposed a model for *Customer Profitability Analysis*. Schwartz and Hiemstra (1997), and Weatherford et al. (2001) examined the importance of forecasting future demand for utilization of YM principles. Vinod (2004) assessed the value of revenue management in the hotel industry. Choi and Mattila (2004) investigated the impact of revenue management on customers' perceptions of fairness. Lee-Ross and Johns, (1997) and Luciani (1999) provided a detailed analysis of the problems related to implementation of YM at small and medium sized hotels.

Several researchers have proposed YM implementation models. The first model was developed by Jones and Hamilton (1992). After interviewing a number of

managers, they concluded that none of the hotels were implementing a complete YM system because those managers found the process to be too complex in terms of the range and depth of information that practitioners must manipulate. Interviewed managers indicated that they were tracking declines and denials; most of them segmented the market carefully; and some were using price-value relationship. However, none of them indicated that they had developed a yield culture or were going through all stages of implementing a YM system. They suggested that the introduction of new technology and the use of more sophisticated techniques have led to two major problems: (1) a focus on the detail and minutiae of YM without a full understanding of the concept; and (2) the placement of great emphasis on information technology and software, and a failure to acknowledge the importance of the human elements of a YM system. Based on the interviews, Jones and Hamilton (1992) proposed a seven-stage YM implementation model, which emphasizes the role that people have in making the system work. The Jones and Hamilton (1992) seven-stage YM implementation model is presented in Fig. 1.

The second model was proposed by Donaghy and McMahon (1995), and Donaghy et al. (1997a, b). They suggested that the management, needs to study the usage characteristics of the property's market segments. The management also needs to track the usage characteristics that are intricately related to a host of behavioral patterns in order to derive a valid estimate of demand for any given day of the year. They argued that several items needed to be mastered to maintain a respectable revenue stream that meets or exceeds forecast and revenue projections. Based on the previous model and their findings, they proposed a 10-stage YM implementation model, which emphasizes the role of market segmentation and the usage characteristics of those selected segments. The 10-stage YM model is also presented in Fig. 1.

The third model was developed by Jones and Kewin in 1997. Based on the previous works in the area, they developed a Hotel Yield Management System Model, which highlights six inter-related systems as presented in Fig. 2. As suggested by McMahon-Beattie et al. (1999), this model has effectively drawn together the

Jones and Hamilton's YM Implementation Model (1992)	Donaghy and McMahon (1995) and Donaghy et al.'s YM Implementation Model (1997 a,b)
1. Develop a Yield Culture 2. Demand Analysis 3. Price-Value Determination 4. Market Segmentation 5. Demand-Pattern Analysis 6. Track Declines and Denials 7. Evaluation 8. Possible Action	1. Personnel 2. Analyze Demand 3. Market Segmentation 4. Determine Optimal Guest Mix 5. Analyze Trade-Off 6. Establish Capacity Levels 7. Introduce YM System 8. Customer Reorientation 9. Operational Evaluation 10. Action

Fig. 1. Previous yield management models.

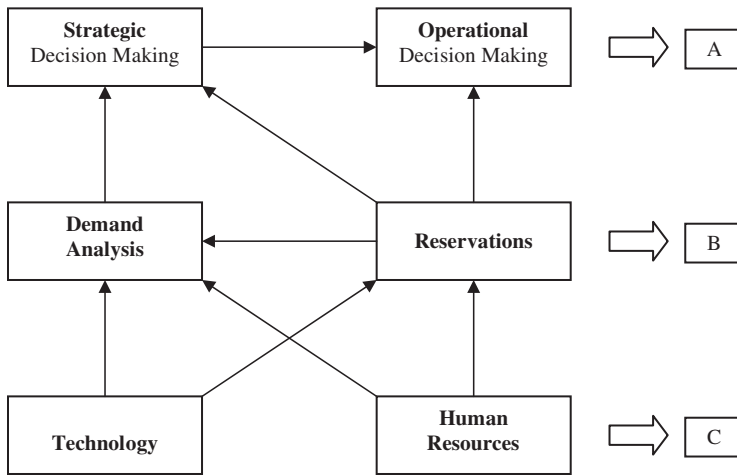


Fig. 2. Hotel yield management system. (source: Jones and Kewin (1997)).

various factors identified by previous models. Operational key stages identified by Donaghy et al. (1997a, b) and the seven key elements of YM identified by Jones and Hamilton (1992) were incorporated into the model.

Clearly, all three models somewhat agree on the types of variables that must be considered by the yield/revenue managers. All three models suggest that the process of YM is very complex to administer. Even though all three models provide a theoretical guideline for the implementation of YM, practical applicability of these models is limited. They were developed for the entire hotel industry as a guideline without consideration for the size of the hotel. Though not stated explicitly, all of these models assume that hotel properties have the required technology and technological expertise in place. All of the properties that are located in developed countries may have the technology, technical expertise and resources to use CYMSs. However, some of the properties located in developing and underdeveloped countries may not have access to the technology, or may not have the recourses or expertise to utilize a CYMS. All three models also present challenges in the anteriority/posteriori of the stages and their coherence in general. For example, none of the models distinguishes between short-term and long-term implication objectives.

This study proposes an enhanced YM model that was developed based on the previous models. The enhanced model proposed in this study attempts to overcome some of the limitations of previous models. Instead of providing theoretical guidelines for the entire lodging industry, the model was developed for full service, upscale hotels, namely for five-star lodging properties. In addition, the model does not assume that all of the lodging properties that utilize a YM system use a CYMS. Application of the proposed enhanced model does not require a CYMS. If the lodging property does not have the technological infrastructure, or expertise, the management still can utilize YM to manage revenue using the proposed model.

The proposed model was tested on five-star lodging properties with and without a CYMS in Turkey. Examination of the actual implementation stages provided useful insight in determining the applicability and the problems related to the application of the model. It also enabled the researchers to identify the differences between the lodging properties with a CYMS and properties without a CYMS.

2. Model development and data collection

Before developing the model, a pilot study was conducted to examine the YM practices at three five-star hotels in Turkey: two, having a CYMS. The pilot study enabled researchers to observe computerized and non-computerized system implementations and helped them to identify related problems. Based on the observations of the pilot study hotels and the previous literature, an enhanced YM model was developed.

The proposed five-stage YM model is presented in Fig. 3. The first two stages were proposed to establish the basis for successful implementation of a YM system. The third stage addresses the operational steps to be undertaken before making a yield decision. The third stage should be implemented closer to the arrival of customers. The fourth stage deals with the evaluation of the YM operations. The fifth stage addresses the process revisions of yield decisions based on the result of the fourth stage.

The proposed model was tested on lodging properties that use a CYMS and on properties without a CYMS using a self-administered survey questionnaire, which was developed based on the pilot study observations and from the previous studies. Two sets of questionnaires were developed to collect data about the YM implementation practices. The first set of questionnaires was used to collect data from five-star lodging properties with a CYMS and had 45 questions. The second set that was used to collect data from five-star lodging properties without a CYMS had 46 questions.

In order to identify the properties with and without a CYMS, a postcard was mailed to the reservation offices of all five-star hotels (118) in Turkey, in March 2001. Of the lodging properties that responded, 20 properties were selected to test the proposed model: 10 with a CYMS and 10 with a non-CYMS. Afterwards, the questionnaires were mailed to each of the five-star lodging properties. The cover letter specifically indicated that the questionnaire was to be completed by the yield/revenue managers or the persons who were responsible for YM. All of the selected properties responded to the survey. The data were analyzed using SPSS 11.5.

3. The stages of the model and related findings

3.1. Stage I: Preparation

The preparation stage is the most important stage because it sets the ground rules; therefore, implementation of any YM system requires a preparatory stage. The first

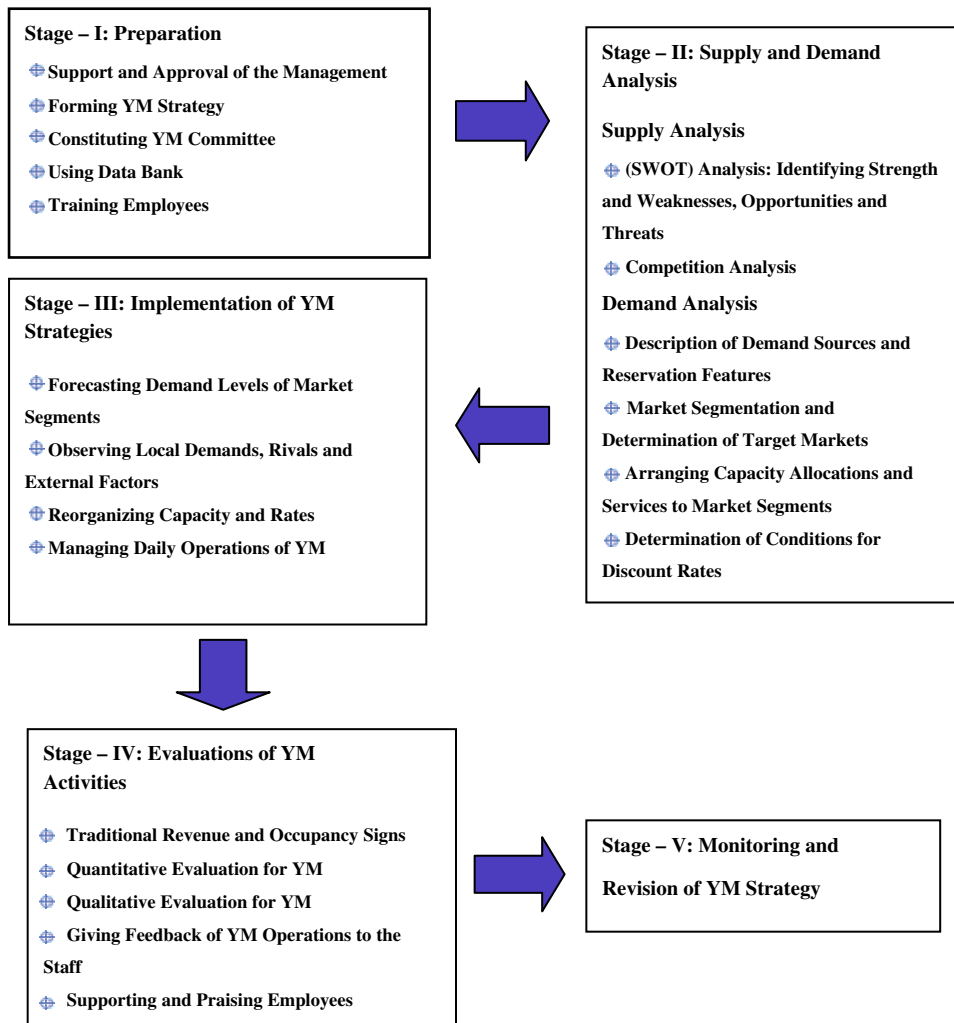


Fig. 3. Proposed enhanced yield management model.

thing a hotel needs is the approval and support of top management and owners. Individual hotels may need to get the approval and support of the owner and the general manager, while chain hotels may need to get the approval from their regional offices and/or from the headquarters. After receiving approval, a YM strategy is developed using a team approach, with each department of the hotel represented. This team comes up with the short and long term YM strategies and policies for the hotel to obtain the desired results. After the strategies and policies are determined, the yield management committee (YMC) sets the working principles and action steps for the implementation of YM strategy. At this stage, it is also important to

designate a yield manager whose sole responsibility is the coordination and implementation of the YM system. Also, the type of data needed for the implementation is determined at this stage. Based on the type of data needed, a data bank is designed. Next, the YMC decides whether the hotel will use a computerized or non-computerized system. A successful implementation requires a well-trained staff. Hence, all employees including the staff at the front office, sales and marketing and reservation departments will participate in an in-service training course to learn the system.

Implementation of the first step was examined by asking respondents a series of questions related to it. The respondents in both groups were asked whether the top management in their hotels gave sufficient support and approval for YM. Findings suggested that nine of the 10 hotels that utilize a CYMS received sufficient support and approval from their top managers, while all of the hotels that utilize a non-CYMS received full support and approval of the top management team. A *t*-test was conducted to find out whether there was any significant difference between the two groups. The observed *t*-value indicated that there was no significant difference in terms of the approval and the support given by the top management. Even though almost all of the respondents suggested that they had received full support from upper level managers, 90% (18 hotels) of them stated that they did not have YMCs and decisions related to the first stage of YM were made unilaterally.

The subjects were also asked whether the strategies for YM and hotel management were compatible. Findings suggested that the management strategies and the YM strategies of the hotels were compatible to a great extent (90%). There was no significant difference between the two groups.

One of the conditions for a successful application of YM in hotels is to have a designated yield manager. Findings indicated that five of the hotels with CYMS had designated yield managers. However, YM was only two of those managers' sole responsibility. Two of the hotels with non-CYMS had designated yield managers but they were also responsible for managing another department. At hotels without a yield manager, the responsibilities of YM were carried out by managers who had other responsibilities. Most of the properties (65%), the duties of a yield manager were performed by the reservation managers and/or the marketing managers, followed by general managers and front office managers.

Around 60% of the respondents (12 hotels) suggested that they received sufficient training while 40% of them (eight hotels) indicated training had not been sufficient. According to results of *t*-test conducted, there was no significant difference between the two groups at the .05 significance level. The respondents were asked whether their YM staff were allowed to choose and/or change the YM recommendations, or cancel them without the prior approval of a higher-level manager. Findings suggested that only a small portion of all the respondents (30%) were able to make independent decisions. The rest needed the approval of upper level managers.

Findings also suggested that most of the hotels in both groups had data banks established. Nineteen of the properties (95%) maintained a data bank covering the past two years, and 17 (85%) indicated that they had data banks of the upcoming year for the future demand forecast.

3.2. Stage 2: Supply and demand analysis

A core process in any YM implementation is comparing forecasts of supply and demand, and analyzing the gap between them. The aim of this process is to develop a set of actions that will eliminate or reduce the gap between supply and demand across the likely scenarios. Action steps to be taken to analyze supply and demand at this stage are illustrated in Fig. 3.

Supply analysis includes the examination of internal factors such as the service production, quality, room ratings, management, finance, research and development, marketing and sales, and external factors such as existing and prospective competitors and their room supply, their pricing structure, etc. Examination of supply requires a detailed SWOT and competitive analysis in order to examine and understand internal and external factors that are likely to influence the current and future supply and demand. Demand analysis includes the description of the potential market segments; their characteristics, such as booking, cancellation, no show, rates, etc.; selection of the most appropriate target markets; capacity allocations to each of those target markets and development of services and products to attract those target markets, if necessary. In selecting target markets, managers should pay special attention to the prospective contribution margin of each market segments (Dunn and Brooks, 1990; Noone and Griffin, 1997). Pricing and discounting strategies must be considered to attract each of the targeted markets.

A SWOT analysis is an important tool in YM because it enables lodging properties to analyze and monitor the micro and macroenvironments. Examination and constant monitoring of the macroenvironment help managers identify possible opportunities and threats. It is a management tool for avoiding strategic surprise and ensuring the long-term success of the property. Examination and constant monitoring of the microenvironment enables managers to identify internal strategic factors, which are the strengths and weaknesses that may well determine whether the firm will be able to take advantage of opportunities while avoiding threats (Wheelen and Hunger, 1995). Findings of this study suggested that 70% of all the hotels examined, conducted a SWOT analysis to identify and to take advantage of opportunities while trying to avoid threats.

Findings also suggested that all of the properties examined conducted a detailed demand analysis. They identified market segments and chose the segments that were most profitable as their target markets. Most of the properties of both groups (60%) stated that they target 5–10 markets. However, only 40% of the properties with a CYMS targeted 5–10 markets while most of the properties with a non-CYMS (80%) targeted 5–10 markets. The majority of properties (60%) with a CYMS targeted more than 10 market segments. The observed *t*-value indicated that there was no significant difference between the two groups at the .05 significance level.

Findings also suggested that a large portion of the properties examine the contribution of each of the market segments to their gross revenue: 70% of the properties with a computerized system and 60% of the properties with a non-computerized system examine the contribution of market segments to their gross revenue. However, as suggested by Dunn and Brooks (1990) and Noone and Griffin

(1997), examining the contribution of each market segment to gross revenue may be misleading. Therefore, lodging properties should also examine the contribution of each market segment to gross profit before selecting segments to target. Findings indicated that 30% of the properties with a computerized system and 40% of the properties with a non-computerized system examine the contribution of market segments to their gross profit before determining which segments to target and what level of capacity to allocate to each target market.

YM allows maximization of revenues through allocation of available rooms to the right customers, for the right prices. This requires offering a wide number of rates. However, customers who pay the highest rate may not like the idea of discounted rates to people who may book well in advance. They may feel that they are being ripped off and as a result they may take their business elsewhere. Therefore, it is important to understand how customers are likely to react to a wide range of rates for the same room. A large portion of respondents in both groups (65%) indicated that their customers understand why hotels offer a wide range of rates and they do not make a big deal of it. However, they also indicated that 35% of their customers were not happy with the wide range of rates for the same room.

3.3. Stage 3: Implementation of YM strategies

This is the stage where specific YM system strategies are being operationalized. At this stage, the yield manager forecasts demand for each selected target market, examines the local demand trends, competitors' rates, market share and other environmental factors. Forecasting demand is a crucial activity in implementing YM system. Without accurate forecasting, it is hard to achieve the goals of YM. It is also important to monitor the local demand trends and the potential factors that are likely to influence demand. Factors such as competitors' reactions to discounted prices or competitors' pricing structures and their short-term strategies to maximize yield is likely to impact the revenue of other hotels. Also, in order to be proactive, it is important for yield managers to monitor the external factors that are likely to influence demand for the property. Understanding the demand pattern for the area, monitoring the competitors' activities, and analyzing external factors are likely to help yield managers come up with accurate forecasting. Based on the forecasted demand for the property, the yield manager can easily make room allocation, capacity management, and pricing decisions to maximize the yield. This stage also suggests that yield managers should constantly monitor the micro and macroenvironments to identify new threats and opportunities.

Findings suggested that 70% of the hotels with a CYMS believe that they are able to forecast future demand using their computerized system. On the other hand, 80% of the hotels without a CYMS stated that they do manual forecasting using the forecasting techniques they developed. Most of the hotels without a CYMS indicated that they rely on the expertise and judgments of upper managers (60%) and/or of the sales force (60%) to forecast the future demand. Only a small group indicated that they utilize forecasting techniques such as the moving average method (40%), the time series method (20%), and regression analysis (10%).

Both groups were asked whether they monitor the business activities around the local area such as conferences, exhibitions, meetings, etc. All of them (100%) indicated that they constantly monitor the local area to identify new business opportunities and any possible fluctuations in demand. Respondents also indicated that they constantly monitor their competitors, their strategies and sales systematically. Findings suggested that 80% of the properties constantly monitor their competitors' rack, corporate, discounted package, travel agency, reservation office, CRSs and Internet rates. What is more, most of them (80%) are able to change their own rates on CRSs and Internet within 10 min–6 h to stay competitive.

Overbooking policies of each property and the impact of YM implementation on overbooking were also examined. Most of the properties with a computerized system (70%) and 40 percent of the properties with a non-computerized system indicated that the implementation of YM had a positive impact on determining and managing their overbooking policies because the application of YM lowered the risk associated with overbooking. The observed *t*-value indicated that there was no a significant difference between the two groups at the .05 significance level.

3.4. Stage 4: Evaluation of the YM activities

How lodging properties evaluated their YM system was examined by investigating the activities they perform to measure the success of their YM system. The success or failure of a YM system can be evaluated through several different ways. One of them is to calculate and examine the efficiency rate of YM using the unified formula, which consists of the efficiency of occupancy and revenue (occupancy rate $\times$ rate effectiveness). It was first proposed by Lovelock (1984) and further developed by Orkin (1988), and Kasavana and Brooks (1995). Hotels using CYMS are likely to calculate the efficiency automatically; and the others are likely to use a manual system to calculate the efficiency. Eighty percent of the properties with a CYMS indicated their computerized system calculates the efficiency rates automatically. On the other hand only 40% of the properties with a non-CYMS suggested that they calculate efficiency rates. They stated that they perform these calculations manually.

It is also useful to examine the relationships between the occupancy rate and the discounts. This relationship can easily be examined by calculating the *equivalent yield occupancy rate* (Kasavana and Brooks, 1995). Forty percent of the properties with a CYMS indicated that their YM system does the calculations automatically and shows the expected occupancy rates at each discount level. Thirty percent of the properties with a non-CYMS were found to calculate the *equivalent yield occupancy rate* manually. Respondents were also asked whether they calculated the non-room revenue per guest. Sixty percent of the properties with a CYMS indicated that they do the calculation. In 40% of the properties, the calculation was done by the computerized system while in 20% of the properties the calculation was done by the yield manager. All of the properties that use a non-CYMS (100%) indicated that they do the calculation manually.

Another way of measuring the success of YM is to compare the projected yield with the actual yield. Thirty percent of the properties with a CYMS indicated that

the comparison was done automatically by the system while 40% of the properties with a CYMS indicated that they develop their own method for comparison of actual and projected yield. Fifty percent of the properties with a non-CYMS stated that they compare their actual results against the projection to determine the success of YM. Findings suggested the difference between projected yield and actual yield was around 15% for all properties.

The factors that are likely to influence modification and revision of YM strategies were also examined. Findings suggested that for both types of properties, upper level management, the competitors' rates and strategies, and changes in national economy had the highest influence.

Findings suggested that the implementation of YM had a positive impact on the gross revenue in both type of properties. Most of the properties of both groups (60%) indicated that the application of either a computerized or a manual YM system increased their gross revenue by at least 5%. According to results of *t*-test conducted there was no significant difference between the two groups at the .05 significance level.

Another method of measuring the success of YM is through a qualitative analysis of market segments' behavior, actual demands, environmental developments, staff performance, satisfaction of customers, service quality, novelty and improvements of the property. Most of the properties examined indicated that they perform a qualitative analysis to examine the success of YM strategies. However, *t*-test results suggested that frequency of evaluation of the performance of YM was significantly different between the two types of properties examined. Properties with a CYMS were found to evaluate the performance more frequently than properties with a non-CYMS: 50% of them evaluated weekly and the other half evaluated monthly. On the other hand, 50% of the properties with a non-CYMS evaluated the performance weekly, 20% evaluated quarterly and the rest evaluated once a year. Since the properties with a CYMS evaluated the performance more frequently than the properties with a non-CYMS, the personnel of the properties with a CYMS were informed more frequently than the personnel of the properties with a non-CYMS. A successful application of a YM system requires an appropriate reward program for the employees to increase the revenue when the demand is high and to increase the sales when the demand is low. Sixty-five percent of the properties in both groups reported that they have an appropriate reward program in place.

3.5. Stage 5: Monitoring and revision of the strategy

To ensure that the YM strategy is properly implemented to achieve its objectives, management needs to constantly monitor the implementation of the strategy using the criteria discussed in the fourth stage because dysfunctional side effects are likely to undermine the implementation of the strategy. If the strategy is not monitored in a timely manner, by the time a problem is discovered, it might be too late to correct it.

4. Discussions and conclusions

The purpose of this study was to propose an enhanced YM model that was developed based on the previous models and to test the applicability of the models on five-star lodging properties in Turkey. The model proposed in this study overcomes some of the limitations of previous models. Unlike previous models, it was developed for full service, upscale hotels, namely for five-star lodging properties. It does not assume that all of the lodging properties that utilize a YM system use a computerized system. The model was developed for properties with and without a CYMS. If the property does not have the technological infrastructure or expertise, the management still can utilize YM to manage revenue using the proposed model. The model was tested on five-star lodging properties with and without a CYMS in Turkey. Examination of the actual implementation stages provided useful insight in determining the applicability of the proposed model and the problems related to the application of the model. It also enabled the researchers to identify the differences between the lodging properties with a CYMS and properties without a CYMS.

The findings of this study suggested that the five-star properties in Turkey using either a computerized or a non-computerized system face some serious problems. Some of these problems were related to implementation while others were caused by limited usage of technology or limited technological knowledge. Properties can easily overcome the problems related to implementation by paying more attention to how each step is implemented and by constantly monitoring the implementation stages and results.

The findings of first stage indicated that implementation of YM at both groups has been highly encouraged by the upper level managers and the implementation processes observed are compatible with the management strategies of the hotels. However, findings also suggested that a large portion of the hotels studied do not have a yield manager, and the tasks related to YM are carried out by the managers at various departments, who already have lots of responsibilities other than YM. Even though findings suggested that all properties studied benefit from the application of a YM system in terms of financial returns, posting a dedicated yield manager is likely to increase financial returns. Therefore, properties should consider hiring a yield manager instead of asking other managers to perform the duties of a yield manager in addition to their existing managerial duties. Findings also suggested that 90% (18) of the hotels do not have YMC. This is likely to influence the success of the YM implementation because the purpose of establishing the YMC is to enhance the coordination among different departments and to develop values, policies and principles that are accepted and applied by all managers and employees. As for training level of the staff, 12(60%) of the respondents think that the training given at the hotels is sufficient for the successful implementation of YM. However, findings suggested that the YM staff at the hotels have a limited authority in making independent decisions related to YM. This may delay the response of the property to the unexpected event in the macro and microenvironments and to the changes in competitors pricing strategies. Properties should consider giving more authority to the YM staff to ensure timely responses to unexpected events. Hotels in both

groups have a comprehensive data bank to forecast future demands and to make yield decisions.

The second stage of the proposed model dealt with supply and demand analysis. Findings suggested that most of the properties conducted a SWOT analysis to examine supply and to take advantage of opportunities while trying to avoid threats. Results also suggested that all of the properties included in the study conducted a detailed demand analysis. Findings also suggested that most of the properties examined, made their market segmentation decision based on the contribution of each market to their gross revenue. As discussed earlier, contribution to gross revenue may not provide accurate information on each of those segments' contribution to the profit. Therefore, they should also examine the contribution of each market segment on gross profit before they determine which markets to target.

Findings of stage two also indicated that most of the customers perceive the room pricing based on YM principles to be fair. However, as suggested by [Choi and Mattila \(2004\)](#), when customers receive room rates that are higher than the rates given to others, they perceive the pricing practice to be less fair than when they receive the same or lower room rates than others. Properties should develop appropriate strategies to deal with this perception. One strategy they can utilize might be to incorporate YM and customer relationship management. Yield managers may need to incorporate a special pricing strategy just for their loyal customers into the YM system. As suggested by [Shoemaker \(2003\)](#), if YM is practiced indiscriminately, it can have adverse affects on loyal customers' perceptions of the lodging property and as a result, destroy customer loyalty. If the yield managers do not incorporate the two together, the loyalty is likely to decrease ([Noone et al., 2003](#)) because customers may perceive the YM as a opportunistic behavior, which may inhibit their trust and loyalty ([Bowen and Shoemaker, 1998](#)).

At stage three, most of the properties that use a non-CYMS system were found to perform manual forecasting using the forecasting techniques they developed. Mostly, they rely on expertise and judgments of the managers for forecasting due to their technological limitations. As suggested by the findings of this study, properties with a CYMS are better equipped to calculate future supply and demand. Forecasting demand is one of the most important steps in implementing a successful YM system. Even though relying on the expertise and feeling of the management team to forecast might be useful, it is also important to examine the trends and other factors and calculate the forecast using sound forecasting techniques. Both groups indicated that they monitor the micro and macroenvironments and competitors' rates and strategies constantly in order to maximize the revenue and to stay competitive.

At stage four, findings suggested that the properties with a CYMS heavily relied on it to calculate the performance measures while properties with a non-computerized system calculated the performance measures manually. Both types of properties reported that YM had a positive impact on their gross revenue. While properties with a computerized system calculated and reported performance frequently, properties with a non-computerized system calculated and reported

performance measures less frequently. In order to better monitor the application of YM and to respond to problematic performances in a timely manner, properties with a non-CYMS may need to calculate the performance measures more frequently. In addition, properties without an appropriate reward program in place should consider developing reward programs in order to deliver consistent service and/or to improve the level of service provided.

Even though several differences were found between properties with a CYMS and properties without a CYMS, findings suggest that the model is applicable to both types of properties. Most of the properties studied, whether using a computerized or a non-computerized system, indicated that the application of the YM model increased their gross revenue by at least 5%. It is possible that the YM application may further increase their gross revenue if they are able to resolve the problems related to implementation of the model. As suggested earlier, they can easily overcome these problems by paying more attention to how each step is implemented and by constantly monitoring the implementation stages and results. Designating a yield manager whose sole responsibility is to oversee the application of YM may also help eliminate some of those problems.

This study examined the application of YM only at five-star lodging properties with and without a CYMS in Turkey. It is possible if the study included properties with less than five-star classification, findings might have been different. Findings indicated that the five-star properties were having some problems with the application of YM system. Properties with less than five-star classifications in Turkey are likely to face more serious problems due to the fact that their investment on technology and training is relatively small compared to five-star lodging properties. As a result, they utilize a non-CYMS. In addition, other star related properties are likely to have a harder time finding highly qualified employees because, in Turkey, five-star properties are usually the first choice of highly qualified employees for employment. Due to their limited resources, other star properties are less likely to invest on training and other resources that are crucial for the application of a YM system. Future studies should examine the application of YM system on both five-star and non-five star related properties in order to provide a better understanding of the application and problems related to the application of YM system at lodging properties in Turkey.

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