chapter eight

FINANCIAL CONTROL AND INFORMATION MANAGEMENT

8.1 INTRODUCTION

This section on financial control and information management was substantially reconfigured for the third edition. At the suggestion of reviewers and textbook users, articles were chosen to illustrate the relationships among and between the activities that contribute to the hotel's profitability and operational success through the managerial responsibility for operational control. That philosophy is continued in this fourth edition.

As a department, financial management in a hotel—called many things, but usually *controller*—is far more important to the success of that hotel than the few readings included here would suggest. In most major hotel firms, the chief financial officer or controller ranks among the top two or three decision makers in the hotel's hierarchy. The importance of this job can be established by the observation that many traditional hotel departments have been reorganized so that major portions of their functions are now responsible to the controller's office. The prime example of this is in the front office, where in the past the front office manager supervised the activities of the night audit staff, cashiers, and other front desk clerks. Increasingly, hotel firms are transferring the responsibility for night audits and cashiers to the accounting office, with the ultimate responsibility for these information-gathering and controlling functions resting with the hotel controller.

It should also be noted that an increasingly important department in hotels is the one responsible for the swiftly changing world of information management, or information technology (IT). In many instances, IT is now also the responsibility of the hotel controller. This recognizes the training and the ability of hotel controllers to provide for the

structured accumulation, storage, and reporting of data in forms that are most useful to the operating departments and other executives of the hotel.

In his lead article on the hotel chief financial executive, longtime contributor to this series of books Professor Ray Schmidgall, Hilton Professor with the School of Hospitality Business at Michigan State University, reviews recent research on the hotel controller and compares findings over time. This review presents a good view of the job and responsibilities of this key hotel executive. Schmidgall finds interesting differences in the groups studied over the years and provides a wider window for viewing the hotel controller as a career path in management of a modern hotel operation. In the past, students were merely instructed in the process of accounting and auditing and, for the most part, were unaware of the sort of career that can result from a flair for management, leadership, and number-crunching.

In Schmidgall's companion piece written with Agnes DeFranco, the critical practices of budgeting and forecasting are examined. While this is only a sampler of the critical duties of the hotel's financial function and its leadership, in today's business environment the accuracy of forecasting and budgeting may indeed be the difference between profit and loss.

If the Schmidgall and DeFranco pieces represent the academic side of examination of the hotel's financial leadership, Mike Draeger is the chief financial executive who lives the theory on a daily basis. After a significant career with Four Seasons Hotels and Resorts and the Cal-Neva Lodge, he now serves as the controller for a company operating a number of casinos in Nevada. Join Mike for a look at the chief financial executive's job in his "As I See It" essay. Pay particular attention to his war story about the budgeting process—and, yes, the lessons from the embezzler.

No discussion of financial and operational control in a hotel would be complete without attention paid to the extremely important function of purchasing.

In the past, when the bulk of a hotel's purchasing revolved around food and beverage items, the executive chef, chief steward, and other department managers usually developed their own sources for the goods and services needed to effectively and efficiently run their department. In the modern context, however, with the vast and diverse needs of hotel operating and staff departments, this practice is no longer advisable. Neither is it a good idea from a control standpoint. Most hotel companies have established a professional purchasing function. If purchasing is not a whole department, it is the responsibility of at least one highly experienced individual.

The purchasing director or manager typically is a person who knows a great deal about departmental operations in every phase of the hotel. He or she is able to discuss and analyze intelligently the needs of all department managers. This individual is expert in the markets where hotels purchase goods and products essential to accomplishing the department and hotel missions. The purchasing director is familiar with variety, quality standards, style, and methods of packaging. Such arcane technical details as chemical composition, fabric and furnishing lifetimes, and other details too numerous to mention here are also the responsibility of the purchasing manager.

Lee Evans, who held corporate executive positions in purchasing with Station Casinos,

Westin Hotels and Resorts, and at the hotel level, offers the reader real-world insights into the duties, responsibilities, and interactions of the hotel purchasing director. His essay provides rich detail and examples of how a hotel's purchasing director fulfills the purchasing requests of numerous hotel departments. Evans is currently director of purchasing for the Oasis Resort, Casa Blanca Spa and Golf Resort, and the Virgin River Hotel and Casino in Nevada.

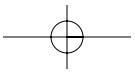
Few people in this day and age would disagree that the management of data and information in all its forms is critical to business success. As recently as 1995, the year the second edition of this book was published, the Internet and World Wide Web were still pretty much off the radar screens of most businesses. Well . . . now it seems that the pace of technology and the means and necessity to manage huge volumes of information are as common as any other aspect of business in the twenty-first century. In other words, "What did we ever do without it?"

That's why I am hesitant to include too many readings here about IT and information management—it will be old news in a couple of years, or maybe even a couple of months. I bought a new PDA last summer (2004), and it is already out of date!

The success of any hotel firm in the modern era will depend on how well it manages, controls, and utilizes the available information. This is true for current operations, but as managers develop new—unheard-of now—sources of information in the lodging business environment, the information will have to be managed like any other asset or product component. In the last edition of this book, I included an article about data warehousing. In the words of the author (Griffin, 1998), "data warehousing" represents a "central information storehouse designed to answer business questions." This usually involves a company-wide database system designed to provide information to all corporate components. In a way, information has become a commodity, and data warehouses are designed to most efficiently manage this new commodity. Well, maybe. According to the "Data Mining. . ." article included here by Magnini and his coauthors, identifying important variables in these warehouses can be a daunting task; hence the need for data mining. Their article discusses this new development.

Because this area is so volatile and developments in IT happen so swiftly, it is probably best for the student to develop broad, general outlines of what is possible rather than, in the context of this textbook, to focus on details of current technology. As we've seen, progress in even our desktop computers has been so rapid that any current writing will probably be outdated by the time this book reaches print.

The articles included in this section are designed to help the reader gain knowledge about and appreciation for the range and realm of activities, largely behind the scenes, that contribute to the financial and operational health of the hotel. These activities are often overlooked by those of us who focus our attention on the more public aspects of hotel management, but they are, nonetheless, critical to any hotel's success.



8.2 THE LODGING CHIEF FINANCIAL EXECUTIVE

Raymond S. Schmidgall

Chief financial executives of lodging operations are given various titles including controller, chief accounting officer, vice president–accounting, and chief financial officer. The most common title, at the property level, is *controller.* Who are these people? What are their skills? What responsibilities do they have? Answers to these questions and many others are provided in this chapter.

The lodging financial executive historically was viewed as a mere bookkeeper—that is, he or she prepared financial statements. Research shows that the lodging controller has evolved into a full-fledged member of the management team of a lodging property.

Considerable research has been conducted over the past 20 years of the membership of the Hospitality Financial and Technology Professionals (HFTP), formerly known as the International Association of Hospitality Accountants. The results of this research form the basis for this chapter. The HFTP was founded in 1953 for the purpose of advancing the accounting profession. Its chief publication, *The Bottomline,* is published eight times annually (bi-monthly and two special editions). The HFTP currently has over 4,300 members in over 50 countries. The HFTP in 1981 established the Certified Hospitality Accountant Executive (CHAE). Since that time, more than 840 hospitality accountants have earned their CHAE. In 1994, the HFTP established the Certified Hospitality Technology Professional (CHTP), and in the past six years over 100 technology professionals have earned their CHTP. These two certifications bring immediate recognition to these professionals in the hospitality industry.

▶ PAST RESEARCH

Over the past 20 years, several studies have been made of HFTP members. Geller and Schmidgall conducted one of the first studies in 1984. They surveyed 1,000 HFTP members, and 311 lodging financial executives completed questionnaires covering education, skills, authority, responsibilities, salaries, and involvement with committees of their properties.

Geller, Ilvento, and Schmidgall replicated this study in 1990, mailing the questionnaire to 750 members of the HFTP associated with the lodging industry.

The DeVeaus surveyed the 291 CHAEs in 1988. Their survey covered the usual demographics of age, gender, title, compensation, and education. They also addressed marital status, hours worked, and community/industry participation. This study included all CHAEs, not only those in the lodging segment of the hospitality industry.

Tse surveyed the HFTP membership in 1989, covering three specific areas as follows:

- Demographic information such as age, gender, and educational level
- Professional activities such as position title, years in profession, and buying authority
- Information about the respondents' companies

Her survey was not limited to members associated with the lodging industry, though hotels and resorts employed over 65 percent (648) of the respondents.

Damitio and Schmidgall updated Tse's 1989 study in 1996. Three hundred members associated with the lodging industry responded.

▶ PROFILE OF THE LODGING FINANCIAL EXECUTIVE

The demographic information of lodging financial executives includes age, gender, education, certification, experience, and compensation.

▶ Age

Three of these studies report the age distribution of respondents to their studies. The DeVeaus' respondents averaged 40 years old, and the largest group of respondents (57 percent) was between 30 and 39 years of age. Tse reported that 25 percent of her respondents were 31–35 years of age and that two-thirds were in the 26–45 age groups. She did not report an average age; however, based on her reporting of salary by age, it appears that the average age was approximately 38. Damitio and Schmidgall reported an average age of 37, with 72 percent of the respondents between the ages of 30 and 46. Thus, the trend suggests a slight reduction of the average age as the HFTP membership expanded from 1988 through 1995. This trend can be expected to continue as HFTP's membership grows.

▶ Gender

The three studies covering age also included gender of respondents. DeVeau and DeVeau reported 20 percent of their respondents were female, while Tse reported 25.7 percent and Damitio and Schmidgall reported 28.7 percent. This trend of an increasing percentage of females is expected to continue, as a majority of students in both accounting and hospitality programs at colleges and universities across the United States are female.

▶ Education

All five studies surveyed lodging financial executives with respect to their levels of education, as shown in Table 8.1. The most common degree in all studies is the four-year college degree. The DeVeaus reported 68 percent of their respondents have a bachelor's degree, while Tse reported a low of 55 percent. The DeVeau study was limited to CHAEs, while the Tse study covered members of HFTP from all hospitality segments. The DeVeaus reported only 8 percent had earned master's degrees, while later studies reveal master's recipients in double digits and increasing to 14 percent in the most recent study by Damitio and Schmidgall. Increases in graduate degrees can be expected to continue in the twenty-first century.

Three studies included the major of the college graduates. The Geller et al. studies report that 55 percent and 56 percent, respectively, have degrees in accounting, while the DeVeaus report only 37 percent. Another interesting statistic is the increasing percentage of financial executives with degrees in hospitality education. Geller and his coresearchers, in their 1990 study, suggest the dramatic

Table 8.1 Level of Education

Level of Education	Major of College Grads						
	High School	Associate's	Bachelor's	Master's	Other	Accounting	Hospitality
Geller and Schmidgall	10%	11%	61%	11%	2%	56%	8%
DeVeau and DeVeau	12%[1]	11%	68%	8%	1%	37%	7%
Tse	22%[2]	9%	55%	13%	1%	—	—
Geller et al.	7%	15%	58%	13%	6%[3]	55%	17%
Damitio and Schmidgall	15%[4]	11%	58%	14%	2%	—	—

[1]The DeVeaus reported 12 percent as "none" but did not include high school as a level. Presumably these CHAEs have at least a high school diploma.
[2]Tse reported 18 percent as having some college but less than an associate's degree. This 18 percent is combined with the 4 percent with high school diploma to equal the 22 percent reported above.
[3]Geller et al. states that in most cases "other" represents multiple degrees, such as two master's degrees.
[4]Damitio and Schmidgall combined 3 percent with high school diplomas with 12 percent of those with some college.

increase to 17 percent from only 8 percent in 1984 may be because students graduating from hospitality programs are choosing to work in accounting or because lodging companies are beginning to recognize the value of hospitality education for accounting positions.

▶ Certification

The DeVeau and DeVeau study focused on HFTP members holding the CHAE. In addition, they reported the highest percentage of certified public accountants (CPAs). The other studies suggest an increasing percentage of lodging financial executives earning the CHAE from 8 percent in the Geller and Schmidgall study in 1984 to 20 percent in the Damitio and Schmidgall study, conducted in 1996. In addition, the total certifications increased from 21 percent in 1984 to 52 percent in 1996, as shown in Table 8.2. By any measure, this is a dramatic increase. This increase clearly supports Schmidgall and Kasavana's conclusion regarding certifications:

> "... initials after one's name suggest excellence, failure to have earned the initials may well lead one's peers and supervisors to question not only one's knowledge but also abilities." (Schmidgall and Kasavana, 2000)

Most likely, lodging financial executives will continue to earn various certifications in the future as proofs of their excellence.

▶ Experience

Several studies provide limited insight into the professional work of the lodging financial executive. The DeVeaus reported that 53 percent of the CHAEs have between 10 and 15 years of work experience and that the average is 16 years.

Tse reported that a plurality (24 percent) of lodging controllers had 11 to 15 years of work experience. Geller et al. reported a median average of 10–12 years of hospitality accounting experience, while the median from the Damitio and Schmidgall study was 11–15 years. Across these four studies, the average years of experience (generally hospitality-related) is 10–15. The average years added to an expected age of 21 or so at graduation with a bachelor's degree suggests that most lodging financial executives have spent most of their professional years working in the hospitality industry, as their average age in the most recent study was 37.

▶ Compensation

A major element of each study is the compensation of hospitality financial executives. Of course, over time the average pay is expected to increase. Table 8.3 addresses increasing compensation. The Geller and Schmidgall

Table 8-2 Certifications of Lodging Financial Executives

	CHAE	CPA	Other	Total
Geller and Schmidgall	8%	13%	—	21%
DeVeau and DeVeau	100%	22%	18%	140%
Tse	14%	15%	12%	41%
Geller et al.	17%	14%	12%	43%
Damitio and Schmidgall	20%	12%	20%	52%

Table 8-3 Compensation

	Median Salary	Bonus
Geller and Schmidgall	$30,000–$34,999	9%–12% (median)
DeVeau and DeVeau	$49,900 (mean)	44% received benefit packages including a bonus
Tse	$30,000–$40,000	$2,000–$5,000 (median)
Geller et al.	$40,000–$49,999	11%–20% (median)
Damitio and Schmidgall	$45,001–$50,000	$6,100 (mean)

study conducted in 1984 revealed a median salary of $30,000–$34,999 and a median bonus of 9–12 percent of the controller's salary. Based on this information, the average annual bonus approximated $3,400. The 1996 study by Damitio and Schmidgall reported a median salary between $45,001 and $50,000 and an average bonus of $6,100. At the beginning of the twenty-first century, it appears lodging financial executives' median salaries are most likely to be greater than $50,000, as the last study was conducted five years previously.

► Skills and Knowledge

What skills and knowledge should the lodging financial executive have, and how have these changed over time? Geller and Schmidgall studied the technical skills and knowledge of lodging financial executives in 1984, and Geller et al. repeated the study in 1990. Table 8.4 reflects the results of these studies. The 1990 study included more skills, and the report provided results by type of controller. As expected, the percentage of respondents with technology knowledge (computers) increased, and most likely a study conducted today would result in a 100 percent response. Other areas that more than 90 percent of respondents indicated were required skills and knowledge included cash management and internal controls.

A study by Cichy and Schmidgall in 1996 focused on leadership of lodging financial executives. Financial executives not only must know the numbers but must also lead, as they supervise several employees. The 1996 Damitio and Schmidgall study revealed that the number of employees supervised by these financial executives varied from one to more than 30. Just over one-third (34 percent) manage two to five employees, while nearly another third (31 percent) manage six to ten people. Another one out of five (22 percent) manage 11 to 30 people, and 6 percent manage over 30 individuals. They found that lodging financial executives are expected to have skills and knowledge beyond the technical skills covered in the two Geller studies. The study of lodging financial executives covered seven keys to leadership (see Table 8.5) and 17 secrets of leadership (see Table 8.6).

Lodging financial executives strongly agreed that four of the seven listed keys to leadership were important to their own leadership style. The most important key was "trust your subordinates," followed by "de-

Table 8.4 Technical Skills and Knowledge

Skills, Knowledge	Corporate	Division or Area	Hotel	Other	Total	1984 Study
Taxes	89%	77%	74%	69%	75%	60%
Computers	92	96	99	95	97	70
Personnel	81	82	84	77	82	78
Cash management	100	89	94	81	91	89
Capital budgeting	87	89	87	77	85	80
Statistics	68	81	85	71	88	82
Auditing	87	96	87	72	84	†
Internal controls	92	100	100	94	97	†
FASB* rulings	28	23	14	18	18	n/a
Risk management	55	35	36	26	36	n/a

*Financial Accounting Standards Board
†In 1984, "auditing" and "internal control" were presented as a single item. Ninety-five percent of the respondents in 1984 indicated they possessed skills in those areas.

velop a vision." Consistent with all other surveys of U.S. chief executive officers and presidents in lodging and foodservice, "be an expert" was dead last. Leaders from all segments clearly realize that being an expert is not the most essential aspect of leadership. Nevertheless, "be an expert" received a score of 4.0, indicating that respondents believe that having relevant expertise is not unimportant either. Rather, the survey results indicate that these leaders believe it is more important to surround themselves with the necessary expertise than to have the expertise themselves.

Table 8.5 Keys to Leadership

	Mean Level of Importance*
Trust your subordinates	5.4
Develop a vision	5.3
Simplify	5.2
Keep your cool	5.1
Encourage risk	4.8
Invite dissent	4.5
Be an expert	4.0

*The scale is from 1, "very unimportant," to 6, "very important."

Of the 17 secrets of leadership, respondents strongly agreed or agreed that leaders in their organizations must have 14 of them. At the top of the list were dependability, credibility, responsibility, and accountability. At the bottom of the list was physical stamina, with a score of 4.4. (A score above 4.0 indicates inherent importance; in this case, the low score for physical stamina is merely an indication of its relative unimportance when compared to the other secrets of leadership presented to the survey participants.)

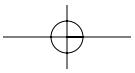


Table 8.6 Secrets of Leadership

	Mean Level of Agreement*
In our organization/company, leaders must possess . . .	
Dependability	5.6
Credibility	5.5
Responsibility	5.5
Accountability	5.5
Self-confidence	5.3
Decisiveness	5.3
Emotional stamina	5.2
Loyalty	5.2
Desire	5.2
Stewardship	5.1
Courage	5.1
Empathy	5.1
Tenacity	5.0
Anticipation	5.0
Timing	4.9
Competitiveness	4.8
Physical stamina	4.4

*The scale is from 1, "strongly disagree," to 6, "strongly agree."

► Responsibility and Authority

Four of five of the studies focused on authority. Table 8.7 reveals the results of the two studies (1984 and 1990) conducted by Geller and others. The 1990 study divides the responses by type of controller. The vast majority (over 75 percent) of lodging financial executives have authority to sign checks, approve purchases, and extend credit. Tse found that only 56 percent of hospitality financial executives have authority to approve purchase decisions. Damitio and Schmidgall reported 56 percent were authorized to make purchasing decisions without the approval of others. They indicated controllers were most involved with technology purchases (90 percent) and, to lesser degrees, guest supplies (29 percent), furnishings and equipment (44 percent), security/maintenance systems (43 percent), and fire/safety/energy conservation systems (30 percent).

The expansion of authority based on the two Geller studies is the greatest for investing funds (from 2 percent to 46 percent) and to set or change prices (from 21 percent to 41 percent).

Both the Tse and the Damitio and Schmidgall studies covered hiring and firing authority. Tse found that more than 80 percent of the respondents have the authority to hire and fire either in their own department or in their company. The percentage increased to 90 percent when only accounting personnel were involved. The 1996 study by Damitio and Schmidgall revealed 76 percent have authority to hire and fire within their own department, while 7 percent have no authority to hire or fire.

Only the two Geller studies (1984 and 1990) covered responsibility, and the comparative results are shown in Table 8.8. Again, the 1990 study provided detail by type of controller and included areas not covered by the 1984 study.

More than 90 percent of the respondents indicated they have responsibility for such standard accounting functions as general accounting, receivables, and payables. Other major areas of responsibility shared by most controllers (75 percent or more) include payroll, night and income audits, computers in accounting, and cash management.

There are indications that controllers are becoming increasingly involved with the op-

Table 8.7 Extent of Authority over Specific Functions

Functions	Type of Controller					1983 Study
	Division or Corporate	Area	Hotel	Other	Total	
Invest funds	70%	46%	48%	30%	46%	2%
Sign checks	79	85	88	59	79	87
Extend credit	66	85	92	63	80	85
Set or change prices	26	62	48	28	41	21
Borrow funds	36	27	20	10	20	19
Approve purchases	83	89	94	69	86	82

Table 8.8 Controllers' Responsibilities

Responsibilities	Type of Controller					1984 Study
	Division or Corporate	Area	Hotel	Other	Total	
Hotel security	15%	27%	25%	18%	22%	9%
Receivables	89	89	100	73	91	95
Payables	89	92	99	77	92	93
General accounting	89	92	98	80	92	91
Payroll	85	89	95	68	87	89
Night auditors	60	85	94	60	80	83
Income auditors	57	81	89	60	77	79
Cashiers	43	65	77	47	64	63
Food controls	47	77	78	44	65	53
Computers: Accounting	83	89	95	73	88	*
Computers: Front office and reservations	49	77	65	44	58	*
Purchasing	32	62	77	40	60	50
Receiving	28	54	66	36	52	50
Storage (inventory)	23	58	66	39	52	34
Tax returns	70	58	61	54	61	n/a
Risk management	51	39	37	24	36	n/a
Cash management	85	81	86	51	77	n/a
Beverage controls	49	77	81	42	67	n/a
Investments	75	39	40	27	42	n/a
Internal auditors	47	62	46	31	44	n/a

* In 1984, a single question asked controllers about their computer-system (EDP) responsibilities. Fifty-two percent of the respondents in 1984 had some responsibility for EDP.

erational aspects of their hotels. More than 50 percent of the respondents indicated that their responsibilities included purchasing, receiving, food and beverage controls, and storage (inventory). The number of respondents responsible for the storage function increased 18 percentage points from 1984 to 1990, from 34 percent to more than 52 percent, and a purchasing function was claimed by 60 percent of the respondents in 1990, which is 10 points greater than in 1984. Responsibility for hotel security, the least commonly shared function among the controllers, more than doubled in the last six years, growing from 9 percent in 1984 to almost 22 percent in the 1990 study.

The controllers' role in electronic data processing (EDP) and computer system management grew by leaps and bounds during the 1980s. In 1990, 88 percent of the respondents indicated responsibility for the computer systems used for accounting functions.

Additionally, 58 percent indicated responsibility for front office and reservations system computers—systems clearly not under the umbrella of traditional accounting functions. In the 1984 study, respondents were asked just one question about responsibility for EDP, and 52 percent of the controllers indicated that they had some responsibility for EDP. It's clear that, over the years, computer-oriented responsibilities have escalated sharply. This trend can be expected to continue into the twenty-first century.

► Committee Involvement

Just how involved have lodging financial executives been on committees of their lodging businesses? Both of the studies conducted by Geller and others reported over 80 percent of the respondents were members of the executive committee, although the Tse study showed only 71 percent (see Table 8.9). The difference may be that the Tse study covered all hospitality segments employing HFTP members, while the Geller studies were restricted to the lodging industry. In addition, the involvement of financial executives from 1984 to 1990 increased significantly on both the compensation and strategic planning committees. The 1990 study by Geller and others also included involvement in training and risk management committees, and a majority (66 percent and 72 percent, respectively) of lodging financial executives revealed involvement.

A 1998 study by Woods and others surveyed general managers of large hotels (500 rooms or more). Eighty-one percent of the respondents in this study reported that either the vice president of finance or the controller of their hotel was a member of the executive committee.

Table 8-9 Committee Involvement

	Executive	Compensation	Strategic Planning
Geller and Schmidgall (1984)	82%	23%	41%
Tse (1988)	71	—	—
Geller et al. (1990)	86	75	94

► SUMMARY

Considerable research has been conducted over the past 20 years on lodging financial executives. These studies indicate that the most common title is controller and the average age is the late thirties. Males are still dominant, though females are increasingly assuming the top financial position with lodging operations. The majority of these leaders have bachelor's degrees and majored in accounting. An increasing number of lodging financial executives are certified and have 10–15 years of hospitality accounting experience.

The skill set of financial executives includes both technical and leadership skills. The technical skill set includes technology, cash management, internal controls, and statistics. The most important leadership skills are trusting subordinates, developing a vision, dependability, credibility, responsibility, and accountability.

Financial executives commonly have authority to sign checks, extend credit, and approve purchases. To a lesser extent, they invest funds, may set or change prices, and borrow funds.

Their responsibilities range from managing receivables, payables, payroll, general accounting, night and income auditors, cash, and computers in accounting to hotel security, risk management, investments, and internal auditors.

Finally, financial executives commonly serve on the executive, compensation, and strategic planning, training, and risk management committees of their hotels.

8.3 BUDGETING AND FORECASTING: CURRENT PRACTICE IN THE LODGING INDUSTRY

Raymond S. Schmidgall and Agnes L. DeFranco

Financial forecasts and budgets can strengthen management's control of hotel operating expenses and help determine the profitability of the property (Chamberlain, 1991, 89–90; DeMyer and Wang-Kline, 1990, 64; and Karch, 1992, 21–22). Specifically, forecasts give owners a projected level of sales, while budgets alert owners and operators alike to significant expenditures that are on the horizon or predictable shortfalls in revenues. Used together, forecasts and budgets can provide a benchmark for sales-incentive programs, executive-compensation bonuses, incentive-based management fees, and capital expenditures (Temling and Quek, 1993).

A major difference between forecasting and budgeting is that budgeting is normally viewed as a process that covers a longer period of time than forecasting. Budgeting often results in a formal, long-range plan, normally expressed in terms of dollars over time—for example, the predicted revenues and expenses of a hotel for 24 months (Schmidgall, 1997, 369–372, 411–413). On the other hand,

forecasts are generally prepared by hoteliers to establish staffing levels and may cover a period of just seven to ten days (Schmidgall, 1989, 101–2, 104–5). Long-range budgeting, therefore, is a form of strategic planning. It may entail several years' financial projections, a coordinated management policy, and a control-and-correction mechanism that allows actual results to be compared to estimates and followed by corrective steps, if necessary (Coltman, 1994).

▶ THE CURRENT STUDY

Our study serves the following purposes:

- to determine the purposes, methods, and procedures in performing an operations budget,
- to determine how an operations budget is used in budgetary control, and
- to determine the techniques used in forecasting revenues in the various operating departments in lodging properties.

Limitation. Our study used a random-sampling technique to select 600 samples that yielded 171 responses (almost 30 percent of the sample). As a result, there may be respondents who belong to the same national chain and thus represent the same set of corporate operating procedures. In addition, with the full-service and luxury segments of the hotel industry constituting more than 90 percent of our responses, the results are likely more applicable to those two groups than to limited-service hotels. Thus, although more than one-quarter of the hotel executives solicited by this study responded, it may not be useful to generalize the study's results (particularly beyond full-service hotels).

The instrument. We designed a four-part questionnaire with the assistance of a number of lodging controllers and by modifying a survey previously used in 1995 (Borchgrevink and Schmidgall, 1995). We also employed a pilot study in which other lodging controllers offered comments and allowed us to fine-tune the final survey. Part I of the questionnaire included six questions that collected demographic data about the respondents and their lodging operations. Parts II and III consisted of 14 questions regarding the procedures and methods used to develop an operations budget, and about how the budget is used for financial control. Finally, the last part of the questionnaire asked respondents to provide information regarding their various operating departments' forecasting techniques.

Sampling. As mentioned, a simple random-sampling technique was used to select our study's population. Six hundred financial executives who are associated with lodging operations were chosen from the 1997 membership list of the association of Hospitality Financial and Technology Professionals (formerly the International Association of Hospitality Accountants).

Data collection and analysis. We first sent the survey in October 1997 to each of the 600 executives, requesting them to participate in our study. To ensure a good response rate, we sent a second copy of the survey to everyone in January 1998, as a reminder. Data received were analyzed using the software package SPSS for Windows.

▶ RESULTS AND DISCUSSION

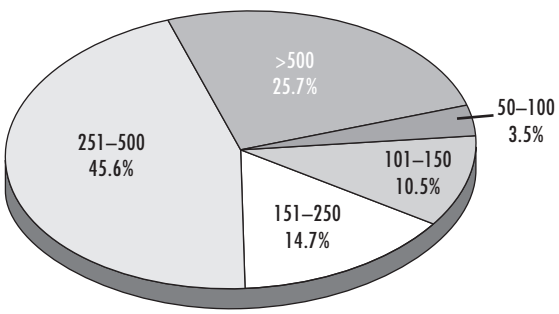
Of the 600 executives who received our survey, 171 responded, yielding a 28.5-percent re-

sponse rate. The majority of the respondents held the title of hotel controller (147, or 86 percent), while the others reported such titles as assistant controller, regional controller, corporate controller, VP-controller, executive VP-CFO, and director of accounting. Respondents were mainly associated with full-service hotels (72 percent). Together with those from the luxury segment (21 percent), those executives constitute well over 90 percent of the responses. As for affiliation, the majorities (62 percent) were part of a national chain, and 29 percent reported working for independent lodging properties. International chains accounted for another 7 percent, while 2 percent of the responses came from franchisees. Most of the properties reported having more than 250 rooms (71 percent) and enjoyed 1996 annual gross revenues of at least $10 million (also 71 percent). Figures 8.1 and 8.2 show the details of the lodging-property size.

Preparing the budget. The operations budget is an integral part of the financial operation of a lodging property, and virtually all of the respondents reported that they prepared an operations budget for the year—only three reported not preparing a budget. Moreover, almost 60 percent indicated that they set a tentative financial goal prior to developing the operations budget. The majority of those (64 percent) related that tentative financial goals were based on either sales (33 percent) or net-income (31 percent) levels. (In this case, sales equals revenues, while net income refers to the financial statement's bottom line.) Other financial executives' financial goals were based on gross operating profit, net operating profit, EBITDA, debt-service coverage, occupancy percentage, RevPAR, or some combinations of those.

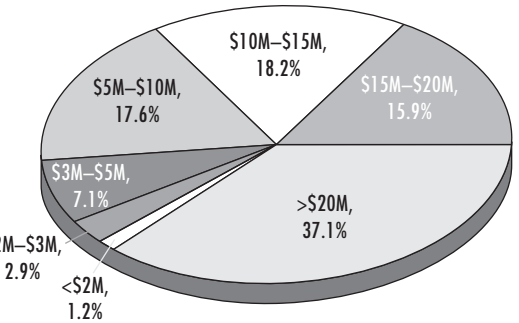
We presented five possible reasons why an operations budget might be prepared, and we also offered the fill-in-the-blank answer "other." When asked to give one major reason why a budget was prepared, 45 percent selected the option that stated "It is used as a standard by which the lodging operation is

Figure 8.1 Lodging Property Size, by Number of Rooms



Profile of properties represented in this study.

Figure 8.2 Lodging Property Size, by Annual Gross Revenues (1996)



Figures in U.S. dollars (millions). Profile of properties represented in this study.

managed." Another 28 percent chose the answer "It is a planning tool." About 15 percent of the respondents gave more than one reason, and their responses almost always noted a budget's value as a standard of comparison or as a planning tool.

More than 90 percent of the respondents reported that a co-operative effort among hotel departments was used to prepare the operations budget. Nevertheless, 73 percent reported that the controller was the one who held the main responsibility for preparing the operations budget using the input provided by other department heads and the general manager.

Only five respondents indicated that the controller prepares the budget with little input from others. Thus, in more than three-quarters of the hotels surveyed, the controller was primarily in charge of budget preparation. In another 5 percent, the lodging units' controllers and general managers jointly prepared it, and in 12 percent of the hotels, the general manager coordinated the budget-preparation process with the various department heads. Other responses indicated that budget-preparation responsibility fell to an executive committee, department heads, the general manager (with input from the owner), or a budget team (for example, a team might comprise the general manager, owner, and controller).

While all but three of our 171 respondents confirmed that they prepared an operations budget for the year, less than half prepared a long-range budget (i.e., for more than a year at a time). Of those who prepared long-range budgets, more than three-quarters used a five-year time span for future planning.

Making adjustments. Only one in four of the respondents revised their budget at any point during the operating year, with the most common frequency of change being monthly (40 percent). Other responses to this question included "as needed" (21 percent), "quarterly" (16 percent), "semiannually" (12 percent), "bimonthly" (3 percent), and some combination of the above (4 percent).

► BUDGETARY CONTROL

The majority of the respondents who used budgets declared that the operations budget

Table 8.10 Cost Tolerances Between Budget and Actual Costs

	Food cost	Beverage cost	Labor cost	"Other" operating costs
Less than 1%	11.5	14.3	8.2	8.2
1%to 1.9%	33.8	33.3	26.5	16.3
2% to 2.9%	29.0	23.1	25.9	21.1
3% to 3.9%	10.1	13.6	16.3	14.3
4% to 4.9%	6.1	4.1	12.2	17.0
5% to 5.9%	6.8	8.2	6.8	17.0
More than 5.9%	2.7	3.4	4.1	6.1
Median	2.2%	2.1%	2.6%	3.3%
*Median, 7996 Study**	*1.9%*	*1.9%*	*2.8%*	*3.7%*

*R. S. Schmidgall and C. P. Borchgrevink, 1996.

was used for budgetary control, with 90 percent reporting that budgets were prepared for all of the hotel's operations, versus just for selected departments. Next, we asked what level of variance between the budget (original or revised) and actual performance is permitted before corrective action is taken. The results for this question are summarized in Table 8.10. About a third of the respondents try to hold food, beverage, and labor costs within the range of 1 to 2 percent of the budgeted amounts. One-fifth of the respondents hold "other" budget items within a range of 2 to 3 percent. (The median of the responses for food and beverage costs was about 2 percent, with the medians for labor and "other" costs at about 3 percent.) Compared to responses to a similar question in a 1996 study, it appears that hotels today are slightly more tolerant in food and beverage cost variances and slightly less tolerant in allowing labor and other operating costs to deviate from the budget (Schmidgall, Borchgrevink, and Zahl-Begnum, 1996).

▶ FORECASTING TECHNIQUES

The last part of our questionnaire outlined in a grid presentation seven forecasting techniques, ranging from simple to complex (i.e., smoothing-constant method), and five principal hotel revenue-generating departments. We also allowed space so that respondents could write in other techniques. Respondents were then asked to reveal the methods they used for forecasting department revenues (see Table 8.11).

From this exercise, we find that some hoteliers used more than one technique for each department and that the methods used varied among departments. More than 40 percent of the restaurant and beverage departments, for example, appear to favor the use of "number of guests by expected spending per guest." While the chief technique applied to the rooms department was "expected units to be sold multiplied by the expected average

Table 8.11 Various Departments' Forecasting Techniques

Techniques	Rooms	Room Service	Restaurant	Banquet	Beverage
Prior year's budgeted dollar amounts multiplied by 1 + X%	10%	8%	9%	10%	10%
Number of guests by expected spending per guest	7%	28%	46%	25%	41%
Expected units sold by expected average price per unit	73%	27%	27%	26%	21%
Change in advance bookings from prior year	27%	6%	4%	22%	5%
Last year's actual revenues	16%	18%	16%	19%	16%
Last year's actual revenues adjusted subjectively	20%	24%	25%	33%	29%
Average of several past years' revenues multiplied by 1 + X%	5%	6%	5%	6%	6%

Source: R. S. Schmidgall and C. P. Borchgrevink, 1996.

LITERATURE REVIEW

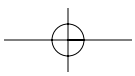
Accurate budgets are considered essential to profitable hotel operation. Yet obtaining reliable data is a problem. Smith and Lesure state that perhaps the greatest problem with forecasting and budgeting is the number of widely varying forecasts that are regularly published side by side, without question or support, and in some cases making all predictions vague.[1] Moreover, business prejections and financial trends are often published without any explanation of the underlying assumptions. Smith and Lesure contend that perhaps the way to construct reliable forecasts and budgets is to build a statistically reliable industrywide database that can be regularly updated with and compared to new economic and financial information. Those numbers can then be used to develop a short-term outlook for the industry as a whole or various geographic and market segments.

Hoteliers' desire and need for accurate budgeting and reliable data are not new. In 1989, hoteliers reported being generally satisfied with their forecasting accuracy, and yet they desired improvement.[2] Just one year earlier, Lasky noted that budgeting was one of the factors hoteliers ignored when opening a hotel. Thus, he wrote, he was personally involved in rescuing 130 hotels and motels from bankruptcy due to this oversight.[3]

Besides the budget's role as the business plan for owners and operators, Temling and Quek discuss the importance of hotels' budgets to lenders.[4] The budget is important to this group, as it can indicate a lodging company's potential for success. It also lets the officers of financial institutions know about the financial health of the business.

As the lodging industry's competitiveness increases, so does the interest in budgeting practices, as indicated by studies that appear biennially, on average. In 1995, 122 U.S. lodging properties were asked about their budgeting practices.[5] The areas of investigation included: budget development processes, budget reforecasting procedures, and budgetary control methods.

To further investigate the budgeting process, 140 U.S. lodging controllers were asked in 1997 about their use of forecasting and budgeting at the department level.[6]



That study reported that controllers rated "proper staffing" as the main benefit of preparing forecasts and "strategic planning" as the main benefit of budgeting. That study's results also showed that a hotel's size (as measured by the number of rooms) did not significantly influence the perception of the usefulness or the practices of forecasting and budgeting.

Some years earlier, Records and Glennie provided insights to the Boca Raton Resort and Club's budgeting and business forecasting processes.[7] Forecasting business volume and scheduling the required labor to serve its customer are crucial steps in maintaining an operation's quality. Thus, using a relatively simple computer network and basic software, the Boca Raton Resort and Club ensured it could control budgets, forecasts, and labor schedules.

[1]R. A. Smith and J. D. Lesure, "Don't Shoot the Messenger—Forecasting Lodging Performance," *Cornell Hotel and Restaurant Administration Quarterly,* Vol. 37, No. 1 (February 1996), pp. 80–88.

[2]R. S. Schmidgall and J. D. Ninemeier, "Budgeting Practices in Lodging and Food Service Chains: An Analysis and Comparison," *International Journal of Hospitality Management,* Vol. 8, No. 1 (1989), pp. 35–41.

[3]M. Lasky, "An Rx for Hotel Health," *Lodging Hospitality,* Vol. 44, No. 6 (May 1988), pp. 75–77.

[4]W. P. Temling and P. Quek, "Budget Time," *Lodging Magazine,* Vol. 19, No. 3 (November 1993), pp. 21–22.

[5]C. P. Borchgrevink and R. S. Schmidgall, "Budgeting Practices of U.S. Lodging Firms," *Bottomline,* Vol. 10, No. 5 (August–September 1995), pp. 13–17.

[6]A. L. DeFranco, "The Importance and Use of Financial Forecasting and Budgeting at the Departmental Level in the Hotel Industry as Perceived by Hotel Controllers," *Hospitality Research Journal,* Vol. 20, No. 3 (February 1997), pp. 99–110.

[7]H. A. Records and M. F. Glennie, "Service Management and Quality Assurance: A Systems Approach," *Cornell Hotel and Restaurant Administration Quarterly,* Vol. 32, No. 1 (May 1991), pp. 26–35.

price per unit" (reported by 73 percent of respondents), the banquet department was the high user of "last year's actual revenues adjusted subjectively" (33 percent).

▶ THE EFFECTS OF AFFILIATION, SALES, AND PROFITABILITY

To see whether a property's (1) affiliation, (2) size in terms of sales, and (3) profitability have any effect on its budgeting practices, we used the chi-square statistic. The properties' budgeting practices were reflected in the answers to eight questions that asked about the procedures and methods used to develop operations budgets and how those operations budgets were used in budgetary control.

We first classified the responses according to the properties' affiliation. A chi-square was then calculated by cross-tabulating the affiliation on one hand and the eight questions on the other. Next, the same procedure was used to classify the responses according to sales level, and then by profitability. If an effect has a probability value (p-value) or a significance level of less than 0.05, it is significant. That means, in general, the effect happens due to chance less than 5 percent of the time. As seen in Table 8.12, two of the practices were affected by property affiliation, one was affected by sales, and one was affected by profitability (see those data marked with an asterisk).

When the chi-square test was performed based on annual sales, a significant difference ($p < 0.05$) was found in the preparation of long-range operating budgets (Table 8.13). That is, the higher the sales level a property enjoyed, the greater the likelihood that the property prepared a long-range operations budget.

Our second set of cross-tabulations determined whether differences occur between

Table 8.12 Property Characteristics Correlated with Budgetary Practices

Budgetary Practices	Selected Property Characteristics		
	Chain Versus Independent Operation	Size (sales)	Profitability
Major reason for having an operations budget	0.009*	0.015*	0.017*
Tentative financial goal set in advance	0.018*	0.562	0.156
Base for the tentative financial goal	0.116	0.292	0.202
Long-range operating budgets prepared	0.062	0.008*	0.067
Revision of operating budget	0.252	0.914	0.675
Monitoring food costs	0.440	0.516	0.398
Monitoring beverage costs	0.535	0.342	0.447
Monitoring labor costs	0.447	0.299	0.416

*Significance level is less than 0.05.

Table 8.13 The Effect of Annual Sales on Long-Range Planning

Annual sales	Percentage of respondents who prepared long-range operatons budgets
Less than $5 M	28%
$5 M to $10 M	28%
$10 M to $15 M	37%
$15 M to $20 M	48%
Over $20 M	74%

Figures in US dollars (millions).

branded lodging operations and independent properties (Table 8.12). We noted two statistical differences, namely (1) the major reason for having an operations budget and (2) whether a tentative financial goal was set in advance.

First, it appears that national-chain hotels cited different reasons for having an operations budget than did the independent properties, as shown in Table 8.14.

Hoteliers affiliated with national chains tend to have more than a single reason for creating an operations budget. In addition, it appears that national chains prepare the budget to be used for comparison purposes more often than do the independents, and that the independents prefer to use the operating budget as a planning tool (compared to the national chains).

Second, 65 percent of the chain properties responding to our questionnaire established tentative financial goals prior to developing their operations budgets compared to only 45 percent of the independent properties. This difference is most likely due to pressure from chains' corporate offices on individual properties to deliver the required "profit" to meet the chains' overall financial objective.

The last step of our research was to test for differences according to profitability. The profitability of each respondent was determined by dividing the net income reported by each hotel by its total sales. Respondents were then divided into four categories according to their profitability: less than 11 percent, 11 to 20 percent, 21 to 30 percent, and over 30 percent (Table 8.15). The greater the respondent's profit margin, the more likely that a single reason was cited for having an operations budget.

Table 8.14 The Effect of Affiliation on Budget Usefulness

Affiliation	Major reason for having an operations budget		
	Planning tool	Use as a standard	More than one reason
Chain property	26%	53%	22%
Independent property	48%	48%	5%

Note: Totals may not add to 100 due to rounding.

Table 8.15 The Effect of Profit Margin on Budget Usefulness

Affiliation	Major reason for having an operations budget		
	Planning tool	Use as a standard	More than one reason
< 11%	45%	52%	4%
11% to 20%	46%	46%	9%
21% to 30%	36%	44%	20%
> 30%	10%	60%	30%

Note: Totals may not add to 100 due to rounding.

▶ SUMMARY AND FUTURE RESEARCH

Operations budgeting is an important part of U.S. hotels' financial planning. The majority of hoteliers set tentative financial goals prior to preparing their operations budgets. The goal for the majority of hoteliers is based on either sales or net income. Most hoteliers indicated that the major reason they used budgets at all was as a standard for comparison to actual performance figures. The second most common use was as a planning tool. At the majority of hotels, a cooperative effort among departments was used to produce the budget. In a clear majority of those hotels, the financial executives coordinated this process. Less than half of all respondents prepared long-term operations budgets, and less than a quarter of all respondents indicated that their budgets were revised during the year.

All but two of the 171 respondents indicated that their operations budgets were used for control purposes. For all departments, the mean of the allowable deviation between the budget and actual performance ranged near 2 to 3 percent. That range is slightly tighter and smaller than the range measured in a similar study in 1996 (Schmidgall, Borchgrevink, and Zahl-Begnum).

Respondents' revenue-forecasting techniques varied by department within individual hotels. A number of respondents reported they used multiple techniques for a single department. The most commonly used technique was "expected units sold by expected average price per unit." Other techniques that were used by more than 20 percent of the respondents included "number of guests by expected spending per guest" and "last year's actual revenues adjusted subjectively."

Our research uncovered several points that deserve attention. First, virtually all hotels use an operations budget and yet less than half of the hotels budget beyond one year at a time. Future researchers might explore the reasons why more hoteliers don't prepare long-range operations budgets. Second, few hoteliers revise their budget during the year (only about one in four). Budgeting is not an exact science, so regular adjustments

should be expected and planned. Third, for most hotels, the largest single cost is labor. Yet our research shows that hotels' food and beverage costs appear to be more closely controlled than are labor costs.

Future research could also focus on specific control techniques to monitor hotels' costs and to determine whether more-profitable hotels use different techniques than less-profitable hotels. Finally, further study could examine closely the forecasting techniques actually used by the operating departments. For example, in our study, the technique "last year's actual revenues adjusted subjectively" was rated high, and future research could explore exactly what "subjective" adjustments are being used.

8.4 AS I SEE IT: THE HOTEL CONTROLLER

Mike Draeger

The controller is the manager with overall responsibility of the accounting department. This executive is credited with having his or her hand on the purse strings, eye on the bottom line, and ear of the general manager, all while counting the beans and balancing the books. In fulfilling this role, the controller must know the hotel operations and be familiar with what goes on in each department. As is the same with all other managerial roles, the controller must have many skills that are used daily.

Obviously, the controller is an administrator. He or she supervises the accounting functions, including payroll, payables, receivables, purchasing, and auditing. The controller wants to know that procedures are being followed and deadlines are being met. He or she questions what is happening in each hotel department. Is all the money getting to the bank, and is there enough to pay all the vendors and staff? That large group function in the ballroom is being extended 30-day credit; have their references been checked? Are purchase orders on file in the receiving department? Do the actual payroll tax deposits equal what is reported on the IRS form? Accounting affects almost every aspect of the hotel operation, and the controller is the one looked to when it comes to the proper functioning and conduct of this department.

The controller is an advisor, meaning he or she provides information and recommendations to every department in the hotel. Regarding giving information, accounting generates more reports than any other department. Daily reports to management showing sales, labor, and purchases are a must in any business, with comparisons to budget and/or last year. The financial statements, including the balance sheet and income statement, are periodically produced in accounting. The controller is expected to be prepared to discuss these types of reports with managers and owners, and to make sense of all the numbers and percentages. A hotel holds any number of meetings where the controller discusses the financial or operational results. At these meetings, the controller is a part of the process of generating recommendations and sugges-

tions to improve operations in areas the reports might point out. Often, a morning operations meeting finds the controller addressing labor costs that are creeping higher than appropriate given current levels of business, or the monthly manager's meeting starts with the controller giving an overview of last month's financial results and the hotel's year-to-date standing. When the owners visit the hotel, they usually attend a meeting to discuss financial results and what is being done to ensure profitability expectations are being met. The controller might even be asked to sit in on a specific department's staff meeting as its members brainstorm ways to reduce departmental costs. As others digest the information accounting provides, the controller offers advice and counsel on its significance.

The controller is also a technician. He or she must have a foundation in the debits and credits of accounting. Regardless of whether the accounting department is staffed with one person or two dozen, the controller is prepared to jump in and do the work. A tight labor market and staff turnover sometimes necessitate that the controller assist in every function. There are always balance sheet accounts to reconcile, budget variances to explain, and journal entries to post. It takes a lot to keep an accounting department functioning.

Very early in my accounting career, I began working in a small accounting department of a regional restaurant chain. Due to state laws, the restaurants could buy alcoholic beverages with cash or check only, and never on credit. To facilitate purchasing, the restaurant general manager was provided an imprest checking account for purchasing alcohol. (An imprest account is one that has a specific amount of money in it, and money replaced with precise amounts checks are written for.) This account had $1,000 in it, and each week the manager called the home office and have deposited into the account the amount equal to the checks written in the previous week. Then the invoices for what had been purchased were forwarded to the home office, which supported the amount of the transfer. In theory, the account balance never exceeded $1,000. The bank statements were sent to the general manager of the restaurant to balance and send completed to the home office.

Because I was the new guy, I was given the task of balancing the checking account of one restaurant, which had not been balanced in over two years. It was well known that this restaurant's manager, an exceptional people person, wasn't good with numbers and never found time to balance that puny checking account. So I went to work ticking off the checks and deposits and trying to make the account balance to the $1,000 imprest amount. There were several irregularities, and, of course, many documents (cashed checks) were missing. I worked with the bank to recreate copies and research the irregularities, of which there were many. When all was finished, I had discovered the manager had embezzled over $18,000! This manager had actually been a very astute numbers person and had found ways to divert extra funds into the account and then wrote checks to himself and others for personal use.

It was a technician who caught him. But had a technician balanced that checkbook monthly and always verified the purchases through the invoices, it never would have happened in the first place. Procedures were wrong and not enforced, and the climate was ripe for trouble. A good bookkeeper or accountant is primarily a good technician in accounting aspects, and a good controller does not lose sight of this ability as his or her career develops.

Most successful businesses create a financial plan or budget to operate by. The more honest and detailed this plan is, the better one can gauge actual performance. Most budgets are prepared annually, with monthly detail breakdowns. The controller is a planner and is usually the one who prepares the budget—or, better yet, coordinates the hotel's efforts in preparing departmental budgets to consolidate into one master document. I worked for a company that provided major cash incentives for meeting and exceeding the annual budgeted bottom-line numbers. Budgeting was taken very seriously, and each member of management had a vested interest in all departments' performance. Budgeting is not hard to do, but it can be time-consuming.

Over the years, I became a detail-oriented and effective budgeter, although my first budget review taught me the most. My hotel and I had spent weeks and months preparing the next year's budget. All the numbers had been gone over, comparisons completed, and volumes of expense and revenue backup catalogued and bound in three-ring binders. The general manager and I flew 3,000 miles, with our binders, to present the budget to our area and regional vice presidents and receive the company's stamp of approval. We were scheduled for a five-hour review session, if that much time was needed. As the GM and I came into the review room, the vice presidents were already seated and waiting. They stated that this could be a short and productive meeting. If we would only commit to increasing our bottom line by $200,000, we could all be out of there in five minutes. No way! The GM and I had solid defendable numbers, and we weren't going to let months of everyone's hard honest work get blown away. Needless to say, the review lasted the entire five hours, our budget was ripped to shreds, and the GM and I were verbally bloodied, bruised, and beaten at the end of it all. Oh yes, our bottom line increased $350,000, and we did not make budget or our bonuses that year. A good manager should always know what the people above him are looking for and then strive or rather plan to produce it, and this includes budgeting.

Additionally, the controller is an educator. All managers have a responsibility to instruct and train others, and the controller is no exception. Obviously, the accounting staff must be proficient in their duties to perform their jobs, and the controller must ensure this is happening. However, to the majority of the hotel, what accounting does and how they do it can be quite a mystery. Controllers should demystify the role of accounting. Managers with an understanding of accounting find they have more tools to work with in the operation of their departments after they have been involved in just one year's budget process. The controller can be building public relations for accounting by using opportunities to develop others' financial awareness and expertise.

Finally, controllers should be mentors. They should be involved in the development of people. The accounting staff should experience new challenges to keep them interested. Cross-training in other accounting or hotel positions can give staff perspective on areas not previously understood. This aids staff in developing their careers and additionally helps within the department when staff is short.

There was a time when this backfired on me, though. My accounting department had a staff of 14, and each was cross-trained to perform at least part of a job besides their own. My general cashier was responsible for counting the previous day's receipts and preparing the bank deposit. Additionally, she replenished the cash banks used in the restaurants

and stores and at the front desk. She was responsible for maintaining a safe in her office that contained close to $400,000. Sadly, her father passed away and she needed to leave town for a week or so. No problem! We had someone in accounts receivable that had cross-trained in the cashiering position and was able to step in immediately. The cashiering temp completed her first week without a hitch. We left work for the weekend feeling all was well. On Monday, my cashiering temp didn't show up for work. She also didn't call. In fact, I have never seen her since. Over the weekend, she had taken advantage of procedural flaws and helped herself to $30,000 of the hotel's money and fled.

When I was able to step back and take a broad look at what had happened, I realized the problem. The accounting procedures were such that one person could steal from the safe and not be questioned. Not only was this an opportunity for a dishonest employee, but it placed an honest employee in danger! One employee had both the combination and the key to the safe tumbler. One employee could go into the accounting offices alone on a day when the entire hotel knew the accounting department was closed. One employee could go into the cashier's office alone with a backpack and exit the office, department, and the building without anyone asking to see inside the backpack. A single employee could be in physical danger if others knew all of this and were hard up for cash. Needless to say, procedures were changed immediately and policy manuals were rewritten with haste.

The controller should be on the lookout for promising managers who show potential. Managers enjoy taking a few minutes over coffee or lunch or even just sitting in the office to talk about their objectives and goals. Often the controller can facilitate a manager's accomplishments by being a friend and being aware of the manager's professional developmental needs.

Mentoring and educating can benefit the controller in many ways—maybe, most interestingly, his or her personal advancement and compensation. Several hotel companies evaluate and offer incentives to the back-of-the-house departments for criteria previously reserved for more service-oriented or revenue-producing departments. As a controller of an accounting department, I am measured by the service my department provides to the hotel operation—our internal customers. Accounting becomes a support department and the rest of the operation its customers. In this way, accounting offers products and services, and it works to satisfy customers. The manager and even staff can establish quantifiable objectives focused on the department's product. These become the criteria for performance evaluations, bonuses, and other incentives and rewards.

Current objectives in accounting might now include:

- Working professionally with all other departments.
- Meeting deadlines and issuing timely reports.
- Achieving superior results on internal and external audits.
- Training operational managers in the financial aspects of their departments.
- Stocking storerooms at appropriate par levels.
- Keeping the accounting offices neat, orderly, and presentable.
- Being willing to answer questions and assist with problems.

With this type of product and service attitude, there is no limit to what a department might do for its customers.

It is not easy to describe the controller's job as a daily routine. However, the position does call for skills and traits that are continually in use. Just as with all other aspects of the hotel, the scenery is always changing, guests are constantly arriving and departing, restaurants open and close, telephones ring 24 hours a day. Each day brings new challenges and opportunities, and the controller, as part of this, must embrace the many facets of the hospitality industry.

8.5 THE HOTEL PURCHASING FUNCTION

C. Lee Evans

The hotel purchasing function did not change very much from 1970 to 1990. Until the late 1980s, various tax advantages and benefits were the primary reason for the construction of U.S. hotels. Providing a substantial return on investment was not expected or required.

In our current economy, expectations of hotel profitability have changed. Profitability is now required, along with maintaining the established level of quality. This has brought about a new level of interest in the purchasing function and greater importance placed on cost savings.

The financial aspects of the hotel business changed in the 1990s. Hotels enjoyed the longest boom in revenues and profitability over the previous 40 years.

Today, however, in the slump following the terrorist attacks of 2001, hotel managers realize that true cost savings generated in the purchasing department are dollars that drop directly to the bottom line without associated incremental cost. It is not difficult to generate arbitrary savings; the true challenge is to create cost efficiency utilizing a standard specification.

Purchasing for the hotel requires much more than obtaining three bids and circling the lowest price. The true definition of *purchasing* should be "purchasing the right product, at the right price, at the right time."

The statement sounds extremely simple, but when it is applied to the thousands of items a hotel purchases, it presents a great challenge for the purchasing manager. The hotel purchasing function supports virtually every department within the property, whether purchasing chemicals for housekeeping or stewarding, office supplies for marketing, computer supplies for accounting, or food and beverage products for the restaurant outlets.

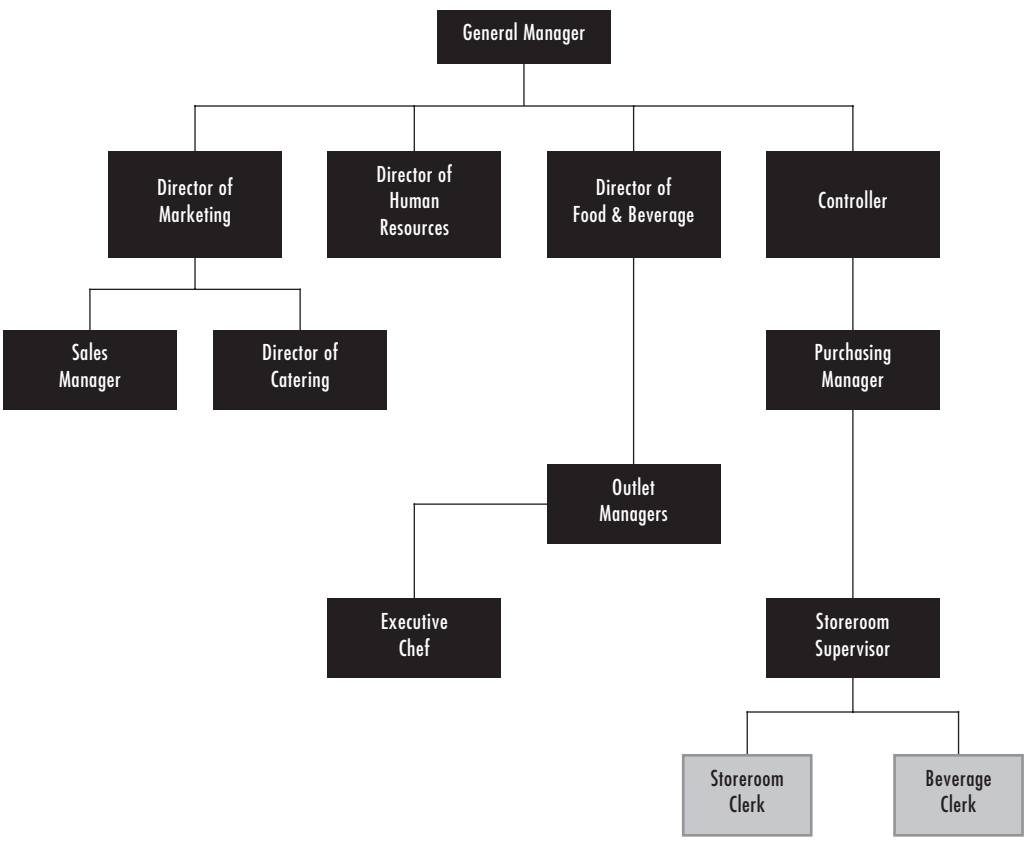
The purchasing manager usually reports to the hotel controller or the hotel's financial control division, but I am convinced this will change. There is a need for a more operational approach to managing the purchasing function. We need to build a team that is committed to the common goal of servicing our customers and maintaining established quality standards. The reporting structure will begin to shift to operations, with the purchasing manager directly reporting to the general manager or, in larger properties, to the executive assistant/operations manager. This will help promote the philosophy of team building

and support and service customers directly. As matters stand now, purchasing is viewed as a support department.

With the increasing importance of the purchasing function, the mission of the purchasing manager is to procure products and services cost-effectively that will meet or exceed the customer's expectation. The purchasing manager must continually evaluate product specifications to incorporate new products and technology. Reviewing the specific need based on the expectation of the customer helps product evaluation.

The purchasing function is changing for several reasons. In the past five to seven years, the hotel industry has undergone tremendous consolidation. With this consolidation have come economies of scale for support areas, which include marketing, accounting, purchasing, and reservation systems. Many of today's hotel companies have centralized the purchasing function to some extent. They negotiate purchasing agreements with producers and processors and distribute products and supplies through predetermined distribution channels.

Figure 8.3 Partial Hotel Organization Chart



▶ PURCHASING ORGANIZATION

The purchasing department can be organized into three basic areas:

- **Administrative:** This area consists of pricing, vendor selection, and the purchase of nonstocked items. Nonstocked items are products purchased for immediate use or held in storage in other departments throughout the hotel.
- **Receiving:** There are two categories of receiving: (1) hotel goods that are placed in storage in the purchasing area or are immediately issued to the requesting department or guest/group; and (2) items that have been shipped to a registered guest or expected guest/group.
- **Issuing:** Product issuing falls into two categories: (1) consumable food and beverage supplies consisting of all food items and liquor, beer, wine, and mixes to be held in the purchasing department storerooms; and (2) office supplies, printed forms, and linen. This is just a small listing of items, depending on the physical layout of the hotel.

The staffing and segregation of duties varies from hotel to hotel depending on the property size and physical layout of the back-of-the-house areas. A partial organization chart is shown in Figure 8.3. See sidebar, "Sample Job Descriptions."

▶ INTERDEPARTMENTAL RELATIONSHIPS

It is essential that the purchasing manager develop close working relationships with key managers within the hotel. These relationships should build and demonstrate trust, confidence in judgment, and integrity. Key managers include the following:

- Corporate purchasing manager
- Hotel general manager
- Executive assistant/operations manager
- Director of food and beverage
- Executive chef
- Director of housekeeping

Interaction between the purchasing manager and all other departments occurs regularly. Spoken interaction, either by telephone or in person, is the most frequent. With the technological implementation of the Internet and email, the communication process has become more efficient. Communication can be accomplished quickly with large numbers of people.

Most day-to-day interactions of the purchasing manager involve the following key managers and issues, among others:

- **General manager/executive assistant manager:** Issues relating to quality changes and all discussions regarding capital expenditures (defined as equipment or renovation purchases exceeding $2,000).
- **Director of food and beverage:** Unresolved food purchasing issues and information related to wine, liquor, and beer purchases.
- **Executive chef:** Issues relating to food purchases. This area requires close communication with respect to vendor performance, food markets, quality, and availability information.
- **Director of housekeeping:** Coordination and purchase of linens, paper goods

SAMPLE JOB DESCRIPTIONS

Purchasing Manager

POSITION TITLE: Purchasing manager

DIVISION/DEPARTMENT: Administrative and general

REPORTS TO (TITLE): Controller

DIRECTLY SUPERVISES: Storeroom supervisor, beverage clerk, storeroom clerk

NO. OF EMPLOYEES SUPERVISED: 3

BASIC FUNCTION OF POSITION: To support the hotel department with dependable sources of materials and services; to buy competitively; to control inventories; to develop and train personnel; to implement planning to avoid emergencies; and to implement and supervise all procedures and staff in the purchasing department.

EDUCATION AND EXPERIENCE OR SKILLS NORMALLY NEEDED: College helpful but not required. Previous buying experience a must. Food and beverage buying necessary. Accounting background needed. Extraordinary organizational skills required. Must display excellent management skills and a great deal of diplomacy.

TYPE OF GUIDANCE REQUIRED TO DIRECT THE ACTIVITIES OF THE POSITION AND MAGNITUDE OF INDEPENDENT DECISION-MAKING RESPONSIBILITY: Must have the ability to function independently within the parameters established by the controller and other upper management in the hotel. Has the authority to hire and terminate.

FUNCTIONS:

20%: Develop and monitor policies, procedures, and performance objectives for the purchasing team.

30%: Solicit competitive price quotation.

40%: Supervision of purchasing staff.

10%: Miscellaneous duties (O-G = ongoing):

- O-G: Review par stock levels.
- O-G: Schedule storeroom hours.
- O-G: Develop employees for supervision position.
- O-G: Maintain high levels of employee motivation.
- O-G: Insure proper handling of receiving, storing, and issuing.
- O-G: Assure accurate and timely preparation of daily records for purchases and issues for food and beverage forms.
- O-G: Visit surveyors and stay abreast of market trends.

Storeroom Supervisor

POSITION TITLE: Storeroom supervisor

DIVISION/DEPARTMENT: Purchasing

REPORTS TO (TITLE): Purchasing manager

DIRECTLY SUPERVISES: Beverage clerk, storeroom clerk

NO. OF EMPLOYEES SUPERVISED: 2

BASIC FUNCTION OF POSITION: To supervise the storeroom staff and resolve day-to-day problems in food and beverage

storerooms. To assist in the procurement of all consumable food and beverage items assuring that they are of the right quality and right quantity. To maintain minimum investment and reduce unnecessary expenditures to maintain high sanitation standards and enforce all hotel policies relating to the food and beverage storerooms.

EDUCATION AND EXPERIENCE OR SKILLS NORMALLY NEEDED: College degree helpful but not required. One to two years' prior food and beverage background required. Must be able to read, write, and speak English fluently. Must have good organizational skills.

TYPE OF GUIDANCE REQUIRED TO DIRECT THE ACTIVITIES OF THE POSITION AND MAGNITUDE OF INDEPENDENT DECISION-MAKING RESPONSIBILITY: Must have the ability to act as administrator of the purchasing department in the absence of the purchasing manager. Must have the ability to function independently within the parameters established by the purchasing manager. Has the authority to hire and terminate.

FUNCTIONS:

50%: Supervise food and beverage clerks and provide assistance when necessary.

5%: Prepare daily food order.

5%: Prepare semiweekly food order.

5%: Maintain perpetual inventory (liquor, beer, wine).

2%: Assist purchasing manager in placing orders.

5%: Prepare weekly food bid sheet.

5%: Prepare monthly food bid sheet.

2%: Maintain accurate food and beverage vendor files.

2%: Assist in monthly inventory.

2%: Prepare monthly Food Dead Stock list (raw materials for which there is no finished product) for chef.

2%: Prepare monthly Beverage Dead Stock list for director of food and beverage.

10%: Assign miscellaneous duties (O-G = ongoing):

O-G: Product quality inspection.

O-G: Communication with the chef.

O-G: Keep abreast of industry trends and information.

O-G: Maintain accurate and organized filing system.

Storeroom Clerk/Beverage Clerk

POSITION TITLE: Storeroom clerk/beverage clerk

DIVISION/DEPARTMENT: Purchasing

REPORTS TO (TITLE): Storeroom supervisor

DIRECTLY SUPERVISES: None

NO. OF EMPLOYEES SUPERVISED: None

(continues)

SAMPLE JOB DESCRIPTIONS (continued)

BASIC FUNCTION OF POSITION: To receive, store, issue, rotate, and secure merchandise as outlined in the storeroom procedures. To accurately record transactions and to follow written policies and procedures relating to purchasing and the food and beverage storerooms.

EDUCATION AND EXPERIENCE OR SKILLS NORMALLY NEEDED: Prior experience in food and beverage consumable receiving. Prior storeroom experience in issuing stock, and inventory control. Must have math aptitude and be detail oriented.

TYPE OF GUIDANCE REQUIRED TO DIRECT THE ACTIVITIES OF THE POSITION AND MAGNITUDE OF INDEPENDENT DECISION-MAKING RESPONSIBILITY: Must have the ability to function independently within the parameters established by the purchasing manager and storeroom supervisor.

FUNCTIONS:

25%: Responsible for the second thorough inspection of the product as it is being stored and rotated; assure proper stock storage location on shelving units.

10%: Maintain high standards of sanitation and inventory organization.

10%: Participate in monthly inventory.

40%: Insure completion of paperwork in a timely manner:

A Form (daily record of purchases and issues of food).

B Form (daily record of purchase and issues of beverage).

Issue recap food.

Issue recap beverage.

Perpetual inventory, beverage.

Perpetual inventory, paper.

Food stock levels.

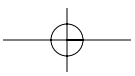
Beverage stock levels

15%: Miscellaneous:

To complete projects in a timely manner.

(toilet paper, facial tissue, paper towels), uniforms, and laundry and cleaning chemicals.

A good purchasing manager bases purchasing decisions on the same criteria as all business decisions: data. One cannot be an expert on every product available. This is where purchase specifications come into play. Written specifications must be developed for all key products. These products should be tested periodically to verify that they meet or exceed specifications. Examples of testing: a monthly butcher yield test on specific meat cuts; a yearly test of terry linen by an independent laboratory.



▶ PURCHASING SOURCES

There are many sources of information about producers, processors, and manufacturers. Technical data are also available. Suppliers are the best source of information. The listings in the sidebar "Purchasing Sources" are a small sample of material available to the purchasing manager. The latest and greatest means of identifying product sources has to be the Internet.

▶ THE PURCHASING MANAGER'S DAY

7:00 A.M. Inspect the quality of food and beverage consumables as they are delivered to the hotel. This includes rejecting incorrect or inferior products and then contacting the appropriate vendor(s) to rectify issues or determine another source, if necessary. The average daily purchase cost could vary from $3,000 to $50,000, depending on the size of the property and level of business.

9:00–11:00 A.M. Attend daily meeting with catering department, chef, stewarding, and banquet departments to review upcoming banquet business. Review the room setup for each scheduled function, menus, and, most important, the guaranteed attendance numbers.

12:00 noon. All food and beverage purchases have been received and issued. Inventory is now taken on all items in storage to determine the next day's needs. After reviewing the current levels and calculating banquet business requirements, select the vendors and place orders with suppliers, which may range in number from 1 to 25.

Spend the rest of the afternoon on purchasing nonconsumable food and beverage items, obtaining bids, and following up on outstanding purchase orders overdue for delivery.

The average workweek for the purchasing manager is 50 to 60 hours and may include weekends. For the most part, normal business hours are 7:00 A.M. to 6:00 P.M., Monday through Friday, and 7:00 A.M. to noon on Saturday.

▶ CORPORATE DIRECTION AND INTERACTION

Corporate direction and control varies with each hotel company. As a general rule, though, hotel companies that manage rather than franchise their properties are more involved in setting policies and procedures. The minimum standards of the purchasing manager vary by hotel company as well.

The corporate purchasing function is still viewed with skepticism, although not as much as in the past. Today, purchasing is nonprofit and established to benefit managed properties. The idea of doing more with less applies at the corporate level as well as to the individual properties. The most efficient method of purchasing systemwide is targeting where dollars are spent and creating the most cost-efficient way to purchase high-volume expense items. Corporate hotel purchasing offices are currently working to accomplish this goal. Examples of items that could be considered for systemwide agreements between corporate and property purchasing offices are uniforms, flatware, paper goods, laundry supplies, and food products; these, too, vary by company.

PURCHASING SOURCES

The Meat Buyers Guide (1988)
by National Association of Meat Purveyors
8365-B Greensboro Drive
McLean, VA 22102
(703) 827-5754

Fresh Produce Manual (1989)
by the Produce Marketing Association
P.O. Box 6036
Newark, DE 19714-6036

The Food Professional's Guide
by Irena Chalmers
American Showcase, Inc., New York

Quantity Food Purchasing (2d ed.)
Lendal H. Kotschevar
John Wiley and Sons, Inc., New York

The Encyclopedia of Fish Cookery
by A. J. McClane
Holt, Rinehart, and Winston, New York

The Advanced Seafood Handbook
Seafood Business Magazine
P.O. Box 908
Rockland, Maine 04841

The Packer 1990
Produce Availability & Merchandising Guide
Vance Publishing
7950 College Blvd.
Overland Park, Kansas 66210

▶ CASE IN POINT

The company I worked for out of college and until 1995 had its own in-house profit-driven purchasing company. This approach was not unique to this company; many of the large hotel companies had their own profit-driven purchasing arm, subsidiaries that, from a hotel owner's standpoint, could be considered double dipping, as the owner was already paying the hotel management company a management fee. In the late 1980s and early 1990s, many hotel owners were looking for a greater return from their management company. I had the privilege and opportunities to be involved in the overthrow of the company's internal purchasing subsidiary. At that time we had been sold to foreign investors, and they were looking at every function and subsidiary in the company. With some prodding directly at the hotel company's new owner by one of the senior management, we were able to demonstrate that the days of double dipping had to go and that the individual properties would recognize and support a corporate-level purchasing function whose only mission was to generate benefit for the properties. My boss and I succeeded in accomplishing what was once thought could never be done due to politics.

▶ CONCLUSION

Hotel purchasing must focus on and utilize resources in the most efficient manner today. In the past, a heavy-handed approach was used to resolve issues with suppliers. As we

move toward building partnerships with key vendors today, a teamwork approach provides an environment to build on the strengths of both the hotel and the vendor. This is now called *supply-chain management.*

Another key component in business today is communication, both internal and external. One of our national suppliers has the capability to link their customer service for placing orders with our domestic properties through a mainframe computer network linked to each property by PCs. Our hotels can place orders directly with the supplier through the network system and receive immediate confirmation from the supplier. This nationwide system allows both our properties and the corporate office to access pricing, availability, and consumption.

To succeed, we must resist the confines of our traditional paradigms. We must continually examine the ways we conduct business and strive for new and innovative approaches.

8.6 DATA MINING FOR HOTEL FIRMS: USE AND LIMITATIONS

Vincent P. Magnini, Earl D. Honeycutt Jr., and Sharon K. Hodge

In the hotel industry, knowing your guests—where they are from, how much they spend, and when and on what they spend it—can help you formulate marketing strategies and maximize profits. Fueled by the proliferation of centralized reservation and property-management systems, hotel corporations accumulate large amounts of consumer data. This information can be organized and integrated in databases that can then be tapped to guide marketing decisions. However, identifying important variables and relationships located in these consumer-information systems can be a daunting task. The relatively new process known as data mining can be instrumental in overcoming such obstacles. [For a discussion of the use of compiled data, see Robert K. Griffin, "Data Warehousing: The Latest Strategic Weapon for the Lodging Industry?" *Cornell Hotel and Restaurant Administration Quarterly* 39, no. 4 (August 1998), pp. 28–35. For a discussion of the use of guest-history data, see Paula A. Francese and Leo M. Renaghan, "Database Marketing: Building Customer Profiles." *Cornell Hotel and Restaurant Administration Quarterly* 31, no. 1 (May 1990), pp. 60–63.] From stores of information, data mining technology extracts meaningful patterns and builds predictive customer-behavior models that aid in decision making (Kamrani, Rong, and Gonzalez, 2001, 361–377).

Data mining is a largely automated process that uses statistical analyses to sift through massive data sets to detect useful, non-obvious, and previously unknown patterns or data trends (Frawley, Piatetsky-Shapiro, and Matheus, 1992, 213–228). The emphasis is on the computer-based exploration of previously uncharted relationships (i.e., using "machine learning" methods that typically require only limited human involvement) (Peacock, 1998a). Without data mining, valuable marketing insights about customers'

characteristics and purchase patterns may remain largely untapped (Shaw, Subramaniam, Tan, and Welge, 2001, 127–137). By uncovering such previously unknown relationships, managers have the potential to develop a winning marketing strategy that increases their hotel's bottom line.

Hotel managers understand the importance of adapting to the changing business environment not only to remain competitive, but merely to survive. As a result, technology has become a large and growing expense for many hotel corporations. Under such a technology framework, data mining is a valuable competitive tool being adopted by hotel corporations in an effort to create customer value. However, given the importance and complexity of data mining, senior hotel managers report a low level of understanding about data mining's capabilities, how it works, and what value this technology contributes (Dev and Olsen, 2000, 41–47). The purpose of this paper is to educate hotel managers about the benefits and application of data mining on the properties they oversee.

▶ DATA MINING VERSUS STATISTICAL MODELING

Data mining differs from traditional statistical modeling in a variety of ways. Data mining focuses on machine-driven model building, while statistical modeling stresses theory-driven hypothesis testing. Data mining techniques build models, whereas classical statistical tools are supervised by a trained researcher who possesses a preconceived notion of what to examine. With statistical *a priori* analysis, relevant associations may be overlooked. By building dependency hypotheses instead of merely verifying them, though, data mining techniques reveal important links. For example, Marriott Vacation Club International reduced the volume of direct mail it needed to reach target sales levels by correlating response rates to specific vacation offerings and specific customer characteristics (Peacock, 1998a).

Data mining also offers enormous gains in terms of performance, speed of use, and user friendliness (Le Bret, 1997). While data miners must understand statistical principles, highly specialized statistical knowledge is not necessary to study, understand, and improve decision-making processes. Data mining helps managers to spot trends more quickly.

Because researchers may ignore the assumptions and limitations of a theoretical model, traditional statistical analyses in customer-satisfaction research are often biased. Satisfaction research includes measures of the importance that customers place on product and services attributes. Typically, these measures are highly correlated, which can dramatically bias the statistical values that determine attributes' importance rankings. Also, statistical analyses usually assume that relationships between independent and dependent variables are linear—which is often not the case. Therefore, violation of these assumptions can result in biased and misleading statistical outcomes. Data mining techniques (e.g., neural networks) overcome these limitations and outperform traditional statistical analyses in cases where such assumptions do not apply (Le Bret, 1997).

Another considerable advantage over traditional statistical models is data mining's ability to easily handle large and complex datasets (Peacock, 1998a). Data mining techniques are not hampered by large numbers of predictive variables, and that feature makes data mining

A DATA MINING TOOLKIT

• *Association rules:* Information from customer-purchase histories is used to formulate probabilistic rules for subsequent purchases.

• *Case-based reasoning:* Sets of attributes from new problems are compared with attribute sets from previously encountered problems (called cases) to find one or more boilerplate examples that provided good outcomes or solutions.

• *Decision trees:* Automatically constructed from data, these yield a sequence of step-wise rules; good for identifying important predictor variables, non-linear relationships, and interactions among variables.

• *Descriptive statistics:* Averages, variation, counts, percentages, cross-tabs, simple correlation; used at the beginning of the data mining process to depict structure and identify potential problems in data.

• *Genetic algorithms:* Use procedures modeled on evolutionary biology (e.g., selection, mutation, survival of the fittest) to solve prediction and classification problems or develop sets of decision rules.

• *Neural networks:* Applications that mimic the processes of the human brain; capable of learning from examples (large training sets of data) to discover patterns in data; can combine information from many predictors and work well even with correlated variables, non-linear relationships, and missing data.

• *Query tools:* Provide summary measures such as counts, totals, and averages.

• *Regression-type models:* Ordinary least-squares regression, logistic regression, discriminant analysis; used mostly for confirmation of models built by "machine-learning" techniques.

• *Visualization tools:* Histograms, box plots, scatter diagrams; useful for condensing large amounts of data into a concise, comprehensible picture.—V.P.M., E.D.H., and S.K.H.

useful for selecting variables, that is, identifying those within a set that are most relevant. The ability to handle large numbers of variables also makes data mining more realistic than statistical models in representing the complexity of a typical business environment.

While many analytical techniques can be classified as data mining tools, opinion has not coalesced regarding exactly which techniques should be considered part of the data mining toolkit. The tools listed in the sidebar "A Data Mining Toolkit" almost certainly belong, however.

Looking at that toolkit, decision trees, association rules, case-based learning tools, neural networks, and genetic algorithms are categorized as machine-learning methods, while the others can be thought of as machine-assisted aids to support human learning (Peacock, 1998a).

EXAMPLES OF THE USES OF DATA MINING INFORMATION IN HOTEL MARKETING

- Create direct-mail campaigns.
- Plan seasonal promotions.
- Plan the timing and placement of ad campaigns.
- Create personalized advertisements.
- Define which market segments are growing most rapidly.
- Determine the number of rooms to reserve for wholesale customers and business travelers.

With data mining techniques, levels of *a priori* specification can vary. In some cases, certain independent variables and dependent variables may be specified for examination, while predictor variables in other cases may be uncovered only by the data mining tool. The point remains, though, that in comparison with traditional statistical methods, data mining techniques invariably are more data driven than they are user driven.

We have observed that some hotel corporations are attempting to harness the power of information by investing in data mining technology that exploits consumer information. Hilton Corporation uses E.piphany E.4 software at its Beverly Hills headquarters, for instance (Stevens, 2001a, 35–38), and Starwood Corporation recently invested in Unica Corp's Affinium software (Tischelle and Maselli, 2001, 31–32). Such data mining technology allows hotel corporations to predict consumer-behavior trends, which are potentially useful for marketing applications. For example, Starwood's marketing staff can run reports and analysis on customer and occupancy data stored in a data warehouse that combines customer and transaction information from all company properties. Such information indicates where customers who visit a specific hotel live. If the data reveal that the Sheraton Fisherman's Wharf in San Francisco experiences a surge in visitors from Fort Lauderdale in April, for instance, hotel marketers can increase promotional efforts in Fort Lauderdale during the late winter months (Tischelle and Maselli, 2001, 31–32). The sidebar "Examples of the Uses of Data Mining Information in Hotel Marketing" lists examples of how information gleaned from data mining can be used in a hotel corporation's marketing activities.

▶ HARRAH'S DATA MINING SUCCESS STORY

In 1997 Harrah's hotels and casinos introduced a trademarked loyalty-card program, "Total Rewards," which tracks customers' purchasing activities and provides rewards that encourage spending at Harrah's properties. Rather than build glitzy properties with eye-popping attractions, Harrah's pursued a customer-service-oriented strategy centered around data mining techniques. Harrah's used an information system called WINet to

link all its properties, allowing the firm to collect and share customer information company wide. The process effectively changed the corporate culture from an every-property-for-itself mentality to a collaborative, customer-focused enterprise (Levinson, 2001).

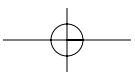
The WINet system connects and consolidates customer information from all of the company's transaction, slot-machine, hotel-management, and reservation systems. Key pieces of information—gender, age, place of residence, and types of casino games played—help predict which customers are most likely to become frequent users. Based on this information, Harrah's designs marketing strategies to retain those customers. Customers' purchasing and gaming patterns are tracked, too, so that the company can target its customers with the most appropriate incentives. For example, customers who reside outside the local area receive complimentary hotel rooms or transportation, while drive-in customers receive food, entertainment, or cash incentives (Nickell, 2002).

Data mining techniques help to reveal data patterns and relationships that can be used to develop strong models for predicting the potential value of each customer. Given that retaining a customer is less costly than attracting a new one, building strong relationships with valued existing customers can boost profits. Having information regarding such things as the customer's birthday, anniversary, and favorite foods and drinks allows a hotel to provide excellent, tailored customer service that cements brand loyalty. Harrah's discovered that the 30 percent of its customers who spent between $100 and $500 per visit accounted for 80 percent of company revenues and generated nearly 100 percent of profits. In the first two years of its rewards program, Harrah's saw a $100-million increase in revenue from customers who visited more than one property (Nickell, 2002). Currently, Harrah's ranks first in the industry in profit growth (Levinson, 2001).

Because the WINet system can consistently identify which customers will be most valuable over the long term, data mining is also useful for determining when to avoid offering incentives to customers who are not lucrative. Harrah's estimates that it has saved some $20 million by withdrawing incentives from customers who are not likely to return (Levinson, 2001).

Despite Harrah's success, some remain skeptical of data mining's customer benefits and long-term financial payoffs. As an example, Susan Dobscha, co-author of "Preventing the Premature Death of Relationship Marketing," advises hotels that giant central databases "are not where customers want a relationship forged. A customer would probably prefer a lower price over, say, having their beverage choice anticipated" (Mining Hotel Data, 1998).

Another important caveat regarding data mining is that any relationship discovered must be valid to benefit a company's performance. When British Columbia Telecom tried to reward 100 of its best customers by inviting them to a Vancouver Grizzlies basketball game, for instance, it selected customers from the database comprising frequent 900-number users. After sending invitations to the printer, the marketing staff realized that those 900-number users included a large number of sex-line enthusiasts. The company avoided a serious gaffe by refining the criteria to create a list of truly loyal guests (Press, 1998, 58–61).



▶ DATA MINING APPLICATIONS FOR THE HOTEL INDUSTRY

The tasks performed by data mining can be grouped into the following five categories.

1. Classification arranges customers into pre-defined segments that allow the size and structure of market groups to be monitored. Also, predictive models can be built to classify activities. An illustration of such a model is one that predicts which segment's usage rate will experience the largest decrease when a particular promotion expires. Classification uses the information contained in sets of predictor variables, such as demographic and lifestyle data, to assign customers to segments.
2. Clustering groups customers based on domain knowledge and the database, but does not rely on predetermined group definitions. This function is beneficial because it aids hoteliers in understanding who are their customers. For example, clustering may reveal a subgroup within a predetermined segment with homogenous purchasing behavior (e.g., a subgroup of holiday shoppers within the transient segment) that can be targeted effectively through a specific ad campaign. (The idea is that the members of the subgroup will increase their number of stays or become more loyal.) On the other hand, clustering may indicate that previously determined segments are not parsimonious and should be consolidated to increase advertising efficiency. Information such as demographic characteristics, lifestyle descriptors, and actual product purchases are typically used in clustering.
3. Deviation detection uncovers data anomalies, such as a sudden increase in purchases by a customer. Information of this type can prove useful if a hotel corporation wants to thank a guest for her or his recent increase in spending or offer a promotion in appreciation. Marketing managers may also attempt to draw correlations between surges in deviations with uncontrollable business-environment factors that are not represented in the database (e.g., a sharp increase in gasoline prices).
4. Association entails the detection of connections between records, driven by association and sequence discovery. For example, a possible detected association may be that a particular segment's average length of stay increases after a specific advertising campaign. Another association task could be employed in an effort to determine why a specific promotion was successful in one market, but ineffective elsewhere. Specific information regarding customer-purchase histories is necessary to formulate probabilistic rules pertaining to subsequent purchases.
5. Forecasting predicts the future value of continuous variables based on patterns and trends within the data. For instance, the forecasting function can be used to predict the future size of market segments. With forecasting one can also use data trends to project which hotel amenities are of growing importance to consumers and will be key drivers of the consumer's future perception of value.

In the hotel industry, the most common sources of data are CRSs and PMSs. Some hotel corporations also use information that re-

sides in guest-loyalty-program databases. Hilton, for instance, analyzes data contained within its trademarked Hilton Honors database (Stevens, 2001b, 29–30). Another potentially important source of data is the information provided by guest-satisfaction surveys.

▶ GUIDELINES FOR EFFECTIVE DATA MINING

When properly employed, data mining is a powerful and valuable marketing tool. However, simply investing in data mining technology may not guarantee success. As presented below, seven guidelines influence the effective management of data mining technology.

Guideline #1: *Match your IT priorities with an appropriate provider.* There is high demand for and low supply of data mining expertise as more companies realize the potential value of the information residing within their databases. To capitalize on this demand, a number of second-tier research firms now provide data mining services (Brandel, 2001, 67–70). However, providers offer a wide range of skill levels. The most-skilled providers can turn data into useful information. Companies that initially set clear priorities have a greater chance of reaping maximum benefits from data mining projects than do firms that are unsure of their goals (Stevens, 2001). Clear priorities include goals about what the firm would like to achieve through data mining and when it will be achieved. Without goals and objectives the hotel corporation is uncertain about what it is shopping for when seeking a data miner. It is also important to communicate these goals to prospective providers. When selecting a provider, ask the following six questions:

- *Does the provider have experience setting up predictive models with marketing applications?* Data mining has applications other than marketing. Data mining's ability to detect patterns in data is used extensively in criminal justice and anti-terrorism efforts to anticipate illegal activity, for instance. Wall Street also employs data mining to predict moves in the financial markets. Large global corporations use data mining to gain efficiencies in purchasing and production throughout their networks. Therefore, it is not enough to have a data mining consultant, but one must find a provider that has experience in marketing. Building models to predict consumer behavior is a form of data mining that requires specific expertise. For example, a data miner with marketing-applications experience would know to replace a zip code with resident characteristics, such as median income (Brandel, 2001).
- *Does the provider have experience in creating models within the hospitality industry?* Marketing applications of data mining are employed across diverse industries. Building predictive models for a grocery store, a furniture chain, an airline, or a hotel is different in each case. It is beneficial to find a provider that has experience in setting up models in the hotel industry. Such a provider would more clearly understand hotel-guest-segmentation processes, for example.
- *Is the provider reputable?* Because many second-tier companies provide mining services, it is important to check the credentials and reputation of the vendor.
- *Does the provider offer the latest technology that is appropriate?* Because of the wide range of products available, it pays

to do your homework. It is crucial to invest in the latest appropriate technology because it is extremely expensive and time consuming to switch products after one is installed—in no small part because switching products requires retraining the IT and marketing staff.

- *Does the provider offer a product that has visual-exploration capabilities?* Cutting-edge data mining software has visual-exploration capabilities, which means that data patterns can be viewed as three-dimensional objects that can be rotated or zoomed for detailed analysis. In addition, pixel-oriented technology assigns colors to data values so that patterns and trends can be examined. Visual exploration is an immense aid to managers and marketers because it often serves as a preliminary tool in selecting the appropriate variables for data mining tasks (Shaw *et al.,* 2001).
- *Is the provider willing to provide a custom contract?* Contract negotiations are a critical step in initiating a successful data mining program. The contract should be as precise as possible and should abstain from nebulous clauses discussing partnership (Lacity and Hirschheim, 1995). Moreover, the vendor's standard contract should not be used, because the standard contract does not customarily include specific performance standards or penalty clauses if the vendor falls short of requirements. Worse, payment schedules in standard contracts may favor the vendor (Lacity and Hirschheim, 1995). A custom contract should be written to include service-level measures and a termination clause. The buyer should be particularly suspicious of so-called change-of-character clauses, which state that the buyer may have to pay for any changes in "functionality" throughout the life of the contract. Change-of-character clauses have caused many disputes because of the ambiguous nature of the term "functionality" (Lacity and Hirschheim, 1995).

Guideline #2: *Build segmentation and predictive models.* Building appropriate segmentation and predictive models necessitates an extensive knowledge of the hotel business. The sidebar "Examples of Hotel-Guest Segments" provides examples of some of the many ways that hotel guests can be segmented (Kotler, Bowen, and Makens, 1999). Transient hotels, convention hotels, extended-stay hotels, and resort properties all segment guests differently. Furthermore, guest segmentation is distinctive for most hotel properties. Hilton's and Marriott's property-management systems segment and code markets at the property level, for instance, since each location has its own particular segments. A given property may serve a set of corporate clients, a group of government clients, and social clients (e.g., weddings and reunions). The segment categories contained in the sidebar can be strung into a large set of combinations. Furthermore, a guest could potentially fit into several categories, which poses a challenge for current data mining techniques (Shaw *et al.,* 2001). As a consequence, finding a provider that has experience creating models in the hotel industry is a major benefit. Additionally, even if the provider has hotel experience, it is critical that IT and marketing managers work closely with the provider to segment the market and build predictive data mining models.

Once a data mining model is built, confirmatory testing must be conducted to assess its predictive accuracy. For instance, a model designed to predict who will respond to a pro-

EXAMPLES OF HOTEL-GUEST SEGMENTS

Geographic

Nations
States
Counties
Cities

Demographic

Age or life-cycle stage
Gender
Income

Psychographic

Social class
Life-style
Personality
Behavior
Occasion of purchase decision
Occasion of use
Benefits sought
User status (e.g., potential, former, first time)
Usage rate
Loyalty status
Buyer-readiness stage

Source: P. Kotler, J. Bowen, and J. Makens, *Marketing for Hospitality and Tourism,* 2nd ed. (Upper Saddle River, NJ: Prentice-Hall, 1999).

motion should be based on a prior offering in which it is known who did or did not respond. After the model is constructed, a "holdout" group from a previous promotion can be analyzed to verify reliability. If the holdout predictions do not replicate the results of the past promotion, then the model may not be significantly predictive. To further enhance accuracy, a score can be assigned to the model based on the level of agreement between the holdout group and the entire group. Subsequent refined models can then be tested and scored. Another standard approach to model validation involves drawing two random samples from the data. The first sample is used as a calibration sample to build the model, while the second is used as a holdout sample to evaluate the model built from the calibration sample (Peacock, 1998b, 15–25). The validation process requires a knowledgeable IT professional, because when data subtleties that arise only in the sample are used to build the model, the model may be highly predictive of the sample but biased with regard to the population (Shaw *et al.,* 2001). This is called overfitting the data. To avoid creating a biased model, the IT professional must be knowledgeable of the analytical procedure and possess a basic understanding of the hotel segment and promotional scenario from which the sample was extracted.

Guideline #3: *Collect data to support the models.* Accurate data collection is critical for successful data mining. The major obstacle to effective data mining, however, is inadequate data gathering and input (Smith, 2001, 36–37). Data problems lead to a decrease in the value of any data warehouse, in addition to diminishing the value of proposed models (Shaw *et al.,* 2001). Problems with data are related to one or more of at least three different shortcomings.

The first possible difficulty involves missing or inaccurate data. For example, when occupation information is available for only 15 percent of a data set, it is difficult to create a profile of customer occupations. Then again, it's a problem if the data file contains occupation information for 90 percent of the population, but the accuracy of the information is poor. Hotel corporations can reduce inaccuracy of this kind by asking guests for their current occupation.

A second obstacle is poorly coded data. Databases must have standards regarding data formats, text case, and redundant codes (Stevens, 2001b). Although some software automatically formats the data properly, most do not. Problems then occur when data-input sources are added over an extended time and no one has ensured that the data entering the warehouse is properly formatted. This would occur, for instance, if, when original data mining technology was installed, predictions were made based on the reservations system and the property-management system, but then a subsequent decision was made to input data from guest-satisfaction surveys. Problems would transpire when additional data inputs are not standard or are coded improperly. For example, some models require continuous and ordinal data, while others demand categorical data fields or binary constructs (Siragusa, 2001).

A third potential problem involves using homonyms (that is, putting the same label on two or more different data elements) and synonyms (that is, using two different labels for the same data element) (Chopoorian *et al.,* 2001, 45–51). While it may seem tautological to advise precluding this occurrence, the most common culprit is a new user on the system. It is common for hotel and IT professionals to change companies from time to time. Turnover causes coding problems when new employees bring their old labels and fail to use their new employer's framework.

Guideline #4: *Select the appropriate tools for analysis and prediction.* Numerous analytical tools can be employed to transform data into useful information. Some of the less-common analytical tools used by data mining software include regression models, factor analysis, cluster analysis, structural equation modeling, and self-organizing maps. On the other hand, the most common statistical methods used in data mining applications are decision trees, neural networks, and genetic algorithms. As previously mentioned, a decision tree is a rule-based model constructed of nodes (decision points) and branches (connections between nodes) that reach numerous outcomes based on traveling through two or more nodes. A neural network is a nonlinear predictive model that resembles a biological neural system and has the ability to learn through training. Last, a genetic algorithm is a learning-based model founded on the concept of evolution. That is, partial solutions to a scenario compete with each other, and then the best solutions are used for further problem solving (Hair *et al.,* 1998).

Most of the statistical methods employ techniques that achieve a desired outcome. Likewise, each methodology has strengths and weaknesses, and each is appropriate for a specific scenario. Therefore, the most effective results emanate from data miners who have the expertise to select the most appropriate statistical method for a given scenario and the hotel's intended goals (Siragusa, 2001). For instance, a positive attribute of genetic algorithms is that they converge on an optimal solution, but the method is most applicable to large databases since arriving at a valid outcome may require many generations

of competing solutions. Likewise, there are also pros and cons associated with neural networks. They are beneficial in analyzing complex data because of their ability to discover unusual trends, but monitoring accuracy is difficult because many intricate relationships are handled invisibly by the methodology (Hair *et al.,* 1998).

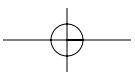
Guideline #5: *Demand timely output.* Timeliness is critical in making marketing decisions. The length of time required to produce output varies widely among data mining packages. Before Hilton Corporation upgraded its data mining technology, for instance, the reports that managers requested from IT would take three to six weeks to arrive. "By the time they'd get the report, it was often too late to act on it," said Joanne Flinn, vice president of leisure marketing. With the new technology, managers receive reports in 30 minutes or less (Stevens, 2001b).

Guideline #6: *Refine the process.* By its nature, data mining involves knowledge that evolves over time. Never complete, data mining involves a continuous cycle of inputs and outputs based on models that must be modified and refined as conditions change in the competitive environment. Flexibility is needed to adapt the established models and processes to changes that occur (Cline, 2000). Refinement consists of three actions:

1. Chart progress toward initial goals. Use the forecasting function of data mining to regularly set new goals.
2. Compare and contrast the characteristics of the clustering output with the attributes of the classification output. When necessary, modify predictive models based on changes in the size or structure of customers' market segments. For instance, notable variances in purchase patterns in one segment and similarities in purchase patterns among other segments may lead to refinement of the segment, usually by adding a new criterion or dimension. This action can result in the discovery of previously undetected segments with homogenous characteristics.
3. In addition to clustering and classification features of data mining, also use the associations and deviation-detection functions to assess the effects of promotions. Maintain a promotional history table in the database to use as a learning tool for future campaigns and models (Siragusa, 2001).

Guideline #7: *Hire a well-trained staff and a knowledgeable IT manager.* Information technology was initially viewed by the hotel industry as a back-office function that supports the finance and accounting areas (Cline, 2000). The industry has advanced far beyond this view during the past decade. In two sessions sponsored by the International Hotel and Restaurant Association (IH&RA), one in Singapore in 1997 and the second in Nice, France, in 1998, hotel-industry leaders pondered the role of technology. Among the conclusions reached were: "Going forward, technology will be the most competitive weapon for any hospitality company. If hospitality organizations want to compete successfully, they must do so by using technology to drive value to both the customer and to the firm" (Olsen and Connolly, 1999, 29). However, implementing such recommendations at the property level can be a difficult task.

Training is a key to effective implementation of data mining systems. Productive data mining requires two-fold proficiency among both IT managers and those who interpret the outputs.



The hotel's IT managers must also be proficient with the data mining system because the system requires continuous refinement. Just as market segments, sources of data, and property goals change, so must predictive models and analyses be modified and refined. It is an unsound policy for the IT staff to be totally dependent on the provider's recommendations for refinement and alterations. Instead, the IT staff and data mining provider should work together, with their common goal being to maximize the technology's effectiveness. The most effective data mining projects occur when IT managers and providers collaborate and share project information.

Second, adequate training must be provided to all potential users of data mining outputs. At the corporate level this includes the marketing staff, operations managers, and those developing new properties. Users at the property level include general managers, directors of sales and marketing, and the sales staff. Users must be instructed about the available reports and how to properly interpret the information. Since the information is used for decision making, it is important for users to understand the boundaries and limitations of the information.

► BOUNDARIES AND LIMITATIONS

Technology must serve managers' purposes, rather than dictate processes (Chudnow, 2001, 28–29). Along that line, data mining cannot capture all the information relating to what drives consumer behavior. Data mining is simply one of a number of research methods that help predict travelers' demand trends. Therefore, data mining technology should be used in conjunction with other forecasting and research techniques. With this in mind, managers should be aware of the following four limitations of data mining technology.

Limitation #1: *Data mining analyzes only data collected from existing customers.* Data mining software generates information by analyzing data patterns derived from the company's reservation, property-management, and guest-loyalty-program systems. Patterns thus detected can help predict the actions of current guests in the system and of those with similar needs and wants. Data mining technology does not, however, provide information about market segments not found in the company's databases. Moreover, a market segment that is currently small but is on the verge of experiencing substantial growth may not be detected by data mining.

Another blind spot is the data in competitors' reservation systems. A key question in planning a marketing strategy in the hotel industry is: Who are my competitors' guests and where are they coming from? Data mining technology is unable to answer those questions.

Limitation #2: *Databases used in the mining process are often hotel-brand specific.* Just as data mining cannot analyze competitors' markets, it also creates prediction models that are brand specific. Thus, corporations that operate multiple brands often must create a data warehouse and conduct data mining for each brand. This is also true for the franchisees that may have a portfolio comprising, say, six Holiday Inns and four Marriotts.

Brand-specific marketing information is useful for the brand's corporate office to plan marketing programs, which is largely what franchisees purchase. Conversely, brand-specific marketing information may not be helpful if the hotel corporation that franchises numerous brands wants to predict customer demand based on a multiple-brand portfolio.

PSYCHOLOGICAL DETERMINANTS OF DEMAND

Education
Escape
Family bonding
Prestige
Relaxation
Self-discovery
Sexual opportunity
Social interaction

Source: P. Kotler, J. Bowen, and J. Makens, *Marketing for Hospitality and Tourism,* 2nd ed. (Upper Saddle River, NJ: Prentice-Hall, 1999).

Limitation #3: *Data mining may not segment travelers by psychographic traits.* Segmenting consumers based on psychographic traits, such as personality and lifestyle, can be useful in the hotel industry. This is because psychology and emotion play significant roles in the hotel guest's decision process. That is, as seen in the sidebar "Psychological Determinants of Demand," a traveler may select a destination for a variety of psychological reasons (Kotler *et al.,* 1999). One limitation of data mining is that common system inputs do not account for psychological factors that influence a traveler's purchase decision.

A time-tested tool used in understanding hospitality demand trends is Stanley Plog's psychographic scale (Plog, 2001, 13–24). Many key drivers of demand identified by Plog, such as personality distribution among travelers (e.g., dependables, venturers, and centrics), are not common inputs into data mining systems. Hotels can acquire this information from customer surveys.

Limitation #4: *Data mining does not provide information about consumers' thought processes.* It is important to engage consumers in research to better understand their thinking. Information generated by data mining does not account for the fact that approximately 80 percent of human communication is nonverbal (Zaltman, 1997, 424–437). Interviews and focus groups are both useful methods for gathering information about the needs and wants of hotel guests. The insight gained from those techniques is difficult to capture in the statistical data mining outputs. That is why it is important to step back and ask what the hotel guest's inherent needs are and what the product is really about. This involves conducting in-depth conversations with guests. At times, improved insight and perspective are gained from talking with three customers for two hours rather than by surveying a thousand customers (Ohmae, 1999).

▶ CONCLUSION AND MANAGERIAL IMPLICATIONS

Data mining technology can be a useful tool for hotel corporations that want to understand and predict guest behavior. Based on information derived from data mining, hotels can make well-informed marketing decisions—including who should be contacted, to whom to offer incentives (or not), and what type of relationship to establish.

Data mining is currently used by a number of industries, including hotels, restaurants,

auto manufacturers, movie-rental chains, and coffee purveyors. Firms adopt data mining to understand the data captured by scanner terminals, customer-survey responses, reservation records, and property-management transactions. This information can be melded into a single data set that is mined for nuggets of information by data mining experts who are familiar with the hotel industry.

However, data mining is no guarantee of marketing success. Hotels must first ensure that existing data are managed—and that requires investments in hardware and software systems, data mining programs, communications equipment, and skilled personnel. Affiliated properties must also understand that data mining can increase business and profits for the entire company and should not be viewed as a threat to one location. As seen in the Harrah's example, implementing a data mining system is a complex and time-consuming process.

We advise hospitality managers to adopt a data mining system and strategy if they have not done so. Guidelines presented in this paper—including how to select and manage the data mining provider—offer guidance for implementing a viable data mining strategy. Since data mining is in its initial stages in the hotel industry, early adopters may be able to secure a faster return on investment than will property managers who lag in their decisions. Hotel corporations must also share data among properties and divisions to gain a richer and broader knowledge of the current customer base. Management must ensure that hotel employees use the data-management system to interact with customers even though it is more time consuming than a transactional approach.

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SOURCE NOTES

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