

The Relationship Between Product Quality and Revenue per  
Available Room at Holiday Inn

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## Abstract

Three years of quality and operational performance data from 1,135 franchised Holiday Inn hotels were analyzed to determine the relationship between product quality and operational performance. Hotels with at least one quality defect in the exterior, the guest room, and the guest bath had a revenue per available room per day (RevPAR) of approximately \$2.80 less than hotels that did not have defects in each of the areas. This implies that to be successful, a hotel must concentrate on maintaining high quality standards in areas that have the greatest impact on financial return.

## The Relationship Between Product Quality and Revenue per Available Room at Holiday Inn

Is there a relationship between product quality and financial performance? Although evidence supporting the relationship between improved quality and profitability has been presented, little guidance is available to help companies decide the most important quality areas in which to invest. As part of this study, three years of quality and operational performance data from 1,135 franchised Holiday Inn hotels were analyzed to determine the relationship between product quality and operational performance.

After a review of relevant literature, the Holiday Inn study will be described, followed by an analysis of the relationship between quality and operational performance. The article concludes with a discussion of theoretical and managerial implications of the research and future research areas.

### **Literature Review**

Research on the relationship between quality and financial performance began in the 1970s with the Profit Impact of Marketing Strategies (PIMS) studies. PIMS researchers studied the impact of various marketing strategies on financial performance at more than 500 corporations and found a strong link between perceived product or service quality and financial indicators (Buzzell and Gale 1987; Jacobson and Aaker 1987; Phillips, Chang, and Buzzell 1983; Thompson, DeSouza, and Gale 1985). Financial performance is affected by higher quality in two ways: (a) firms could charge a premium price, and (b) firms could increase market share leading to lower costs. Although quality did not always have a direct impact on return on investment

(ROI), the resultant increase in market share indirectly influenced ROI (Phillips, Chang, and Buzzell 1983).

Other researchers have found a similar relationship between quality and financial performance. For example, Aaker and Jacobson (1994) found a strong link between quality and stock performance, whereas Kordupleski, Rust, and Zahorik (1993) found that improved quality results in better financial performance. Recent research has further addressed the relationship between quality and profitability and has added the dimension of customer satisfaction (Anderson, Fornell, and Lehmann 1994; Fornell 1992; Handheld, Ghosh, and Fawcett 1998; Hardie 1998; Rust and Zahorik 1993; Zahorik and Rust 1992).

The link between customer satisfaction and financial performance has been studied (Anderson, Fornell, and Lehmann 1994; Fornell 1992; Rust and Zahorik 1993; Zahorik and Rust 1992). Firms with high customer satisfaction have been found to enjoy superior economic returns. A one-point increase in the satisfaction index of a *Business Week* 1,000 firm has been calculated to be worth about \$94 million or 11.4% of the average ROI (Anderson, Fornell, and Lehmann 1994).

Researchers also have studied the financial return on quality (Rust and Zahorik, 1993; Rust, Zahorik, and Keiningham 1994; Rust, Zahorik, and Keiningham 1995). The return on quality approach treats quality as an investment and quantifies the financial impact of quality expenditures. By structuring customer satisfaction surveys around business processes, changes in quality expenditures can be related to changes in customer satisfaction, and the resultant change in profitability can be calculated.

Researchers have found strong links between financial performance, product and service quality, and customer satisfaction. With rare exceptions (Kordupleski, Rust, and Zahorik 1993;

Rust, Zahorik, and Keiningham 1995), research has been based on aggregate data. What is needed is a way to study the link between financial performance and quality at the individual operating-unit level. This research addressed this need by examining the relationship between operational performance and product quality at Holiday Inn Worldwide.

## **The Link Between Quality and Operational Performance at Holiday Inn**

### **Background of the study**

Holiday Inn Worldwide in the United States and Canada consists of more than 1,500 company-owned and managed, company-managed, and franchised hotels. Franchised hotels make up the bulk of the Holiday Inn system (more than 1,200 hotels) and were used as the basis of this study. Franchised hotels were privately owned and typically operated by a management company. Holiday Inn Worldwide maintained data on the operational and quality performance of all hotels and provided 3 years' worth of data (1990-1993) for this study. To study the link between quality and operational performance, operational definitions of product or service quality, customer satisfaction, and operational performance were developed.

### **Quality**

Hotels typically measure quality with inspections and with customer satisfaction data. Inspections are usually conducted internally, although some firms also use external inspection services. Holiday Inn Worldwide conducted regular internal quality assurance inspections of hotels in the Holiday Inn system during the study period.

The Quality Assurance Reports covered 19 different areas: rules of operation (4 areas), commercial facilities (10 areas), guest rooms (2 areas), and service (3 areas). Each area typically

consisted of 10 to 12 individual items that could be passed or failed. The number of deficiencies in each area determined whether a hotel passed or failed its inspection.

Biannual inspections were conducted by trained Holiday Inn quality auditors. Regular training sessions were conducted to ensure consistency, and inspectors were moved to different regions every few years to reduce the possibility of bias. Inspections were unannounced, and inspectors would typically spend a day performing the audit. Hotels received reports detailing the results of the audit and were given an overall rating of acceptable, marginal, or unacceptable.

Holiday Inn Worldwide maintained historical results of the Quality Assurance Reports for each hotel in the Holiday Inn system. The results from the quality assurance inspections were used as the indicator of product quality.

### **Customer satisfaction**

Hotel customer satisfaction usually is measured through guest comment cards or customer surveys (Lewis and Pizam 1981). Holiday Inn Worldwide used guest comment cards and customer satisfaction surveys as external measures of quality. Comment cards are considered unrepresentative of guest opinion (Hall 1990; Lewis and Pizam 1981) and were not used in this study. During the time of the study (1990-1993), a limited set of customer satisfaction questions were asked of members of Holiday Inn's frequent guest program, the Priority Club. Due to the unrepresentative nature of the sample, the customer satisfaction surveys were excluded from this study.

### **Revenue per available room (RevPAR)**

Hotels measure operational performance in a number of ways, including occupancy, average daily rate, revenue per available room (RevPAR), and hotel operating margin. For this study, operational performance was measured with RevPAR because it reflects performance in

both occupancy and rate. RevPAR can be calculated in one of two ways (both give the same result): (a) divide the rooms revenue by the number of rooms available or (b) multiply the occupancy percentage by the average daily room rate (ADR). RevPAR is often used as a proxy for hotel profitability because of the low variable costs and high fixed costs associated with hotels.

Although RevPAR is a valuable performance measure, it does not reflect differences in local conditions that can affect hotel occupancy and average daily rate. For example, hotels in traditionally high-priced areas tend to have a much higher RevPAR than hotels in traditionally low-priced areas. To account for this weakness, a price index for each hotel was developed using competitive data obtained from Smith Travel Accommodations Reports (STAR Reports).

The STAR Reports, published monthly by Smith Travel Research, are widely used and regularly relied on in the hotel industry. Smith Travel Research samples thousands of chain and independent hotels and motels in the United States and produces monthly rooms sales and revenue reports for both individual hotels and their competition.

Holiday Inn hotels subscribes to the STAR Reports and obtains individual reports for each of its U.S. and Canadian properties. The STAR Reports were used to calculate the RevPAR for the immediate midscale competitors for each Holiday Inn hotel. This information then was used to develop a price index to normalize the RevPARs for Holiday Inn hotels.

The first step in developing the price index was to find the average of all the competitive RevPARs. Next, a price index was developed for each Holiday Inn hotel by dividing the RevPAR of the immediate midscale competition by the average competitive RevPAR. Price indices higher than 1.0 reflected higher priced areas, whereas price indices less than 1.0 indicated lower priced areas. For example, hotels in the San Francisco Bay area had price indices greater

than 1.4, whereas hotels in rural Arkansas had price indices less than 0.8. The Holiday Inn hotel RevPAR was then divided by this price index to develop an adjusted, or normalized, RevPAR that could be compared against the normalized RevPARs of other Holiday Inn hotels.

### **Hotels included in the analysis**

A total of 1,135 franchised hotels that were in operation at the beginning of 1990 were included in the analysis. Terminated hotels, company-owned and managed hotels, and hotels with incomplete data were excluded from the study.

The analysis was conducted using 6-month intervals from February 1990 through January 1993 (intervals beginning in February 1990, August 1990, February 1991, August 1991, February 1992, and August 1992). The Quality Assurance Report nearest to each test interval was used to determine the number of defects in each area for each subject hotel. Financial data for the 6 months prior to each test date and 6 months after each test date were used to develop the normalized RevPAR for each of the subject properties.

### **Analysis of the Quality Assurance Reports**

Commercial facilities (lobby, public restrooms, dining facilities, lounge facilities, corridors, recreation area, meeting area, kitchen, exterior, back of house) and guest rooms (guest room and guest bath) were included in the study. Rules of operations areas were not included because of their administrative nature, and service areas were excluded because they were rarely cited as deficiencies. The total number of items failed as well as the total number of items failed for each area were calculated for each property (Table 1).

### **Defects by area**

If a hotel had failed at least one item in an area, it was considered to be “defective” in that area. The average normalized RevPAR for hotels that were “nondefective” in an area was



calculated and compared against the average normalized RevPAR for hotels that were defective in an area. This analysis was repeated for each of the 12 areas studied. *t* tests were used to compare the means of the two samples and to test if the normalized RevPAR differences were statistically significant (Table 2).

For example, in February 1990, hotels with at least one defect in the exterior had a RevPAR of \$3.12 less than hotels with no defects in the exterior. Hotels with at least one defect in the guest room had a RevPAR of \$2.01 less than hotels with no defects in the guest room. Hotels with at least one defect in the guest bath had a RevPAR of \$1.32 less than hotels with no defects in the guest bath.

Although the significant areas varied by time interval, the three areas that consistently showed a statistically significant difference in RevPAR between hotels with at least one defect and hotels with no defects were the exterior, the guest room, and the guest bath.

### **Total defects**

The total number of defects, regardless of area, was calculated for each of the subject hotels in February 1990. The normalized RevPAR for all hotels with less than a certain number of defects was compared to the normalized RevPAR for hotels with at least that number of defects. *t* tests were done to compare the means of the two samples to test for statistically significant differences. As the total number of defects in a hotel increased, the RevPAR decreased.

### **Summary of analysis**

As the number of defects in a hotel increased, the RevPAR decreased. Areas of the Quality Assurance Report that showed a particularly strong impact on RevPAR were the exterior, the guest room, and the guest bath. Although even one deficiency in any of these areas

had a statistically significant effect on RevPAR, the combination of a deficiency in each of these areas showed an even larger effect on RevPAR over time.

### **Definition of Defective Hotels**

Franchised hotels that had at least one defect in each of the exterior, the guest room, and the guest bath in the Quality Assurance Report within 6 months of February 1990 were defined as the *defective hotels*. Franchised hotels that did not have at least one defect in each of the exterior, the guest room, and the guest bath in the Quality Assurance Report within 6 months of February 1990 were defined as *nondefective hotels*. The Quality Assurance Report nearest to February 1990 was used because it gave a snapshot of the condition of the hotels as of February 1990. The definition of defective used in this study was much stricter than Holiday Inn used to declare a hotel *unacceptable*. To receive an unacceptable rating, a hotel had to fail three or more items in four or more areas.

Based on this definition, 607 hotels were classified as defective hotels, and 528 hotels were classified as nondefective hotels. The defective hotels represented a total of 104,978 rooms. The mean normalized RevPARs for defective hotels and nondefective hotels were calculated and t tests were conducted to test for statistically significant differences between the RevPAR for defective hotels and nondefective hotels. The analysis was repeated every 6 months from February 1990 through August 1992. The same set of defective hotels and nondefective hotels was used for each of the analyses.

### **Differences between Defective Hotels and Nondefective Hotels**

#### **RevPAR differences**

The RevPAR for the defective hotels was consistently lower than that of the nondefective hotels for all six test periods. On average, defective hotels had a RevPAR nearly \$3 less than

nondefective hotels. The normalized RevPAR difference was multiplied by the price index to obtain the actual RevPAR difference for each of the six dates studied. Each of the differences was statistically significant at the .0001 level (Table 3).

### **Quality Differences**

The quality assurance results of the two sets of hotels were compared for each of the six dates. The average number of defects in each of the 12 areas considered was calculated for both defective hotels and for nondefective hotels. *t* tests were run to compare the means of the two samples and to test for statistical significance. Defective hotels consistently displayed significantly ( $p < .05$ ) more defects than nondefective hotels for each of the six test periods (Table 4).

### **Revenue Impact**

Revenue impact can be analyzed for the entire Holiday Inn Worldwide system or for an individual property. Holiday Inn Worldwide did not own or operate the franchised hotels but received a percentage of their rooms revenue. To calculate the financial impact on Holiday Inn Worldwide, the RevPAR difference was multiplied by the number of rooms available for the time period to obtain the lost rooms revenue. The lost rooms revenue was multiplied by the average royalty fee of 3.78% of rooms revenue, the average advertising fee of 1.64% of rooms revenue, and the average reservation fee of 1.00% of rooms revenue to obtain lost franchise revenue (total of 6.42% of rooms revenue in February 1990). This analysis was conducted for each of the six dates and carried forward 6 months from that date. For example, the RevPAR difference of \$2.58 from February 1990 was used for the 6 months following February 1990. The total lost revenue over the 3-year period was estimated at approximately \$20 million.

If a hotel was classified as a defective hotel, the annual revenue impact for the property could be found by multiplying the RevPAR differential (on average, \$2.80/day) by the number of rooms (on average, 200 rooms) by the number of days in a year. Based on this, the revenue impact on an average defective hotel would be about \$560 per day or about \$204,400 per year. During the time of this study, the average room rate was approximately \$50 per day. If a hotel maintained a 100% occupancy rate, the revenue impact was 5.6%. At more realistic occupancy levels (60%-80%), the impact ranged from 7.0% to 9.3%.

### **Discussion and Conclusion**

A direct relationship between product quality and operational performance exists. Hotels with at least one defect in each of the exterior, the guest room, and the guest bath had a RevPAR of approximately \$2.80 less than hotels that did not have defects in each of the areas. This difference was consistent over time and represents an annual revenue shortfall of approximately \$200,000 per defective hotel.

Poor product quality in other areas of the hotel such as the lounge, the recreation facilities, the meeting space, and the back-of-house areas did not have a significant impact on RevPAR. This implies that to be successful, a hotel must concentrate on maintaining high quality standards in areas such as the exterior, the guest room, and the guest bath that have the greatest impact on financial return.

Franchise structures lead to varying and often conflicting goals for the corporation, the owner, the managing company, and the employees. Holiday Inn Worldwide would like to maximize profit, obtain a regular and high stream of franchise fees, and maintain brand equity. The owners of the franchised hotels are concerned with maximizing profit, which may lead to an emphasis on minimizing costs. The management companies would like to maintain a steady flow

of management fees and, depending on the nature of the contract, are also interested in maximizing profit. The hotel management must please both the management company and Holiday Inn Worldwide, which can lead to conflicting goals.

The implications of this finding vary depending on the position within the franchise structure. Hotel managers should concentrate their effort and investment on rooms, baths, and the hotel exterior. This implies a high emphasis on preventive maintenance and housekeeping in these areas. Obviously, a minimum standard has to be maintained in other nonessential areas, but when making resource allocation decisions, preference should be given to the guest room, the guest bath, and the hotel exterior.

Hotel management companies also should place a high emphasis on these areas, and preference should be given to funding improvements in these areas. In addition, when evaluating hotel managers, they should assess their performance in these areas. Hotel owners should be willing to provide funding to maintenance and improvement of the exterior, the guest room, and the guest bath because of the demonstrated revenue impact.

The corporate office should ensure that its quality inspection system and reward systems emphasize the guest room, guest bath, and hotel exterior. It also should develop customer satisfaction measures that are tied directly to process performance. A return on quality approach (Rust, Zahorik, and Keiningham 1995) would be appropriate.

Although the focus of this research was product quality, inclusion of other factors such as service quality and customer satisfaction would add to the richness of the findings. The Holiday Inn Worldwide quality inspection included approximately 20 measures of service quality, but the service quality measures rarely were cited as deficient.

Holiday Inn has revised their quality inspection system and now uses a numerical score for rating each area in the hotel. A minimum score must be received in an area to pass that area, and a minimum total score for the guest room, commercial facilities, cleanliness, and security must be achieved to pass the inspection. In addition, Holiday Inn has revised their sampling technique and now includes a more representative sample and a more extensive survey approach in its customer satisfaction survey. Future research will include these data in an attempt to further study the relationships among product quality, customer satisfaction, and operational performance.

Poor product quality not only affects the operational performance of an individual property but also has system-wide implications. For example, if a customer experiences poor quality at one Holiday Inn hotel, it may affect their perception of other Holiday Inn hotels and may cause them to choose another hotel brand. This issue was not studied, but if adequate customer satisfaction data addressed the issue of willingness to return to the Holiday Inn Worldwide chain, the system-wide impact could be estimated.

Knowledge of the relationship between quality, customer satisfaction, and operational performance is invaluable for any firm. If a company wants to study these relationships, it should first determine the types of quality, customer satisfaction, and operational performance data available at the operating-unit level. Following this, it should develop operational definitions of product quality, service quality, customer satisfaction, and operational performance and account for variations in competitive environments. In addition, the study should be conducted with a minimum of 2 years of data to ensure that the relationships continue over time.

**Table 1. Average Number of Defects by Area in February 1990.**

<i>Area</i>	<i>Defects</i>
Lobby	0.57
Public restroom	0.82
Dining	0.82
Lounge	1.05
Corridors	1.06
Recreation	0.99
Meeting	0.90
Kitchen	0.94
Exterior	1.22
Back of house	0.77
Guest room	1.97
Guest bath	1.40
Total	12.51

**Table 2. Revenue per Available Room (RevPAR) Differences Between Hotels Defective in an Area and Hotels Not Defective in an Area (in dollars).**

	<i>February 1990</i>	<i>August 1990</i>	<i>February 1991</i>	<i>August 1991</i>	<i>February 1992</i>	<i>August 1992</i>
Lobby	0.66	0.46	1.55*	1.36*	1.25*	0.97
Public restroom	0.49	0.26	1.62*	1.00*	0.45	0.47
Dining	0.54	0.43	1.23*	0.80	0.72	0.79
Lounge	0.33	0.64	0.13	-0.07	-0.15	-0.02
Corridors	0.03	-0.27	-0.23	0.01	-1.00*	-1.05*
Recreation	0.82	0.15	0.67	0.62	0.61	0.37
Meeting	-0.31	0.20	0.10	0.01	0.32	0.02
Kitchen	0.97*	0.20	1.63*	0.98*	0.19	-0.23
Exterior	3.12*	2.11*	3.13*	2.87*	2.59*	2.21*
Back of house	0.17	0.50	0.34	0.39	1.23*	0.97
Guest room	2.01*	0.85	2.04*	1.53*	1.35*	1.27*
Guest bath	1.32*	1.00*	1.51*	2.16*	1.65*	1.23*

\*Significant at  $p < .05$ .



**Table 3. Actual Revenue per Available Room (RevPAR) Differences Between Defective Hotels and Nondefective Hotels.**

<i>6-Month Period Beginning</i>	<i>Normalized RevPAR Difference (\$)</i>	<i>Price Index</i>	<i>Actual RevPAR Difference (\$)</i>
February 1990	2.78	0.967	2.69
August 1990	2.93	0.967	2.83
February 1991	3.12	0.968	3.02
August 1991	3.02	0.968	2.92
February 1992	3.06	0.966	2.96
August 1992	2.95	0.968	2.86

**Table 4. Defects by area.**

<i>Area</i>	<i>February 1990</i>	<i>August 1990</i>	<i>February 1991</i>	<i>August 1991</i>	<i>February 1992</i>	<i>August 1992</i>
Lobby	*	*	*	*		
Restrooms	*	*	*	*		
Dining	*	*	*	*	*	
Lounge	*	*	*	*	*	
Corridors	*	*				
Recreation	*	*	*	*	*	
Meeting	*	*	*			
Kitchen	*	*	*	*		*
Exterior	*	*	*	*	*	*
Back of house	*	*	*			
Guest room	*	*	*	*	*	*
Guest bath	*	*	*	*	*	*

\*Significant at  $p < .05$ .

## References

- Aaker, David A. and Robert Jacobson. (1994), "The Financial Information Content of Perceived Quality," *Journal of Marketing Research*, 31 (May), 191-201.
- Anderson, Eugene W., Claes Fornell, and Donald R. Lehmann (1994), "Customer Satisfaction, Market Share and Profitability: Findings from Sweden," *Journal of Marketing*, 58 (July), 53-66.
- Buzzell, Robert D. and Bradley T. Gale (1987), *The PIMS Principles: Linking Strategy to Performance*. New York: Free Press.
- Fornell, Claes (1992), "A National Customer Satisfaction Barometer: The Swedish Experience," *Journal of Marketing*, 56 (January), 6-21.
- Hall, Stephen S. J. (1990), *Quality Assurance in the Hospitality Industry*. Milwaukee, WI: ASQC.
- Handfield, Robert, Soumen Ghosh, and Stanley Fawcett (1998), "Quality-Driven Change and Its Effects on Financial Performance," *Quality Management Journal*, 5 (3), 13-30.
- Hardie, Neil (1998), "The Effects of Quality on Business Performance," *Quality Management Journal*, 5 (3), 65-83.
- Jacobson, Robert and David A. Aaker (1987), "The Strategic Value of Product Quality," *Journal of Marketing*, October, 31-44.
- Kordupleski, Raymond E., Roland T. Rust, and Anthony J. Zahorik (1993), "Why Improving Quality Doesn't Improve Quality (or Whatever Happened to Marketing?)," *California Management Review*, Spring, 82-95.

- Lewis, Robert C. and Abraham Pizam (1981), "Guest Surveys: A Missed Opportunity," *Cornell Hotel and Restaurant Administration Quarterly*, November, 373-344.
- Phillips, Lynn W., Dae R. Chang, and Robert D. Buzzell (1983), "Product Quality, Cost Position and Business Performance: A Test of Some Key Hypotheses," *Journal of Marketing*, 47, 26-43.
- Rust, Roland T. and Anthony J. Zahorik (1993), "Customer Satisfaction, Customer Retention and Market Share," *Journal of Retailing*, 69 (2), 193-215.
- , -----, and Timothy L. Keiningham (1994), *Return on Quality: Measuring the Financial Impact of Your Company's Quest for Quality*. Burr Ridge, IL: Irwin.
- , -----, and ----- (1995), "Return on Quality (ROQ): Making Service Quality Financially Accountable," *Journal of Marketing*, 59 (April), 58-70.
- Thompson, Phillip, Glenn DeSouza, and Bradley T Gale (1985), "The Strategic Management of Service Quality," *Quality Progress*, June, 20-25.
- Zahorik, Anthony J. and Roland T. Rust (1992), "Modeling the Impact of Service Quality on Profitability: A Review," *Advances in Services Management and Marketing*, 1, 247-276.