ANALYSIS OF BUSINESS TRAVELERS' HOTEL SELECTION AND SATISFACTION

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SELECTION AND SATISFACTION

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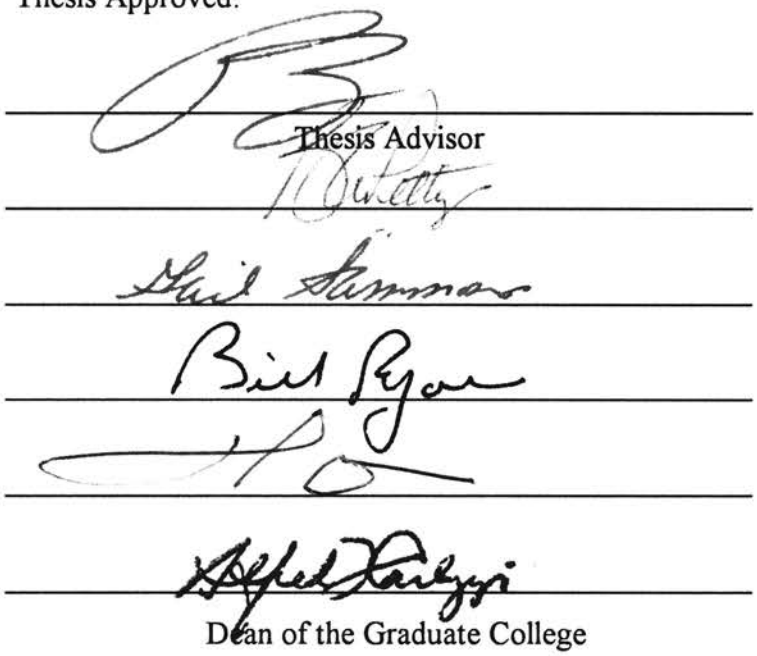

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DEDICATION

This thesis is dedicated to my wife, Gunay Cobanoglu, and my son, Ahmet Bora Cobanoglu.

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Anyone who has gone through this process of completing a graduate degree knows that if you are fortunate, you are not alone in this. Even though the ultimate responsibility to finish rests on our shoulders, a support network is there to aid and guide the process. I am blessed with having had a group of people who believed in me, supported, cared, gave advice, and encouraged me to persist toward the completing of this degree.

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CHAPTER I

INTRODUCTION

Business travel in the Unites States is critical to the success of the lodging industry since more than half of room nights are generated by business travelers (Sammons, Moreo, Benson, & DeMicco, 1999). Under current strong economic conditions that support more business travel, the business travel market continues to be an important market for the lodging industry. Even, in the difficult economic times of the early 1990s, business travelers accounted for 45% of the all room nights (Shifflet, 1992).

In the United States, 35.3 million business trips were taken generating more than $75 billion in revenue for the lodging industry in 1987 (McGee, 1988). This number increased to 197 million business trips in 1999 with an average increase of 46% per year. (Survey of Business Travelers, 1999). It is estimated that the business travel market will continue to increase (Survey of Business Travelers, 1999). Because of the importance of the business traveler market for the lodging industry, maintaining and increasing a lodging property's percentage of the business travel market was one of the greatest challenges for hotels' sales departments (Stephens, 1990). Business travelers constitute a major market segment of the lodging industry since most business travelers stay at

lodging properties during their business trips (Ananth, DeMicco, Moreo, & Howey, 1992; Stephens, 1990).

Purpose and Objectives of the Study

The purpose of this study is to ascertain any differences in the needs of female and male business travelers. The objectives of this study are to:

1) explore and compare the dimension(s) of attributes that business travelers perceived to be important in their selection of a hotel and their perceived performance of those attributes.
2) determine the relationship between respondent gender and selection dimensions.
3) identify and test a group of selected attributes related to guests' needs for information technology including sustaining and disruptive technologies.
4) conduct an Importance-Performance Analysis (IPA) on importance and satisfaction of hotel selection attributes.

The objective of this study related to application of information gained through this study is to report information that will be useful in designing and implementing marketing programs on individual or corporate levels and determining technology strategy for short-term and long-term guest product and service decisions.

Background

Prior to the mid-1970s, the number of hotel rooms available was less than the total demand for rooms. Under that circumstance, business travelers had little choice among lodging products (Shifflet, 1992). However, in 2000, with an average national occupancy rate of 63.2 percent, it was obvious that supply exceeded demand (1999 Lodging Industry Profile, 2000). Thus business travelers had many choices among hotels. In this highly competitive environment for business travelers, lodging managers needed to understand their guests' needs and wants in order to keep current customers and attract potential new customers (Ananth et al., 1992; Howell, Moreo & DeMicco, 1993; Sammons et al., 1999).

In addition to intense competition, technology helped hotels become commoditized. Olsen, Connolly, and Allegro (2000) defined commoditization as "the process by which a product becomes a commodity; an undifferentiated and interchangeable product" (p.18). As a consequence, brands were no longer very effective to keep current customers and attract potential customers (Connolly & Olsen, 1999; Olsen et al., 2000).

Online travel agents offered easy and real-time comparisons for accommodations. Customers could compare multiple properties within the same geographic location and other criteria such as service segment or price category. When a product becomes commoditized, factors such as brand become less important while factors such as price and value-added services become more important (Connolly & Olsen, 1999; Olsen et al., 2000). Lodging companies use technology as a value-added service to their guests,

especially to business travelers. By doing so, hotels can create differentiation, enhance guest satisfaction and build lasting loyalty among customers (Cobanoglu, Ryan, and Beck, 1999). Contemporary business travelers demand technology applications and amenities before, during and after they stay in hotels.

Olsen et al. (2000) suggested that information technology was the single greatest force driving change in the hospitality industry and would continue to alter the way the industry conducts business in the future, regardless of property size, segment, and geographic location. In this regard, it has become important to continue to identify the amenities, services, and technology applications that business travelers demand from hotels. Such research better enables managers to offer a meaningful set of value-added amenities, services, and technology applications to business travelers.

Christensen (1997) argued that there is a significant difference between disruptive and sustaining technologies. Disruptive technology has three characteristics: (1) cheaper than mainstream technology, (2) less performance than mainstream technology, (3) not demanded by the mainstream customers. For example, the personal digital assistant (PDA) was a disruptive technology while laptops was a sustaining technology in 2001. PDA's were cheaper than laptop computers, performed less, and mainstream customers (laptop users) did not demand them when they first introduced. However, sustaining technologies are dominant in the market and demanded by the mainstream customers. It is important for hotel managers to be able to distinguish between disruptive and sustaining technology. Providing only sustaining technology to the guests may not be enough since disruptive technology has a high potential to become a sustaining technology. This study will incorporate disruptive and sustaining technology amenities,

applications, and features. Chapter II discusses disruptive and sustaining technology in detail.

Definition of Terms

1. Business Traveler: An overseas or domestic visitor who stays overnight away from home (paid accommodation) for the purpose of conducting business (Lewis, 1984).

2. Leisure Traveler: An individual who travels for pure pleasure (including vacation travelers) (Lewis, 1984).

3. Hotel: A business which represents itself as one of the following: Hotels, Resorts, Bed & Breakfasts, Conference Centers, Motels, Extended Stays, Convention Hotels, All Suites, Lodging Properties (Lattin, 1989).

4. Technology Applications: Any hardware, middleware, and/or software including Internet applications used in lodging properties (Cobanoglu, Ryan & Beck, 1999).

5. Disruptive Technology: Any technology applications (innovations) that are cheaper than mainstream technology applications, perform less, and are not dominant in the market currently yet have a potential to be the dominant technology in the future (Christensen, 1997).

6. Sustaining Technology: Any technology applications dominant in the market currently (Christensen, 1997).

Problem Statement

Several studies have been performed to identify hotel selection variables which various demographic groups such as mature business travelers and female business travelers use (Ananth et al., 1992; Howell et al., 1993; Sammons et al., 1999). Very little has been done to actually determine if there indeed is a difference between males and females from within the same marketing population. In addition, a majority of the research reviewed has investigated important attributes identified by business travelers in selecting hotels. However, there is a need to explore the performance of these attributes as perceived by business travelers so that they can be compared to the identification of the attributes themselves. The problem this study attempts to address is conforming similarity and dissimilarity of traveling needs within the same male and female population. This study also attempts to address the problem of understanding rapidly evolving technology needs of guests.

Finally, this researcher is unaware of any study that included disruptive and sustaining technology applications, services, and features into the selection attributes. Such knowledge would be critical in making marketing, design, and management operations decisions.

Significance of This Study

This study made three unique contributions to the literature of hospitality research: (1) it added to previous research by incorporating disruptive and sustaining technology applications, (2) it compared hotel selection attributes of male and female

business travelers, and (3) it evaluated important hotel selection attributes with perceived satisfaction.

Research Questions

1. What variables are important in business travelers' selection of hotels?
2. Is there a difference between male and female business travelers' identification of attributes in the selection of hotels?
3. Is there a difference between importance of hotel selection attributes and performance of hotels as perceived by business travelers?
4. How important are disruptive technology attributes in business travelers' selection of hotels?
5. How important are sustaining technology attributes in business travelers' selection of hotels?
6. Are technology attributes a significant factor in business travelers' selection of hotels?

A hypothesis was not created for research question six since it could not be tested.

Hypotheses

1. H_0 = The overall importance score of hotel selection attributes does not differ significantly between male and female business travelers.

   H_A = The overall importance score of hotel selection attributes does differ significantly between male and female business travelers

2. H_0= The overall perceived performance score of hotel selection attributes does not differ significantly between male and female business travelers.

   H_A= The overall perceived performance score of hotel selection attributes does differ significantly between male and female business travelers.

3. H_0= There is no significant difference between the overall perceived importance score of hotel selection attributes and the overall perceived performance score .

   H_A= There is a significant difference between the overall perceived importance score of hotel selection attributes and the overall perceived performance score.

4. H_0 = The overall importance score of sustaining technology attributes does not significantly differ from the overall importance score of disruptive technology attributes.

   H_A= The overall importance score of sustaining technology attributes does significantly differ from the overall importance score of disruptive technology attributes.

5. H_0 = The overall satisfaction score of sustaining technology attributes does not significantly differ from the overall satisfaction score of disruptive technology attributes.

   H_A= The overall satisfaction score of sustaining technology attributes does significantly differ from the overall satisfaction score of disruptive technology attributes.

CHAPTER II

REVIEW OF LITERATURE

History of the Hotel and Lodging Industry

The concept of hospitality is as old as civilization itself although where or when the first inns and eating-places actually originated is unknown (Walker, 1996; Lane & Dupre, 1997). A complete history of the lodging industry could go back 12,000 years. However, inn-keeping as we know today was not developed until the adoption of a standardized medium of exchange. The use of money during the sixth century B.C. caused people to trade and travel. As travelers' geographic areas of movement widened, their lodging needs become greater (Lattin, 1989). The first inns provided only little space with no or minimal attention to travelers.

Indications of hospitality and lodging properties have been found in writings dating back to ancient Greece and Rome, beginning with the code of Hammurabi. In these writings, there was evidence that taverns were also houses of pleasure (Lattin, 1989). English inns gained the reputation of the finest in the world. In the American colonies, early inns were located in seaport towns and were patterned directly after those

in England. American innkeepers were aggressive expansionists and within a few years of the Revolution, American inns were offering fine service just as those in England.

In 1794, the City Hotel, the first building that was built specifically for hotel purposes opened in New York City (Lattin, 1989). The cities of Boston, Baltimore, and Philadelphia opened their first hotel establishments right after the City Hotel. In 1829, a first class hotel, The Tremont House, was opened in Boston with 170 rooms (Borchgrevink, 1999). After the Tremont Hotel, many other finer hotels were built in the United States during the nineteenth century including The Astor House, Plank's Grand Hotel, Statler, Hilton Hotels, and Marriott Hotels (Lattin, 1989; Borchgrevink, 1999). At the beginning of the twentieth century:

> The hotel industry was confronted with the challenge of serving a new traveling population. It had to face such questions as: What types of accommodations were needed by the traveling salesperson? Were new services necessary?...Answers to those questions were not immediately available. Fortunately for the industry, Ellsworth M. Statler had foreseen the development of this situation and was ready to meet the challenge himself; while leaders in the field were discussing the alternatives, he was drawing plans for his first hotel. By 1907, construction was under way in Buffalo on the Statler Hotel.
> The opening of the Buffalo Statler on January 18, 1908, marked a new age in the American Hotel industry; this was the birth of the modern commercial hotel. This 'invention" (for as truly as Henry Ford invented the modern automobile, Ellsworth Statler invented the modern hotel) embodied all the known techniques of the day plus a lifetime of Statler's own experiences and ideas, which he had carefully recorded. (Lattin, 1989, p. 45).

In the 1920's, there was a great deal of hotel construction in the United States. In 1929, there were approximately 1.5 million hotel rooms in the United States with almost one million employees (Lattin, 1989). With the depression in 1930, the hotel industry was negatively affected. The biggest effect of the Depression was that eighty-five percent of the nation's hotels either went into receivership or through some form of liquidation (Lattin, 1989). By 1940 the hotel industry had started to recover from the effects of the

Depression. After the 1950's and during 1960's, with the advances in automobile industry, more American families started to travel and many new motels and motor hotels were built. After 1970 several factors and developments influenced the U.S. lodging industry. Two of the primary factors were market segmentation and advanced technology. During the 1980's, many conference hotels and multiple use resorts were opened. After the 1990's, boutique hotels gained in popularity. By the year 2000, all suite hotels and extended stay hotels began to become increasingly popular (Noriega & Mayo, 2001).

From 1930 to 1999, total revenues for hotels grew at a compound annual growth rate of 5.1% (See Figure 1) (Mandelbaum, 1999). Since inflation was 4.%, the real growth was 0.9%. Further analysis of Figure 1 indicates that operating profits for U.S. hotels was 6.9% which is greater than the growth rate for both rooms and total revenue for the same period. The faster pace of growth in profits compared to revenues may be indicative of improved profit margins as a result of better management with the help of technology.

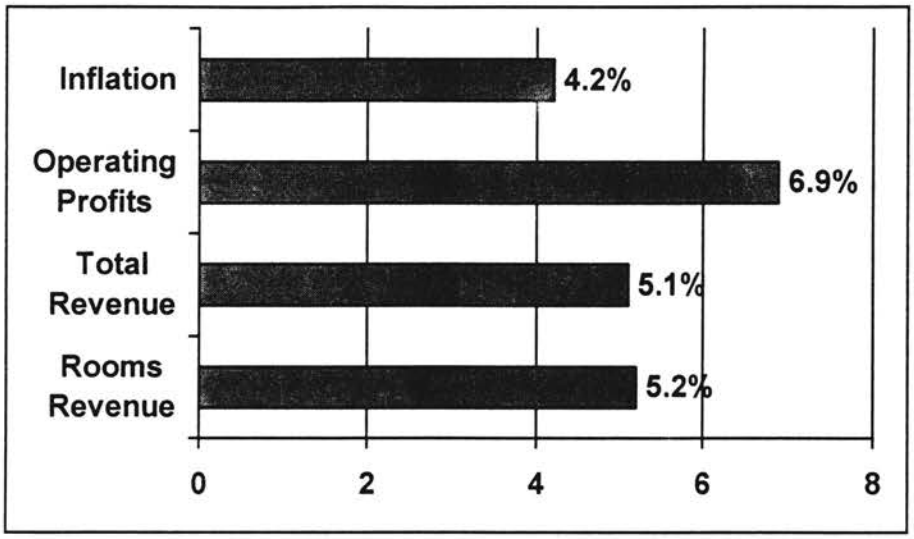


Figure 1: Compound Annual Growth in Revenues and Profits in the USA ((Mandelbaum, 1999, p. 7)

Figure 2 shows the average room rates between 1990 and 1999 (1999 Lodging Industry Profile, 2000). The average hotel rates increased slowly, but at an constant pace from $57.9 in 1990 to $81.3 in 1999.

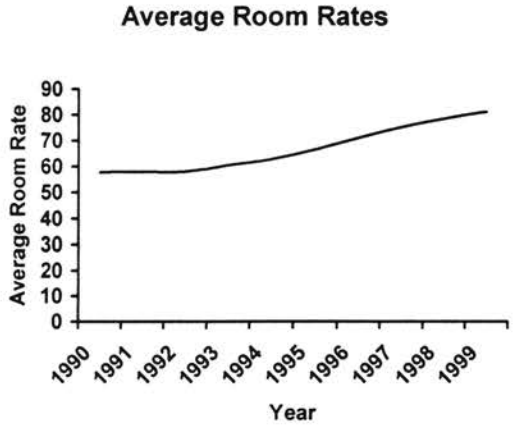


Figure 2: Average Room Rates in Hotels in the U.S.

Market Segmentation

The successors to the traders or merchants of the past who searched for and found solutions to people's needs and wants were called marketers (Lattin, 1989). The first age in the evolution of marketing was production a product regardless of whether that product was needed and wanted. The focus was on production. The second age was when manufacturers determined the needs and wants of the potential customers and developed a product according to those desires. The focus was changed to customers' needs and wants. According to Wedel and Kamakura (2000), market segmentation is an essestial element of marketing in industrialized countries. Goods and services could no longer be produced and sold without considering customer needs and recognizing the heterogeneity of those needs. As production processes and service delivery became more flexible, and consumer influence led to the diversification of demand (Wedel & Kamakura, 2000).

Marketing opportunities increase when customer groups with varying needs and wants are recognized (Kotler, 1976). Markets can be segmented or targeted on a variety of factors including age, gender, location, geographic factors, socio-economic status, demographic characteristics, family life cycle, desire for relaxation, or time pressures. However, segments or target markets should be accessible to the business and large enough to provide a solid customer base. A business must analyze the needs and wants of different market segments before determining its niche (Bull & Passewitz, 2001).

Market segmentation divides a larger market into submarkets based upon different needs or product preferences (Kotler, 1976; Bull & Passewitz, 2001). A key factor in competitive success is focusing on little differences that give a marketing edge and are

important to customers. Market segmentation matches consumer differences with potential or actual buying behavior.

According to Kotler and Armstrong (2001), segmenting consumer markets might be based on:

1. Geographical segmentation: Segmenting markets on the basis of geography involves dividing the market into different geographical units, eg. states, regions, countries, where the company pays attention to geographical differences in needs and wants.

2. Demographic segmentation: Demographic segmentation involves dividing the market into groups based on demographic variables such as age, family size, life cycle, occupation, etc. It is the most popular basis for segmenting consumer markets because consumer needs often vary closely with demographic variables and also because of the ease of measurement of the variables.

3. Psychographic segmentation: Using psychographics to segment markets divides buyers into groups based on socioeconomic status, lifestyle or personality characteristics such as leisure-seekers, work-oriented, and family-oriented segments.

4. Behavior segmentation: Behavior segmentation divides buyers into groups based on their product knowledge, usage, attitudes, or responses. Within behavior segmentation, of particular importance is a powerful form of segmentation, benefit segmentation, which groups buyers depending on the various benefits sought by buyers from the product class.

According to Wills, Kennedy, Cheese and Rushton (1990), the following characteristics had to be met for a segment to exist:

1. For a segment to be viable, it can be distinguished from other segments.
2. The segment should be of a sufficient potential size to ensure any marketing investment made within it will result in an adequate return.
3. An identified market segment could be only exploited if it can be reached. In other words, customers in each segment could have different expectations regarding the benefits to be derived from the product (Wills et al., 1990).

Benson (1993) suggested that business travelers met these criteria and justifiably deserved individual marketing attention. Within business traveler segment, female business travelers became a sub-segment. The next section focused on market segmentation in hotel industry.

Market Segmentation in Hotel Industry

In the 1960's and 70's, lodging property managers started to use newer marketing concepts to assess the desires of the potential customers. However during this period, for the majority of lodging managers, marketing was not very important. In the 80's, the importance of marketing increased relative to other management functions because of intense competition and an economic downturn in the hospitality industry (Lattin, 1989).

Prior to 1980, the lodging industry was categorized into four main segments: luxury hotels, commercial hotels, resort hotels and motels/motor hotels. As increased competition became a permanent factor in marketing strategies, the importance of

segmentation increased. Lattin (1989) indicated how diversified the lodging industry has become:

> Increased airline travel has brought hotels to airport locations. Catering to the business traveler who wants to attend meetings without fighting city traffic, these properties offer convenient locations. New emphasis has been placed on the center city. Every major metropolitan area in the United States can boast of new architecturally splendid hotels aiding in the revitalization of downtown areas. Many properties cater to large group and convention business. They may offer meeting rooms, exhibit areas, or very large special function space, or they may be located close to other properties which offer these facilities...
>
> Other travelers desire budget accommodations. The fastest growing segment of the lodging industry offers very clean, new, attractive and comfortable facilities. Between 1970 and 1988, the economy segment increased by 1,200 percent...
>
> Many travelers like "home away from home"; others enjoy more space than offered in most properties. Suite hotels and residence inns offer living areas separate from sleeping rooms, as well as kitchenette facilities. The all-suite sector is second only to the economy group in rate of growth...(pp.50-52).

Customer Satisfaction

Yi (1991) indicated that customer satisfaction and can be defined either an outcome or a process. Customer satisfaction, defined as an outcome, characterized the end-state that resulted from the consumption experience. A description of this definition provided by the following authors.

> The buyer's cognitive state of being adequately or inadequately rewarded for the sacrifices he has undergone. (Howard & Sheth, 1969, p. 145)

> An emotional response to the experiences provided by or associated with particular products or services purchased, retail outlets, or even patterns of behavior such as shopping and buyer behavior, as well as the overall marketplace. (Westbrook and Reilly, 1983, p. 256)

Alternatively, customer satisfaction has been described as a process, that emphasized the perceptual, evaluative, and psychological processes that contribute to satisfaction through:

> An evaluation rendered that the experience was at least good as it was supposed to be. (Hunt, 1977, p. 459)
>
> An evaluation that the chosen alternative is consistent with prior beliefs with respect to that alternative. (Engel & Blackwell, 1982, p.501)

Yi (1991) also observed that the definitions of customer satisfaction varied with regard to their level of specificity. The various levels identified included satisfaction with a product, a purchase decision experience, a performance attribute, a consumption experience, a store or institution, or a pre-purchased experience.

Importance of Customer Satisfaction

The 1998 American Customer Satisfaction Index revealed that customers saw satisfaction as one of the most important factors when selecting a lodging property (Whitford, 1998). The study also indicated that the overall customer satisfaction of the lodging industry had declined and was lower as related to the all the other components of the service industry identified in this study. The author suggests that technology can be a key factor in increasing customer satisfaction in lodging properties. Another study by Shifflet and Bhatra (1997) suggested that there were two principal factors which influenced the customer decision regarding which hotel brand to choose: satisfaction and price.

A 1994 survey conducted by the Juran Institute found that 90% of the senior managers of more than 200 of America's largest companies agreed with the statement, "Maximizing customer satisfaction will maximize profitability and market share." (Fay, 1994). Mentzer, Bienstock and Kahn (1995) surveyed 124 large U.S. companies and found that 75% of the companies surveyed mentioned customer satisfaction in their

mission statements. Almost half of the mission statements of the companies surveyed addressed customer service (56%) and a customer orientation issues (49%). Companies see the customer satisfaction issue as important and each year they allocate more budget resources to customer satisfaction measurements, see Figure 3 (Honomichl, 1996). In the case of measuring relatively less customer satisfaction, management and operations are examined and the reasons for this decline in customer satisfaction are searched. (Honomichl, 1996).

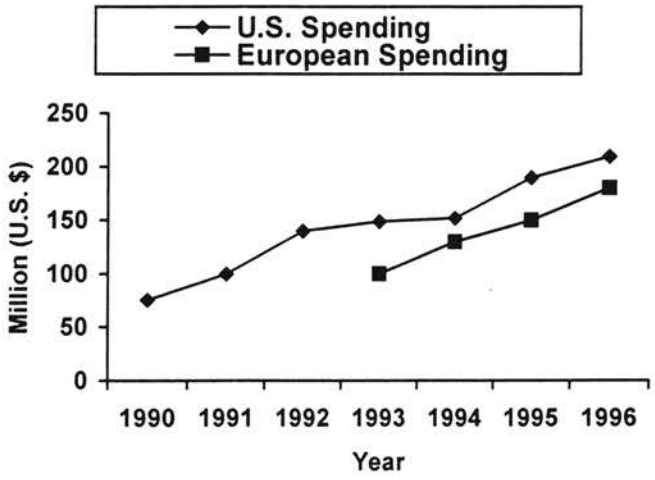


Figure 3. Spending on Customer Satisfaction Measurement by Companies in the U.S and Europe

Maximizing the Satisfaction of Customers

Customer satisfaction has a long-reaching impact on the current and future viability of an organization (Vavra, 1997). Schlesinger (1982) identified the relationship between satisfied customers and satisfied employees with the Cycle of Good Service (see Figure 4).

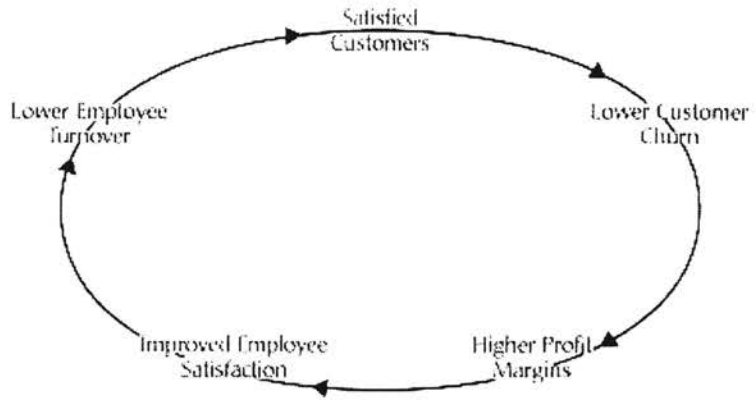


Figure 4. The Cycle of Good Service (Schlesinger, 1982)

The cycle suggests that satisfied customers tolerate higher costs that could be used to pay employees better. This philosophy increased employee morale and significantly reduced employee turnover, which in turn resulted more satisfied customers, and so on.

TECHNOLOGY

Technology is defined in The Electric Library Encyclopedia as the application of scientific discoveries to the production of goods and services to improve the human environment (http://www.encyclopedia.com/articles/12686.html). It includes the development of new materials, machinery, and processes that improve production and solve technical problems. Since World War II, technology has been increasingly applied at the microscopic level. Recent advances include the development of computers, the invention of the laser and new synthetic substances, improvement in medical research, and space travel and exploration. Shore (1989) defined computerizing as:

> a carefully planned process that results in an easy-to-use, properly sized system that automates selected business operations and so improves the profitability of a business. Computerizing is not, never has been, and never will be a shopping spree at your local computer store. (p. 13)

Stern and Stern (1993) reported that computers and information technology changed the world more than any machine invented during the entire two hundred years of the Industrial Revolution, including the automobile.

Use of Technology in the Lodging Industry

Technology is one of the fastest-changing aspects of the hospitality industry (Kasavana, 1997). The rapid changes in corporate and ownership structures within the hospitality industry have had the side effect of forcing lodging companies to employ technology in new and more productive ways (Berchiolli, 1998). The major factors driving technological implementations in hospitality operations are increased transaction volumes through consolidations, complex reporting requirement, and international communication needs. Advances in the areas of guest services, reservations, food and beverage management, sales, food service catering, maintenance, security, and hospitality accounting have required the utilization of computer systems technology in every aspect of lodging operations. Researchers who have studied technology in the hospitality industry agreed that technology made a significant change to the way the people work, interact, manage, and do business (Kasavana, 1991; Chervenak, 1993; Cline, 1996; Wolf, 1997; Collins & Malik, 1999).

According to a study conducted by Andersen Hospitality Consulting, the lodging industry's primary focus would shift to customers from physical assets (Cline, 1997).

Technology would play an important role in helping lodging industry reach and maintain customer focus.

Hotel Property Management Systems:

Kasavana (1997) defined hotel property management systems (PMS) as the set of computer programs that directly relate the front office and back office activities. A hotel property management system may consist of software programs including reservations, room management, and customer accounting functions. They are usually integrated with each other. Other stand-alone applications may also be interfaced with a hotel property management system such as microcomputers, point of sale systems, central and global reservation systems, internet, call accounting systems, electronic locking systems, energy management systems, auxiliary guest service devices, and guest operated devices, revenue management system (Kasavana, 1997; Adams, 2001a). One of the newest PMS interfaces are hand-held check-in devices and remote check-in stations in the lobby and airports (Thomas, 2000).

Reservations Applications

Reservation applications enable a lodging property to process room requests and generate timely and accurate rooms, revenue, and forecasting reports. The local reservation application may have interface with central and global reservations systems so that the reservations may be kept locally. A central reservation system is an external network of chain hotel's reservation system in which all participating properties are contractually related. A global reservation system is a combination of joint ventures linking a number of diverse businesses through private networks or the Internet (Adams, 2001). After 1990, traditional central reservations systems that had a stand-alone, single

purpose units, started to be replaced with the current systems that were networked within the chain and used as the central depository and booking engines (Burns, 1997; Adams, 2001a).

Rooms Management Application

Rooms management applications keep track of the information regarding the status of rooms, assist in the assignment of rooms during registration, and help coordinate many guest services. These systems may have an interface with the PBX system and allow housekeeping to directly communicate with the front desk and eliminate problems which the traditional rack system may cause (Adams, 2001b). With a PBX interface, housekeeping employees dial the rooms management application and enter the room number and the special code which indicates the status of the room, so that the new status of the room appears in the front desk system (Parets, 1997). In 2001, interactive TV systems allowed housekeepers to enter room status by using TV remote control and TV set (Adams, 2001b).

Guest Accounting Applications

Guest accounting applications enable the accounting personnel to maintain guest accounts electronically. From the time the guests reserve their rooms, the guest accounting system can keep track of the transactions until the guest checks out. If the property management system has an interface with point of sale system, the guest accounting system files the charges into appropriate folios. When the guest checks out, outstanding account balances are transferred automatically to accounts receivable for collection (Kasavana, 1997). After 1990, guest accounting systems included remote check-out interfaces from the in-room TV system (Bruns, 2000).

Hotel Property Management System Interface Applications

Hotel property management system (PMS) interface applications are stand-alone computer applications that integrate or interface to the main system. There are a number of applications which may be linked to the PMS and this number continues to grow. (Kasavana, 1997).

Transfer Interfaces: Property management systems (PMS) in larger lodging properties contain a lot of information. This information may be used for different purposes such as budgeting and forecasting. The transfer interface converts the PMS data into a suitable format for other software applications to use. This software includes wordprocessor, spreadsheet, desktop publishing, database, and interactive training software.

Point of Sale Systems (POS): A point of sale system (POS) is defined by Kasavana (1997) as a network of electronic cash registers capable of capturing data at the location of the sale and transferring through PMS to the system's guest accounting and financial tracking modules. Smaller lodging properties may have a POS station which could be a stand alone accounting system and transfer the customer's bills manually to the property management system (Hotel Technology Handbook, 1996).

PBX Telephone System: A PBX telephone system keeps track of the local and long distance telephobe services and apply a markup for switchboard operations. A PBX telephone system can place and price outgoing calls, and post the charges to the customer's folio immediately with detailed call and cost information (Hotel Technology Handbook, 1996; Kasavana, 1997).

Energy Management Systems (EMS): An energy management system monitors room temperatures in a lodging property. An EMS may have an additional sensory component which is used to detect if there is anyone in the guest room. If the sensor detects there is nobody in the room, it cuts off water and returns electricity and temperature settings to pre-set status (Hotel Technology Handbook, 1996; "Technology Today," 2001).

Electronic Locking Systems(ELS): An electronic locking system is a software application that allows the front desk to control the locking of rooms electronically. ELS can produce multiple keys for the same room and changes the code each time a key is lost, changed, or a customer checks out (Kasavana, 1997). Electronic locking systems enhanced guest security significantly and therefore many franchisors started to require to replace metal key locks with programmable locking systems (Hotel Technology Handbook, 1996). In addition, ELS provides detailed information on who and when accessed hotel rooms which can be serve as proof in courts and legal system (Kuchinskas, 1999).

Guest Service Systems: A guest service system is a combination of applications that provide additional services to customers. Some examples of the guest service systems might be voice mail systems, automatic wake-up call systems, TV based interactive guide, or on-demand movie system (Kasavana, 1997). Research suggested that on demand videos were the most popular hotel room amenity (Hotel Technology Handbook, 1996).

Revenue Management Systems (RMS): A revenue management system, also called yield management system, is defined as set of forecasting techniques used to

determine the room rates based on demand and supply. RMS also can make a decision to accept or reject a booking in order to maximize revenue by using past information and predictability equations.

On-Line Management Systems: On-line management systems include the internet, intranet, and extranet applications (Wolf, 1997). The Internet is a large series of computer networks designed to provide universal access to information and communication services around the world. The Internet is often used in the lodging industry as a marketing and sales tool. The big chains made ten percent of their reservations through the Internet (http://www.hotel-online.com/Neo/News/PressReleases 1998_3rd /Sept98_OnlineBookings.html).

According to Hotel Technology Handbook (1996) the Internet will be a part of the guestroom in the next decade. Customers will be able to surf, chat, play games, email, entertain on the Internet. The study conducted by Van Hoof and Verbeeten (1998) revealed that about two-thirds of the hotels in the United States had e-mail and a World Wide Web (WWW) page. E-mail was intended to be used for the external environment. The primary goal of existing on the WWW in the lodging industry was to give information rather than selling the property in the virtual environment (Van Hoof & Verbeeten, 1998). The same study suggested that there was a positive relationship between the size of Internet presence of a lodging property and its size.

Impact of Technology

Benjamin and Morton (1988) suggested that technology advances in the last decade created strategic opportunities that all U.S. industries should take advantage of if they wanted to maintain their competitive edge. Previous research suggested that the most important impact of the use of technology in the lodging industry was that it was a major determinant of guest satisfaction (Kasavana, 1997; Van Hoof, Collins, Combrink, & Verbeeten, 1995). Other researchers such as Reid and Sandler (1992) also concluded that lodging companies use technology to improve guest satisfaction. David, Grabski and Kasavana (1996) suggested that "hotel companies believed that information technology helped improve the quality of business operations" (p.68). Van Hoof et al. (1995) suggested that majority of the lodging managers reported that technology enhanced the effectiveness of their property. However, research on the impact of technology showed that it was impossible to predict with any certainty how a technology application would affect an organization (Shore, 1989). The overall impact of the technology depended on how the technology application was designed, conceived, implemented, and used. Van Hoof et. al (1995) identified five impacts of technology in the lodging industry:

1. Impact on customer satisfaction
2. Impact on efficiency
3. Impact on employee/manager productivity
4. Impact on profitability
5. Impact on costs (p. 64-65).

Impact on Customer Satisfaction: In the lodging industry, delivering quality service has become challenging because of high turnover rate, increasing labor costs, and shortage of

skilled employees. As a result, technology applications have helped the lodging industry to enhance service quality and improve the quality of customer satisfaction (Cobanoglu, Ryan & Beck, 1999; Van Hoof et. al., 1995). The 1990 American Hotel and Motel Association's survey of the lodging industry revealed the fact that improved customer experience and satisfaction was perceived as the biggest advantage of technology (Van Hoof et. al, 1995). On the other hand, the 1998 American Customer Satisfaction Index revealed that customers saw satisfaction as one of the most important factors when selecting a lodging property (Whitford, 1998). The author suggested that technology can be a key factor in increasing the customer satisfaction in the lodging properties.

Stern and Stern (1995) suggested that technology could increase customer satisfaction in three ways. First, technology applications could personalize service that previously was standardized so that management could customize service for each guest's unique needs. Second, technology could supplement service by providing the customer with additional support related to the use of the product and third, technology could transform the business. Both lodging property managers and customers agreed that technology help increase customer satisfaction (Cobanoglu, Ryan & Beck, 1999; Whitford, 1998; Van Hoof et. al, 1995).

Disruptive Technology versus Sustaining Technology

Afuah (1997) has defined innovation as "the use new technological and market knowledge to offer a new product or service to customers" (p. 4). Innovation usually results in new products, services or marketing techniques that are cheaper, and have more and improved attributes. Afuah (1997) has categorized innovation into two main groups: radical and incremental. An innovation may be classified as radical if the technological knowledge required to exploit it is very different from existing knowledge, rendering existing knowledge obsolete. On the other hand, if the innovation is created by using existing knowledge, then the innovation is said to be incremental innovation because the existing knowledge will continue to be used (Afuah, 1997).

Christensen (1997), a Harvard Business School professor, has introduced the term "disruptive technology" to innovation literature. Disruptive technology, different from radical or incremental innovations, has been defined as "innovations that result in worse product performance, at least in the near-term" (Christensen, 1997, p. xviii). Disruptive technologies generally underperform established products in mainstream markets when they are first introduced. However, they are usually cheaper, simpler, smaller, and frequently more convenient to use.

On the other hand, sustaining technologies are those that "improve the performance of established products along the dimensions of performance that mainstream customers in major markets have historically valued" (Christensen, 1997, p. xviii). The critical difference between disruptive technology and sustaining technology is that disruptive technology is not welcomed by mainstream customers when it is first introduced. However, with the help of developments to disruptive technology, it becomes

a mainstream product itself during the process. The companies that recognize disruptive technology and invest in during the niche market stage will win. For the others who only listen to their customer base without other consideration, disruptive technology will not make sense because it will not be demanded by mainstream customers at first. By the time mainstream customers demand disruptive technology, it could be very difficult for the company to develop it competitively.

An example of disruptive technology might be wearable computers (Cobanoglu, 2000). Wearable Personal Computers (WPC) carry several features which disruptive technologies would carry. First of all, the concept has been in development for over 10 years. The company, Xybernaut, which invented the WPC was a new start-up company. And after the product was developed, it was not targeted to mainstream computer users. It was developed mainly for commercial purposes. The profit margin was low. One may argue that the profit margin for wearable PCs is still low although the product has entered the low-end consumer market. After the first development of the product, several improvements were being done to the product to bring it to the attention of mainstream consumers and a high profit margin. Figure 5 shows the trajectories diagram for computers (Cobanoglu, 2000). As the figure suggests, wearable PCs were just for specialized markets in the early 2000's. However, with developments, it would meet the mainstream market's needs and would be cheaper and more efficient than the current technology that were desktop PCs and laptops. Figure 6 summarizes the innovation process as explained by Christensen (1997) and Afuah (1997) (Cobanoglu, 2000).

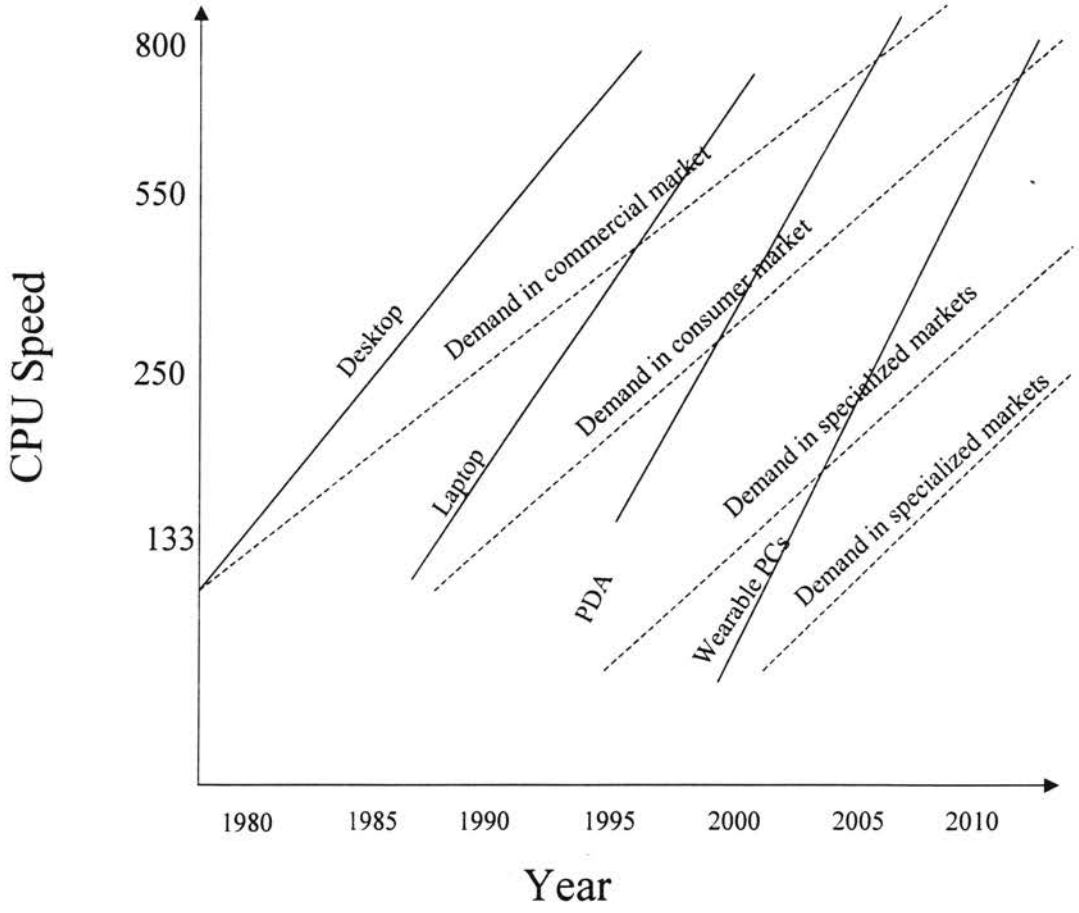


Figure 5: Trajectories Diagram for Computers (Cobanoglu, 2000)

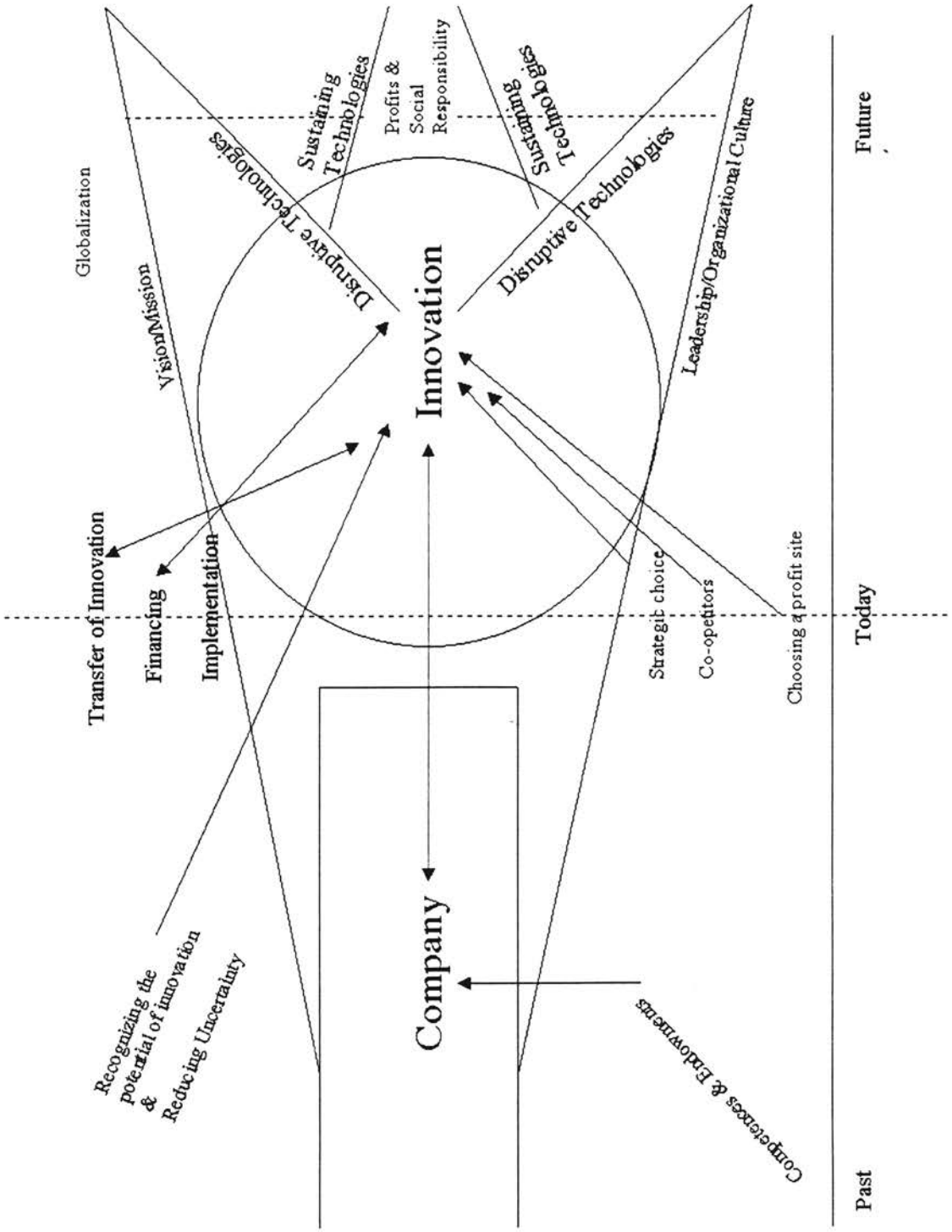


Figure 6: The Innovation Process (Cobanoglu, 2000)

Business Travelers

Business travel in the Unites States has been critical to the success of the lodging industry since more than half of room nights were generated by business travelers after 1990 (Sammons, Moreo, Benson & DeMicco, 1999). Under strong economic conditions that supported more business travel in the late 1990's and early 2000's, it continued to be an important market for the lodging industry. Even, in the difficult economic times of the early 1990's, business travelers accounted for 45% of the all room nights (Shifflet, 1992).

In 1987, 35.3 million business trips were taken generating more than $75 billion in revenue for the lodging industry in the United States (McGee, 1988). This number increased to 197 million business trips in 1999 with an average increase of 46.5% per year. (Survey of Business Travelers, 1999). The business traveler market was the fastest growing market in the hospitality industry (Abbey, 1989). It was estimated that the business travel market would continue to increase (Survey of Business Travelers, 1999). The lodging industry should continue to realize room night-demand growth during the 2000's (Shifflet & Goldstein, 2000). Because of the importance of the business traveler market for the lodging industry, maintaining and increasing a lodging property's percentage of the business travel market was one of the greatest challenges for hotels' sales departments (Stephens, 1990).

Business travelers constitute a major market segment of the lodging industry since most business travelers stay at lodging properties during their business trips (Ananth, DeMicco, Moreo, & Howey, 1992; Bartos, 1982; Stephens, 1990). In addition, business travel was more stable than vacation travel. Tourism demand was often seasonal, flexible

and sensitive to economic and political changes (Bartos, 1982; Sasser, 1976). Business travelers often had little or no choice as to whether a particular trip was necessary (Bartos, 1982). However, they frequently decided on how they traveled, where they stayed and what they ate. The analysis of business travel statistics suggested that business travelers continued to travel in good and bad times and their numbers were increasing. Thus, business travel demand was inelastic (Gieseking, 1986).

Hotel managers and operators recognized the business traveler market as the fastest growing market in the hospitality industry (Sammons et al., 1999). Table 1 shows the summary of findings of business traveler research starting from 1984 to 2000. An analysis of Table I suggested that there were several distinct common variables that were important to business travelers. These were location, cleanliness, safety and security, price and service (Abbey, 1989; "Business travelers' input," 1991; "Catering to women travelers," 1987 ; Howell, Moreo & DeMicco, 1993; Knutson, 1988; McCleary & Weaver, 1992; McCleary, Weaver & Lan, 1994; "Most important factors," 1992; Lewis, 1984; Rach, 2000; Sammons et al., 1999; Stephens, 1990; Taninecz, 1990; Weaver & McCleary, 1991). Some of these research studies included male and female business travelers but in different proportions (McCleary et al., 1992; McCleary et al., 1994). Some of them included only female business travelers to focus ("Most important factors," 1992; Howell et al., 1993; Sammons et al., 1999). Another common characteristic of these studies was that they all accepted business travelers as a main segment of hotel guests and female travelers as a sub-segment.

In addition to the research presented in Table 1, hotel companies conducted their own proprietary research to understand business travelers in general. These proprietary

research findings and research published in academic journals and magazines helped hotel managers offer and promote amenities, services, and facilities that business travelers wanted.

Through product differentiation, hotels were meeting the special needs of the business traveler by offering distinct amenities and services because business travelers were considered as the most knowledgeable of all other types travelers. They had definite preferences, such as convenient location, clean and comfortable rooms, and specific technology amenities. For example, hotels provided business services such as secretarial support, computers, printers and fax machines; complimentary newspapers; business traveler programs, which offer discounts for frequent stay guests; and all- suite properties, which cater to the relocating business traveler by providing full kitchen and separate living and bedroom area (Benson, 1993; McCleary et al., 1994; Rach, 2000; Sammons et al., 1999).

TABLE I

SUMMARY OF BUSINESS TRAVELERS RESEARCH STUDIES

Author(s) or Institution (Publication Date)	Sample	Most Important Factors in Selecting Hotels
Lewis (1984)	Male & Female Business/Pleasure Travelers	1. Service quality 2. Overall feeling 3. Security 4. Upscale services 5. Food and beverage price and quality 6. Aesthetics, Décor 7. Amenities 8. Image
"Catering to women travelers," (1987)	Female Business Travelers	1. Location 2. Safety and security 3. Well-lit hallways and parking areas 4. 24 hour room service 5. Laundry service and one-hour emergency pressing 6. A well-lit desk 7. Make-up mirrors, hair dryers, and ironing boards 8. Full length mirrors and skirt hangers 9. 24-hour fitness facilities
Knutson (1988)	Frequent Male & Female Business Travelers	1. Clean and comfortable room 2. Convenient location 3. Prompt and courteous service 4. Safety 5. Friendly employees
Abbey (1989)	Male & Female Business Travelers	1. Convenient Location 2. Clean, comfortable rooms 3. Room rates (price) 4. Recommendation of friends and collogues 5. Previous experience with property 6. Facilities 7. Frequent travel programs
Stephens (1990)	Male & Female Corporate Travelers	1. Location 2. Cleanliness 3. Coffee 4. Express check-in/out 5. Complimentary newspapers 6. Friendly and helpful staff 7. Fax machines
Taninecz (1990)	Male & Female Business Travelers (91% male)	1. Cleanliness 2. Comfortable mattress and pillows 3. Quality bath towels and wash towels 4. No surcharge long-distance telephone calls

table continues

TABLE I

SUMMARY OF BUSINESS TRAVELERS STUDIES

Author(s) or Institution (Publication Date)	Sample	Most Important Factors in Selecting Hotels
"Business travelers' input" (1991)	Male & Female Business Travelers	1. Quiet Room 2. Comfortable room 3. Bright bathrooms 4. Oversized beds 5. Alarm clocks 6. Desk 7. Phone on desk
Weaver & McCleary (1991)	Male & Female Business Travelers (70% male)	1. Cleanliness 2. Comfortable bedding 3. On-premises parking 4. Quality towels 5. Convenient to business 6. No surcharge calls 7. Friendly service 8. Well-kept furniture 9. Good reputation 10. Free local calls
"Most important factors," (1992)	Female Business Travelers	1. Security 2. Convenient location 3. Clean rooms 4. Reasonable cost 5. Workout facility 6. Large guestrooms and bathrooms 7. Full service property 8. Friendly, professional helpful staff 9. Quiet rooms
McCleary & Weaver (1992)	Male & Female Business Travelers	1. Cleanliness 2. Comfortable bedding 3. Quality towels 4. Good lighting 5. Well-kept furniture 6. No-surcharge calls 7. Friendly service 8. Sprinkler system 9. Dead-bolt door locks 10. Good reputation
Howell, Moreo & DeMicco (1993)	Female Business Travelers (Qualitative study)	1. Brand loyalty 2. Cleanliness 3. Reservations 4. Security 5. Room design and décor 6. Amenities 7. Restaurant and lounge 8. Pool and health facilities

table continues

TABLE I (continued)

SUMMARY OF BUSINESS TRAVELERS STUDIES

Author(s) or Institution (Publication Date)	Sample	Most Important Factors in Selecting Hotels
McCleary, Weaver & Lan (1994)	Male & Female Business Travelers (71% male)	1. Business services & facilities 2. Basic facilities 3. Personal services 4. Free extras 5. Convenient eating facilities 6. Airline or hotel reward program 7. Low price 8. Advertising 9. Parking 10. Fitness facilities
Sammons, Moreo, Benson & DeMicco (1999)	Female Business Travelers	1. Comfort 2. Parking 3. Security 4. Services 5. Complimentary 6. Price 7. Safety 8. Single sensitivity 9. Lounge 10. Fire safety
Rach (2000)	Male & Female Business Travelers (33% male)	1. Responsive service 2. Location convenient to business 3. Affordable rates 4. Well-known brand 5. An upscale reputation 6. Attractive tasteful décor 7. Guest room equipped for working 8. Location convenient to airport

Wyndham Hotels showed its focus on business travelers by promoting that they banned everything business travelers disliked to see in hotels such as inefficient and unfriendly front desk personnel, late or missed wake-up calls, showers with low water pressure, room keys that did not work, uncomfortable pillows, and long check-outs (Selwitz, 1990). The chain conducted several focus groups and proprietary studies to

understand the needs of business travelers. Another study reported that inefficient/unfriendly front desk, long check-in/out lines, uncomfortable bed/mattress, stale smelling rooms, poor soundproofing, bad quality towels, lost reservations, unresponsive management, and undelivered phone/fax messages attributes by which business travelers particularly eschewed (Wolfe, 1992).

As the business traveler market became more important for hotel industry, different segments that were not traditionally targeting the business traveler started to modify their strategies and product/service offerings to attract business travelers. For example, the U.S. Franchise Systems company created a new franchise concept, Microtel Inns & Suites with daily rates starting at $35 ("Microtel Inn & Suites," 1997). Another example might be bed and breakfast hotels which offer business amenities and work space in room (Belden, 1997). Focus on female business travelers' needs started after 1990s (McCleary et al., 1994; Sammons et al., 1999). Female business travelers became a target of hotel marketing programs. The following section examines female business travelers' needs in hotels and hotel selection process.

Female Business Travelers

According to United States Department of Labor, between 1998 and 2008, United States employment would rise to 160.8 million from 140.5 million. This represented an increase of 14%, or 20.3 million jobs (Garza, 2000). Women had a big share in the current and future job market. Between 1998 and 2008, women's participation in the

labor force was expected to increase by 15%, while men would only see an increase an increase of about 10%. As a result, women would increase their share of the labor force from 46 to 48% (Garza, 2000). The number of executive, administrative, and managerial workers was projected to increase by 16.4%, or 2.4 million jobs.

In the mid 1990's, United States hotel industry realized the female business traveler was a viable and desirable market segment (Rach, 2000; Sammons et al., 1999). In addition, the number of traveling businesswomen in the United States increased three times faster that the number of male business travelers (McCleary et al., 1994; Rach, 2000). The female business traveler segment hardly existed in 1970's (McGee, 1988; Sammons et al., 1999). However, in 1987, female business travelers took 35.3 million business trips, totaling 38% of the business travel market (McGee, 1988) and in 1996, female business travelers accounted for 42% of business travel with 17.2 million women making 67 million business trips during the year (Rach, 2000). Researchers forecasted that female business travel market would continue to grow (Rach, 2000; Sammons et al., 1999). Sixty-four percent of female business travelers personally selected their business hotels ("Holiday Inn Express surveyed," 1999).

Until the 1980's, hotel managers and operators did not specifically listen to female business travelers, as it was not a significant market (Berger, 1987). After female business travelers became a significant market, hoteliers not only listened to them but also made significant changes in services, amenities and facilities they offer to suit women's needs (Berger, 1987). This change got the attention of hospitality researchers. A common approach to understanding the needs of the female business traveler was to

examine how her needs differed from those of the male business traveler (McCleary et al., 1994; Sammons et al., 1999).

Weaver and McCleary (1991) compared male and female business travelers since 30% of their sample consisted of female business travelers. There were six items that had significant difference in response between male and female business travelers. These were hair dryer, iron/ironing board, fitness/recreation, assistance with luggage, bathrobe, and room service. Female business travelers perceived all of these items as more important than their male counterparts. Within the time frame of this study's literature review, the first research was published specifically on female business travelers' needs by Canadian Hotel and Restaurant Magazine ("Catering to women travelers," 1987) in 1987. In the United States, a study was published by Hotels magazine ("Most important factors," 1992). Howell et al. (1993) studied the female business traveler market by conducting a qualitative study. They content analyzed the findings. Eight of the most important selection criteria were: brand loyalty, cleanliness, reservations, security, room design and décor, amenities, restaurant and lounge, and pool and health facilities.

According to McCleary et al. (1994), gender-based travel research focused on the leisure-travel needs of women rather than their business-travel needs, and few empirical studies have been conducted to examine the different needs of male and female business travelers. Although industry practitioners conducted in-house studies on the needs of female business travelers, much of the information gathered was proprietary (Taninecz, 1990). For example, researchers for Wyndham Hotels (Rach, 2000) discovered through surveys of business travelers that women on average tend to be younger than men and personal safety was the major difference between female and male business travelers.

Three of four female respondents of a Stop Press poll of travel attitudes stated that they felt less safe when traveling alone (Kelley, 1991). In addition, nearly half stated that outsiders were easily able to gain access to their room, and one third of those surveyed responded that they were afraid to admit hotel staff to their room when alone.

Several other studies found differences in the desires of female business travelers ("Business travelers' input," 1991; McCleary et al., 1994; Witty, 1983). For example, there were some distinct amenities more important to women than to men. Items such as hair dryers, iron and ironing board, full-length mirror, and especially room service, numbered among these.

Other studies suggested that the majority of the respondents reported females were more likely to order meals through room service, stayed in hotels in closer proximity to their destination, visit more often than males and chose a hotel based on its name and reputation more often ("Survey says women," 2000; Rach, 2000).

A study by Sammons et al. (1999) surveyed only female business travelers to understand this segment's needs and wants. The factor analysis on 135 hotel selection attributes yielded these factors: comfort, parking, security, complimentary, price-sensitive, safety, single-sensitive, lounge, and fire safety. Safety and security were two of the most important selection factors for female business travelers. This particular finding was similar to other studies (McCleary et al., 1994; Weaver & McCleary, 1991). However, the *single sensitive* factor in the Sammons et al. (1999) study suggested that female business travelers perceived so-called women related attributes as important. Although the Sammons at al. (1999) study identified female selection attributes, the authors were quick to support that female business travelers might not be very different

from male on certain selection attributes. They finally suggested that a study comparing male and female attribute selection would answer these questions. Focus on male and female business travelers' needs would continue to be a viable research topic for hospitality researchers. The following section examines business travelers' technology needs and use.

Business Travelers And Technology Needs

Before the 1980's, business travelers' needs focused on having a desk, chair, lamp and telephone in the hotel room (Regenhan, 1997). With the advancement of technology, the needs of business travelers were also changed. Business travelers were no longer looking for a "home away from home" but also "office away from office" (Rowe, 1996). A study reported that business travelers believed that it was crucial to the success of their travel that a hotel room be conducive to working (Rowe, 1996). The majority of business travelers (65%) were working in their guestrooms two to five nights a week ("A closer look at life," 1997). Even if business travelers did not work in the guestroom, they wanted to have access to technology in their rooms in case an emergency arose. After the 1990's, business travelers started to demand larger work desks with proper lighting, two-line phone system and data-port, on-premise business center, and an in-room fax machine. Hotels which targeted business travelers reacted to these demands (Regenhan, 1997). In 1995, more than 50% of the business travelers (male and female) carried a laptop with them (Rowe, 1996). Of this, 75% connected to their office using their laptops and hotels' telephone line.

One of the basic facilities hotels offered for business traveler use was business centers in the premises (Reneghan, 1997). Hotel business centers generally offered computer(s), photocopying, faxing, and other office services to guests at a per item rate. After a short period of time, the business center became a useful amenity for business travelers (Renaghan, 1997). Then, hotels brought some of the business center equipment to the guest rooms. This included office supplies, computers and laser printers, a dedicated-line fax machine, two-line speakerphone, and larger work desk (Renaghan, 1997). For example, The Prince's 80 "corporate rooms" included enlarged work desk, voice mail, a daily Wall Street Journal, and 24-hour access to the property's business center. The hotel's 20 "guest office" rooms included all of the above plus an in-room laser printer, fax and copy machine compatible with laptops (Reneghan, 1997). Stephens (1990) forecasted that hotels could offer the following technology amenities and services to business travelers by the year 2000:

1. Access by personal computer to hotel reservation systems.
2. Ability to check a database for a hotel near the guest's destination for his or her frequent traveler program.
3. Ability to use the guest's travel card to check in by remote terminal in the van during the ride from the airport to the hotel.
4. Traveling card doubling as guest's room key.
5. Automatic check-in machine in the lobby that triggers the property management system to turn on lights and television and to set room temperature controls.
6. Message on the TV screen when guest arrives in the room.

7. Telephone with voice mailbox, fax machine, personal computer, and credit card reader.
8. In-room telephone with electronic concierge features, and
9. Video check-out.

During the decade of 1990-2000, hotels offered all of the items above depending upon their targeted guests and information technology investments (Collins & Malik, 1999). During the 1980s, although business centers were utilized by business travelers, they were not one of the main reasons a hotel was chosen. However, after the 1990s, technology related amenities, services, and facilities became one of the important determinants of hotel selection by business travelers (Reneghan, 1997).

A survey by the Travel Industry Association of America noted that 36 million Americans used the Internet to make travel plans in 1998 (Survey of Business Travelers, 1999). Of that group, seven million actually made airline reservations using the Internet. The number of Americans making travel plans online rose 188% compared with 1997 and 1,000% compared with 1996 (Jump, 1999).

In 1996, only few business travelers booked their hotel room via the Internet (Rowe, 1996). With the advancement of the Internet, hotels started to use technology before and after their guests visited. Most business-class hotels utilized the World Wide Web (Web) to process room reservations and promote loyalty programs and special rates. Even independent hotels including those in lower-price segments used the Web to distribute information. In 1999, ten percent of the total reservations came from the Internet (Collins & Malik, 1999).

The Internet was also included in the hotel room for guests to use for email and surfing the Web (Reneghan, 1997). Hilton Hotels and Towers provided guests with Web browsing and e-mail retrieval capabilities through specially equipped in-room televisions and wireless infrared keyboards using Ethernet connections and high-speed T1 data-transmissions lines. This also gave the hotel company the opportunity to advertise its services and facilities in addition to different channels offering headline stores and regularly updated information about general news, sports, entertainment, business, living, money, health, computing, communities, shopping and local developments on the main screen of Internet connection (homepage). A link to the chain's central reservation system was often included in the hotel's homepage (Collins & Malik, 1999).

According to Bruce Wiseman, chairman of On Target Research:

> With technology snowballing us into the 21st century literally faster than we can assimilate it, it is refreshing to reaffirm that our industry is, at its core, a personal one. Technology will continue to aid the industry immensely in the areas of administration and operations. And there is no question that guests are coming to expect more and more in the way of technological amenities. But a computer will never take the place of a sincere and friendly smile or the employee who takes that extra step to service a guest ("Study shows service still," 1997, p. 45).

With more than fifty percent of the business travelers carrying a laptop with them and connected to the Internet from hotel rooms therefore occupying hotels' telephone lines, hotels tested different methods to profit from Internet usage (Korn, 2000). As a result of this high demand on hotels' telephone lines, business travelers complained because of slow connection speeds. Leisure and transit travelers complained because of busy lines. In addition, hoteliers lost profit and their guests were not happy. To solve this problem, hotels developed different strategies. For example, the Starwood and Hilton

added fees for lengthy calls to toll-free numbers. At Hilton, the first 30 minutes to an 800 numbers were free-but then the charge was ten cents a minute (Korn, 2000). Starwood Group originally planned to start charging ten cents a minute after 20 minutes, but lengthened the free time to one hour after a 90-day test that didn't go over too well with consumers. Wyndham Hotels' chain charged a flat fee of 25 to 95 cents per 800-phone call. These fees, then were used for adding another line to guestrooms (Worcester, 1998). Some of the large hotel chains had plans to implement wireless Internet access to free up the hotels' occupied telephone lines (Korn, 2000). A study by Korn (2000) suggested that business travelers used the following ways to connect to their offices from hotels (See Table II):

TABLE II

BUSINESS TRAVELERS' METHODS TO CONNECT TO OFFICE FROM HOTELS

Methods to connect	%
At an office they are visiting	46
In a hotel room using their own computer	36
At a friend or relative's home	17
At an airport using their own computer	12
At a college or university campus	10
At a public library	7
In a hotel room using the hotel computer	5
At a copy or mail center	4
At an airport, bus center: using center's. computer	2
Other	12

With the number of technology amenities, services and facilities increased, the need for technical support for business travelers increased (Business travelers say they,

1999). Technology might be stressful and cause dissatisfaction if it was not maintained and supported properly by the hotel Information Technology (IT) staff.

CHAPTER III

METHODOLOGY

A number of studies have been conducted regarding business travelers' selection of hotels, but the majority of these studies were proprietary or the samples used were not large enough (B. Ryan & P. J. Moreo, personal communication, April, 2001). In addition, little information is known regarding the impact of technology in business travelers' selection of lodging properties. The objective of this study is to report information that will be useful in designing and implementing marketing programs on individual or corporate levels and determining technology strategy for short-term and long-term guest product and service decisions.

Research Design

Planning and development for the research study began in the summer of 2000 and continued through December 2000. During that time a review of literature was conducted, data collection procedures were determined. A descriptive cross-sectional questionnaire survey research design was formulated, and data analysis techniques were selected. In order to learn more about technology amenities, services and applications that are demanded by business travelers, a focus-group interview was conducted. The focus group consisted of male and female business travelers (N=10) from the local community.

The purpose of this interview was to identify the technology amenities, services, and applications which business travelers desire when selecting lodging accommodations.

Instrument

A self-administered questionnaire (See Appendix C) was then created from the information obtained from the literature research and the focus-group interview. Furthermore, a pilot study (N=100) of this questionnaire was conducted among business travelers to test the efficacy and clarity of the questionnaire. Pilot participants indicated that the questionnaire was long. Revisions of the questionnaire were made based on the recommendations of the pilot testers and the number of hotel selection attributes was reduced to 75 from 100 by combining some attributes together and removing some attributes that were not rated important in Sammons et al (1999) study. In addition, a section that asked 25 questions about services/facilities used by business travelers was eliminated.

The survey was developed as a self-administered instrument in five sections. The first section asked questions related to respondents' travel behavior such as how often they travel, how many nights they stay per business trip, and favorite hotels. The second section consisted of questions related to Internet use at home and business.

The third section listed seventy-five attributes related to hotel selection and satisfaction. In this section, survey participants were asked to rate the importance and satisfaction of technology amenities, services, applications, hotel characteristics, room, and bathroom characteristics when selecting a hotel. A five-point Likert scale response format (1 = Not at all important, 2= A little important, 3= Somewhat important, 4=

Important, 5 = Very important) was used in the importance measurement portion of section three. For the satisfaction measurement, another five-point Likert scale response format (1= Not satisfied at all, 2= A little satisfied, 3= Somewhat satisfied, 4- Satisfied, 5= Very satisfied) was used. It was determined based on prior research that the five-point scale format would reduce frustration and increase the quality of the response (Shifflet, 1992).

The fourth section of the instrument listed five amenities and services hotels offer and asked respondents how likely they would pay extra for them depending upon if (a) they pay, and (b) their company pays. A five-point Likert scale was used for this section (1=Strongly disagree, 2= Disagree, 3=Somewhat agree, 4= Agree, 5= Strongly agree). The final section of the survey consisted of demographic questions that dealt with gender, marital status, age, educational background, annual income, job title, industry, and area of expertise.

Sampling Plan

The target population consisted of managers who were paid current members of the American Management Association as of August, 2000. An important and complex issue in sampling is to determine the appropriate sample size to be used. This determination largely depends on the statistical estimating precision needed by the researcher and the number of variables. Although larger sample sizes are preferred, a number of respondents of between 300 and 500 is usually recommended and accepted as the critical sample size for multivariate analysis (Pedhazur, 1997). Based on this information, the expected sample size was 600 (n=600).

Previous business traveler studies had reported a response rate between 11% to 50% (Weaver, McCleary, & Zhao, 1993; Howell, Moreo, & DeMicco, 1993). Assuming a conservative response rate of 15% and that there would be a number of non-usable responses and invalid e-mail and regular mail addresses, 4,000 business travelers were surveyed to achieve the expected sample size. A two-stage random sampling method was used. In the first stage, a proportionate stratified sampling procedure was employed to draw a representative sample of 4,000 from the target population of 74,000. The proportionate stratified sample is "a stratified sample in which the number of observations in the total sample is allocated among the strata in proportion to the relative number of elements in each stratum in the population" (Churchill, 1996, p. 517). The number of sample for each state was calculated by the following formula:

$$\text{Sample Size for a State} = \left(\frac{\text{Number of Member Managers in a State}}{\text{Number of Member Managers in Target Population}} \right) \times 4000$$

After determining the state sample size, the second stage was implemented. A simple random sample of elements was chosen randomly from each state. All member managers in each state were printed in alphabetical order of last name. Then, a number was given to each member. The random numbers table in Pedhazur (1997) was used to select a pre-calculated number of sample from each state. The researcher selected a number randomly in the table. The member that corresponded to that number was selected. The researcher continued to select the remainder of the sample randomly in this fashion until it was completed.

Validity and Reliability

The ideal in any scale is to "generate a score that reflects true differences in the characteristic one is attempting to measure, without interference from irrelevant factors (Churchill, 1996, p. 402). Any measurement instrument that accurately measures what it was intended to measure may be considered as valid. Validity refers to the relationship between a concept and its indicators. Two validity checks were performed: content and construct validity.

Content Validity

If the measurement instrument adequately covers the most important aspects of the construct that is being measured, it has content validity (Churchill, 1996). According to Churchill (1996), the key to content validity lies in the procedures that are used to develop the instrument. One way would be to search the literature and see how other researchers defined and investigated the concept. After this stage, the researcher may add and delete some items from the previous instruments. In order to learn more about technology amenities, services and applications that are demanded by business travelers, a focus-group interview was conducted. The focus group consisted of male and female business travelers (N=10) from the local community. The purpose of this interview was to identify the technology amenities, services, and applications which business travelers desire when selecting lodging accommodations. In addition, a pilot study (N=100) of this questionnaire was conducted among business travelers to test the efficacy and clarity of the questionnaire. Pilot participants indicated that the questionnaire was long. Revisions of the questionnaire were made based on the recommendations of the pilot testers and the

number of hotel selection attributes was reduced to 75 from 100 by combining some attributes together and removing some attributes that were not rated important in Sammons et al (1999) study. This study utilized the procedures suggested by Churchill (1996) to develop an instrument that has content validity by adopting measures used by many previous studies which proved to be reliable and valid.

Construct Validity

The measurement of construct is a vital task, and construct validity is the most difficult type of validity to establish (Churchill, 1996). Not only must the instrument be internally consistent, but it must also measure what it was intended to measure. Each item in the instrument must reflect the construct and must also show a correlation with other items in the instrument. The instrument used in this study had operational variables that proved to be relative to the construct of business travelers' selection of hotels.

Reliability

Reliability concerns the extent to which a measurement of a phenomenon provides stable and consistent results (Carmines & Zeller, 1979). Reliability establishes an upper bound on validity because an unreliable measure can not be valid (Green & Tull, 1978). Internal reliability issues were addressed for importance and satisfaction scales in the instrument. Internal consistency between the items in the measures was estimated using the Cronbach's (1951) coefficient alpha. This is the most widely used reliability measure to estimate the degree to which the items on a measure are representative of the domain of the construct being measured. The Cronbach's reliability

coefficients were 0.95 for importance attributes, 0.96 for satisfaction attributes suggesting a high level of reliability of measurement among variables. . Nunnaly (1967) has indicated 0.7 to be an acceptable reliability coefficient but lower thresholds are sometimes used in the literature.

Data Collection Techniques

This study employed mixed mode methodology where the survey instruments were disseminated by mail and e-mail/web-based forms. Researchers have started to use mixed-mode surveys that employed telephone, mail, fax, and e-mail methods altogether or in different combinations. (Cobanoglu & Moreo, 2001; Dillman, 1999; Dillman & Tarnai, 1988).

Research on mixed-mode surveys has suggested that employing more than one method for collecting survey data is acceptable and usually yields a higher response rate (Cobanoglu, Warde & Moreo, 2001; Dillman, 1999). The main reason one may want to use a mixed-mode method for surveys is that developing technologies may not be available to all members of a population, therefore, eliminating the chance for their being selected. With the development of the Internet, the biggest concern for using e-mail or web-based surveys is that not all members of the population have access to email and to the World Wide Web (Web).

Dillman (1999) claimed that the level of technology reached today has made it impossible for most groups of populations to be reached by only one mode. Within each group, there are people who can be reached by mail, telephone, fax, personal visit, or e-mail. The major potential problem with using mixed-mode surveys for the same

population could be the measurement differences between modes (de Leeuw, 1992; Dillman, 1999; Schwarz, Hippler & Noelle-Neumann, 1992). This difference may even result in different analytical conclusions and recommendations. Dillman (1999) suggested that there are four main reasons for differences between different modes: social desirability, acquiescence, question order effects, and primary/recency effects. This potential problem may be prevented if not completely eliminated with applying a unimode design which focuses on writing and presenting questions in a way that assures receipt by respondents of a common mental stimulus.

The survey instruments for mail, fax and web form were created exactly in the same format to minimize this effect. Cobanoglu et al. (2000) compared mail, fax and web-based surveys. Web-based surveys yielded the highest response rate (44.21%) compared to mail (26.27%) and fax (17.0%). They also found that the responses from mail, fax, and web-based surveys did not significantly differ provided that the mail, fax, and web-based survey forms were created exactly in the same format.

Using the Dillman (1999) method, two survey mailings along with reminders were sent to the sample. In web form mode, the online link to the questionnaire on the web was included in all reminders. The researcher did not send reminders to addresses that had previously responded or that were returned to the researcher as undeliverable mail.

A non-response analysis was conducted using wave analysis (early versus later respondents) (Rylander, Propst, & McMurtry, 1995) to answer (1) whether non-respondents and respondents differed significantly, (2) whether equivalent data from those who did not respond would significantly altered findings. Rylander et al. (1995)

suggested that late respondents and nonrespondents were alike and wave analysis and respondent/nonrespondent comparisons yielded the same results. An independent t-test (2 way) was conducted on the importance attributes of this study between early and late respondents.

Data Analysis

The data analysis was organized into six parts using descriptive and inferential statistics. Data was coded into and analyzed with The Statistical Packages for Social Sciences (SPSS, 2000). The first part of the data analysis involved a demographic profile of respondents. Demographic data obtained from the questionnaires was tabulated using frequency and percentages.

The second part of data analysis involved computation of summation scores for the lodging property selection variables to describe the data. This included means and standard deviations for each variable. In addition, frequency tables were generated in order to describe string variables such as gender and income level. Based on these means of section three of the survey, importance and satisfaction attributes, exploratory factor analysis was conducted to reduce the data into underlying dimensions as a third part of data analysis. Initially, a Spearman rank-order, inter-item correlation matrix was calculated for these variables.

The purpose of using factor analysis in this study was to (a) create correlated variable composites from the original attributes, and (b) apply the summated factor scores in subsequent importance-performance analysis. Principal axis factor analysis with a varimax rotation was used. The varimax, rather than quartimax rotation, was adopted

because the researcher expected to find several dimensions of equal importance in the data. Items with factor loadings of .30 or higher were clustered together to form constructs, as recommended by Tinsley and Kass (1979) and Hair, Anderson, Tatham, and Black (1998). The factors with eigenvalues greater than one were considered as significant. The solution that accounted for at least 60% of the total variance was considered as a satisfactory solution. The appropriateness of factor analysis was assessed by correlation, measures of sampling adequacy (MSA), partial correlation among variables, and reliability alpha (Nunnally, 1967).

The fourth part of data analysis involved conducting a gap analysis on the attributes identified in the third stage. The purpose of this analysis was to identify the gaps between important attributes and their performance as perceived by the respondents (Qu & Tsang, 1998). A paired t-test was conducted to test the differences between the importance and performance of hotel selection factors.

The fifth part of data analysis employed Importance-Performance Analysis (IPA). IPA can yield important insights into which aspects of the marketing mix a firm should devote more attention, as well as identify areas that may be consuming too many resources (Martilla & James, 1977). Central to the analysis, the importance-performance matrix is divided into four quadrants, distinguishing between low and high importance and between low and high performance (satisfaction) (Figure 7). The location of the cross-hairs that divide the matrix into quadrants is critical since that determines the interpretation of the results. As Martilla and James (1977) suggested the means for importance and satisfaction of attributes of the derived factors were used as cross-hairs. When median and mean values are close, it is preferred to use the mean as the dividing

point to avoid discarding useful information (Martilla & James, 1977). Quadrant I displays factors that are of low importance but on which respondents are satisfied highly. This quadrant indicates the resources hotels overuse for variables that are not very important to respondents. Similarly, Quadrant II includes variables that are important to business travelers and on which their satisfaction is relatively high. Hotels would try to maintain current performance in this area since they are important to business travelers. Quadrant III indicates the area in which variables are important to business travelers but on which their satisfaction is low. Hotels should focus additional effort to this area. Finally, Quadrant IV involves variables that are both low in importance and satisfaction, and thus are of low priority (See Figure 7).

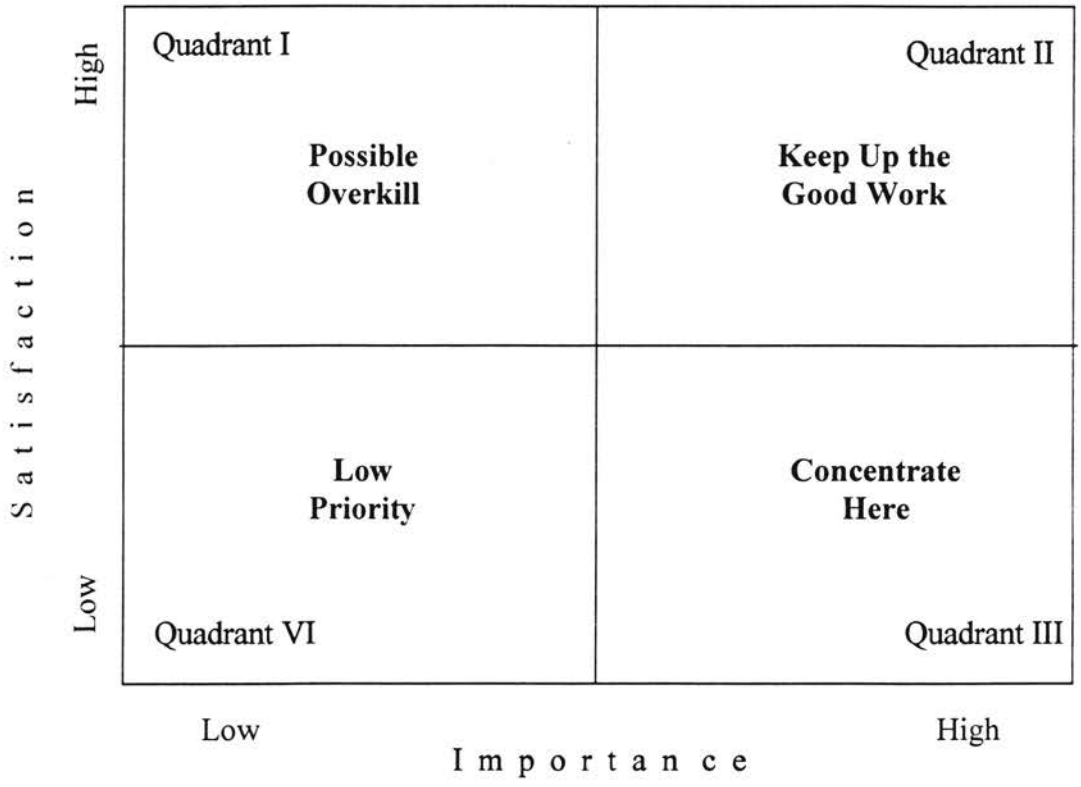


Figure 7: Importance-Performance (Satisfaction) Grid

The final stage of the data analysis included testing hypotheses based on factor analysis outcomes by using Analysis of Variance (ANOVA). The main purpose of ANOVA is to measure differences within, among, or between sets of data (Lewis, 1984). It was used to determine whether business travelers differ on gender and travel-relàted variables as they relate to the factor attributes. The Tukey method for post-hoc analysis was used with harmonic means.

Limitations and Assumptions

The first limitation is that the sample was drawn from American Management Association members. Therefore, the findings cannot be generalized beyond that target population. Response rate may be another limitation. This study employed a mixed mode methodology where survey data was collected through mail and web-based form. It was assumed that different data collection techniques did not affect the responses. In addition, it was assumed that respondents would complete the questionnaire objectively, according to their business travel experience, not their leisure travel.

CHAPTER IV

RESULTS AND DISCUSSION

The purpose of this study was to ascertain any differences in the needs of female and male business travelers and to ascertain the importance and satisfaction of technology needs for business travelers in selecting hotels. The specific objectives of this study were to:

1) explore and compare the dimension(s) of attributes that business travelers perceived to be important in their selection of a hotel and their perceived performance of those attributes.
2) determine the relationship between respondent gender and selection dimensions.
3) identify and test a group of selected attributes related to guests' needs for information technology including sustaining and disruptive technologies.
4) conduct an Importance-Performance Analysis (IPA) on importance and satisfaction of hotel selection attributes.

The applied objective of this study was to report information that will be useful in designing and implementing marketing programs on individual or corporate levels and determining technology strategy for short-term and long-term guest product and service decisions.

Response Rate

Four thousand surveys were distributed to manager members of the American Management Association (AMA). Of this, 561 surveys were sent via postal mail while 3,439 respondents were invited via electronic mail (email) to visit the survey web site (http://216.18.71.7/studies/cihan). Table 3 shows raw and adjusted response rates for both methods. Of 561 mail surveys sent, 53 (9.45%) were undeliverable while of 3,439 email invitations, 487 (14.16%) were undeliverable due to wrong mail or email addresses. This yielded an effective sample size of 508 for the mail method and 2,952 for the email/web method. The mail method gained 92 responses while the email/web method gained 719 responses. This resulted a 16.40 percent raw response rate and 18.11 percent adjusted response rate for mail method, and 20.91 percent raw response rate and 24.36 percent adjusted response rate for email/web method.

TABLE III

RESPONSE RATE

	Mail	E-Mail/Web	Total
(A) Sample size	561	3,439	4,000
(B) Number not deliverable	53	487	540
(C)Percent not deliverable[1]	9.45	14.16	13.50
(D) Effective sample size[2]	508	2952	3460
(E) Surveys returned	92	719	811
(F) Raw response rate[3]	16.40	20.91	20.28
(G) Adjusted response rate[4]	18.11	24.36	23.44
(H) Number unusable	18	203	221
(I) Percent number unusable[5]	19.57	28.23	27.25
(J) Net number usable[6]	74	516	590
(K) Usable response rate[7]	14.57	17.48	17.05
(L) Net response rate[8]	13.19	15.00	14.75

Notes: 1: C/B
2: A-B
3: E/A
4: E/D
5: H/E
6: E/H
7: J/D
8: J/A

Eighteen surveys were unusable due to incompleteness from the mail method while 203 surveys were unusable from the email/web method. This yielded 74 (14.57%) surveys for mail method and 516 (17.48%) surveys for the email/web method, adding to a total of 590 (17.05%) usable responses. A non-response analysis was conducted using wave analysis (early versus later respondents) (Rylander, Propst, & McMurtry, 1995) to answer (1) whether non-respondents and respondents differed significantly, (2) whether equivalent data from those who did not respond would significantly altered findings. Rylander et al. (1995) suggested that late respondents and nonrespondents were alike and wave analysis and respondent/nonrespondent comparisons yielded the same results. An independent t-test (2 way) was conducted on the importance attributes of this study between early and late respondents. No significant difference was found.

Respondent Profile

The demographic characteristics of the respondents are described for male and female members of AMA in Table 4. There were 360 (61.1%) male respondents while there were 230 (38.9%) female respondents. This ratio is proportional to the American Management Association's estimated manager members' ratio of male and female.

The majority of the male respondents were married with children (68.6%) while only 27.1 percent of the female respondents were married with children. Almost 40 percent of the male managers and slightly more than 35 percent of female managers were between 46 and 55 years old. There were few male and female managers who were younger than 25 (1.4%) or older than 65 (1.0%).

In terms of educational background of respondents, 150 (41.7%) male respondents and 76 (33.2%) female respondents hold at least a bachelors degree while 142 (39.4%) male respondents and 78 (34.1%) female respondents hold a masters degree. There were only 43 (7.3%) of the respondents hold a doctorate degree.

The most frequent level of income reported by all respondents was $100,001 or more, 155 (43.1%) for males and 43 (18.8%) for females. The second most frequent level of income was $75,001-$100,000, 86 (23.9%) for males and 43 (18.8%) for females.

TABLE IV

DEMOGRAPHIC INFORMATION OF SAMPLE

Marital Status	Male		Female		Total	
	F	%	F	%	F	%
Single/Widowed/Separated	73	20.2	83	36.0	156	26.4
Married with child(ren)	247	68.6	92	27.1	339	57.5
Married with no child	36	10.0	47	20.4	83	14.1
Missing	4	1.1	8	3.5	12	2.0
Total	360	100.0	230	100.0	590	100.0
Age						
25 or younger	4	1.1	4	1.7	8	1.4
26-35	41	11.4	45	19.7	86	14.6
36-45	121	33.6	74	32.3	195	33.1
46-55	142	39.4	81	35.4	223	37.7
56-65	45	12.5	22	9.6	67	11.4
65 or older	5	1.4	1	0.4	6	1.0
Missing	2	0.6	3	1.1	5	0.8
Education						
High School	7	1.9	16	7.0	23	3.9
Associate Degree (2 year)	20	5.6	35	15.3	55	9.3
Bachelors Degree (4 year)	150	41.7	76	33.2	226	38.3
Masters Degree	142	39.4	78	34.1	220	37.3
Doctorate Degree	31	8.6	12	5.2	43	7.3
Other (Diploma, etc.)	6	1.7	10	4.4	16	2.7
Missing	4	1.1	3	1.3	7	1.2
Total Household Income						
$25,000 or less	6	1.7	4	1.7	10	1.7
$25,001-$50,000	14	3.9	46	20.1	60	10.2
$50,001-$75,000	52	14.4	60	26.2	112	19.0
$75,001-$100,000	86	23.9	43	18.8	129	21.9
$100,001 or more	155	43.1	43	18.8	198	33.6
Missing	47	13.1	34	14.7	81	13.7

Notes: The percentages in this table are for the total sample within each gender group.

Travel Behavior of Respondents

Table 5 shows travel behavior of respondents. The most frequent average hotel stay per trip reported by respondents was "2 nights" (43.6%), 166 (46.1%) for male managers and 91 (39.7%) for female managers followed by "3 nights" with 152 (25.8%) respondents, 90 (25.0%) for male managers and 62 (27.1%) for female managers.

The majority of respondents had one trip or less per month (58.8%). There are 117 (19.8%) managers who had two trips per month, 92 (25.6%) for male respondents and 25 (10.9%) for female respondents. There were only few respondents who had three or more nights per month.

The most frequent average hotel expenditure per night for business travel reported was $100-$150 by 248 respondents (42.0%), 148 (41.1%) male managers and 100 (43.5%) female managers. One hundred eighty eight respondents (31.9%) spent between $76 and $100 per night during business travel, 110 (30.6%) male respondents and 78 (33.9%) female respondents. Few spent under $50 per night during business travel.

The majority of the respondents (52.9) stayed in upscale hotels, 175 (48.6%) male managers and 137 (59.6%) female managers. There were 221 (37.5%) respondents who stayed in mid-scale hotels, 150 (41.7%) male respondents and 71 (30.9%) female respondents. When reported average hotel expenditure per night was compared to hotel type in which the respondents prefer to stay, it appears that hotel segments were perceived differently from hotel rates. Traditionally, luxury hotels would have a rate of $150 or higher, upscale hotels would have a rate of $100-$150.

TABLE V
TRAVEL BEHAVIOR OF SAMPLE (N=590)

	Male		Female		Total	
Average Hotel Stay/trip	F	%	F	%	F	%*
1 night	61	16.9	37	16.2	98	16.6
2 nights	166	46.1	91	39.7	257	43.6
3 nights	90	25.0	62	27.1	152	25.8
4 nights	23	6.4	23	10.0	46	7.8
5 nights or more	20	5.5	17	7.3	37	6.2
Average Business Trips/Month¥						
1 trip or less	203	56.4	144	62.6	347	58.8
2 trips	92	25.6	25	10.9	117	19.8
3 trips	30	8.3	15	6.5	45	7.6
4 trips	9	2.5	7	3.0	16	2.7
5 trips or more	9	2.5	2	0.9	11	1.9
Missing	17	4.7	37	16.1	54	9.2
Average Hotel Expenditure/night						
$50 or less	2	0.6	6	2.6	8	1.4
$51-$75	45	12.5	17	7.4	62	10.5
$76-$100	110	30.6	78	33.9	188	31.9
$100-$150	148	41.1	100	43.5	248	42.0
$150 or more	51	14.2	27	11.7	78	13.2
Missing	4	1.1	2	0.9	6	1.0
Hotel Type¥						
Luxury (i.e. Four Seasons)	2	0.6	6	2.6	8	1.4
Upscale (i.e. Hyatt)	175	48.6	137	59.6	312	52.9
Mid-scale (i.e. Courtyard)	150	41.7	71	30.9	221	37.5
Economy (i.e. Hampton Inn)	29	8.1	10	4.3	39	6.6
Other	4	1.1	4	1.7	8	1.4
Missing	-	-	2	0.9	2	0.3
Member of Hotel Frequent Guest Program¥						
Yes	251	69.7	118	51.3	369	62.5
No	99	27.5	100	43.5	199	33.7
Missing	10	2.8	12	5.2	22	3.7

*: The percentages in this column are for the total sample.

¥:The difference between male and female business travelers in this sample is statistically significant α=0.05)

Seventy-eight of the respondents (13.2%) reported they spent $150 or more on average for hotel night while only eight of them (1.4%) reported they stayed in luxury hotels. More than half of the respondents (62.5%) were a member of hotel frequent guest program, 251 (69.7%) male respondents and 118 (51.3%) female respondents.

Types of Business Trips by Gender

Table 6 shows descriptive statistics and results of 2-tail independent *t*-tests for number of business trips. Respondents took 12.9 trips on average per year, 14.8 trips for male respondents and 9.8 for female respondents. This finding was significantly higher than McCleary, Weaver, and Lans' (1994) study findings (Male=11.1 trips, Female=7.4. trips) but similar to Crowne Plaza's survey findings (Male/Female=10 trips)("Crowne Plaza," 2000). The number of business trips was statistically different between male and female respondents. Of these trips, male respondents took their family member(s) on 1.3 trips while female respondents took only 0.8 family members with them which is statistically different (t=3.809, df=588, Sig. 0.000). There was no statistical difference between the number of business trips the respondents combined with vacation (M= 1.47 for male respondents and M=1.43 for female respondents). Almost half of the respondents (49.5%) did not take any family member with them while traveling for business. Similarly, 39.3% of the respondents did not combine business with vacation.

TABLE VI

BUSINESS TRIPS (N=590)

	Male		Female		Total			
	M[1]	SD[2]	M[1]	SD[2]	M[1]	SD[2]	t[3]	Sig.[4]
Number of business trips taken last year	14.85	13.43	9.89	11.25	12.91	12.84	4.652	.000
Number of trips family taken	1.32	1.74	0.81	1.31	1.12	1.61	3.809	.000
Number of trips combined with vacation	1.47	1.89	1.43	2.63	1.46	2.21	.186	.853

[1] Mean [2] Standard Deviation [3] Two-way Independent t test statistics [4] Significance

Booking Hotel Accommodations

When booking a hotel room, respondents used a travel agent (46.44%), called a toll free 800 reservation number (17.56%), called the hotel directly (16.90%), used a hotel directory (1.10%), booked over the Internet (13.39%), and used other methods (4.61%) (See Table 7). Other methods included "client makes the reservation," "company staff" and "walk-in" There were significant differences between make and female respondents in the following booking methods: "calling the hotel directly," booking over the Internet," and "Other."

TABLE VII

BOOKING HOTEL ACCOMMODATIONS

	Male		Female		Total			
	M[1]	SD[2]	M[1]	SD[2]	M[1]	SD[2]	t[3]	Sig.[4]
Use a travel agent	46.68	41.44	42.94	41.65	46.44	41.59	1.636	.102
Call a toll free 800 reservation number	16.46	23.28	19.30	26.86	17.56	24.75	-1.362	.174
Call the hotel directly	14.91	22.65	20.02	28.70	16.90	25.29	-2.405	0.16
Book over the Internet	15.82	26.35	9.58	20.61	13.39	24.45	3.043	.002
Other	2.77	12.44	7.48	22.85	4.61	17.39	-3.233	.001
Use a hotel directory	1.37	5.59	0.67	3.95	1.10	5.02	1.642	.101

[1] Mean(%) [2] Standard Deviation [3] Two-way Independent t test statistics [4] Significance

Hotel Frequent Guest Programs

Almost half of the respondents (45.9%) are member of Marriott's hotel frequent guest program (HFGP) while 32.8 percent are member of Hilton's HFGP (See Table 8). Marriott and Hilton were the most frequently reported HFGP by both male and female respondents.

TABLE VIII

HOTEL FREQUENT GUEST PROGRAMS

	Male		Female		Total	
	F	%	F	%	F	%*
Marriott	188	52.2	83	36.0	271	45.9
Hilton	146	40.5	48	20.8	194	32.8
Holiday Inn	112	31.1	36	15.6	148	25.0
Hyatt	97	26.9	36	15.6	133	22.5
Starwood	77	21.3	29	12.6	106	17.9
Other	32	8.0	16	6.9	48	8.1
Crowne Plaza	28	7.7	12	5.2	40	6.7
Wyndham	13	3.6	7	3.0	20	3.3
TOTAL	360	100.0	230	100.0	590	100.0

Business Travel Situation

Table 9 shows the business travel situations respondents reported. The most frequently reported business travel situation was "Attending a trade association meeting/convention" (25.6%) followed by "Meeting with people within the company" (20.3%). Other business travel situations included "Attending a company meeting" (16.9%), "Meeting with people outside the company" (12.9%), "Making a sales call" (7.6%), "Combined (more than one business situation)" (9.2%), and "Other business

situations" (7.3%). This finding was similar to U.S. Travel Survey findings (Survey of Business Travelers, 1996; Survey of Business Travelers, 1999).

TABLE IX

BUSINESS TRAVEL SITUATION

	Male		Female		Total	
	F	%	F	%	F	%¥
Attend trade association meeting/convention	79	21.9	72	31.3	151	25.6
Meet with people within the company	78	21.7	42	18.3	120	20.3
Attend a company meeting	55	15.3	45	19.6	100	16.9
Meet with people outside the company	61	16.9	15	6.5	76	12.9
Make sales call	37	10.3	8	3.5	45	7.6
Combined (more than one business situation)	30	8.3	24	10.4	54	9.2
Other business situation	20	5.6	23	10.0	43	7.3
Missing	-	-	1	0.2	1	0.2
TOTAL	360	100.0	230	100.0	590	100.0

¥:The difference between male and female business travelers in this sample is statistically significant α=0.05)

Internet Behavior of Sample

Almost all of the respondents have access to the Internet, including 92.4 percent both at home and work, 6.3 percent only at work, and 1.2 percent only at home (See Table 10).

Only one respondent (0.2%) did not have access to the Internet at all. More than thirty-two percent of the respondents spent thirty minutes to one hour on the Internet per

day (See Table 10). The second most frequent time interval spent on the Internet by the respondents was one to two hours per day (30.7%). Few respondents (3.1%) spent more than 5 hours per day on the Internet. Similarly, all respondents (98.8%) but one (0.2%) had email either at home, work or both. Eight percent of the respondents never purchased something on the Internet while 43.8 percent purchased one to four times a year, 42.1 percent purchased one to four times a month, and only 4.8 percent purchased one to four times a week (See Table 10).

TABLE X

INTERNET USE (N=590)

	Male		Female		Total	
	Freq.	%	Freq.	%	Freq.	%*
Access to the Internet						
Both at home and work	339	94.2	206	89.6	545	92.4
At work	17	4.7	20	8.7	37	6.3
At home	4	1.1	3	1.3	7	1.2
No access	-	-	1	0.4	1	0.2
Total	360	100.0	230	100.0	590	100.0
Time spent on the Internet						
30 minutes to one hour per day	110	30.6	83	36.2	193	32.8
1-2 hours per day	116	32.2	65	28.4	181	30.7
Less than 30 minutes per day	65	18.1	52	22.7	117	19.9
2-5 hours per day	55	15.3	24	10.5	79	13.4
More than 5 hours per day	13	3.6	6	2.2	19	3.1
Missing	1	0.3	-	-	1	0.2
Total	360	100.0	230	100.0	590	100.0
Purchase something on the Internet						
1-4 times a year	148	41.1	110	48.0	258	43.8
1-4 times a month	162	45.0	86	37.6	248	42.1
Never purchased	28	7.8	23	10.0	51	8.7
1-4 times a week	19	5.3	10	3.9	29	4.8
Missing	3	0.8	1	0.4	4	0.7
Total	360	100.0	230	100.0	590	100.0
Have an email address						
Both at home and work	322	89.4	193	83.9	515	87.3
At work	33	9.2	34	14.8	67	11.4
At home	5	1.4	2	0.9	7	1.2
No email	-	-	1	0.4	1	0.2
Total	360	100.0	230	100.0	590	100.0

The average number of emails received by the respondents was 39.2, 39.6 male respondents, 39.2 female respondents (See Table 11). Standard deviations for email

means were large indicating that there were large differences among individual respondent means.

TABLE XI

RESPONDENTS' NUMBER OF EMAILS RECEIVED DAILY

	Mean	SD	Mean	SD	Mean	SD
Number of email received daily	39.65	40.72	38.59	29.51	39.24	36.72
TOTAL	350		225		575	

Importance Attributes

The means of each hotel selection attribute for male and female respondents are reported in Table 12. Respondents were asked the level of importance of each attribute reported (1=Not important at all ; 5= Very Important). Also, for each attribute an independent *t*-test was performed to test if the male and female respondents' scores statistically differ from each other and *t*-statistics were reported in Table 9 with degrees of freedom and significance values.

Over 90% of the respondents rated these attributes Important to Very Important:

Attribute	%
Cleanliness of hotel	98.5
Comfortable mattress and pillows	95.1
Convenience to meeting site	93.7
In-room temperature control	92.0
Well maintained furnishings	90.3
Friendly service of hotel staff	90.2

N=590

The first two attributes are the same as those in Sammons, Moreo, Benson, and DeMicco's study (1999). The other attributes in the Sammons et al. (1999) female

business traveler study that over 90% of the respondents in that study rated as Important to Very Important were: individual room smoke detectors, dead bolt door locks, chain locks/latches, parking area lighting.

TABLE XII

ATTRIBUTES IMPORTANT TO THE SELECTION OF A HOTEL (N=590)

	Total		Male		Female				
Attribute	M[1]	SD[2]	M[1]	SD[2]	M[1]	SD[2]	Dif.[3]	t[4]	Sig.[5]
Cleanliness of hotel	4.83	0.45	4.80	0.48	4.86	0.40	-0.06	-1.651	0.099
Convenience to meeting site	4.62	0.63	4.58	0.66	4.69	0.59	-0.11	-2.087	0.037
Comfortable mattress and pillows	4.61	0.65	4.59	0.66	4.63	0.62	-0.04	-0.687	0.493
In-room temperature control	4.51	0.76	4.48	0.77	4.56	0.75	-0.08	-1.118	0.264
Non-smoking rooms	4.46	1.05	4.49	1.01	4.42	1.10	0.07	0.735	0.463
Smoke, Fire & Heat Detectors	4.44	0.92	4.34	0.98	4.60	0.80	-0.26	-3.313	0.001
Friendly service of hotel staff	4.43	0.73	4.39	0.74	4.49	0.70	-0.10	-1.732	0.084
Well maintained furnishings	4.41	0.74	4.39	0.75	4.43	0.72	-0.04	-0.589	0.556
Good lighting to read/work in the room	4.37	0.77	4.39	0.76	4.33	0.78	0.06	1.019	0.309
Dead bolt door locks / Chain locks	4.34	0.95	4.14	1.04	4.65	0.69	-0.51	-6.519	0.000
Easily accessible electrical outlets	4.30	0.91	4.22	0.94	4.43	0.84	-0.21	-2.67	0.008
Consistency and reliability of chain brand between locations	4.25	0.84	4.26	0.83	4.23	0.86	0.03	0.408	0.684
Alarm clock	4.24	1.08	4.14	1.12	4.40	1.00	-0.26	-2.763	0.006
Hotel location	4.19	0.80	4.10	0.81	4.34	0.76	-0.24	-3.544	0.000
Adequate desk/work space in room	4.19	0.90	4.25	0.84	4.10	0.98	0.15	2.067	0.039
Remote control TV	4.19	0.99	4.19	0.96	4.20	1.04	-0.01	-0.107	0.915
Reputation of hotel	4.18	0.80	4.15	0.83	4.22	0.76	-0.07	-0.991	0.322
Phone on desk	4.15	1.00	4.18	0.92	4.10	1.11	0.08	0.972	0.331
Price of accommodations	4.14	0.78	4.15	0.78	4.13	0.78	0.02	0.291	0.771
Peep holes	4.07	1.10	3.85	1.15	4.44	0.90	-0.59	-6.546	0.000
Additional data line accessible to desk	3.95	1.19	4.02	1.12	3.85	1.29	0.17	1.648	0.100
Security personnel on duty 24 hours a day	3.72	1.09	3.54	1.06	4.01	1.07	-0.47	-5.15	0.000
In-room ironing board and iron	3.71	1.22	3.40	1.27	4.20	0.93	-0.80	-8.222	0.000
On-premise free parking	3.70	1.20	3.68	1.17	3.74	1.24	-0.06	-0.586	0.558
Bright hallway lighting	3.70	1.08	3.45	1.03	4.10	1.03	-0.65	-7.487	0.000
Full-service restaurant	3.66	1.06	3.56	1.08	3.81	1.01	-0.25	-2.797	0.005
No surcharge on long-distance calls	3.63	1.28	3.60	1.29	3.67	1.27	-0.07	-0.659	0.510
Sports facilities (e.g., Swimming pool, Whirlpool or Jacuzzi, etc.)	3.58	1.14	3.58	1.12	3.59	1.16	-0.01	-0.132	0.895
Electronic key cards	3.54	1.26	3.43	1.27	3.70	1.25	-0.27	-2.546	0.011
Express check-in/check out	3.53	1.16	3.53	1.13	3.51	1.21	0.02	0.22	0.826
Free continental breakfast	3.52	1.10	3.30	1.09	3.36	1.11	-0.06	-0.673	0.501
High-speed Internet access	3.52	1.23	3.48	1.19	3.56	1.30	-0.08	-0.757	0.449
Voice-mail	3.45	1.25	3.34	1.22	3.64	1.28	-0.30	-2.875	0.004
Availability of special discounts	3.42	1.03	3.37	1.01	3.50	1.05	-0.13	-1.584	0.114
Free local telephone calls	3.41	1.26	3.39	1.26	3.43	1.26	-0.04	-0.338	0.736
Room numbers not on keys	3.41	1.39	3.13	1.40	3.85	1.25	-0.72	-6.31	0.000
Business centers (computers, fax, copiers)	3.41	1.17	3.38	1.16	3.47	1.17	-0.09	-0.971	0.332
Airport transportation	3.40	1.19	3.29	1.20	3.57	1.16	-0.28	-2.801	0.005
Full length mirror	3.36	1.23	2.98	1.17	3.95	1.08	-0.97	-10.105	0.000

table continues

TABLE XII

ATTRIBUTES IMPORTANT TO THE SELECTION OF A HOTEL (N=590)

	Total		Male		Female				
Attribute	M[1]	SD[2]	M[1]	SD[2]	M[1]	SD[2]	Dif.[3]	t[4]	Sig.[5]
Visible security personnel	3.35	1.12	3.16	1.06	3.67	1.13	-0.51	-5.469	0.000
Complimentary national newspaper	3.34	1.21	3.44	1.15	3.19	1.29	0.25	2.366	0.018
In-room coffee maker	3.33	1.47	3.22	1.42	3.50	1.53	-0.28	-2.301	0.022
Central 800 reservation number	3.25	1.21	3.20	1.19	3.33	1.23	-0.13	-1.308	0.191
On-line reservation capability	3.22	1.27	3.27	1.23	3.13	1.34	0.14	1.292	0.197
Convenience to airport	3.19	1.13	3.17	1.14	3.21	1.11	-0.04	-0.401	0.689
Free incoming fax service	3.19	1.24	3.22	1.21	3.14	1.28	0.08	0.71	0.478
Hair dryer	3.19	1.42	2.63	1.31	4.08	1.11	-1.45	-13.827	0.000
24-hour room service	3.17	1.16	3.01	1.13	3.41	1.18	-0.40	-4.081	0.000
Suite rooms	3.16	1.15	3.18	1.09	3.14	1.23	0.04	0.454	0.650
Meeting facilities	3.12	1.25	3.08	1.20	3.20	1.33	-0.12	-1.172	0.242
Surveillance cameras in hallways	3.09	1.14	2.89	1.05	3.41	1.21	-0.52	-5.559	0.000
Extended information about hotel on-line	3.04	1.29	2.96	1.25	3.16	1.34	-0.20	-1.854	0.640
Automatic Teller Machine at hotel	3.04	1.32	2.91	1.29	3.24	1.35	-0.33	-2.857	0.004
Supplemental breakfast buffet	2.95	1.10	2.97	1.05	2.92	1.16	0.05	0.577	0.564
Hotel frequent travel program	2.91	1.23	3.02	1.22	2.72	1.22	0.30	2.891	0.004
Portable/Speaker phone in room	2.83	1.31	2.88	1.27	2.75	1.38	0.13	1.199	0.231
Laundry services	2.80	1.17	2.68	1.10	2.99	1.24	-0.31	-3.154	0.002
Concierge service	2.79	1.16	2.69	1.10	2.96	1.22	-0.27	-2.869	0.004
Name brand amenities	2.73	1.15	2.60	1.10	2.93	1.19	-0.33	-3.415	0.001
Smart card read capability	2.72	1.31	2.66	1.24	2.82	1.42	-0.16	-1.43	0.153
Bar or lounge on property	2.65	1.30	2.67	1.32	2.62	1.26	0.05	0.407	0.684
In-room electronic safety boxes	2.64	1.28	2.60	1.22	2.71	1.36	-0.11	-1.041	0.298
Wireless Internet access in hotel	2.63	1.26	2.52	1.19	2.81	1.36	-0.29	-2.75	0.006
Concierge floor	2.45	1.19	2.43	1.13	2.48	1.27	-0.05	-0.48	0.631
Pay per view	2.38	1.27	2.47	1.25	2.24	1.28	0.23	2.197	0.028
Video-conferencing capabilities	2.36	1.18	2.31	1.11	2.44	1.28	-0.13	-1.28	0.201
In-room minibar	2.32	1.18	2.25	1.13	2.44	1.26	-0.19	-1.927	0.054
In-room personal computer	2.25	1.22	2.12	1.13	2.45	1.33	-0.33	-3.16	0.002
In-room printer	2.25	1.17	2.19	1.10	2.35	1.26	-0.16	-1.628	0.104
In-room fax machine	2.12	1.11	2.04	1.01	2.23	1.26	-0.19	-1.96	0.050
Wireless access to hotel website (Palm)	2.06	1.10	2.04	1.07	2.10	1.16	-0.06	-0.697	0.486
Non-enclosed lobby bar	2.05	1.03	2.08	1.04	2.01	1.02	0.07	0.826	0.409
Web TV	1.94	1.06	2.00	1.08	1.85	1.04	0.15	1.638	0.102
Women only floor	1.60	0.94	1.41	0.77	1.89	1.08	-0.48	-6.257	0.000
Child care facility in the hotel	1.45	0.82	1.44	0.81	1.47	0.84	-0.03	-0.437	0.662
GRAND MEAN	3.35	0.55	3.25	0.53	3.49	0.55	-0.24	-4.633	0.000

Notes: [1] Mean (1=Not important at all, 2=A little important, 3=Somewhat important, 4=Important, 5=Very Important)
[2] Standard Deviation [3] Difference (Male Mean-Female Mean) [4] *t*- statistics (2-way independent) [5] Significance

In the current study, 33 attributes were significantly different between male and female respondents (See Table 12). Female respondents placed more importance on twenty-eight attributes than their male counterparts. Only four attributes were perceived as more important by male respondents than female respondents: adequate desk/wòrk space in room, complimentary national newspaper, hotel frequent travel program, and pay-per-view.

TABLE XII

IMPORTANCE DIFFERENCES BETWEEN MALE AND FEMALE RESPONDENTS

Attributes	Male		Female			
FEMALE > MALE	M[1]	SD[2]	M[1]	SD[2]	Diff.[3]	Sig.[4]
1 Hair dryer	2.63	1.31	4.08	1.11	-1.45	0.000
2 Full length mirror	2.98	1.17	3.95	1.08	-0.97	0.000
3 In-room ironing board and iron	3.40	1.27	4.20	0.93	-0.80	0.000
4 Room numbers not on keys	3.13	1.40	3.85	1.25	-0.72	0.000
5 Bright hallway lighting	3.45	1.03	4.10	1.03	-0.65	0.000
6 Peep holes	3.85	1.15	4.44	0.90	-0.59	0.000
7 Surveillance cameras in hallways	2.89	1.05	3.41	1.21	-0.52	0.000
8 Dead bolt door locks / Chain locks	4.14	1.04	4.65	0.69	-0.51	0.000
9 Visible security personnel	3.16	1.06	3.67	1.13	-0.51	0.000
10 Women only floor	1.41	0.77	1.89	1.08	-0.48	0.000
11 Security personnel on duty 24 hours a day	3.54	1.06	4.01	1.07	-0.47	0.000
12 24-hour room service	3.01	1.13	3.41	1.18	-0.40	0.000
13 Automatic Teller Machine at hotel	2.91	1.29	3.24	1.35	-0.33	0.004
14 In-room personal computer	2.12	1.13	2.45	1.33	-0.33	0.002
15 Name brand amenities	2.60	1.10	2.93	1.19	-0.33	0.001
16 Laundry services	2.68	1.10	2.99	1.24	-0.31	0.002
17 Voice-mail	3.34	1.22	3.64	1.28	-0.30	0.004
18 Wireless Internet access in hotel	2.52	1.19	2.81	1.36	-0.29	0.006
19 Airport transportation	3.29	1.20	3.57	1.16	-0.28	0.005
20 In-room coffee maker	3.22	1.42	3.50	1.53	-0.28	0.022
21 Concierge service	2.69	1.10	2.96	1.22	-0.27	0.004
22 Electronic key cards	3.43	1.27	3.70	1.25	-0.27	0.011
23 Alarm clock	4.14	1.12	4.40	1.00	-0.26	0.006
24 Smoke, Fire & Heat Detectors	4.34	0.98	4.60	0.80	-0.26	0.001
25 Full-service restaurant	3.56	1.08	3.81	1.01	-0.25	0.005
26 Hotel location	4.10	0.81	4.34	0.76	-0.24	0.000
27 Easily accessible electrical outlets	4.22	0.94	4.43	0.84	-0.21	0.008
28 Convenience to meeting site	4.58	0.66	4.69	0.59	-0.11	0.037
MALE > FEMALE						
29 Hotel frequent travel program	3.02	1.22	2.72	1.22	0.30	0.004
30 Complimentary national newspaper	3.44	1.15	3.19	1.29	0.25	0.018
31 Pay per view	2.47	1.25	2.24	1.28	0.23	0.028
32 Adequate desk/work space in room	4.25	0.84	4.10	0.98	0.15	0.039

Notes: [1] Mean (1=Not important at all, 2=A little important, 3=Somewhat important, 4=Important, 5=Very important) [2] Standard Deviation [3] Difference (Male Mean-Female Mean) [4] Significance

Hypothesis 1

H_0 = The overall importance score of hotel selection attributes does not differ significantly between male and female business travelers.

H_1 = The overall importance score of hotel selection attributes does differ significantly between male and female business travelers

A two-tail independent *t* test was conducted on the grand mean of importance attributes to test this hypothesis. As seen in Table 11, grand mean was 3.25 for male respondents and 3.49 for female respondents. This difference was statistically significant at .01 level (t=-4.633, df=449, Sig.=.000). Thus, H_0 was rejected and the hypothesis accepted that the overall importance score of hotel selection attributes does differ significantly between male and female business travelers.

Satisfaction Attributes

Survey participants were asked to rate also the satisfaction of amenities, services, applications, hotel characteristics, room, technology applications and bathroom characteristics when staying at a hotel. For the satisfaction measurement, a five-point Likert scale response format (1= Not satisfied at all, 2= A little satisfied, 3= Somewhat satisfied, 4- Satisfied, 5= Very satisfied) was used. Table 13 shows the satisfaction means and standard deviations for the attributes as reported by respondents. In addition, means and standard deviations were provided for male and female respondents. For each

attribute an independent *t*-test was performed to test if the male and female respondents' scores statistically differ from each other and *t*-statistics were reported in Table 14 with degrees of freedom and significance values.

Over 80% of the respondents rated these attributes Satisfied to Very Satisfied:

Attribute	%	M[1]	SD[2]
Cleanliness of hotel	93.4	4.63	0.63
Friendly service of hotel staff	88.6	4.41	0.73
Well maintained furnishings	88.1	4.38	0.78
Comfortable mattress and pillows	87.8	4.50	0.82
Hotel location	87.7	4.25	0.72
In-room temperature control	86.7	4.39	0.86
Convenience to meeting site	86.5	4.33	0.77
Non-smoking rooms	86.4	4.44	0.94
Good lighting to read/work in the room	85.8	4.36	0.86
Dead bolt door locks / Chain locks	85.5	4.36	0.88
Smoke, Fire & Heat Detectors	84.5	4.35	0.85
Remote control TV	83.8	4.28	0.82
Adequate desk/work space in room	81.4	4.27	0.90
Alarm clock	80.0	4.20	0.95

[1]M=Mean (1=Not Important at all, 2=A little important, 3=Somewhat important, 4- Important, 5= Very important.) [2] SD= Standard Deviation

Only "Cleanliness of hotel" was rated by over 90% of the respondents as "Important or Very Important." Focus group participants rated the majority of the attributes above Satisfied to Very Satisfied except "Adequate desk/work space in room." Focus group members also indicated that "In-room temperature control" was critical to their satisfaction. There were 42 attributes that were significantly different for male and female respondents in satisfaction attributes ratings. Female respondents were satisfied significantly more in all of these 42 attributes.

TABLE XIV

SATISFACTION ATTRIBUTES WHEN STAYING IN A HOTEL

	Total		Male		Female			
Attribute	M[1]	SD[2]	M[1]	SD[2]	M[1]	SD[2]	t[4]	Sig.[5]
Cleanliness of hotel	4.63	0.63	4.60	0.61	4.68	0.66	-1.502	0.134
Comfortable mattress and pillows	4.50	0.82	4.42	0.84	4.61	0.76	-2.656	0.008
Non-smoking rooms	4.44	0.94	4.41	0.93	4.48	0.95	-0.858	0.391
Friendly service of hotel staff	4.41	0.73	4.34	0.74	4.53	0.70	-2.956	0.003
In-room temperature control	4.39	0.86	4.31	0.90	4.51	0.78	-2.627	0.009
Well maintained furnishings	4.38	0.78	4.32	0.79	4.48	0.77	-2.322	0.021
Dead bolt door locks / Chain locks	4.36	0.88	4.19	0.95	4.63	0.68	-5.719	0.000
Good lighting to read/work in the room	4.36	0.89	4.34	0.89	4.40	0.88	-0.815	0.416
Smoke, Fire & Heat Detectors	4.35	0.85	4.25	0.89	4.51	0.76	-3.62	0.000
Convenience to meeting site	4.33	0.77	4.27	0.78	4.44	0.74	-2.511	0.012
Remote control TV	4.28	0.82	4.27	0.80	4.29	0.85	-0.353	0.724
Adequate desk/work space in room	4.27	0.90	4.28	0.87	4.25	0.96	0.36	0.719
Hotel location	4.25	0.72	4.19	0.69	4.34	0.76	-2.516	0.012
Alarm clock	4.20	0.95	4.12	0.97	4.32	0.91	-2.313	0.021
Phone on desk	4.15	0.97	4.15	0.91	4.15	1.04	-0.053	0.958
Price of accommodations	4.14	0.86	4.08	0.87	4.22	0.85	-1.92	0.055
Easily accessible electrical outlets	4.12	0.96	4.04	0.98	4.24	0.93	-2.4	0.017
Consistency and reliability of chain brand between locations	4.11	0.87	4.08	0.88	4.17	0.85	-1.101	0.271
Peep holes	4.09	1.03	3.91	1.07	4.40	0.88	-5.623	0.000
Express check-in/check out	4.00	0.99	3.94	1.02	4.10	0.94	-1.889	0.059
On-premise free parking	3.94	1.06	3.83	1.08	4.11	1.01	-3.055	0.002
Bright hallway lighting	3.94	0.95	3.76	0.95	4.24	0.86	-6.093	0.000
Reputation of hotel	3.92	0.96	3.87	0.93	3.99	0.99	-1.384	0.167
Complimentary national newspaper	3.91	1.06	3.90	1.03	3.92	1.11	-0.255	0.799
In-room ironing board and iron	3.89	1.15	3.60	1.22	4.33	0.88	-7.555	0.000
Free local telephone calls	3.86	1.10	3.81	1.08	3.94	1.13	-1.406	0.160
Full-service restaurant	3.83	0.99	3.71	0.95	4.01	1.02	-3.463	0.001
No surcharge on long-distance calls	3.82	1.17	3.73	1.15	3.95	1.19	-2.147	0.032
Sports facilities (e.g., Swimming pool, Whirlpool or Jacuzzi, etc.)	3.82	1.05	3.80	1.04	3.85	1.07	-0.597	0.551
Airport transportation	3.79	0.98	3.72	0.98	3.90	0.99	-2.151	0.032
Security personnel on duty 24 hours a day	3.78	1.07	3.59	1.04	4.07	1.04	-5.269	0.000
Free continental breakfast	3.76	1.02	3.70	0.98	3.85	1.08	-1.781	0.075
Convenience to airport	3.75	0.91	3.72	0.90	3.80	0.93	-1.079	0.281
Additional data line accessible to desk	3.74	1.21	3.72	1.19	3.77	1.25	-0.49	0.624
In-room coffee maker	3.70	1.33	3.60	1.32	3.87	1.33	-2.271	0.024
Room numbers not on keys	3.69	1.28	3.51	1.31	4.00	1.17	-4.44	0.000
Electronic key cards	3.66	1.23	3.54	1.20	3.86	1.26	-3.028	0.003
Voice-mail	3.63	1.19	3.47	1.14	3.88	1.23	-3.997	0.000

table continues

TABLE XIV

SATISFACTION ATTRIBUTES WHEN STAYING IN A HOTEL

	Total		Male		Female			
Attribute	M[1]	SD[2]	M[1]	SD[2]	M[1]	SD[2]	t[4]	Sig.[5]
Full length mirror	3.61	1.16	3.27	1.17	4.15	0.93	-9.34	0.000
Suite rooms	3.58	1.14	3.53	1.06	3.65	1.25	-1.158	0.247
Availability of special discounts	3.57	1.00	3.50	0.96	3.67	1.06	-1.969	0.049
Hair dryer	3.56	1.31	3.11	1.30	4.25	0.97	-10.956	0.000
24-hour room service	3.55	1.12	3.42	1.07	3.76	1.16	-3.48	0.001
Meeting facilities	3.54	1.18	3.44	1.13	3.69	1.24	-2.322	0.021
Hotel frequent travel program	3.52	1.13	3.55	1.10	3.48	1.17	0.754	0.451
Central 800 reservation number	3.49	1.15	3.41	1.12	3.62	1.19	-2.096	0.037
Visible security personnel	3.47	1.10	3.29	1.04	3.76	1.14	-4.913	0.000
Supplemental breakfast buffet	3.45	1.11	3.39	1.04	3.54	1.21	-1.486	0.138
High-speed Internet access	3.45	1.30	3.36	1.29	3.59	1.32	-1.91	0.057
Business centers (computers, fax, copiers)	3.44	1.17	3.32	1.13	3.62	1.21	-2.838	0.005
On-line reservation capability	3.44	1.22	3.47	1.16	3.40	1.32	0.615	0.539
Free incoming fax service	3.40	1.20	3.29	1.17	3.59	1.22	-2.834	0.005
Concierge service	3.37	1.15	3.23	1.08	3.60	1.21	-3.74	0.000
Surveillance cameras in hallways	3.34	1.13	3.12	1.06	3.69	1.14	-5.924	0.000
Automatic Teller Machine at hotel	3.29	1.25	3.13	1.20	3.55	1.30	-3.772	0.000
Extended information about hotel on-line	3.27	1.23	3.22	1.18	3.35	1.29	-1.247	0.213
Name brand amenities	3.24	1.17	3.05	1.12	3.56	1.19	-5.021	0.000
Laundry services	3.21	1.15	3.06	1.10	3.45	1.19	-3.851	0.000
Portable/Speaker phone in room	3.16	1.28	3.08	1.23	3.28	1.35	-1.684	0.093
Bar or lounge on property	3.13	1.29	3.15	1.25	3.10	1.36	0.455	0.650
In-room electronic safety boxes	3.10	1.30	3.00	1.26	3.28	1.35	-2.369	0.018
Concierge floor	3.03	1.24	2.98	1.19	3.11	1.32	-1.165	0.245
Smart card read capability	2.95	1.33	2.86	1.27	3.10	1.41	-1.944	0.052
Pay per view	2.89	1.29	2.93	1.24	2.81	1.37	1.009	0.313
In-room minibar	2.88	1.27	2.84	1.20	2.95	1.37	-0.923	0.356
In-room printer	2.85	1.34	2.73	1.29	3.06	1.40	-2.76	0.006
Wireless Internet access in hotel	2.81	1.27	2.71	1.20	2.97	1.34	-2.211	0.028
Video-conferencing capabilities	2.78	1.27	2.71	1.22	2.88	1.33	-1.43	0.153
In-room personal computer	2.76	1.35	2.62	1.32	2.98	1.37	-2.911	0.004
Non-enclosed lobby bar	2.71	1.24	2.73	1.19	2.66	1.32	0.632	0.528
In-room fax machine	2.66	1.28	2.53	1.20	2.86	1.36	-2.852	0.005
Wireless access to hotel website (Palm)	2.46	1.21	2.44	1.17	2.48	1.28	-0.372	0.710
Web TV	2.43	1.23	2.42	1.19	2.45	1.31	-0.299	0.765
Women only floor	2.16	1.28	1.93	1.15	2.50	1.38	-4.7	0.000
Child care facility in the hotel	2.04	1.23	1.98	1.17	2.14	1.32	-1.332	0.183
GRAND MEAN	3.50	0.58	3.39	0.55	3.65	0.59	-3.935	0.000

Notes: [1] Mean (1=Not important at all, 2=A little important, 3=Somewhat important, 4=Important, 5=Very Important)
[2] Standard Deviation [3] Difference (Male Mean-Female Mean) [4] t- statistics (2-way independent) [5] Significance

Hypothesis 2

H_0= The overall perceived performance score of hotel selection attributes does not differ significantly between male and female business travelers.

H_1= The overall perceived performance score of hotel selection attributes does differ significantly between male and female business travelers.

A two-tail independent *t* test was conducted on the grand mean of satisfaction attributes to test this hypothesis. As seen in Table 14, grand mean was 3.39 for male respondents and 3.65 for female respondents. This difference was statistically significant at .01 level (t=-3.935, df=331, Sig.=.000). Thus, H_0 was rejected and the hypothesis accepted that the overall perceived performance score of hotel selection attributes does differ significantly between male and female business travelers.

Factor Analysis: Importance Attributes

There were 75 hotel selection attributes used in this study. Factor analysis was used to condense the information contained in these attributes and to confirm the notion that distinct dimensions existed for business travelers. Utilizing the DATA REDUCTION function of the Statistical Package for Social Sciences (SPSS, 2000) a factor analysis was performed on all 75 hotel selection characteristics to determine possible underlying factors. Initially, a Spearman rank-order, inter-item correlation matrix was calculated for these items.

Two statistics were used to test if the factor analysis was appropriate for this study. First, the Kaiser-Meyer-Olkin (KMO) statistic was calculated as 0.92 which is meritorious (Kaiser, 1974). Since the KMO was above 0.80, the variables were interrelated and they shared common factors. In addition, the communalities ranged from 0.45 to 0.81 with an average value above 0.65, suggesting that the variance of the original values were fairly explained by the common factors. Then Bartlett's Test of Sphericity was conducted yielding a significant Chi-Square value in order to test the significance of the correlation matrix (χ=19450, df=2775, Sig.=.000). Both tests indicated that factor analysis was appropriate for this study (Hair, Anderson, Tatham & Black, 1998).

After the viability of the factor analysis was determined, a principal axis factor analysis with a varimax rotation was completed. The varimax, rather than quartimax rotation, was adopted, because the investigators expected to find several dimensions of equal importance in the data. Items with factor loadings of .30 or higher were clustered together to form constructs, as recommended by Hair, Anderson, Tatham and Black (1998) with a sample size more than three hundred fifty.

The results of the factor analysis produced a clean factor structure with relatively higher loadings on the appropriate factors. Most variables loaded heavily on one factor and this reflected that there was minimal overlap among factors and that all factors were independently structured. Fifteen stable factors with eigenvalues greater than one, and explaining 62.1% of the variance, were derived from the analysis. Reliability coefficients (Cronbach Alpha) were computed for the items that formed each factor. As Table 15 shows, the reliability coefficients for the items in this study ranged from .57 to .91, above

the minumum value of 0.50 that is considered acceptable as an indication of reliability for basic research (Nunnally, 1967).

TABLE XV

THE RELIABILITY COEFFICIENTS FOR IMPORTANCE FACTORS

Factor	Number of Cases	Number of Items	Cronbach's Alpha
Technology	530	12	0.91
Work Atmosphere	556	7	0.84
Security	581	4	0.91
Entertainment	572	5	0.80
Service	574	8	0.83
Room Comfort & Quality	562	5	0.73
Safety	567	4	0.82
Room Amenities	569	6	0.78
Value	576	4	0.60
Breakfast	584	2	0.79
Reservations	579	3	0.72
Branding	584	2	0.59
Gender Consciousness	562	2	0.69
Airport	587	2	0.57
Meeting Site Convenience	581	2	0.61

The contents of the fifteen factor dimensions were analyzed and named as follows: *technology, work atmosphere, security, entertainment, service, room comfort and quality, safety, room amenities, value, breakfast, reservations, branding, gender consciousness, airport, and meeting site convenience* (See Table 16). The *technology* factor had the highest eigenvalue, 6.35, and represented 8.4 percent of the explained variance. The second highest eigenvalue was the *work atmosphere* factor. This value of 5.27 represented 7 percent of the explained variance in the sample. The total variance explained by the 15 factors was 62.1 percent.

TABLE XVI

SUMMARY OF FACTOR ANALYSIS: IMPORTANCE ATTRIBUTES

Factor Name	EV[1]	PV[2]	CV[3]	Component Variables	Factor Loading
Technology	6.359	8.478	8.478		
				In-room printer	.813
				In-room personal computer	.810
				In-room fax machine	.801
				Wireless Internet access in hotel	.676
				Wireless access to hotel website	.627
				Smart card read capability	.504
				In-room electronic safety boxes	.501
				Automatic Teller Machine at hotel	.485
				High-speed Internet access	.477
				Video conferencing capabilities	.435
				Portable/speaker phone in room	.411
				Voice mail	.362
Work Atmosphere	5.279	7.038	15.517		
				Adequate desk/work space in room	.784
				Additional data line accessible to desk	.772
				Good lighting to read/work in room	.719
				Phone on desk	.657
				Easily accessible electrical outlets	.657
				Well-maintained furnishings	.528
				Suite Rooms	.350
Security	4.541	6.054	21.571		
				Security personnel on duty 24 hours a day	.767
				Visible security personnel	.771
				Surveillance cameras in hallways	.769
				Bright hallway lighting	.669
Entertainment	4.022	5.363	26.934		
				Bar or lounge on property	.767
				Non-enclosed lobby bar	.719
				In-room minibar	.623
				Pay per view	.633
				Web-TV	.480

table continues

TABLE XVI

SUMMARY OF FACTOR ANALYSIS: IMPORTANCE ATTRIBUTES

Factor Name	EV[1]	PV[2]	CV[3]	Component Variables	Factor Loading
Service	3.221	4.295	31.229		
				24 hour room service	.399
				Full-service restaurant	.442
				Concierge service	.529
				Concierge floor	.457
				Complimentary national newspaper	.419
				Free incoming fax service	.611
				Business center	.606
Room Comfort & Quality	3.147	4.196	35.425		
				Cleanliness of hotel	.662
				Friendly service of hotel staff	.441
				Comfortable mattress and pillows	.608
				In-room temperature control	.628
				Remote control TV	.490
Safety	3.106	4.142	39.566		
				Smoke, Fire & Heat Detectors	.488
				Room numbers not on keys	.622
				Dead bolt door locks/chain locks	.785
				Peep holes	.762
Room Amenities	3.105	4.141	43.707		
				Hair dryer	.691
				Laundry services	.387
				In-room ironing board	.703
				Full-length mirror	.739
				Name brand amenities	.467
				Alarm clock	.335
Value	2.439	3.252	46.959		
				Availability of special discounts	.629
				Hotel frequent travel program	.606
				Price of accommodations	.612
				Free local telephone calls	.470

table continues

TABLE XVI

SUMMARY OF FACTOR ANALYSIS: IMPORTANCE ATTRIBUTES

Factor Name	EV[1]	PV[2]	CV[3]	Component Variables	Factor Loading
Breakfast	2.328	3.104	50.064		
				Free continental breakfast	.730
				Supplemental breakfast buffet	.769
Reservations	2.308	3.078	53.141		
				Central 800 reservation number	.390
				Extended information about hotel on-line	.729
				On-line reservation capability	.795
Branding	1.914	2.552	55.693		
				Reputation of hotel	.570
				Consistency and reliability of chain brand between locations	.741
Gender Consciousness	1.790	2.386	58.079		
				Women only floor	.716
				Child-care facility in the hotel	.702
Airport	1.661	2.215	60.294		
				Convenience to airport	.732
				Airport transportation	.456
Meeting site convenience	1.356	1.808	62.102		
				Convenience to meeting site	.484
				Meeting facilities	.558

Notes:
1: Eigen Value
2: Percent of Variance
3: Cumulative Variance

The *technology* factor included attributes such as in-room printer, in-room personal computer, wireless Internet access in hotel, smart card read capability, in-room electronic safety boxes, high speed Internet access, and voice mail. Other attributes in this factor were in-room fax machine, wireless access to hotel website, automatic teller

machine at hotel, and portable/speaker phone in room. The next two factors were identified as *work atmosphere* and *security*. *Work atmosphere* included the following attributes: adequate desk/work space in room, additional data line accessible to desk, good lighting to read/work in room, phone on desk, easily accessible electrical outlets, well-maintained furnishings, and suite rooms. The *security* factor included attributes such as security personnel on duty 24 hours a day, visible security personnel, surveillance cameras in hallways, and bright hallway lighting.

The *entertainment* factor included the following attributes: bar or lounge on property, non-enclosed lobby bar, in-room minibar, pay per view, and web-TV. The *service* factor included eight attributes such as 24 hour room service, full-service restaurant, concierge service, concierge floor, complimentary national newspaper, free incoming fax service, and business center. The *room comfort and quality* factor included the following attributes: cleanliness of hotel, friendly service of hotel staff, comfortable mattress and pillows, in-room temperature control, and remote control TV.

The *safety* factor included attributes such smoke, fire, and heat detectors, room numbers not on keys, dead bolt door locks/chain locks, and peep holes. Hair dryer, laundry services, in-room ironing board, full-length mirror, name brand amenities, and alarm clock loaded on *room amenities* factor while availability of special discounts, hotel frequent travel program, price of accommodations, and free local telephone calls loaded on *value* factor.

The *reservations* factor included attributes such as central 800 reservation number, on-line reservation capability, and extended information about hotel on-line. The *branding* factor gained only two loadings: reputation of hotel and consistency and

reliability of chain between locations. The *gender consciousness* factor included women only floor and child-care facility in the hotel attributes. Finally, the *meeting site convenience* factor included convenience to meeting site and meeting facilities attributes.

Although not mentioned as a factor, there were two dimensions which appeared in the factor analysis with only one attribute loading. These were non-smoking rooms with 1.404 eigen-value and explaining 1.87% of the variance and hotel location with 1.318 eigen-value and explaining 1.78% of the variance.

Sammons et al. (1999) conducted a similar study with only female business travelers and suggested the following factor dimensions: comfort, parking, security, complimentary, price-sensitive, safety, single-sensitive, lounge, and fire safety. This study shared four of the factors with Sammons et al. (1999). This shift might be due to different populations and changes in needs of business travelers over time.

Research question six was not tested as a hypothesis, but asked if technology attributes load as a factor in business travelers' selection of hotels. To answer this research question, factor analysis was conducted on 75 hotel selection attributes. A factor loaded with 12 attributes, a 6.3 eigen-value and explained 8.4% of the total variance. This factor included the following attributes: in-room printer, in-room personal computer, in-room fax machine, wireless Internet access in hotel, wireless access to the hotel website, smart card read capability, in-room electronic safety boxes, automatic teller machine at hotel, high-speed Internet access, video conferencing capabilities, portable/speaker phone in room, and voice mail. The researcher identified this factor as the *technology* factor.

Gap Analysis

The purpose of this section was to find performance gaps as measured in the difference between respondents' perceived importance ratings and perceived satisfaction ratings of selection attributes. Table 17 shows the perceived importance and satisfaction means, standard deviations, paired *t* test scores, degrees of freedom and significance.

TABLE XVII

IMPORTANCE-PERFORMANCE GAP ANALYSIS (N=590)

	Importance		Satisfaction				
Attributes	M[1]	SD[2]	M[1]	SD[2]	Dif[3]	t[4]	Sig.[5]
Convenience to airport	3.21	1.11	3.75	0.91	-0.54	-13.03	0.000
Hotel frequent travel program	2.98	1.20	3.52	1.13	-0.54	-12.931	0.000
Concierge service	2.85	1.15	3.37	1.15	-0.52	-11.909	0.000
Non-enclosed lobby bar	2.11	1.04	2.71	1.24	-0.60	-11.815	0.000
Complimentary national newspaper	3.40	1.19	3.91	1.06	-0.51	-11.608	0.000
Express check-in/check out	3.53	1.16	4.00	0.99	-0.47	-11.037	0.000
In-room minibar	2.39	1.18	2.88	1.27	-0.49	-11.013	0.000
Child care facility in the hotel	1.48	0.83	2.04	1.23	-0.56	-10.859	0.000
Supplemental breakfast buffet	2.98	1.09	3.45	1.11	-0.47	-10.848	0.000
Name brand amenities	2.76	1.15	3.24	1.17	-0.48	-10.667	0.000
Concierge floor	2.53	1.18	3.03	1.24	-0.50	-10.441	0.000
In-room printer	2.27	1.17	2.85	1.34	-0.58	-10.264	0.000
In-room fax machine	2.15	1.13	2.66	1.28	-0.51	-9.938	0.000
Free continental breakfast	3.33	1.09	3.76	1.02	-0.43	-9.873	0.000
Women only floor	1.63	0.95	2.16	1.28	-0.53	-9.645	0.000
Pay per view	2.44	1.27	2.89	1.29	-0.45	-9.463	0.000
Convenience to meeting site	4.62	0.63	4.33	0.77	0.29	9.357	0.000
Laundry services	2.83	1.17	3.21	1.15	-0.38	-8.897	0.000
Meeting facilities	3.15	1.24	3.54	1.18	-0.39	-8.867	0.000
In-room personal computer	2.27	1.23	2.76	1.35	-0.49	-8.558	0.000
In-room electronic safety boxes	2.67	1.27	3.10	1.30	-0.43	-8.419	0.000
Airport transportation	3.43	1.18	3.79	0.98	-0.36	-8.402	0.000
Bar or lounge on property	2.75	1.29	3.13	1.29	-0.38	-8.389	0.000
Web TV	2.00	1.08	2.43	1.23	-0.43	-8.329	0.000
Free local telephone calls	3.42	1.25	3.86	1.10	-0.44	-8.311	0.000
24-hour room service	3.19	1.15	3.55	1.12	-0.36	-8.109	0.000
Suite rooms	3.21	1.14	3.58	1.14	-0.37	-7.901	0.000
Video-conferencing capabilities	2.41	1.17	2.78	1.27	-0.37	-7.538	0.000
Hair dryer	3.23	1.41	3.56	1.31	-0.33	-7.48	0.000
Wireless access to hotel website (Palm)	2.10	1.11	2.46	1.21	-0.36	-7.248	0.000
Reputation of hotel	4.18	0.81	3.92	0.96	0.26	6.929	0.000
In-room coffee maker	3.38	1.45	3.70	1.33	-0.32	-6.917	0.000
Cleanliness of hotel	4.83	0.46	4.63	0.63	0.20	6.733	0.000
Bright hallway lighting	3.71	1.08	3.94	0.95	-0.23	-6.156	0.000
Full length mirror	3.38	1.23	3.61	1.16	-0.23	-5.756	0.000
Surveillance cameras in hallways	3.10	1.15	3.34	1.13	-0.24	-5.713	0.000
Room numbers not on keys	3.42	1.38	3.69	1.28	-0.27	-5.49	0.000
Additional data line accessible to desk	4.01	1.16	3.74	1.21	0.27	5.281	0.000
Sports facilities (e.g., Swimming pool, Whirlpool or Jacuzzi, etc.)	3.61	1.12	3.82	1.05	-0.21	-4.891	0.000

table continues

TABLE XVII

IMPORTANCE-PERFORMANCE GAP ANALYSIS (N=590)

Attributes	Importance M[1]	Importance SD[2]	Satisfaction M[3]	Satisfaction SD[2]	Dif[4]	t[5]	Sig.[6]
On-premise free parking	3.70	1.19	3.94	1.06	-0.24	-4.738	0.000
Easily accessible electrical outlets	4.32	0.89	4.12	0.96	0.20	4.679	0.000
Portable/Speaker phone in room	2.91	1.31	3.16	1.28	-0.25	-4.444	0.000
Automatic Teller Machine at hotel	3.08	1.31	3.29	1.25	-0.21	-4.348	0.000
In-room ironing board and iron	3.73	1.21	3.89	1.15	-0.16	-4.326	0.000
Central 800 reservation number	3.31	1.18	3.49	1.15	-0.18	-4.023	0.000
Extended information about hotel on-line	3.07	1.29	3.27	1.23	-0.20	-3.987	0.000
Smart card read capability	2.76	1.30	2.95	1.33	-0.19	-3.848	0.000
Consistency and reliability of chain brand between locations	4.25	0.84	4.11	0.87	0.14	3.527	0.000
On-line reservation capability	3.27	1.26	3.44	1.22	-0.17	-3.496	0.001
Full-service restaurant	3.69	1.04	3.83	0.99	-0.14	-3.326	0.001
No surcharge on long-distance calls	3.63	1.28	3.82	1.17	-0.19	-3.243	0.001
Availability of special discounts	3.43	1.02	3.57	1.00	-0.14	-3.222	0.001
In-room temperature control	4.51	0.77	4.39	0.86	0.12	3.022	0.003
Free incoming fax service	3.25	1.22	3.40	1.20	-0.15	-2.985	0.003
Comfortable mattress and pillows	4.61	0.65	4.50	0.82	0.11	2.95	0.000
Voice-mail	3.50	1.24	3.63	1.19	-0.13	-2.877	0.004
Smoke, Fire & Heat Detectors	4.45	0.91	4.35	0.85	0.10	2.689	0.007
Visible security personnel	3.36	1.12	3.47	1.10	-0.11	-2.652	0.008
Wireless Internet access in hotel	2.68	1.27	2.81	1.27	-0.13	-2.429	0.015
Electronic key cards	3.56	1.26	3.66	1.23	-0.10	-2.379	0.018
Remote control TV	4.19	1.00	4.28	0.82	-0.09	-2.238	0.026
High-speed Internet access	3.55	1.23	3.45	1.30	0.10	1.926	0.055
Adequate desk/work space in room	4.20	0.91	4.27	0.90	-0.07	-1.572	0.117
Non-smoking rooms	4.49	0.99	4.44	0.94	0.05	1.472	0.142
Alarm clock	4.25	1.06	4.20	0.95	0.05	1.391	0.165
Security personnel on duty 24 hours a day	3.73	1.09	3.78	1.07	-0.05	-1.087	0.278
Hotel location	4.21	0.79	4.25	0.72	-0.04	-1.057	0.291
Well maintained furnishings	4.41	0.74	4.38	0.78	0.03	0.834	0.405
Friendly service of hotel staff	4.44	0.73	4.41	0.73	0.03	0.737	0.462
Dead bolt door locks / Chain locks	4.34	0.95	4.36	0.88	-0.02	-0.698	0.486
Business centers (computers, fax, copiers)	3.46	1.15	3.44	1.17	0.02	0.488	0.626
Peep holes	4.08	1.09	4.09	1.03	-0.01	-0.373	0.710
Good lighting to read/work in the room	4.38	0.78	4.36	0.89	0.02	0.314	0.754
Phone on desk	4.16	1.00	4.15	0.97	0.01	0.269	0.788
Price of accommodations	4.14	0.78	4.14	0.86	0.00	0.185	0.853
GRAND MEAN	3.36	0.55	3.50	0.58	-0.14	-6.105	0.000

Notes: [1] Mean (1=Not important at all, 2=A little important, 3=Somewhat important, 4=Important, 5=Very Important) [2] Standard Deviation [3] Mean (1=Not satisfied at all, 2=A little satisfied, 3=Somewhat satisfied, 4=Satisfied, 5=Very satisfied) [4] Difference (Importance Mean-Satisfaction Mean) [5] t- statistics (2-way independent) [6] Significance

A paired *t* test was used to test the significant mean difference (gap) between respondents' perceptions of importance and satisfaction (See Table 17). A positive *t* score in Table 17 indicates that the importance rating for that particular attribute is higher than satisfaction rating. Similarly, a negative *t* score indicates that satisfaction score for the attribute higher than importance rating. A number less than 0.05 in the significance column indicates that the difference between importance and satisfaction is statistically significant. Sixty-two of the attributes had statistically different ratings between importance and satisfaction.

Table 18 shows the attributes that had a significant difference between importance and satisfaction scores. The first section of this table lists the attributes with importance scores statistically greater than their satisfaction scores. The second part shows the attributes that had greater scores in satisfaction than importance.

TABLE XVIII

IMPORTANCE-SATISFACTION DIFFERENCES

Attributes	Importance		Satisfaction			
IMPORTANCE>SATISFACTION	M[1]	SD[2]	M[1]	SD[2]	Dif.[3]	Sig.[4]
Convenience to meeting site	4.62	0.63	4.33	0.77	0.29	0.000
Cleanliness of hotel	4.83	0.46	4.63	0.63	0.20	0.000
Reputation of hotel	4.18	0.81	3.92	0.96	0.26	0.000
Consistency and reliability of chain brand between locations	4.25	0.84	4.11	0.87	0.14	0.000
Smoke, Fire & Heat Detectors	4.45	0.91	4.35	0.85	0.10	0.007
Comfortable mattress and pillows	4.61	0.65	4.50	0.82	0.11	0.000
In-room temperature control	4.51	0.77	4.39	0.86	0.12	0.003
Easily accessible electrical outlets	4.32	0.89	4.12	0.96	0.20	0.000
Additional data line accessible to desk	4.01	1.16	3.74	1.21	0.27	0.000
High-speed Internet access	3.55	1.23	3.45	1.30	0.10	0.055
SATISFACTION > IMPORTANCE						
Convenience to airport	3.21	1.11	3.75	0.91	-0.54	0.000
Airport transportation	3.43	1.18	3.79	0.98	-0.36	0.000
Availability of special discounts	3.43	1.02	3.57	1.00	-0.14	0.001
Hotel frequent travel program	2.98	1.20	3.52	1.13	-0.54	0.000
Express check-in/check out	3.53	1.16	4.00	0.99	-0.47	0.000
Free local telephone calls	3.42	1.25	3.86	1.10	-0.44	0.000
No surcharge on long-distance calls	3.63	1.28	3.82	1.17	-0.19	0.001
On-premise free parking	3.70	1.19	3.94	1.06	-0.24	0.000
Visible security personnel	3.36	1.12	3.47	1.10	-0.11	0.008
Surveillance cameras in hallways	3.10	1.15	3.34	1.13	-0.24	0.000
Bright hallway lighting	3.71	1.08	3.94	0.95	-0.23	0.000
Women only floor	1.63	0.95	2.16	1.28	-0.53	0.000
Child care facility in the hotel	1.48	0.83	2.04	1.23	-0.56	0.000
Room numbers not on keys	3.42	1.38	3.69	1.28	-0.27	0.000
Sports facilities (e.g., Swimming pool, Whirlpool or Jacuzzi, etc.)	3.61	1.12	3.82	1.05	-0.21	0.000
24-hour room service	3.19	1.15	3.55	1.12	-0.36	0.000
Full-service restaurant	3.69	1.04	3.83	0.99	-0.14	0.001
Free continental breakfast	3.33	1.09	3.76	1.02	-0.43	0.000
Supplemental breakfast buffet	2.98	1.09	3.45	1.11	-0.47	0.000
Bar or lounge on property	2.75	1.29	3.13	1.29	-0.38	0.000
Non-enclosed lobby bar	2.11	1.04	2.71	1.24	-0.60	0.000
Meeting facilities	3.15	1.24	3.54	1.18	-0.39	0.000
Video-conferencing capabilities	2.41	1.17	2.78	1.27	-0.37	0.000
Concierge service	2.85	1.15	3.37	1.15	-0.52	0.000
Concierge floor	2.53	1.18	3.03	1.24	-0.50	0.000
Complimentary national newspaper	3.40	1.19	3.91	1.06	-0.51	0.000
Free incoming fax service	3.25	1.22	3.40	1.20	-0.15	0.003
Central 800 reservation number	3.31	1.18	3.49	1.15	-0.18	0.000

table continues

TABLE XVIII

IMPORTANCE-SATISFACTION DIFFERENCES

Attributes	Importance		Satisfaction			
SATISFACTION> IMPORTANCE	M[1]	SD[2]	M[3]	SD[2]	Dif.[4]	Sig.[5]
Suite rooms	3.21	1.14	3.58	1.14	-0.37	0.000
Hair dryer	3.23	1.41	3.56	1.31	-0.33	0.000
Laundry services	2.83	1.17	3.21	1.15	-0.38	0.000
In-room iroining board and iron	3.73	1.21	3.89	1.15	-0.16	0.000
Full length mirror	3.38	1.23	3.61	1.16	-0.23	0.000
Name brand amenities	2.76	1.15	3.24	1.17	-0.48	0.000
In-room coffee maker	3.38	1.45	3.70	1.33	-0.32	0.000
In-room minibar	2.39	1.18	2.88	1.27	-0.49	0.000
Remote control TV	4.19	1.00	4.28	0.82	-0.09	0.026
Pay per view	2.44	1.27	2.89	1.29	-0.45	0.000
Web TV	2.00	1.08	2.43	1.23	-0.43	0.000
Portable/Speaker phone in room	2.91	1.31	3.16	1.28	-0.25	0.000
Voice-mail	3.50	1.24	3.63	1.19	-0.13	0.004
Wireless Internet access in hotel	2.68	1.27	2.81	1.27	-0.13	0.015
In-room personal computer	2.27	1.23	2.76	1.35	-0.49	0.000
In-room fax machine	2.15	1.13	2.66	1.28	-0.51	0.000
In-room printer	2.27	1.17	2.85	1.34	-0.58	0.000
In-room electronic safety boxes	2.67	1.27	3.10	1.30	-0.43	0.000
Extended information about hotel on-line	3.07	1.29	3.27	1.23	-0.20	0.000
On-line reservation capability	3.27	1.26	3.44	1.22	-0.17	0.001
Wireless access to hotel website (Palm)	2.10	1.11	2.46	1.21	-0.36	0.000
Electronic key cards	3.56	1.26	3.66	1.23	-0.10	0.018
Smart card read capability	2.76	1.30	2.95	1.33	-0.19	0.000
Automatic Teller Machine at hotel	3.08	1.31	3.29	1.25	-0.21	0.000

Notes: [1] Mean (1=Not important at all, 2=A little important, 3=Somewhat important, 4=Important, 5=Very Important) [2] Standard Deviation [3] Mean (1=Not satisfied at all, 2=A little satisfied, 3=Somewhat satisfied, 4=Satisfied, 5=Very satisfied) [4] Difference (Importance Mean-Satisfaction Mean) [5] Significance

These particular attributes (Importance>Satisfaction) might need the special attention of hotel managers to be able to meet the satisfaction expectations. A majority of the focus group members indicated that there was a room for improvement in "in-room temperature," "comfortable mattress and pillows," "easily accessible electrical outlets," and "high speed Internet access." This finding of the focus group reflects the results of the gap analysis.

Hypothesis 3:

H_0= There is no significant difference between the overall perceived importance score of hotel selection attributes and the overall perceived performance (satisfaction) score .

H_1= There is a significant difference between the overall perceived importance score of hotel selection attributes and the overall perceived performance (satisfaction) score.

A two-tail paired *t* test was conducted on the grand means of importance and satisfaction attributes to test this hypothesis. As seen in Table 17, the grand mean was 3.36 for importance and 3.50 for satisfaction ratings. This difference was statistically significant at .01 level (t=-6.105, df=332, Sig.=.000). Thus, H_0 was rejected and the hypothesis was accepted that there was a significant difference between perceived importance of hotel selection attributes and perceived performance.

The next step in the data analysis was to perform an Importance-Performance Analysis (IPA) on the derived factors to position them in an IPA grid.

Importance-Performance Analysis

Importance-Performance Analysis (IPA) was employed to compare male and female business travelers' perceptions of the derived factors from factor analysis. In this study, factor means of the perceived importance and performance (respondents' satisfaction) of each factor were calculated and plotted into graphical grid. Vertical and

horizontal lines, using the mean values of the Importance and Satisfaction Parts for male and female managers, were calculated to separate the derived factors into four identifiable quadrants (See Figure 8).

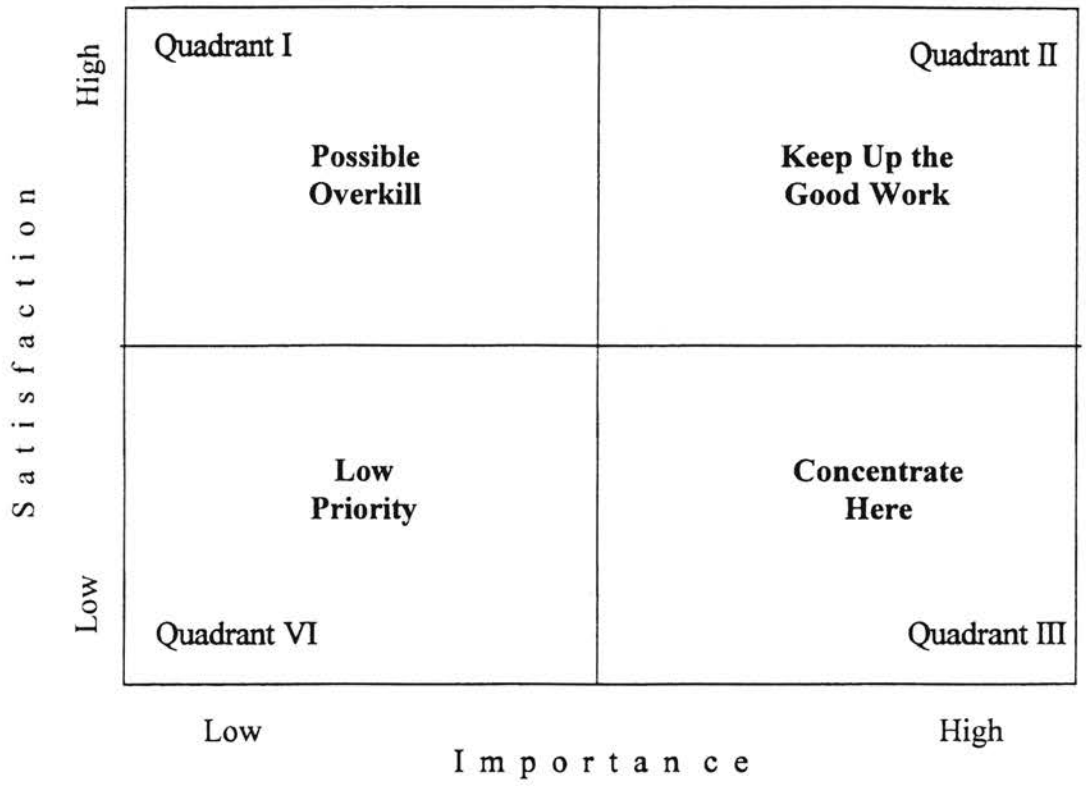


Figure 8: Importance-Performance Analysis Grid

Table 19 shows the importance and satisfaction ratings for male and female respondents for each derived factor along with standard deviations. The data in Table 19 was presented in three IPA grids where each factor was plotted according to its perceived importance and satisfaction. The two-dimensional grid displayed the importance of attributes on the horizontal axis from high (right) to low (left) and the satisfaction of

attributes on the vertical axis from high (top) to low (bottom). Figure 9 illustrates the resultant graphical representation of the data for the male respondents that produced the four quadrants. Figure 10 illustrates the resultant graphical representation of the data for the female respondents. Finally, Figure 11 illustrates the resultant graphical representation of the data for both male and female respondents. Additional factors for disruptive and sustaining technology were added to indicate their locations in IPA grid.

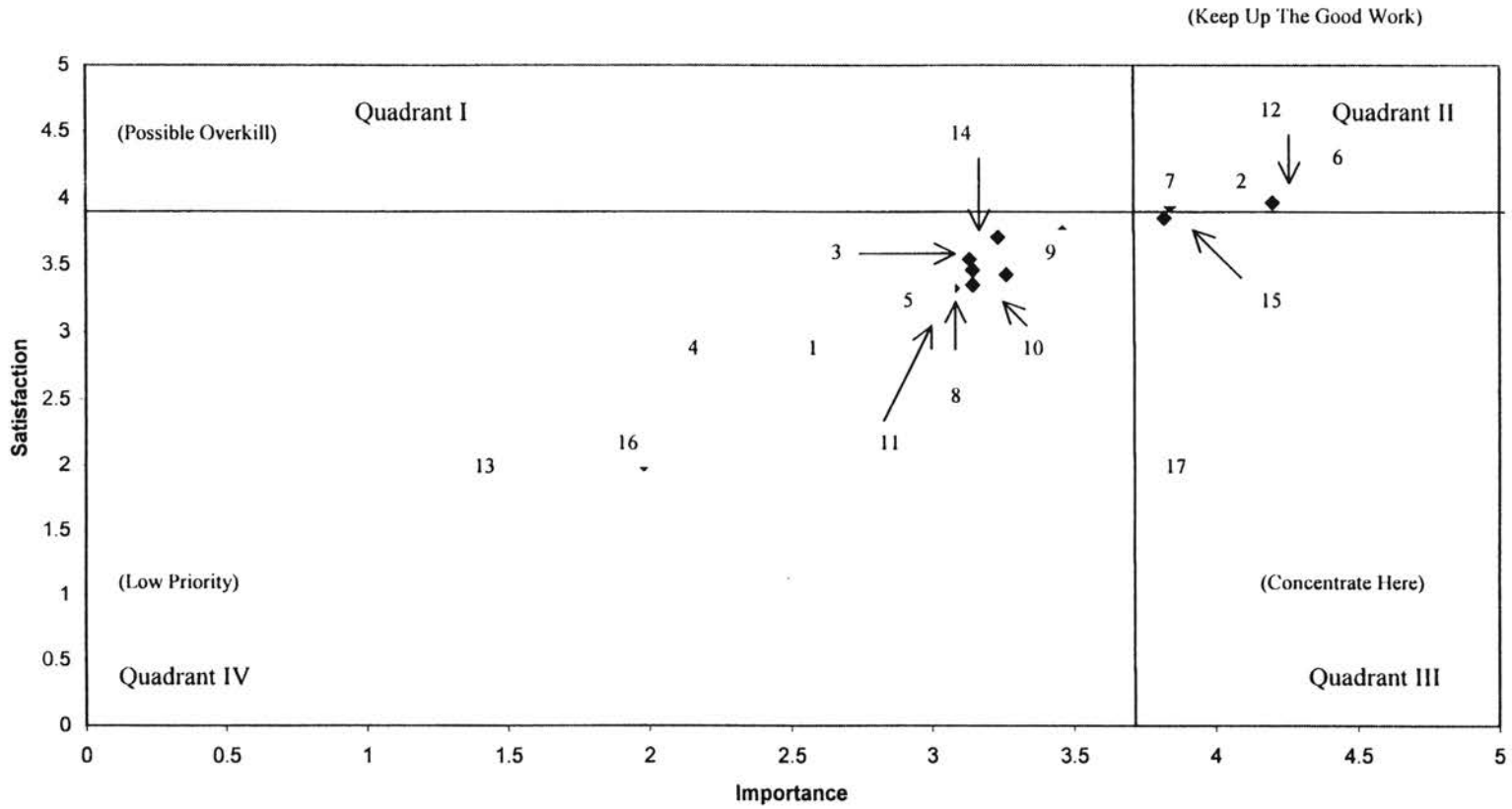
TABLE XIX

IMPORTANCE-PERFORMANCE ANALYSIS OF DERIVED FACTORS

	Male				Female				Total						
	Imp	SD	Sat	SD	Imp	SD	Sat	SD	Imp	SD	Sat	SD	Dif.	t	Sig.
Technology	2.58	0.81	2.78	0.91	2.78	0.95	3.10	1.04	2.69	0.87	2.96	0.96	-0.270	-8.076	0.000
Work Atmosphere	4.06	0.67	4.05	0.70	4.05	0.71	4.13	0.73	4.06	0.69	4.08	0.71	-0.020	0.316	0.752
Security	3.26	0.93	3.43	0.89	3.79	0.97	3.94	0.92	3.46	0.98	3.63	0.93	-0.170	-4.731	0.000
Entertainment	2.28	0.87	2.76	0.97	2.22	0.89	2.72	1.11	2.26	0.88	2.75	1.03	-0.490	-12.025	0.000
Service	3.14	0.76	3.46	0.71	3.25	0.83	3.69	0.81	3.18	0.79	3.55	0.75	-0.370	-10.246	0.000
Room Comfort & Quality	4.48	0.52	4.38	0.58	4.54	0.49	4.52	0.57	4.51	0.51	4.43	0.58	0.080	2.794	0.005
Safety	3.84	0.93	3.95	0.86	4.38	0.71	4.38	0.69	4.05	0.89	4.12	0.83	-0.070	-1.722	0.086
Room Amenities	3.07	0.79	3.33	0.83	3.76	0.74	3.99	0.68	3.43	0.84	3.59	0.84	-0.160	-8.103	0.000
Value	3.46	0.73	3.74	0.71	3.44	0.73	3.83	0.78	3.45	0.73	3.77	0.74	-0.320	-9.146	0.000
Breakfast	3.13	0.96	3.54	0.92	3.13	1.04	3.69	1.03	3.13	0.99	3.60	0.96	-0.470	-11.544	0.000
Reservations	3.14	0.98	3.35	1.02	3.21	1.03	3.43	1.08	3.17	1.00	3.38	1.04	-0.210	-4.664	0.000
Branding	4.20	0.70	3.97	0.81	4.22	0.67	4.07	0.80	4.21	0.69	4.01	0.80	0.200	6.111	0.000
Gender Consciousness	1.42	0.72	1.95	1.12	1.68	0.81	2.30	1.21	1.52	0.77	2.08	1.17	-0.560	-10.829	0.000
Airport	3.23	0.96	3.71	0.78	3.39	0.97	3.85	0.84	3.29	0.97	3.77	0.80	-0.480	-13.427	0.000
Meeting Site Convenience	3.82	0.72	3.85	0.75	3.94	0.77	4.06	0.80	3.87	0.74	3.93	0.78	-0.060	-1.699	0.090
Disruptive Technology	2.46	0.83	2.80	0.91	2.59	0.93	2.92	1.02	2.51	0.85	2.85	0.95	-0.340	9.302	0.000
Sustaining Technology	3.71	0.61	2.02	0.87	3.82	0.63	2.12	0.59	3.75	0.62	3.85	0.73	-0.100	-3.021	0.003
Grand Mean	3.68		3.92		3.87		4.17		3.76		4.02		-0.138	-6.105	0.000

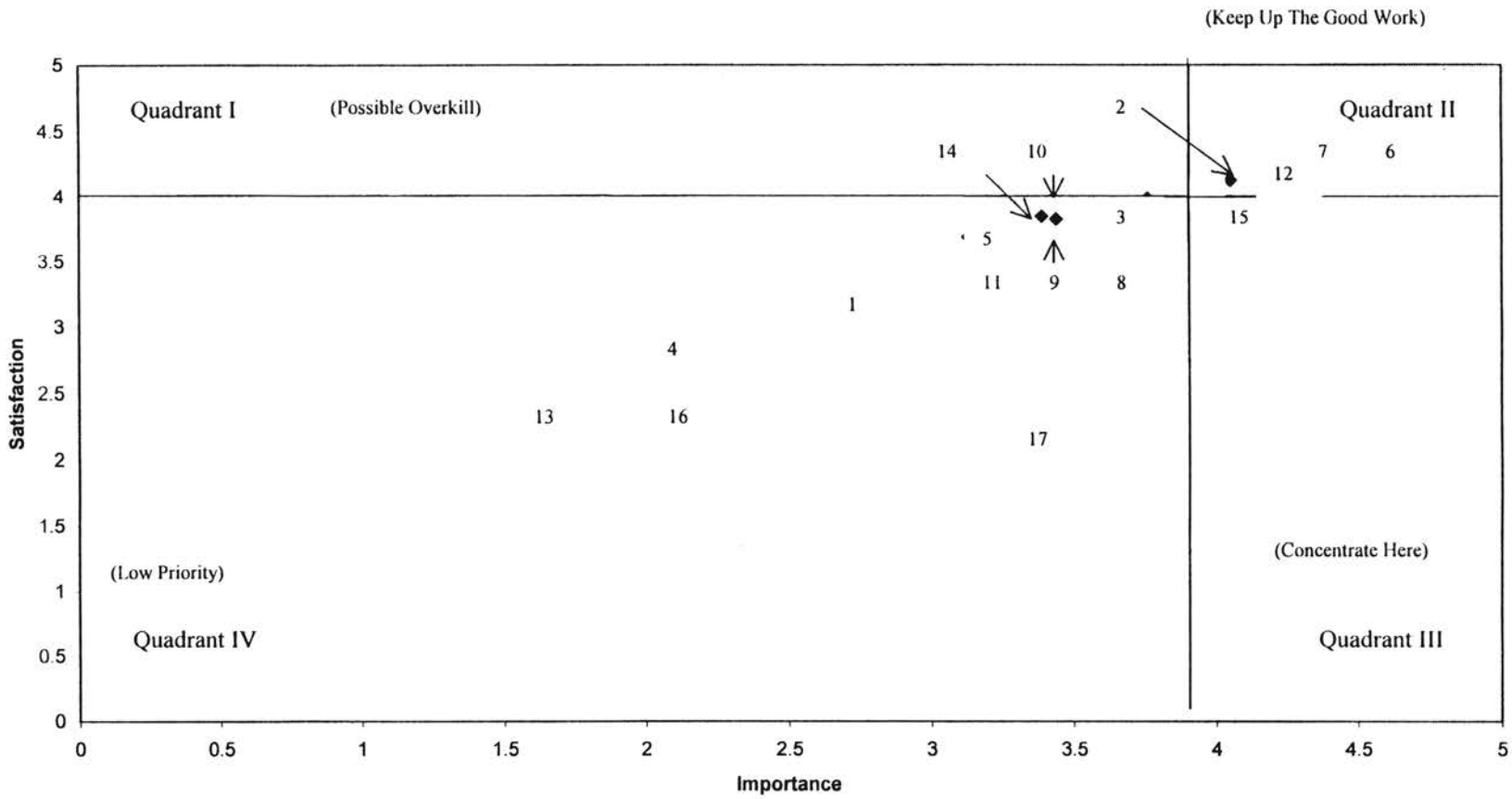
In IPA grids, Quadrant I (possible overkill) displays factors that are of low importance but on which respondents are satisfied highly. This quadrant indicates the resources hotels overuse for variables that are not very important to respondents. Similarly, Quadrant II (keep up the good work) has variables that are important to business travelers and on which their satisfaction is relatively high. Hotels should try to keep the current performance in this area since they are important to business travelers. Quadrant III (concentrate here) indicates the area on which variables are important to business travelers but their satisfaction is low. Hotels should focus additional effort to this area. Finally, Quadrant IV (low priority) involves variables that are both low in importance and satisfaction, and thus are of low priority.

An analysis of Figures 9 and 10 shows that male and female travelers had similar perceptions towards the fifteen hotel selection factors and two additional factor the were created by the researcher (disruptive technology and sustaining technology) to show additional in-depth dimensions for the *technology* factor. Since male and female IPA grids were similar, the IPA grid for all respondents was also similar. The location of the cross-hairs that divide the matrix into quadrants is critical since that determines the interpretation of the results. As Martilla and James (1977) suggested, the mean was used to establish cross-hair points which divide the grind into four quadrants. The IPA grids for male, female and all respondents had different dividing points (cross-hair). The cross-hair point for importance was 3.68 for male respondents, 3.87 for female respondents. The cross-hair point for satisfaction was 3.92 for male respondents, 4.17 for female respondents. For the combined grid (Figure 11), the cross-hair point was 3.76 for importance and 4.02 for satisfaction factors.



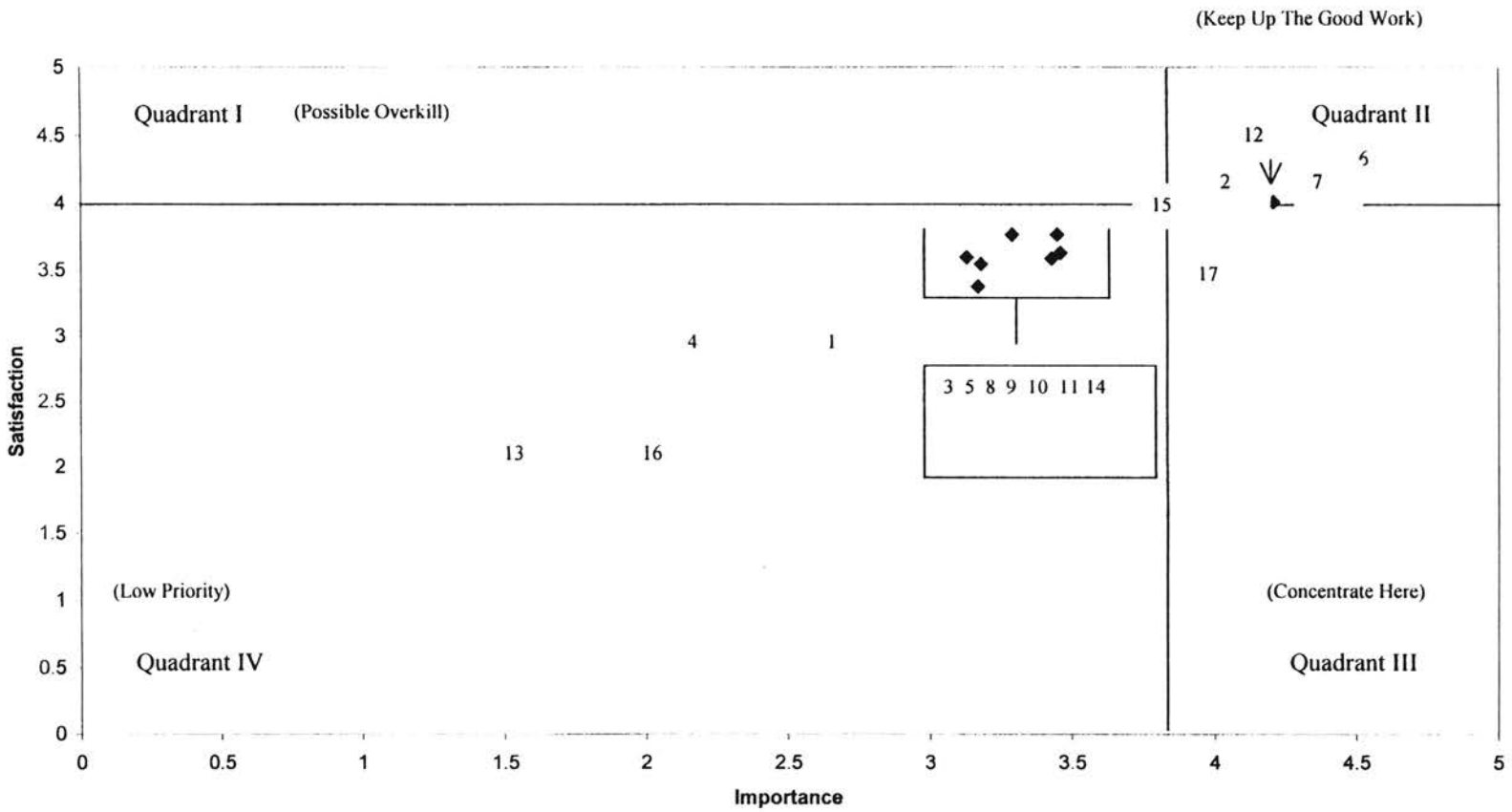
1: Technology
2: Work Atmosphere
3: Security
4: Entertainment
5: Service
6: Room Comfort & Quality
7: Safety
8: Room Amenities
9: Value
10: Breakfast
11: Reservations
12: Branding
13: Gender Conscious
14: Airport
15: Meeting Site Con.
16: Disruptive Technology
17: Sustaining Technology

Figure 9: Importance-Performance Analysis Grid for Male Respondents



1: Technology
2: Work Atmosphere
3: Security
4: Entertainment
5: Service
6: Room Comfort & Quality
7: Safety
8: Room Amenities
9: Value
10: Breakfast
11: Reservations
12: Branding
13: Gender Conscious
14: Airport
15: Meeting Site Con.
16: Disruptive Technology
17: Sustaining Technology

Figure 10: Importance-Performance Analysis Grid for Female Respondents



1: Technology
2: Work Atmosphere
3: Security
4: Entertainment
5: Service
6: Room Comfort & Quality
7: Safety
8: Room Amenities
9: Value
10: Breakfast
11: Reservations
12: Branding
13: Gender Conscious
14: Airport
15: Meeting Site Con.
16: Disruptive Technology
17: Sustaining Technology

Figure 11: Importance-Performance Analysis Grid for Respondents

Quadrant I: Possible Overkill

This analysis did not identify any factors by both male and female respondents as being low "importance" with relatively "high" satisfaction. One reason for this might be that most business travelers perceived that all attributes presented in the survey were important and that they would not settle anything less as far as the hotel's performance was concerned.

Quadrant II: Keep Up the Good Work

In this quadrant of the IPA grid, *work atmosphere* (2), *room comfort and quality* (6), *Safety* (7), and *branding* (12) were identified in Figures 9, 10, and 11. These factors were considered satisfactory in meeting both male and female respondents' needs in relation to their importance as selection attributes. The only factor that was not identified in this quadrant in the male respondents' grid (Figure 9) but identified in the female respondents' grid (Figure 10) was *meeting site convenience*. For this reason, the *meeting site convenience* factor was placed on the border of cross-hair in the combined grid (Figure 11).

The *room comfort and quality*, with a mean importance rating of 4.5 appears to be the top criterion in selecting a hotel for both male and female business travelers. This factor included attributes such as cleanliness of hotel, friendly service of hotel staff, comfortable mattress and pillows, in-room temperature control, and remote control TV. This particular factor was loaded as the most significant factor in the Sammons et al.

(1999) study. This finding was also similar to an IPA study conducted by Chu and Choi (2000) findings where they studied Hong Kong business and leisure travelers.

The *branding* factor, with a mean of 4.21, included two attributes: reputation of hotel, consistency and reliability of chain brand between locations. The *work atmòsphere* factor, with an importance mean of 4.06, included attributes such as adequate work/desk space in room, additional data line accessible to desk, phone on desk, and suite rooms. The s*afety* factor, with an importance mean of 4.05, included attributes such as smoke, fire, and heat detectors, room numbers not on keys, dead bolt locks/chain locks, and peep holes.

The *meeting site convenience* factor was identified in Quadrant II in the female respondents' IPA grid. This factor, with an importance mean of 3.94 for female respondents included two attributes: convenience to meeting site and meeting facilities.

Quadrant III: Concentrate Here

Quadrant III captured a single factor in the female respondents' IPA grid: *Meeting site convenience*. This factor included two attributes: convenience to meeting site and meeting facilities. The factors in this quadrant needed special attention since they were relatively more important and less satisfactory for female respondents. This might be due to the higher female business travelers' emphasis more on security and safety than their male counterparts (Sammons et al., 1999). In addition, quadrant III captured a single dimension in the male respondents' IPA grid and the combined IPA grid. Two artificial dimensions were created to analyse the *technology* factor in-depth. The *technology* factor

was divided into two sub-sets: disruptive technology and sustaining technology. As can be seen in Figures 9 and 10, the sustaining technology dimension was identified in Quadrant III while in all IPA grids, disruptive technology was located in Quadrant IV. In the female respondents' IPA grid, both the disruptive and sustaining technology dimensions were identified in Quadrant IV. This finding was parallel to what Christensen (1997) suggested. Christensen (1997) argued that there is a significant difference between disruptive and sustaining technologies. Disruptive technology has three characteristics: (1) cheaper than mainstream technology (2) less performance than mainstream technology (3) not demanded by the mainstream customers. However, sustaining technologies are dominant in the market and demanded by the mainstream customers. In this regard, the disruptive technology dimension was expected to be in Quadrant IV because it is demanded less and provide less performance as perceived by the mainstream customers, business travelers.

Quadrant IV: Low Priority

This quadrant was the only quadrant that collected the most number of factors in all three IPA grids. In IPA grids for male, female, and all respondents, these factors were identified in Quadrant IV: *technology, entertainment, service, room amenities, breakfast, reservations, gender consciousness, and airport.* In addition, disruptive technology dimension was also captured in all IPA grids in Quadrant IV. The factors in Quadrant IV indicated relatively low importance and low satisfaction. In other words, this quadrant identifies those items where hotels were performing adequately but respondents perceive

them as less important when compared with other hotel attributes. The technology factor included attributes such as in-room printer, in-room personal computer, in-room fax machine, high-speed Internet access, and voice mail.

The *entertainment* factor included attributes such as bar or lounge on property, non-enclosed lobby bar, in-room minibar, pay per view, and web-TV. The *service* factor included express check-in/out, 24 hour room service, full-service restaurant, concierge service, concierge floor, complimentary national newspaper, free incoming fax service, and business center. The *room amenities* factor included six attributes: hair dryer, laundry services, in-room ironing board, full-length mirror, name brand amenities, and alarm clock. The *breakfast* factor included only two attributes: free continental breakfast and supplemental breakfast buffet. Central 800 reservation number, extended information about hotel on-line, and on-line reservation capability were loaded on the *reservations* factor. The g*ender consciousness* factor included two attributes: women only floor and childcare in the hotel. Finally, the *airport* factor included convenience to airport and airport transportation attributes. In the female IPA grid, the *security* and *value* factors were not identified in this quadrant. In addition, the female IPA grid included sustaining technology in Quadrant IV.

Hypothesis 4:

H_0 = The overall importance score of sustaining technology attributes does not significantly differ from the overall importance score of disruptive technology attributes.

H_1= The overall importance score of sustaining technology attributes does significantly differ from the overall importance score of disruptive technology attributes.

A two-tail paired *t* test was conducted on the grand means of importance of sustaining and disruptive technologies to test this hypothesis. As seen in Table 20, the grand importance mean was 3.75 for sustaining technologies and 2.51 for disruptive technologies. This difference was statistically significant at .01 level (t=45.946, df=493, Sig.=.000) (See Table 21). Thus, H_0 was rejected and the hypothesis accepted that the overall importance score of sustaining technology attributes does significantly differ from the overall importance score of disruptive technology attributes.

TABLE XX

SUSTAINING AND DISRUPTIVE TECHNOLOGIES

Disruptive Technologies(DT)	Importance		Satisfaction	
	M[1]	SD[2]	M[3]	SD[2]
Video conferencing capabilities	2.41	1.17	2.78	1.27
Web TV	2.00	1.08	2.43	1.23
Portable/speaker phone in room	2.91	1.31	3.16	1.28
Wireless Internet access in hotel	2.68	1.27	2.81	1.27
In-room personal computer	2.27	1.23	2.76	1.35
In-room fax machine	2.15	1.13	2.66	1.28
In-room printer	2.27	1.17	2.85	1.34
In-room electronic safety boxes	2.67	1.27	3.10	1.30
Extended information about hotel on-line	3.07	1.29	3.27	1.23
On-line reservation capability	3.27	1.26	3.44	1.22
Wireless access to hotel web site	2.10	1.11	2.46	1.21
Smart card read capability	2.76	1.30	2.95	1.33
GRAND MEAN FOR DT	2.51	0.85	2.85	0.95
Sustaining Technologies(ST)				
Express check-in/out	3.53	1.16	4.00	0.99
Smoke, fire, & heat detectors	4.45	0.91	4.35	0.85
Business center	3.46	1.15	3.44	1.17
Central 800 reservation number	3.31	1.18	3.49	1.15
Adequate desk/work space in room	4.20	0.91	4.27	0.90
Good lighting to read/work in the room	4.38	0.78	4.36	0.89
In-room coffee maker	3.38	1.45	3.70	1.33
In-room temperature control	4.51	0.77	4.39	0.86
Remote control TV	4.19	1.00	4.28	0.82
Pay per view	2.44	1.27	2.89	1.29
Phone on desk	4.16	1.00	4.15	0.97
Voice-mail	3.50	1.24	3.63	1.19
Alarm clock	4.25	1.06	4.20	0.95
Easily accessible electrical outlets	4.32	0.89	4.12	0.96
Additional data line accessible to desk	4.01	1.16	3.74	1.21
High speed Internet access	3.55	1.23	3.45	1.30
Electronic key cards	3.56	1.26	3.66	1.23
Automatic teller machine at hotel	3.08	1.31	3.29	1.25
GRAND MEAN FOR ST	3.75	0.62	3.85	0.63

[1] M=Mean (1=Not important at all, 2=A little important, 3=Somewhat important, 4=Important, 5=Very important)
[2] SD=Standard Deviation
[3] M=Mean (1=Not satisfied at all, 2= A little satisfied, 3=Somewhat satisfied, 4= Satisfied, 5=Very satisfied)

TABLE XXI

PAIRED T- TEST OF SUSTAINING AND DISRUPTIVE TECHNOLOGIES

	Sustaining Technologies(ST)		Disruptive Technologies(DT)				
	M[1]	SD[2]	M[3]	SD[2]	Dif.[4]	t[5]	Sig.[6]
Importance	3.75	0.62	2.51	0.85	1.235	45.946	0.000
Satisfaction	3.85	0.63	2.85	0.95	1.000	27.738	0.000

[1] M=Mean (1=Not important at all, 2=A little important, 3=Somewhat important, 4=Important, 5=Very important
[2] SD=Standard Deviation
[3] M=Mean (1=Not satisfied at all, 2= A little satisfied, 3=Somewhat satisfied, 4= Satisfied, 5=Very satisfied
[4] Difference (Sustaining – Disruptive)
[5] t statistics (paired t- test)
[6] Significance

Hypothesis 5:

H_0 = The overall satisfaction score of sustaining technology attributes does not significantly differ from the overall satisfaction score of disruptive technology attributes.

H_1= The overall satisfaction score of sustaining technology attributes does significantly differ from the overall satisfaction score of disruptive technology attributes.

A two-tail paired *t* test was conducted on the grand means of satisfaction of sustaining and disruptive technologies to test this hypothesis. As seen in Table 20, the grand satisfaction mean was 3.85 for sustaining technologies and 2.85 for disruptive technologies. This difference was statistically significant at .01 level (t=27.738, df=391, Sig.=.000) (See Table 21). Thus, H_0 was rejected and the hypothesis accepted that the overall satisfaction score of sustaining technology

attributes does significantly differ from the overall satisfaction score of disruptive technology attributes.

Both hypothesis 5 and 6 supported Christensen's theory about sustaining and disruptive technology. Christensen (1997) argued that there is a significant difference between disruptive and sustaining technologies. Disruptive technology has three characteristics: (1) cheaper than mainstream technology (2) less performance than mainstream technology (3) not demanded by the mainstream customers. However, sustaining technologies are dominant in the market and demanded by the mainstream customers. In this study, mainstream customers, business travelers, perceived sustaining technologies as more important than disruptive technologies. In addition, the performance of sustaining technologies was higher than disruptive technologies in support of Christensen's (1997) theory.

Analysis of Variance

An analysis of variance (ANOVA) test was conducted to test if there was a significant difference in importance factor means between demographic groups. The assumptions for ANOVA were met: (1) Independence: This assumption was met because the sample was chosen by using simple random sampling method. (2) Normality: Boxplots for the variables were visually detected. (3) The homogeneity of variance test was conducted for each variable. There was no significant difference found in age and marital status.

Level of Education

Nine factor means were significantly different from each other when they were compared to respondents' level of education. Table 22 shows the results of this ANOVA. For each factor, the values of sum of squares, degrees of freedom, mean square, F statistics (omnibus significance) and actual significance were provided in Table 22. An F value with a significance of less than 0.05 indicated that the importance means of attributes differed from each other significantly among respondents with different levels of education. The means for importance of *technology, work atmosphere, security, entertainment, service, safety, room amenities, reservations*, and *gender consciousness* factors were significantly different across the respondents' level of education.

TABLE XXII

ANALYSIS OF VARIANCE: EDUCATION – IMPORTANCE FACTORS

FACTOR	Sum of Squares	df	Mean Square	F	Sig.
Technology	19.304	6	3.217	4.322	.000*
Work Atmosphere	6.706	6	1.118	2.370	.029*
Security	34.033	6	5.672	6.171	.000*
Entertainment	13.020	6	2.170	2.853	.010*
Service	11.885	6	1.981	3.193	.004*
Room Comfort & Quality	2.042	6	.340	1.280	.265
Safety	16.138	6	2.690	3.436	.002*
Room Amenities	20.969	6	3.495	5.100	.000*
Value	4.654	6	.776	1.432	.200
Breakfast	12.290	6	2.048	2.085	.053
Reservations	13.538	6	2.256	2.264	.036*
Branding	2.574	6	.429	.888	.503
Gender Consciousness	7.847	6	1.308	2.225	.039*
Airport	4.168	6	.695	.733	.623
Meeting Site Convenience	6.007	6	1.001	1.830	.091

Post-Hoc Analysis: To assess which education levels showed the significant differences, Tukey's post-hoc test was conducted for each significant factor. Table 23 shows the results of post-hoc analysis (α=0.05). Respondents with an associate degree (M=3.12) perceived the *technology* factor as significantly more important than respondents with a bachelor's degree (M=2.51) or master's degree (M=2.64).

In terms of work atmosphere, respondents with a doctorate degree (M=4.35) perceived the *work atmosphere* factor as significantly more important than respondents with a bachelor's degree (M=3.97). The *security* factor was significantly more important for respondents with an associate degree (M=4.07) than respondents with a bachelor's degree (M=3.34), master degree (M=3.42) and doctorate degree (M=3.16).

TABLE XXIII

POST-HOC ANALYSIS FOR LEVEL OF EDUCATION

	LEVEL OF EDUCATION					
	High School(HS)	Associate Degree (AS)	Bachelors Degree (BD)	Masters Degree(MD)	Doctorate Degree(DD)	Other (O)
	Mean	Mean	Mean	Mean	Mean	Mean
1. Technology	2.5333	3.1234	2.5117	2.6414	2.7564	2.9611
Post-hoc (α=0.05)			BD<AS	MD<AS		
2. Work Atmosphere	4.1623	4.1968	3.9776	4.0591	4.3500	3.8762
Post-hoc (α=0.05)			BD<DD			
3. Security	3.7717	4.0773	3.3491	3.4263	3.1607	3.9688
Post-hoc (α=0.05)			BD<AS	MD<AS	DD<AS	
4. Entertainment	2.4818	2.6481	2.2825	2.1782	2.0732	2.1867
Post-hoc (α=0.05)				MD<AS	DD<AS	
5. Service	3.2228	3.5394	3.1295	3.0974	3.3750	3.2578
Post-hoc (α=0.05)			BD<AS	MD<AS		
6. Room Comfort & Quality	4.6857	4.6444	4.5018	4.4689	4.5026	4.5600
Post-hoc (α=0.05)						
7. Safety	4.3375	4.3702	4.1032	3.9566	3.6919	4.2667
Post-hoc (α=0.05)				AS<MD	AS<DD	
8. Room Amenities	3.6583	3.8727	3.2662	3.2619	3.3135	3.4667
Post-hoc (α=0.05)			BD<AS	MD<AS	DD<AS	
9. Value	3.6630	3.6202	3.4527	3.3674	3.5595	3.5000
Post-hoc (α=0.05)						
10. Breakfast	3.5000	3.4364	3.1362	3.0757	2.8810	3.2500
Post-hoc (α=0.05)						
11. Reservations	3.3333	3.5636	3.0732	3.1147	3.3496	3.3125
Post-hoc (α=0.05)			BD<AS	MD<AS		
12. Branding	4.4348	4.2963	4.1748	4.2014	4.1977	4.4062
Post-hoc (α=0.05)						
13. Gender Consciousness	1.5682	1.8558	1.4724	1.5263	1.3537	1.5000
Post-hoc (α=0.05)			AS<BD		AS<DD	
14. Airport	3.2826	3.5091	3.2190	3.3073	3.3140	3.3438
Post-hoc (α=0.05)						
15. Meeting site convenience	3.8864	3.9636	3.7905	3.8733	4.0698	3.9063
Post-hoc (α=0.05)						

Level of Income

Table 24 shows the ANOVA table for importance factors and level of income. For each factor, the values of sum of squares, degrees of freedom, mean square, F statistics (omnibus significance) and actual significance were provided in Table 24. A F value with a significance of less than 0.05 indicated that the importance means of attributes differed from each other significantly among respondents with different levels of income. There were six factors that were found significantly different in importance means across the level of annual income. These were *work atmosphere, security, safety, breakfast, gender consciousness,* and *airport* factors. Tukey's post-hoc analysis showed the pairs that create the overall significance (See Table 25).

TABLE XXIV

ANALYSIS OF VARIANCE: ANNUAL INCOME – IMPORTANCE FACTORS

Factors	Sum of Squares	df	Mean Square	F	Sig.
Technology	2.415	5	.483	.623	.682
Work Atmosphere	6.747	5	1.349	2.867	.014*
Security	27.054	5	5.411	5.820	.000*
Entertainment	5.569	5	1.114	1.442	.207
Service	6.909	5	1.382	2.200	.053
Room Comfort & Quality	.317	5	0.006	.236	.946
Safety	21.044	5	4.209	5.446	.000*
Room Amenities	6.709	5	1.342	1.892	.094
Value	3.510	5	.702	1.294	.265
Breakfast	17.170	5	3.434	3.532	.004*
Reservations	11.624	5	2.325	2.329	.051
Branding	2.979	5	.596	1.238	.290
Gender Consciousness	6.913	5	1.383	2.350	.040*
Airport	13.583	5	2.717	2.923	.013*
Meeting Site Convenience	1.295	5	.259	.467	.801

Post-hoc Analysis: Table 25 shows the results of post-hoc analysis (α=0.05). The w*ork atmosphere* factor was perceived as significantly more important by respondents with more than $100,001 income (M=4.18) than respondents with $25,001-$50,000 income (M=3.83). Respondents with $25,001-$50,000 income (M=3.69), $50,001-$75,000 income (M=3.73), and $75,001-$100,000 income (M=3.54) perceived the *security* factor as more important than respondents with $100,001 and more income (M=3.20).

TABLE XXV
POST-HOC ANALYSIS FOR LEVEL OF INCOME

	ANNUAL INCOME				
	$25,000 or less (A)	$25,0001-$50,000 (B)	$50,001-$75,000 (C)	$75,001-$100,000 (D)	$100,001 or more (E)
	Mean	Mean	Mean	Mean	Mean
1. Technology	2.5333	2.6830	2.7408	2.7265	2.6017
Post-hoc (α=0.05)					
2. Work Atmosphere	4.1000	3.8329	3.9659	4.0840	4.1801
Post-hoc (α=0.05)					5>1
3. Security	3.8750	3.6949	3.7317	3.5496	3.2043
Post-hoc (α=0.05)		B>E	C>E	D>E	
4. Entertainment	2.4600	2.3200	2.2092	2.2541	2.3563
Post-hoc (α=0.05)					
5. Service	3.1375	3.0784	3.1204	3.1567	3.3351
Post-hoc (α=0.05)					
6. Room Comfort & Quality	4.6000	4.5017	4.4757	4.5306	4.5081
Post-hoc (α=0.05)					
7. Safety	4.0625	4.2281	4.2775	4.1835	3.8053
Post-hoc (α=0.05)		B>E	C>E	D>E	
8. Room Amenities	3.2963	3.5367	3.4572	3.3664	3.2193
Post-hoc (α=0.05)					
9. Value	3.7250	3.4353	3.5158	3.5256	3.3607
Post-hoc (α=0.05)					
10. Breakfast	3.4000	3.3814	3.2545	3.2143	2.9086
Post-hoc (α=0.05)		B>E	C>E		
11. Reservations	2.9259	3.3444	3.3393	3.2546	3.0139
Post-hoc (α=0.05)					
12. Branding	4.5500	4.1017	4.2054	4.2578	4.2423
Post-hoc (α=0.05)					
13. Gender Consciousness	1.6500	1.7759	1.5972	1.5163	1.4076
Post-hoc (α=0.05)		B>E			
14. Airport	2.9000	3.3583	3.4286	3.3837	3.1041
Post-hoc (α=0.05)			C>E		
15. Meeting site convenience	3.8333	3.7583	3.9358	3.8583	3.8858
Post-hoc (α=0.05)					

CHAPTER V

SUMMARY, CONCLUSIONS, RECOMMENDATIONS

Summary

The purpose of this study was to ascertain any differences in the needs of female and male business travelers and to ascertain the importance and satisfaction of technology needs for business travelers in selecting hotels. The objectives of this study were to:

1) explore and compare the dimension(s) of attributes that business travelers perceived to be important in their selection of a hotel and their perceived performance of those attributes.
2) determine the relationship between respondent gender and selection dimensions.
3) identify and test a group of selected attributes related to guests' needs for information technology.
4) conduct an Importance-Performance Analysis (IPA) on importance and satisfaction of hotel selection attributes.

The objective of this study related to application of information gained through this study is to report information that will be useful in designing and implementing

marketing programs on individual or corporate levels and determining technology strategy for short-term and long-term guest product and service decisions.

There were five research questions this study attempted to address:

1. What variables are important in business travelers' selection of hotels?
2. Is there a difference between male and female business travelers' identification of attributes in the selection of hotels?
3. Is there a difference between importance of hotel selection attributes and performance of hotels as perceived by business travelers?
4. How important are, specifically, disruptive technology variables in business travelers' selection of hotels?
5. How important are, specifically, sustaining technology variables in business travelers' selection of hotels?
6. Are technology attributes a significant factor in business travelers' selection of hotels?

The population of this study consisted of members of American Management Association. A random sample of 4000 member managers was selected. In order to learn more about technology amenities, services and applications that were demanded by business travelers in the selection of a hotel, a focus-group interview was conducted. The focus group consisted of ten male and female business travelers from the local community.

The questionnaire was developed through a literature review and evaluation of focus group findings, and other questionnaires utilized in similar previous research regarding technology applications in the hospitality industry. The literature review consisted of five

major sections: (1) history of lodging properties, (2) market segmentation, (3) technology in hotel industry, (4) business travelers, and (5) summary. A total of 811 surveys were returned for a 23.4% response rate. The number of usable responses was 590 for a 17% net response rate.

The study employed a self-administered survey with five major sections. The first section asked questions related to respondents' travel behavior such as how often they travel, how many nights they stay per business trip, and favorite hotels. The second section consisted of questions related to Internet use at home and at work.

The third section listed seventy-five attributes related to hotel selection and satisfaction. In this section, survey participants were asked to rate the importance and satisfaction of technology amenities, services, applications, hotel characteristics, room and bathroom characteristics when selecting a hotel.

The fourth section of the instrument listed five amenities and services hotels offer and asked respondents how likely they would be to pay extra for them depending upon if (a) they pay, and (b) their company pays. The final section of the survey consisted of demographic questions which dealt with gender, marital status, age, educational background, annual income, job title, industry, and area of expertise.

Summary of Findings and Conclusions

The average business traveler this study surveyed:

1. stayed two nights per business trip (43.6%),
2. took 12.81 trips or less per year,

3. took family with them (51.5%),
4. combined business trips with vacation (60.7%),
5. spent $100-$150 per hotel night (42.0%),
6. stayed in upscale hotels (52.9%),
7. was a member of a hotel frequent guest program (62.5%),
8. used a travel agent to book a hotel (46.44%),
9. attended trade association meeting/convention (25.6%),
10. had access to Internet at home or work (99.8%),
11. had an email address (99.8%),
12. spent 30 minutes to one hour on the Internet per day (32.8%), and
13. purchased something on the Internet 1-4 times a year (43.8%).

The number of trips which business travelers took per year increased over the years. In a study conducted in 1994, the average number of trips male business travelers took was 11, while female business travelers took 7.4 trips (McCleary, Weaver & Lan, 1994). Even though this was a sample from two different populations, it suggests that business travel has maintained its pace or even increased. However, the percentage of business travelers who took family with them dropped from 75% to 51.5%. In 1996, only one percent of business travelers used the Internet to make reservations (Rowe, 1996). However, in this study almost 15% used the Internet to book a hotel room. This difference might suggest the shift in business travelers' confidence in doing business on the Internet. This finding reflected another finding of this study that 91% of the respondents purchased something on the Internet.

Over 90% of the respondents rated cleanliness of hotel, comfortable mattress and pillows, convenience to meeting site, in-room temperature control, well-maintained furnishings, and friendly service of hotel staff important to very important in selecting a hotel. This finding was similar to previous business traveler studies conducted (Cobanoglu, Corbaci & Moreo, 2001; Lewis, 1984; Sammons et al., 1999; McGee, 1988). Over 80% of the respondents rated cleanliness of hotel, friendly service of hotel staff, well-maintained furnishings, comfortable mattress and pillows, hotel location, in-room temperature control, convenience to meeting site, non-smoking rooms, good lighting to read/work in the room, dead bolt door locks/chain locks, smoke, fire, and heat detectors, remote control TV, adequate desk/work space in room, and alarm clock as satisfactory to very satisfactory. When these two lists were compared, only cleanliness of hotel was rated satisfied to very satisfied by over 90% of the respondents. All the other attributes were rated as satisfied to very satisfied by over 80% of the respondents. It appears that hoteliers are doing a good job in satisfying the most important needs of business travelers.

Male and female business travelers differed in importance ratings in almost half of hotel the selection attributes. Female respondents placed more importance on twenty-eight attributes than their male counterparts. These differences might be categorized as safety and security attributes (i.e. Security personnel on duty 24 hours a day, Surveillance cameras in hallways, Room numbers not on keys, Peep holes), room amenities (i.e. Name brand amenities, In-room ironing board and iron, Hair dryer, Full length mirror, Alarm clock), and gender consciousness (i.e. Women only floor, 24-hour room service) Only four attributes were perceived as more important by male respondents than female

respondents: adequate desk/work space in room, complimentary national newspaper, hotel frequent travel program, and pay per view. In addition, an analysis of the grand mean of importance attributes showed that the grand mean of female respondents was statistically greater than male respondents. The grand mean of importance attributes for male respondents was 3.25 and 3.35 for female respondents (1=Not important at all, 5=Very Important). It appears that women are more demanding than men in selecting a hotel.

Similarly, male and female respondents differed in satisfaction ratings in more than half of the attributes. Female respondents were more satisfied with 42 of the 75 attributes than their male counterparts. In addition, an analysis of the grand mean of satisfaction showed that the grand mean of female respondents was statistically greater than male respondents. The grand mean of importance attributes for male respondents was 3.39 and 3.65 for female respondents (1=Not satisfied at all, 5=Very satisfied). It appears that women are relatively more easily satisfied compared to men. In other words, female business travelers made the attributes that are important to them clear and their satisfaction levels were higher. Men appeared to be in a position that they don't as emphatically identify what is important in their hotel selection and satisfaction. Finally, the analysis of the actual means might suggest that male and females' importance and satisfaction scores might be only mildly different between male and female respondents in practical terms and considering the large sample size. Hoteliers and investors would do well to take the practical significance of these findings into account before making any decisions.

Factor analysis of importance attributes revealed 15 factors: *technology, work atmosphere, security, entertainment, service, room comfort and quality, safety, room amenities, value, breakfast, reservations, branding, gender consciousness, airport, and meeting site convenience.* In previous studies, the *technology* factor was not reported as a significant individual factor. In this study, the *technology* factor had the largest eigenvalue indicating that it explained almost 9 percent of the whole variance by itself. The mean of the technology factor was 2.69 (1=Not important at all, 5=Very Important) indicating that technology, as a factor, was somewhat important.

An in-depth analysis of the *technology* factor indicated that it was composed of disruptive and sustaining technologies. Disruptive technologies, as Christensen (1997) suggested, were new technologies and innovations that resulted in less performance compared to sustaining technologies and mainstream customers did not demand. When the technology factor attributes were categorized into disruptive and sustaining technologies, the importance means for both groups suggested that disruptive technologies were perceived significantly less important than sustaining technologies. The overall mean for disruptive technologies was 2.51 while the overall mean for sustaining technologies was 3.75 (1=Not important at all, 5=Very Important).

This finding supported Christensen's (1997) theory. Hoteliers might use this information to identify disruptive and sustaining technologies as perceived by business travelers. They might revise their information technology strategies to include sustaining technologies in the short-run to meet mainstream customer needs and also make plans to include disruptive technologies in the long-run when they will become "sustaining" or "mainstream." This is particularly important because disruptive technologies were

usually ignored by most companies simply because they were not demanded by mainstream customers when they were first introduced (Christensen, 1997). In addition, the hospitality industry is traditionally slow to react to technology changes (Olsen, Connolly & Allegro, 2000). However, when disruptive technologies became sustaining, it might be too late to adopt them in a timely fashion. Wireless hotel networks might be an example of this. Currently, a wired network for hotels is sustaining technology. The majority of the hotels provide laptop hookups for their guests from the room as a wired solution. At the same time, providing wireless Internet access to guests would be a disruptive technology because it would offer lower performance and not be demanded by the mainstream customer base. If hotels ignore this disruptive technology, wireless networks, they might focus their investments on wired networks, such as providing direct T-1 or T-3 Internet access from each room. But then, they might find themselves amortizing a large investment and time loss when wireless networks became a sustaining technology. It is also important to note that investing in disruptive technology has high risk and that timing would be critical in making such decisions. Nevertheless, hoteliers and investors need to be aware of the issues of sustaining and disruptive technologies.

Work atmosphere, security, service, room comfort and quality, safety, room amenities, value, branding, gender consciousness, airport, and meeting site were common factors from factor analysis in previous studies (Cobanoglu et al., 2001; Lewis, 1984; McCleary et al., 1994; Sammons et al., 1999). This could suggest that the basic needs of business travelers are not changed. Surprisingly, *parking* did not load as a factor in this study. The reason for this might be that parking may be perceived as a necessity for hotels, therefore ignored by business travelers. In this study, so-called female related

questions loaded as a single factor. It is important to note that the mean for this factor was only 1.42 for male business travelers 1.68 for female business travelers (1=Not important at all, 5=Very important). This suggested that loading as a factor does not necessarily mean that the factor was important in hotel selection. This finding was similar to the Sammons et al. (1999) study but was different from Bard (1990), Gable and Sipkoff (1987), and McCleary et al. (1994). In the Sammons et al. (1999) study, the so-called female related factor (single-sensitivity) included three attributes with a mean of 2.50 (1=Not at all important, 5=Very important): high booths for single diners, captains table hosted by manager for singles, and women only floor. This factor in the current study included two attributes: women only floor and child care facility in the hotel. However the means for these two attributes were weak.

The *room comfort and quality* factor included the following attributes: cleanliness of hotel, friendly service of hotel staff, comfortable mattress and pillows, in-room temperature control, and remote control TV. The reason "friendly service of hotel staff" attribute loaded on this factor might be that this attribute may be perceived as one of the indicators of "quality" in a hotel. In other words, "friendly service of hotel staff" might be considered as a factor that contributes to guests' "feel good" atmosphere. A friendly staff might enhance their perception of comfort.

Importance-Performance Analysis (IPA) was employed to compare male and female business travelers' perceptions of the derived factors. IPA showed that male and female respondents had similar perceptions towards 15 hotel selection factors. There were no factors identified in the "Possible Overkill" quadrant while there were four factors, *work atmosphere and room comfort and quality, safety,* and *branding*, identified

in the "Keep up the Good Work" quadrant indicating that these factors were perceived as important by business travelers and at the same time as satisfactory. The *meeting site convenience* factor was the only derived factor that was identified in the "Concentrate here" quadrant for female respondents indicating that this factor was important for them but not perceived high in satisfaction.

Technology, entertainment, service, room amenities, breakfast, reservations, gender consciousness, and *airport* factors were identified in the "Low Priority" quadrant indicating these factors had relatively lower importance and satisfaction. Although the result showed that both male and female respondents did not perceive these factors as relatively important, this might not indicate that hoteliers should reduce their efforts to improve such services. In addition, these attribute categories were often considered as the basic attributes for business travelers (Sammons et al, 1999). Business travelers, in particular, might consider these attributes as necessary without contemplating their importance, given their frequency of travel. This information might be critical considering that a study found that 68 percent of U.S. companies responded to higher travel costs by reducing the number of company employees who travel (Nozar, 2001). It could might mean that the competition to gain the business travelers market would increase due to the cyclical nature of the economy, supply and demand. It is also important to note that the *service* factor does not refer to quality or friendliness of service, but rather what might be considered service extras.

The means for importance of *technology, work atmosphere, security, entertainment, service, safety, room amenities, reservations*, and *gender consciousness* factors were significantly different across the respondents' level of education. In general,

business travelers with associate degrees perceived factors more important than business travelers with other education levels. But, why do business travelers with associate degrees perceive these attributes more important? One speculation could be that associate degree holders tend to be more involved in service technology as tech-reps, installation technicians, etc. and so, are deeply involved in technology as well as very frequent travel.

This study also showed that there was a difference among respondents with different level of income. High-income level respondents perceived the *work atmosphere* factor as more important than lower income respondents. Lower income level respondents perceived the *security* and *safety* factors as more important than high-income level respondents. The reason for this might be that the high-income level respondents are confident with the hotel brands they stay in. It also could be because females had lower income than males in this study and these factors were more important to female respondents. Thus, the high-income respondents may not be worried about safety and security as much as the other income groups. It appears that this finding would support marketing segmentation considerations as a valid marketing strategy on which hoteliers should focus. Giving this market what they tell hoteliers they want should attract them.

Implications

The results of this study have important marketing and strategic implications. This study suggests that sustaining technologies are important for business travelers' hotel selection. As the concept of the office away from office is rapidly spreading throughout the hotel industry, it is important that hotels offer and promote sustaining technology products, services and facilities. It is also important for hotel managers to identify

disruptive technologies as they have a great potential to become sustaining technology. For example, ignoring wireless reservation capability though cellular phone and personal digital assistants might result in market loss after it becomes a sustaining technology.

The percentage of business travelers who use the Internet to make reservations is striking compared to data from only several years ago. It is clearly very important for business travelers and its importance will continue to increase. It is important for hoteliers to see this clear trend and implement web solutions for their guests if they do not have one in place. The use of the Internet has made it very easy to compare different hotels within the same location and segment. Therefore branding could become less important. Hotel managers should look into strategies of technology to give them a competitive advantage besides price.

The information gained in this study could benefit the hotel industry in particular and hospitality and tourism industry in general so that they can offer and design products, services and facilities that fit the evolving needs of business travelers.

Recommendations

Based on the findings of this study, the following recommendations are offered for consideration:

1) Hoteliers could develop an extensive web site which includes on-line reservation and wireless device capability if they don't have one. If they do have one, they

may revise and evaluate it to determine if it meets the current and future needs of business travelers.

2) Hotels should constantly give detailed attention to the cleanliness of hotel rooms since this single attribute was the most important attribute in this study and previous ones.

3) Managers and operators would do well to review the importance and satisfaction means presented in this study. Special focus on sustaining technology items would serve well for short and mid-term strategies. Hotel system managers and marketing executives might spend time to identify disruptive technologies. A focus on disruptive technologies would help hoteliers to determine a long-term strategy and keep up with competition. However, managers and operators may need to realize that there is higher risk associated with disruptive technologies. A special focus may be given to technical support for guests in the hotel since different technologies offered in a hotel may not be easy for all guests to use.

4) Since female business travelers placed significantly more importance on safety and security attributes, hoteliers would do well to revise their services and facilities to meet the safety/security need of this market and emphasize these services and facilities in their promotions when marketing to female business travelers.

5) Hoteliers might emphasize adequate desk/work space in room, complimentary national newspapers, and pay-per-view attributes in their marketing efforts when targeting male business travelers.

6) Managers and operators would do well to analyze the four quadrants of Importance-Performance Analysis grid. Factors in each quadrant may be an indication of a different strategy to follow depending upon the individual market position of the hotel.

7) Hoteliers could develop facilities and services that would make their hotels more accessible and convenient to meeting sites as this factor was the only factor that was identified in "Concentrate here" quadrant for female business travelers. It is almost impossible to change the location of a hotel to make it closer to a meeting site. However, services such as free shuttle to and from meeting site might be implemented or a secure subway or a bridge might be built to a meeting site directly from the hotel. Additionally, advertising, brochures and familiarization visits could address the convenience of the hotel to a meeting site

8) Marketing managers might develop marketing strategies which promote the factors that were identified in the "Low Priority" quadrant of IPA grid. Both male and female respondents did not perceive these factors as relatively important and these attribute categories were often considered as the basic attributes to business travelers (Sammons et al., 1999). With promotion and advertising, business travelers might realize the importance of these attributes and therefore increase satisfaction.

9) Marketing managers would do well to review the selection attribute importance differences among respondents with different levels of education and income. For example, hotels that targeted educated business travelers such as educators,

doctors, and executives might offer rooms with larger workspace to business travelers with a higher level of education.

10) Hotel designers would do well to review the findings of this study to meet the needs of business travelers in the most efficient ways, especially for design and layout desires as expressed in the study concerning guest rooms, lights, etc.

Future Research

Future research might replicate this study in international markets such as Canada, Europe and Asia to see if differences exist between American and International business travelers. This study may specifically help American chains that operate internationally. This study may be also replicated in specific hotels to identify the actual impact of factors in selecting a hotel by using multiple regression method. Another study might investigate actual usage patterns of technology attributes of business travelers along with reasons. One study could focus on cost-profit analysis of disruptive and sustaining technologies implemented in hotels. Finally, one could research the reasons about why and how level of education and income affect business travelers' perceptions regarding hotel selection attributes. Such information could aid in target marketing.

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APPENDIXES

APPENDIX A

COVER LETTER

COVER LETTER FOR MAIL SURVEY METHOD

March 19, 2001

Dear Business Executive,

We are asking you to participate in a study entitled "**An Analysis of Business Travelers' Selection of Hotels"** Would you please take 15-20 minutes of your time and complete it by April 9, 2001? Your input is extremely important to the outcome of this study. The results of this study will be published in hospitality journals and magazines. Therefore, it will impact the service you will receive from hotels in the future. It is a great way to tell hoteliers what you like, dislike, and demand new services/amenities.

This study is being undertaken by an Oklahoma State University graduate student Cihan Cobanoglu as he pursues his Ph.D. Degree in the School of Hotel and Restaurant Administration. Your response is completely **voluntary, anonymous,** and will be kept strictly **confidential**. There is a code in the survey for tracking purposes only. The responses will be reported in aggregate form.

If you would like to receive the results of this study, please fill out the form enclosed with your survey or email cobanog@okstate.edu with your name and email address. As a token of our appreciation, please accept the enclosed luggage tag. In addition, we will have a drawing on June 1, 2001 for two free nights at an upscale hotel.

Thank you for participating in this project. If you have any questions or need further assistance, please call us at (405) 744 8094. We look forward to receiving your response, thank you again.

Sincerely,

Patrick J. Moreo, Ed.D., CHA
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COVER LETTER FOR WEB-BASED SURVEY METHOD

March 19, 2001

Dear Business Executive,

We are asking you to participate in a study entitled "**An Analysis of Business Travelers' Selection of Hotels"** Would you please take 15-20 minutes of your time and complete it by April 9, 2001? Your input is extremely important to the outcome of this study. The results of this study will be published in hospitality journals and magazines. Therefore, it will impact the service you will receive from hotels in the future. It is a great way to tell hoteliers what you like, dislike, and demand new services/amenities.

This study is being undertaken by an Oklahoma State University graduate student Cihan Cobanoglu as he pursues his Ph.D. Degree in the School of Hotel and Restaurant Administration. Your response is completely **voluntary, anonymous,** and will be kept strictly **confidential**. There is a code in the survey for tracking purposes only. The responses will be reported in aggregate form.

Please go here http://216.18.71.7/studies/cihan
Please use [code] as your passcode to log into the survey

If you would like to receive the results of this study, please fill out the form after taking the survey or email cobanog@okstate.edu with your name and email address. As a token of our appreciation, we will enter you in a drawing on June 1, 2001 for two free nights at an upscale hotel, as well as offer you a free luggage tag.

Thank you for participating in this project. If you have any questions or need further assistance, please call us at (405) 744 8094. We look forward to receiving your response, thank you again.

Sincerely,

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APPENDIX B

QUESTIONNAIRE

Section I: Travel Behavior

Please circle only ONE answer or fill in the blank.

1) On average, how many nights **a month**, do you spend in a hotel for business travel? _____

2) On average, how much do you pay **per night** for a hotel room? $_____

3) In which hotel classification do you choose to stay on most business trips?

a) Luxury (i.e. Four Seasons, Ritz Carlton)
b) Upscale (i.e. Hyatt, Sheraton, Hilton, Marriott)
c) Mid-scale (i.e. Courtyard, Holiday Inn)
d) Economy (i.e. Red Roof Inns, Hampton Inns)
e) Other: _____(please specify)

4) Please list your three **most** "favorite" hotel brand?

a) _____
b) _____
c) _____

5) Please list your three **least** "favorite" hotel brand?

a) _____
b) _____
c) _____

6) If you research the hotels before making reservation, how often do you use the Internet, regardless of whether you actually book online or not:

a) Never
b) Rarely
c) Sometimes
d) Often
e) Always

7) When traveling on business, what percentage of the time do you book your hotel accommodations in the following manner:

a) Use a travel agent %_____

b) Call a toll free 800 reservation number %_____

c) Call the hotel directly %_____

d) Use a hotel directory %_____

e) Book over the Internet %_____

f) Other _____(please specify) %_____

Total: % 100

8) Do you belong to any hotel frequent guest programs?

a) Yes b) No ➔ If no, please go to Question 10

9) Which hotel frequent guest programs do you belong to? Please circle all that apply

a) Crowne Plaza
b) Hilton
c) Holiday Inn
d) Hyatt
e) Marriott
f) Starwood
g) Wyndham International
h) Other_____(please specify)

10) How many business trips did you take **last year**?

_____

11) On how many of these trips did you take your family with you? _____

12) On how many of these trips did you combine business with vacation by extending your stay through the weekend? _____

13) As you filled out this questionnaire, what business travel situation did you most often picture? (check only one)

a) Travel to make a sales call
b) Travel to attend a company meeting
c) Travel to attend trade association meeting/convention
d) Travel to meet with people within the company
e) Travel to meet with people outside the company (but not to make a sales call)
f) More than one situation
g) Other_____(please specify)

Section II: Internet Use

Please circle only ONE answer or fill in the blank.

1) Do you have access to Internet?

a) At home
b) At Work
c) Both at home and work
d) No ➔ If no, please go to Question 4

2) How long do you spend on the Internet?

a) Less than 30 minutes per day
b) 30 minutes to one hour per day
c) 1-2 hours per day
d) 2-5 hours per day
e) More than 5 hours per day

3) How often do you purchase something on the Internet

a) 1-4 times a year
b) 1-4 times a month
c) 1-4 times a week
d) 1-4 times a day
e) Never purchased on the Internet

4) Do you have an e-mail address?

a) A business e-mail address
b) A personal e-mail address
c) Both business and personal e-mail addresses
d) No ➔ If no, please go to Section III.

5) Approximate number of e-mails received daily? (excluding junk email) _____

Section III. The following is a list of attributes which could be play a role in selecting and being satisfied at a hotel. Circle the level of importance and satisfaction from 1 to 5 for each statement. Please use the following scales:

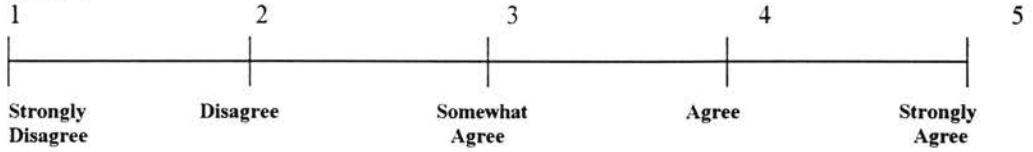
IMPORTANCE when **deciding** on a hotel
1- Not important at all
2- A little important
3- Somewhat important
4- Important
5- Very Important
NA- Not Applicable

SATISFACTION when **staying** at a hotel
1- Not satisfied at all
2- Satisfied a little
3- Somewhat satisfied
4- Satisfied
5- Very satisfied
NA- Not Applicable

		IMPORTANCE						SATISFACTION					
1	Convenience to airport												
2	Convenience to meeting site	1	2	3	4	5	NA	1	2	3	4	5	NA
3	Hotel location	1	2	3	4	5	NA	1	2	3	4	5	NA
4	Airport transportation	1	2	3	4	5	NA	1	2	3	4	5	NA
5	Cleanliness of hotel	1	2	3	4	5	NA	1	2	3	4	5	NA
6	Friendly service of hotel staff	1	2	3	4	5	NA	1	2	3	4	5	NA
7	Reputation of hotel	1	2	3	4	5	NA	1	2	3	4	5	NA
8	Consistency and reliability of chain brand between locations	1	2	3	4	5	NA	1	2	3	4	5	NA
9	Availability of special discounts	1	2	3	4	5	NA	1	2	3	4	5	NA
10	Hotel frequent travel program	1	2	3	4	5	NA	1	2	3	4	5	NA
11	Express check-in/check out	1	2	3	4	5	NA	1	2	3	4	5	NA
12	Price of accommodations	1	2	3	4	5	NA	1	2	3	4	5	NA
13	Free local telephone calls	1	2	3	4	5	NA	1	2	3	4	5	NA
14	No surcharge on long-distance calls	1	2	3	4	5	NA	1	2	3	4	5	NA
15	On-premise free parking	1	2	3	4	5	NA	1	2	3	4	5	NA
16	Security personnel on duty 24 hours a day	1	2	3	4	5	NA	1	2	3	4	5	NA
17	Visible security personnel	1	2	3	4	5	NA	1	2	3	4	5	NA
18	Surveillance cameras in hallways	1	2	3	4	5	NA	1	2	3	4	5	NA
19	Bright hallway lighting	1	2	3	4	5	NA	1	2	3	4	5	NA
20	Smoke, Fire & Heat Detectors	1	2	3	4	5	NA	1	2	3	4	5	NA
21	Women only floor	1	2	3	4	5	NA	1	2	3	4	5	NA
22	Child care facility in the hotel	1	2	3	4	5	NA	1	2	3	4	5	NA
23	Room numbers not on keys	1	2	3	4	5	NA	1	2	3	4	5	NA
24	Dead bolt door locks / Chain locks	1	2	3	4	5	NA	1	2	3	4	5	NA
25	Peep holes	1	2	3	4	5	NA	1	2	3	4	5	NA
26	Sports facilities (e.g., Swimming pool, Whirlpool or Jacuzzi, etc.)	1	2	3	4	5	NA	1	2	3	4	5	NA
27	24-hour room service	1	2	3	4	5	NA	1	2	3	4	5	NA
28	Full-service restaurant	1	2	3	4	5	NA	1	2	3	4	5	NA
29	Free continental breakfast	1	2	3	4	5	NA	1	2	3	4	5	NA
30	Supplemental breakfast buffet	1	2	3	4	5	NA	1	2	3	4	5	NA
31	Bar or lounge on property	1	2	3	4	5	NA	1	2	3	4	5	NA
32	Non-enclosed lobby bar	1	2	3	4	5	NA	1	2	3	4	5	NA
33	Meeting facilities	1	2	3	4	5	NA	1	2	3	4	5	NA
34	Video-conferencing capabilities	1	2	3	4	5	NA	1	2	3	4	5	NA
35	Concierge service	1	2	3	4	5	NA	1	2	3	4	5	NA
36	Concierge floor	1	2	3	4	5	NA	1	2	3	4	5	NA
37	Complimentary national newspaper	1	2	3	4	5	NA	1	2	3	4	5	NA
38	Free incoming fax service	1	2	3	4	5	NA	1	2	3	4	5	NA
39	Business centers (computers, fax, copiers)	1	2	3	4	5	NA	1	2	3	4	5	NA
40	Central 800 reservation number	1	2	3	4	5	NA	1	2	3	4	5	NA
41	Non-smoking rooms	1	2	3	4	5	NA	1	2	3	4	5	NA
42	Suite rooms	1	2	3	4	5	NA	1	2	3	4	5	NA
43	Adequate desk/work space in room	1	2	3	4	5	NA	1	2	3	4	5	NA

		IMPORTANCE						SATISFACTION					
44	Good lighting to read/work in the room	1	2	3	4	5	NA	1	2	3	4	5	NA
45	Well maintained furnishings	1	2	3	4	5	NA	1	2	3	4	5	NA
46	Comfortable mattress and pillows	1	2	3	4	5	NA	1	2	3	4	5	NA
47	Hair dryer	1	2	3	4	5	NA	1	2	3	4	5	NA
48	Laundry services	1	2	3	4	5	NA	1	2	3	4	5	NA
49	In-room ironing board and iron	1	2	3	4	5	NA	1	2	3	4	5	NA
50	Full length mirror	1	2	3	4	5	NA	1	2	3	4	5	NA
51	Name brand amenities	1	2	3	4	5	NA	1	2	3	4	5	NA
52	In-room coffee maker	1	2	3	4	5	NA	1	2	3	4	5	NA
53	In-room minibar	1	2	3	4	5	NA	1	2	3	4	5	NA
54	In-room temperature control	1	2	3	4	5	NA	1	2	3	4	5	NA
55	Remote control TV	1	2	3	4	5	NA	1	2	3	4	5	NA
56	Pay per view	1	2	3	4	5	NA	1	2	3	4	5	NA
57	Web TV	1	2	3	4	5	NA	1	2	3	4	5	NA
58	Phone on desk	1	2	3	4	5	NA	1	2	3	4	5	NA
59	Portable/Speaker phone in room	1	2	3	4	5	NA	1	2	3	4	5	NA
60	Voice-mail	1	2	3	4	5	NA	1	2	3	4	5	NA
61	Alarm clock	1	2	3	4	5	NA	1	2	3	4	5	NA
62	Easily accessible electrical outlets	1	2	3	4	5	NA	1	2	3	4	5	NA
63	Additional data line accessible to desk	1	2	3	4	5	NA	1	2	3	4	5	NA
64	High-speed Internet access	1	2	3	4	5	NA	1	2	3	4	5	NA
65	Wireless Internet access in hotel	1	2	3	4	5	NA	1	2	3	4	5	NA
66	In-room personal computer	1	2	3	4	5	NA	1	2	3	4	5	NA
67	In-room fax machine	1	2	3	4	5	NA	1	2	3	4	5	NA
68	In-room printer	1	2	3	4	5	NA	1	2	3	4	5	NA
69	In-room electronic safety boxes	1	2	3	4	5	NA	1	2	3	4	5	NA
70	Extended information about hotel on-line	1	2	3	4	5	NA	1	2	3	4	5	NA
71	On-line reservation capability	1	2	3	4	5	NA	1	2	3	4	5	NA
72	Wireless access to hotel website (Palm)	1	2	3	4	5	NA	1	2	3	4	5	NA
73	Electronic key cards	1	2	3	4	5	NA	1	2	3	4	5	NA
74	Smart card read capability	1	2	3	4	5	NA	1	2	3	4	5	NA
75	Automatic Teller Machine at hotel	1	2	3	4	5	NA	1	2	3	4	5	NA

Section IV. **Please circle only ONE number in each column for each statement and use the following scale.**



I am willing to pay extra for the following technology amenities/services in my hotel:

		If I pay					If my company pays				
1.	Fast Internet access	1	2	3	4	5	1	2	3	4	5
2.	Exercise equipment in room	1	2	3	4	5	1	2	3	4	5
3.	Child-care facility in the hotel	1	2	3	4	5	1	2	3	4	5
4.	In-room electronic safety boxes	1	2	3	4	5	1	2	3	4	5
5.	In-room fax machine	1	2	3	4	5	1	2	3	4	5

Section V. Demographics

Please circle only ONE answer or fill in the blank.

1) Are you: a) Male b) Female

2) What is your age?
- a) 25 or younger
- b) 26-35
- c) 36-45
- d) 46-55
- e) 56-65
- f) 66 or older

3) Are you:
- a) Single /Widowed/ Separated
- b) Married with children
- c) Married with no child

4) What is you level of education?
- a) High School
- b) Associate degree (2 year)
- c) Bachelors Degree (4 year)
- d) Masters Degree
- e) Doctorate Degree
- f) Other:_____

5) What is your approximate **annual** income?
- a) $25,000 or less
- b) $25,001- $50,000
- c) $50,001-$75,000
- d) $75,001-$100,000
- e) 100,001 or more

6) Where is **primary** state of residence?

_____

7) What is your area of expertise? (i.e. Accounting, Engineer):

_____

8) What is your job title?(i.e. Manager, Vice President, President, COE)

_____

9) What is your industry? (i.e. Pharmaceutical, Manufacturing, Service, Retail)

_____

THANK YOU!

APPENDIX C

IMPORTANCE AND SATISFACTION ATTRIBUTES TABLES

ATTRIBUTES IMPORTANT TO THE SELECTION OF A HOTEL (N=590)

		Male		Female		Total				
	Attribute	M[1]	SD[2]	M[1]	SD[2]	M[1]	SD[2]	Dif.[3]	t[4]	Sig.[5]
1	Convenience to airport	3.17	1.14	3.21	1.11	3.19	1.13	-0.04	-0.401	0.689
2	Convenience to meeting site	4.58	0.66	4.69	0.59	4.62	0.63	-0.11	-2.087	0.037
3	Hotel location	4.10	0.81	4.34	0.76	4.19	0.80	-0.24	-3.544	0.000
4	Airport transportation	3.29	1.20	3.57	1.16	3.40	1.19	-0.28	-2.801	0.005
5	Cleanliness of hotel	4.80	0.48	4.86	0.40	4.83	0.45	-0.06	-1.651	0.099
6	Friendly service of hotel staff	4.39	0.74	4.49	0.70	4.43	0.73	-0.10	-1.732	0.084
7	Reputation of hotel	4.15	0.83	4.22	0.76	4.18	0.80	-0.07	-0.991	0.322
8	Consistency and reliability of chain brand between locations	4.26	0.83	4.23	0.86	4.25	0.84	0.03	0.408	0.684
9	Availability of special discounts	3.37	1.01	3.50	1.05	3.42	1.03	-0.13	-1.584	0.114
10	Hotel frequent travel program	3.02	1.22	2.72	1.22	2.91	1.23	0.30	2.891	0.004
11	Express check-in/check out	3.53	1.13	3.51	1.21	3.53	1.16	0.02	0.22	0.826
12	Price of accommodations	4.15	0.78	4.13	0.78	4.14	0.78	0.02	0.291	0.771
13	Free local telephone calls	3.39	1.26	3.43	1.26	3.41	1.26	-0.04	-0.338	0.736
14	No surcharge on long-distance calls	3.60	1.29	3.67	1.27	3.63	1.28	-0.07	-0.659	0.510
15	On-premise free parking	3.68	1.17	3.74	1.24	3.70	1.20	-0.06	-0.586	0.558
16	Security personnel on duty 24 hours a day	3.54	1.06	4.01	1.07	3.72	1.09	-0.47	-5.15	0.000
17	Visible security personnel	3.16	1.06	3.67	1.13	3.35	1.12	-0.51	-5.469	0.000
18	Surveillance cameras in hallways	2.89	1.05	3.41	1.21	3.09	1.14	-0.52	-5.559	0.000
19	Bright hallway lighting	3.45	1.03	4.10	1.03	3.70	1.08	-0.65	-7.487	0.000
20	Smoke, Fire & Heat Detectors	4.34	0.98	4.60	0.80	4.44	0.92	-0.26	-3.313	0.001
21	Women only floor	1.41	0.77	1.89	1.08	1.60	0.94	-0.48	-6.257	0.000
22	Child care facility in the hotel	1.44	0.81	1.47	0.84	1.45	0.82	-0.03	-0.437	0.662
23	Room numbers not on keys	3.13	1.40	3.85	1.25	3.41	1.39	-0.72	-6.31	0.000
24	Dead bolt door locks / Chain locks	4.14	1.04	4.65	0.69	4.34	0.95	-0.51	-6.519	0.000
25	Peep holes	3.85	1.15	4.44	0.90	4.07	1.10	-0.59	-6.546	0.000
26	Sports facilities (e.g., Swimming pool, Whirlpool or Jacuzzi, etc.)	3.58	1.12	3.59	1.16	3.58	1.14	-0.01	-0.132	0.895
27	24-hour room service	3.01	1.13	3.41	1.18	3.17	1.16	-0.40	-4.081	0.000
28	Full-service restaurant	3.56	1.08	3.81	1.01	3.66	1.06	-0.25	-2.797	0.005
29	Free continental breakfast	3.30	1.09	3.36	1.11	3.52	1.10	-0.06	-0.673	0.501
30	Supplemental breakfast buffet	2.97	1.05	2.92	1.16	2.95	1.10	0.05	0.577	0.564
31	Bar or lounge on property	2.67	1.32	2.62	1.26	2.65	1.30	0.05	0.407	0.684
32	Non-enclosed lobby bar	2.08	1.04	2.01	1.02	2.05	1.03	0.07	0.826	0.409
33	Meeting facilities	3.08	1.20	3.20	1.33	3.12	1.25	-0.12	-1.172	0.242
34	Video-conferencing capabilities	2.31	1.11	2.44	1.28	2.36	1.18	-0.13	-1.28	0.201
35	Concierge service	2.69	1.10	2.96	1.22	2.79	1.16	-0.27	-2.869	0.004
36	Concierge floor	2.43	1.13	2.48	1.27	2.45	1.19	-0.05	-0.48	0.631
37	Complimentary national newspaper	3.44	1.15	3.19	1.29	3.34	1.21	0.25	2.366	0.018
38	Free incoming fax service	3.22	1.21	3.14	1.28	3.19	1.24	0.08	0.71	0.478
39	Business centers (computers, fax, copiers)	3.38	1.16	3.47	1.17	3.41	1.17	-0.09	-0.971	0.332
40	Central 800 reservation number	3.20	1.19	3.33	1.23	3.25	1.21	-0.13	-1.308	0.191

table continues

	Attribute	Male M[1]	Male SD[2]	Female M[1]	Female SD[2]	Total M[1]	Total SD[2]	Dif.[3]	t[4]	Sig.[5]
41	Non-smoking rooms	4.49	1.01	4.42	1.10	4.46	1.05	0.07	0.735	0.463
42	Suite rooms	3.18	1.09	3.14	1.23	3.16	1.15	0.04	0.454	0.650
43	Adequate desk/work space in room	4.25	0.84	4.10	0.98	4.19	0.90	0.15	2.067	0.039
44	Good lighting to read/work in the room	4.39	0.76	4.33	0.78	4.37	0.77	0.06	1.019	0.309
45	Well maintained furnishings	4.39	0.75	4.43	0.72	4.41	0.74	-0.04	-0.589	0.556
46	Comfortable mattress and pillows	4.59	0.66	4.63	0.62	4.61	0.65	-0.04	-0.687	0.493
47	Hair dryer	2.63	1.31	4.08	1.11	3.19	1.42	-1.45	-13.827	0.000
48	Laundry services	2.68	1.10	2.99	1.24	2.80	1.17	-0.31	-3.154	0.002
49	In-room ironing board and iron	3.40	1.27	4.20	0.93	3.71	1.22	-0.80	-8.222	0.000
50	Full length mirror	2.98	1.17	3.95	1.08	3.36	1.23	-0.97	-10.105	0.000
51	Name brand amenities	2.60	1.10	2.93	1.19	2.73	1.15	-0.33	-3.415	0.001
52	In-room coffee maker	3.22	1.42	3.50	1.53	3.33	1.47	-0.28	-2.301	0.022
53	In-room minibar	2.25	1.13	2.44	1.26	2.32	1.18	-0.19	-1.927	0.054
54	In-room temperature control	4.48	0.77	4.56	0.75	4.51	0.76	-0.08	-1.118	0.264
55	Remote control TV	4.19	0.96	4.20	1.04	4.19	0.99	-0.01	-0.107	0.915
56	Pay per view	2.47	1.25	2.24	1.28	2.38	1.27	0.23	2.197	0.028
57	Web TV	2.00	1.08	1.85	1.04	1.94	1.06	0.15	1.638	0.102
58	Phone on desk	4.18	0.92	4.10	1.11	4.15	1.00	0.08	0.972	0.331
59	Portable/Speaker phone in room	2.88	1.27	2.75	1.38	2.83	1.31	0.13	1.199	0.231
60	Voice-mail	3.34	1.22	3.64	1.28	3.45	1.25	-0.30	-2.875	0.004
61	Alarm clock	4.14	1.12	4.40	1.00	4.24	1.08	-0.26	-2.763	0.006
62	Easily accessible electrical outlets	4.22	0.94	4.43	0.84	4.30	0.91	-0.21	-2.67	0.008
63	Additional data line accessible to desk	4.02	1.12	3.85	1.29	3.95	1.19	0.17	1.648	0.100
64	High-speed Internet access	3.48	1.19	3.56	1.30	3.52	1.23	-0.08	-0.757	0.449
65	Wireless Internet access in hotel	2.52	1.19	2.81	1.36	2.63	1.26	-0.29	-2.75	0.006
66	In-room personal computer	2.12	1.13	2.45	1.33	2.25	1.22	-0.33	-3.16	0.002
67	In-room fax machine	2.04	1.01	2.23	1.26	2.12	1.11	-0.19	-1.96	0.050
68	In-room printer	2.19	1.10	2.35	1.26	2.25	1.17	-0.16	-1.628	0.104
69	In-room electronic safety boxes	2.60	1.22	2.71	1.36	2.64	1.28	-0.11	-1.041	0.298
70	Extended information about hotel on-line	2.96	1.25	3.16	1.34	3.04	1.29	-0.20	-1.854	0.640
71	On-line reservation capability	3.27	1.23	3.13	1.34	3.22	1.27	0.14	1.292	0.197
72	Wireless access to hotel website (Palm)	2.04	1.07	2.10	1.16	2.06	1.10	-0.06	-0.697	0.486
73	Electronic key cards	3.43	1.27	3.70	1.25	3.54	1.26	-0.27	-2.546	0.011
74	Smart card read capability	2.66	1.24	2.82	1.42	2.72	1.31	-0.16	-1.43	0.153
75	Automatic Teller Machine at hotel	2.91	1.29	3.24	1.35	3.04	1.32	-0.33	-2.857	0.004

Notes: [1] Mean [2] Standard Deviation [3] Difference (Male Mean-Female Mean) [4] Independent t statistics
[5] Significance

SATISFACTION ATTRIBUTES WHEN STAYING IN A HOTEL

		Male		Female		Total				
	Attribute	M[1]	SD[2]	M[1]	SD[2]	M[1]	SD[2]	Dif.[3]	t[4]	Sig.[5]
1	Convenience to airport	3.72	0.90	3.80	0.93	3.75	0.91	-1.079	-0.08	0.281
2	Convenience to meeting site	4.27	0.78	4.44	0.74	4.33	0.77	-2.511	-0.17	0.012
3	Hotel location	4.19	0.69	4.34	0.76	4.25	0.72	-2.516	-0.15	0.012
4	Airport transportation	3.72	0.98	3.90	0.99	3.79	0.98	-2.151	-0.18	0.032
5	Cleanliness of hotel	4.60	0.61	4.68	0.66	4.63	0.63	-1.502	-0.08	0.134
6	Friendly service of hotel staff	4.34	0.74	4.53	0.70	4.41	0.73	-2.956	-0.19	0.003
7	Reputation of hotel	3.87	0.93	3.99	0.99	3.92	0.96	-1.384	-0.12	0.167
8	Consistency and reliability of chain brand between locations	4.08	0.88	4.17	0.85	4.11	0.87	-1.101	-0.09	0.271
9	Availability of special discounts	3.50	0.96	3.67	1.06	3.57	1.00	-1.969	-0.17	0.049
10	Hotel frequent travel program	3.55	1.10	3.48	1.17	3.52	1.13	0.754	0.07	0.451
11	Express check-in/check out	3.94	1.02	4.10	0.94	4.00	0.99	-1.889	-0.16	0.059
12	Price of accommodations	4.08	0.87	4.22	0.85	4.14	0.86	-1.92	-0.14	0.055
13	Free local telephone calls	3.81	1.08	3.94	1.13	3.86	1.10	-1.406	-0.13	0.160
14	No surcharge on long-distance calls	3.73	1.15	3.95	1.19	3.82	1.17	-2.147	-0.22	0.032
15	On-premise free parking	3.83	1.08	4.11	1.01	3.94	1.06	-3.055	-0.28	0.002
16	Security personnel on duty 24 hours a day	3.59	1.04	4.07	1.04	3.78	1.07	-5.269	-0.48	0.000
17	Visible security personnel	3.29	1.04	3.76	1.14	3.47	1.10	-4.913	-0.47	0.000
18	Surveillance cameras in hallways	3.12	1.06	3.69	1.14	3.34	1.13	-5.924	-0.57	0.000
19	Bright hallway lighting	3.76	0.95	4.24	0.86	3.94	0.95	-6.093	-0.48	0.000
20	Smoke, Fire & Heat Detectors	4.25	0.89	4.51	0.76	4.35	0.85	-3.62	-0.26	0.000
21	Women only floor	1.93	1.15	2.50	1.38	2.16	1.28	-4.7	-0.57	0.000
22	Child care facility in the hotel	1.98	1.17	2.14	1.32	2.04	1.23	-1.332	-0.16	0.183
23	Room numbers not on keys	3.51	1.31	4.00	1.17	3.69	1.28	-4.44	-0.49	0.000
24	Dead bolt door locks / Chain locks	4.19	0.95	4.63	0.68	4.36	0.88	-5.719	-0.44	0.000
25	Peep holes	3.91	1.07	4.40	0.88	4.09	1.03	-5.623	-0.49	0.000
26	Sports facilities (e.g., Swimming pool, Whirlpool or Jacuzzi, etc.)	3.80	1.04	3.85	1.07	3.82	1.05	-0.597	-0.05	0.551
27	24-hour room service	3.42	1.07	3.76	1.16	3.55	1.12	-3.48	-0.34	0.001
28	Full-service restaurant	3.71	0.95	4.01	1.02	3.83	0.99	-3.463	-0.30	0.001
29	Free continental breakfast	3.70	0.98	3.85	1.08	3.76	1.02	-1.781	-0.15	0.075
30	Supplemental breakfast buffet	3.39	1.04	3.54	1.21	3.45	1.11	-1.486	-0.15	0.138
31	Bar or lounge on property	3.15	1.25	3.10	1.36	3.13	1.29	0.455	0.05	0.650
32	Non-enclosed lobby bar	2.73	1.19	2.66	1.32	2.71	1.24	0.632	0.07	0.528
33	Meeting facilities	3.44	1.13	3.69	1.24	3.54	1.18	-2.322	-0.25	0.021
34	Video-conferencing capabilities	2.71	1.22	2.88	1.33	2.78	1.27	-1.43	-0.17	0.153
35	Concierge service	3.23	1.08	3.60	1.21	3.37	1.15	-3.74	-0.37	0.000
36	Concierge floor	2.98	1.19	3.11	1.32	3.03	1.24	-1.165	-0.13	0.245
37	Complimentary national newspaper	3.90	1.03	3.92	1.11	3.91	1.06	-0.255	-0.02	0.799
38	Free incoming fax service	3.29	1.17	3.59	1.22	3.40	1.20	-2.834	-0.30	0.005
39	Business centers (computers, fax, copiers)	3.32	1.13	3.62	1.21	3.44	1.17	-2.838	-0.30	0.005
40	Central 800 reservation number	3.41	1.12	3.62	1.19	3.49	1.15	-2.096	-0.21	0.037
41	Non-smoking rooms	4.41	0.93	4.48	0.95	4.44	0.94	-0.858	-0.07	0.391

table continues

	Attribute	Male M[1]	Male SD[2]	Female M[1]	Female SD[2]	Total M[1]	Total SD[2]	Dif.[3]	t[4]	Sig.[5]
42	Suite rooms	3.53	1.06	3.65	1.25	3.58	1.14	-1.158	-0.12	0.247
43	Adequate desk/work space in room	4.28	0.87	4.25	0.96	4.27	0.90	0.36	0.03	0.719
44	Good lighting to read/work in the room	4.34	0.89	4.40	0.88	4.36	0.89	-0.815	-0.06	0.416
45	Well maintained furnishings	4.32	0.79	4.48	0.77	4.38	0.78	-2.322	-0.16	0.021
46	Comfortable mattress and pillows	4.42	0.84	4.61	0.76	4.50	0.82	-2.656	-0.19	0.008
47	Hair dryer	3.11	1.30	4.25	0.97	3.56	1.31	-10.956	-1.14	0.000
48	Laundry services	3.06	1.10	3.45	1.19	3.21	1.15	-3.851	-0.39	0.000
49	In-room ironing board and iron	3.60	1.22	4.33	0.88	3.89	1.15	-7.555	-0.73	0.000
50	Full length mirror	3.27	1.17	4.15	0.93	3.61	1.16	-9.34	-0.88	0.000
51	Name brand amenities	3.05	1.12	3.56	1.19	3.24	1.17	-5.021	-0.51	0.000
52	In-room coffee maker	3.60	1.32	3.87	1.33	3.70	1.33	-2.271	-0.27	0.024
53	In-room minibar	2.84	1.20	2.95	1.37	2.88	1.27	-0.923	-0.11	0.356
54	In-room temperature control	4.31	0.90	4.51	0.78	4.39	0.86	-2.627	-0.20	0.009
55	Remote control TV	4.27	0.80	4.29	0.85	4.28	0.82	-0.353	-0.02	0.724
56	Pay per view	2.93	1.24	2.81	1.37	2.89	1.29	1.009	0.12	0.313
57	Web TV	2.42	1.19	2.45	1.31	2.43	1.23	-0.299	-0.03	0.765
58	Phone on desk	4.15	0.91	4.15	1.04	4.15	0.97	-0.053	0.00	0.958
59	Portable/Speaker phone in room	3.08	1.23	3.28	1.35	3.16	1.28	-1.684	-0.20	0.093
60	Voice-mail	3.47	1.14	3.88	1.23	3.63	1.19	-3.997	-0.41	0.000
61	Alarm clock	4.12	0.97	4.32	0.91	4.20	0.95	-2.313	-0.20	0.021
62	Easily accessible electrical outlets	4.04	0.98	4.24	0.93	4.12	0.96	-2.4	-0.20	0.017
63	Additional data line accessible to desk	3.72	1.19	3.77	1.25	3.74	1.21	-0.49	-0.05	0.624
64	High-speed Internet access	3.36	1.29	3.59	1.32	3.45	1.30	-1.91	-0.23	0.057
65	Wireless Internet access in hotel	2.71	1.20	2.97	1.34	2.81	1.27	-2.211	-0.26	0.028
66	In-room personal computer	2.62	1.32	2.98	1.37	2.76	1.35	-2.911	-0.36	0.004
67	In-room fax machine	2.53	1.20	2.86	1.36	2.66	1.28	-2.852	-0.33	0.005
68	In-room printer	2.73	1.29	3.06	1.40	2.85	1.34	-2.76	-0.33	0.006
69	In-room electronic safety boxes	3.00	1.26	3.28	1.35	3.10	1.30	-2.369	-0.28	0.018
70	Extended information about hotel on-line	3.22	1.18	3.35	1.29	3.27	1.23	-1.247	-0.13	0.213
71	On-line reservation capability	3.47	1.16	3.40	1.32	3.44	1.22	0.615	0.07	0.539
72	Wireless access to hotel website (Palm)	2.44	1.17	2.48	1.28	2.46	1.21	-0.372	-0.04	0.710
73	Electronic key cards	3.54	1.20	3.86	1.26	3.66	1.23	-3.028	-0.32	0.003
74	Smart card read capability	2.86	1.27	3.10	1.41	2.95	1.33	-1.944	-0.24	0.052
75	Automatic Teller Machine at hotel	3.13	1.20	3.55	1.30	3.29	1.25	-3.772	-0.42	0.000
	GRAND MEAN	3.39	0.55	3.65	0.59	3.50	0.58	-0.24	-3.935	0.000*

Notes: [1] Mean [2] Standard Deviation [3] Difference (Male Mean-Female Mean) [4] Independent t statistics
[5] Significance

APPENDIX D

APPROVAL FORM FOR RESEARCH INVOLVING HUMAN SUBJECTS

Oklahoma State University
Institutional Review Board

Protocol Expires: 3/11/02

Date : Thursday, June 07, 2001 IRB Application No HE0146

Proposal Title: ANALYSIS OF BUSINESS TRAVELERS' HOTEL SELECTION AND SATISFACTION

Principal
Investigator(s) :

Cihan Cobanoglu
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Stillwater, OK 74078

Patrick J. Moreo
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Reviewed and
Processed as: Exempt

Approval Status Recommended by Reviewer(s) : Approved **Modification**

Please note that the protocol expires on the following date which is one year from the date of the approval of the original protocol:

Protocol Expires: 3/11/02

Signature :

Carol Olson, Director of University Research Compliance

Thursday, June 07, 2001
Date

Approvals are valid for one calendar year, after which time a request for continuation must be submitted. Any modifications to the research project approved by the IRB must be submitted for approval with the advisor's signature. The IRB office MUST be notified in writing when a project is complete. Approved projects are subject to monitoring by the IRB. Expedited and exempt projects may be reviewed by the full Institutional Review Board.

VITA

Cihan Cobanoglu

Candidate for the Degree of

Doctor of Philosophy

Thesis: ANALYSIS OF BUSINESS TRAVELERS' HOTEL SELECTION AND SATISFACTION

Major Field: Human Environmental Sciences

Biographical:

Personal Data: Born in Istanbul, Turkey, September 24, 1971; the son of Ahmet Cobanoglu and Sukran Cobanoglu; married to Gunay Afacan, January 6, 1996.

Education: Graduated from Bakirkoy High School, Bakirkoy, Istanbul, Turkey, in June 1989; received Bachelor of Science degree in Tourism and Hotel Administration from Cukurova University, Mersin, Turkey, in May 1994; Master of Science degree in Hospitality Administration from Oklahoma State University, Stillwater, Oklahoma in December 1998; completed the requirements for the Doctor of Philosophy degree with a major in Human Environmental Sciences at Oklahoma State University, Stillwater, Oklahoma, in July 2001.

Professional Experience : Variety of entry level, supervisory, and management positions held at international properties, 1990-1994 Guide Assistant, Konday Yatching, Bodrum, Turkey, Front Office Clerk, Naz Hotel, Bodrum, Turkey, Phaselis Princess, Kemer, Turkey. Cost Controller and System Analysist, Ramada Hotel Mersin (International), 1994-1995. Eddie Restaurant, London, United Kingdom, 1995-1996. Restaurant Supervisor (Internship), Marriott International, Oklahoma City, Oklahoma, 1997. Teaching and Research Assistant, Oklahoma State University, 1996-Present.

Professional Organizations: Eta Sigma Delta, Club Managers Association of America, Council of Hotel, Restaurant and Institutional Educators, Oklahoma State University Hospitality Administration Graduate Student Association.