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## The Use of the Internet in the U.S Lodging Industry

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# The Use of the Internet in the U.S Lodging Industry

## **Abstract**

The internet has been heralded as the communications and marketing tool of the future for the hospitality industry. Both corporate executives and information technology experts feel the hotel of the future cannot do without a presence on the Web. Yet, do the actions of hospitality operators in the field reflect this optimism? This article reports on a study done among property managers in the U.S. lodging industry to determine the actual use of the internet in hotel properties of various types and sizes. Additionally, it addresses development and maintenance issues related to internet use.

# The use of the Internet in the U.S. lodging industry

by Hubert B. Van Hoof and  
Thomas E. Combrink

*The Internet has been heralded as the communication and marketing tool of the future for the hospitality industry. Both corporate executives and information technology experts feel the hotel of the future cannot do without a presence on the Web. Yet, do the actions of hospitality operators in the field reflect this optimism? This article reports on a study done among property managers in the U.S. lodging industry to determine the actual use of the Internet in hotel properties of various types and sizes. Additionally, it addresses development and maintenance issues related to Internet use.*

In July of last year, the International Hotel and Restaurant Association organized a Technology Think Tank in Singapore. Forty-seven representatives from the world's leading technology companies, hotel organizations, and universities spent several days determining which aspects of the hi-tech revolution would have the biggest impact on the way the global lodging industry operates. According to the participants, the Internet would be the major driver of change. They felt that "the Inter-

net is changing the services offered and how they are delivered, is reshaping organizational structures, and is altering the relationship between hotels and their customers and suppliers. It is rapidly becoming the most sought-after amenity in hotel rooms."<sup>1</sup>

It has become abundantly clear in recent years that the Internet will profoundly affect the way in which the U.S. lodging industry will conduct business in the future. It is changing the way hotels and their guests communicate, and technology experts agree that, without a presence on the Internet, hospitality operations will lose important business opportunities and harm their competitive edge. As Walle states: "Without a doubt, the Internet will emerge as a profound and unpredictable wildcard that will have the ability to make or break those who come into contact with it."<sup>2</sup>

Lodging companies have sought access to the Internet in

various ways. The most important application by far has been to use the world wide web, one of the many aspects of the Internet, as a marketing tool.<sup>3</sup> The web has also been used for training purposes,<sup>4</sup> reservations,<sup>5</sup> and as a guestroom amenity by offering the guest access to the Internet.<sup>6</sup> In some cases, the web has proven to be a major improvement as compared to pre-web times. The number of web travelers visiting hotel sites is growing rapidly,<sup>7</sup> and the success of the web as a marketing tool is undeniable. On the other hand, successes in such areas as reservations and bookings have been limited. As Bruns (1997) states: "In the hospitality industry, the share of all bookings through web sites is tiny. Travel-Web, a site operated by Pegasus Systems that brings together nearly all the top chains and many independents, totaling more than 13,000 hotels worldwide, reported \$2 million in bookings in February [of 1997]."<sup>8</sup>

### **Hotels have web pages**

Most of the leading hotel companies in the world have created their own web pages,<sup>9</sup> yet the average individual hotel in the U.S. has been slow to get on the Internet. Hill states that many hotels would gladly accept an offer to receive free advertising in a local city visitor's guide, but that "many such offers for display in another medium are being left on the table. Opportunities to connect individual property sites on the world wide web with homepages

of what could be one of their most valuable ties to new customers are being overlooked."<sup>10</sup> The reasons for this reluctant attitude might be that hotel operators are unfamiliar with this new technology, that they consider the design and maintenance of a homepage to be too expensive, that they cannot clearly identify a direct payback, or that they feel that there are too many security issues surrounding the web, issues that still need to be resolved first.

### **Research is limited**

Research into the use of the Internet in the lodging industry has not been overwhelming, and most studies have looked at the role of the web as a marketing tool and have examined the contents of the existing web pages.<sup>11</sup> As Murphy et al. state, many of the business functions which may be performed by using the Internet, functions such as "human resources, finance, accounting, purchasing, real estate, insurance, and management-information systems" have received little or no attention.<sup>12</sup> They feel that "future research should address the financial aspects of web sites. How much do they cost to establish, manage and maintain?"<sup>13</sup>

The intent of this study was to do exactly that. It analyzed the various ways in which lodging operations in the U.S. use the web and e-mail, two important components of the Internet, and looked at some of the issues surrounding the creation and maintenance of web pages.

### **Demographics show diversity**

The study was conducted in conjunction with the hospitality firm of Panell, Kerr and Foster, Inc. (PKF). During July and August 1997, PKF distributed 2,000 surveys to lodging managers of properties of various types and sizes in several geographic regions in the United States, asking them about their use of the web and e-mail. This particular survey was part of a regular survey of the lodging industry which PKF conducts on a bi-monthly basis, and addressed some of the issues Murphy et al. raised in their article. Specifically, it looked at the use of e-mail, the use, development and maintenance of a web page on the Internet, the cost (both in time and money) of developing and maintaining a web page, the contents of the web page, and the particular functions the web page performs.

The total number of respondents to the survey was 454, a 22.7 percent response ratio. A majority were general managers (52 percent). Other major job functions reported were sales/marketing director (19.3 percent) and controller/accounting manager (19.1 percent). Both the age and industry experience of respondents varied greatly, but the majority (88.6 percent) were between 26 and 55 years of age and had considerable industry experience. About half of respondents (49.4 percent) indicated they had received previous training or some sort of education in information technology. Most of the properties represented in the sample (59.6 percent) were

between 101 and 300 rooms in size, and all the major types of lodging properties were included (See Table 1).

### **Most properties use e-mail**

Electronic mail (e-mail) is a feature of the Internet that is mostly used for communication purposes. It can be used inside an organization or as a means to communicate with the world at large, and has both person-to-person communication capabilities as well as "bulletin boards" which may be developed for and accessed by many people at the same time. The major benefits of e-mail over other means of communication such as telephone, fax and regular mail are its speed, its easy access to large numbers of people, and the fact that it is relatively inexpensive.

A majority of the properties (70.5 percent) indicated they used e-mail; it was most popular as a means of communication with the world outside the hotel. More than 40 percent of respondents (40.7 percent) who indicated they used e-mail stated they used it as a means of communication with their corporate offices; 30.2 percent said they contacted other properties via e-mail, and 29.6 percent used it to contact guests and customers. It was seldom used as an internal means of communication between managers and line staff (10.5 percent). All the respondents who used e-mail indicated they used it for other purposes than the choices the survey offered them.

**Table 1**  
**Profile of survey respondents**

	N=454	Percentage
<b>Position</b>		
General manager/owner	236	52.0
Sales/marketing	87	19.3
Dept. head/area director	17	4.1
Controller/accounting manager	86	19.1
AGM	15	3.4
Other	13	2.9
<b>Age of respondents</b>		
Below 25 years of age	15	3.3
26 - 35 years of age	144	31.7
36 - 45 years of age	156	34.3
46-55 years of age	103	22.6
56-65 years of age	35	7.7
Over 65 years of age	2	0.5
<b>Industry experience</b>		
Less than 2 years	27	6.0
2 - 5 years	61	13.5
6 - 10 years	101	22.3
11 - 15 years	96	21.2
16 - 20 years	77	16.7
21 - 25 years	49	10.7
More than 25 years	43	9.4
<b>Property size</b>		
Fewer than 100 rooms	82	18.0
Between 101 and 300 rooms	271	59.6
More than 300 rooms	102	22.4
<b>Property type</b>		
Resort hotel	63	13.8
Motel	25	5.6
Limited service hotel	68	15.0
Full-service hotel	212	46.6
Suite hotel	48	10.5
Convention/conference hotel	29	6.3
Other	10	2.1

Almost 43 percent stated their property had used e-mail for only one year, with an additional 37.2 percent having used it for two to three years. With only 19 percent of the properties indicating they had used e-mail for more than three years, it was obvious that this is still a fairly new phenomenon in the lodging industry.

When asked how much time they spent using e-mail, two-thirds (66.3 percent) stated they used it for fewer than two hours a week. On average, lodging managers indicated they used e-mail about 2.5 hours a week.

#### **Web pages developed outside**

A second important feature of the Internet is the world wide web, a global network of computers that publish information for the general public to view and access. Individual pieces of information on the world wide web are referred to as web pages, and many hospitality organizations have created their own web pages over the years.

Two-thirds (66.4 percent) of the lodging managers in our sample stated that their properties had a web page. When asked who had developed their web page, a very large majority (88.3 percent) stated an outside party, including corporate offices (35.4 percent), outside consultants (32.3 percent) and media specialists (14.9 percent); only 8.7 percent had it done by in-house staff. It cost the properties in this survey an average of \$1,209 to develop a web page, with

costs ranging from a low of \$79 to a high of \$10,000.

Similarly, maintaining and updating the web page was mostly done by outside specialists (78.6 percent), although to a somewhat lesser extent than its actual creation; in-house maintenance was only done by 14.7 percent. Properties in the sample spent an average of five person hours a month on updating and maintaining their web pages, and they estimated it cost an average of \$116 a month.

#### **Page characteristics vary**

All the 282 managers in this study who stated their hotels had a web page indicated that it included information on the property. Other popular characteristics were photographs of the property (85.4 percent), information on the surrounding area (68.4 percent), hotel promotions (53.1 percent) and information on reservations (51.4 percent).

Relatively little attention was paid to providing potential guests with information on availability (29.2 percent) or on allowing them to take a virtual tour of the facility (20.1 percent). A large majority of respondents (80.6 percent) stated that information on their property was included in other Web sites.

In terms of customer access to the web page, a majority (56.8 percent) indicated that their web page allowed guests to make reservations. An almost similar number of respondents (55.5 percent) stated they tracked the

number of reservations made through the Internet. These, though, dealt with reservations made from outside the hotel. When asked if their property enabled guests to access the Internet from their rooms, only 23.7 percent of respondents said their property did so, and only 24.1 percent represented a property that had a business center which enabled guests to have access to the Internet.

#### **Differences exist in use**

A cursory look at the descriptive statistics obtained found that property type and size might have an effect on whether or not a hotel used e-mail and had a web page. More specifically, it was expected that property type and size might affect how a property used its web page, what the contents of the web page were, whether the web page allowed guests to make reservations, to check availability, and to access the Internet from their rooms or through an on-property business center.

The first issue addressed was the effect of property type on the use of e-mail. In order to obtain sufficiently robust sample sizes, the six category types in the original survey were collapsed into three distinct groups: resort hotels, motel/limited-service hotels, and full-service/suite/convention hotels; therefore, all samples in the study contained more than 50 observations. The study used chi-square analysis to determine whether e-mail and Web page use were significantly different among

the three different types of properties. Chi-square analysis allows the researcher to compare distributions of nominal level data across multiple samples to determine whether the distributions of the populations from which the samples are drawn are significantly different. The null hypotheses assumed that the population distributions were identical for all variables. The analysis used an alpha-level of .05.

The study found a significant difference in e-mail usage by property type in several of the variables under study. With 79.6 percent of the resort hotels and 71.6 percent of the full-service hotels using e-mail, the 57.9 percent use of e-mail in motel/limited-service properties was significantly lower than in the other two groups (See Table 2). With the probability score of .01 falling below the preset alpha-level of .05, the null hypothesis of equality of distributions could be rejected, and it could be concluded that different types of hotels have a significantly different use of e-mail.

The study then looked at the use of e-mail in various property types in greater detail. In three cases (communication with line staff, communication with other managers on property, and communication with corporate offices), significant differences of usage were found, as indicated by the probability scores, which were lower than the .05 alpha level. As compared to both the resort and full-service properties, motel/limited-service properties used e-mail



**Table 2**  
**Chi-square analysis by property type**  
**For properties using e-mail**

	Resort hotels (n=59)		Motel/limited service (n=88)		Full service (n=271)		Pearson chi-square	Probability
	Freq.	%	Freq.	%	Freq.	%		
Use e-mail	47	79.6	51	57.9	194	71.6	9.206	.010**
Use e-mail to communicate with line staff	10	16.9	4	4.5	29	10.7	6.158	.046*
Use e-mail to communicate with other managers on property	15	25.4	12	13.6	80	29.5	8.979	.011*
Use e-mail to communicate with corporate offices	23	38.9	26	29.5	123	45.4	7.038	.030*
Use e-mail to communicate with vendors/suppliers	8	13.5	8	9.1	33	12.2	.878	.645
Use e-mail to communicate with guests/customers	23	38.9	24	27.3	77	28.4	2.824	.244
Use e-mail to communicate with other properties	18	30.5	21	23.8	87	32.1	2.328	.312

*Degrees of Freedom = 2*

*Note: \* = significant at the .05 level*

*\*\* = significant at the .01 level*

*\*\*\* = significant at the .001 level*

significantly less as a tool to communicate with line staff, other managers on property, and corporate offices. No significant differences in e-mail use were found in the variables dealing with communication with vendors/suppliers, customers, and other properties (See Table 2).

The effects of property type on whether or not a property had a homepage on the web were examined next. As was the case with the use of e-mail, the study found a

significantly different use of homepages in different types of hotel properties. The motel/limited-service properties used significantly fewer web pages than the hotels in the other two categories (See Table 3).

With regard to the contents and the use of a web page, the study found some additional significant differences among the various types of hotel properties. The limited-service properties in our sample included significantly

**Table 3**  
**Chi-square analysis by property type**  
**For properties using a web page**

	Resort hotels (n=59)		Motel/ limited service (n=88)		Full service (n=271)		Pearson chi- square	Prob- ability
	Freq.	%	Freq.	%	Freq.	%		
Does your property have a homepage on the Web	45	76.3	46	52.3	180	66.4	8.797	.012*
Is information on your property included in other Web sites	37	62.7	31	35.2	155	57.2	2.124	.346
Does your Web site allow your customers to make reservations	20	33.9	29	33.0	112	41.3	4.584	.101
Do you track the number of reservations made through your Web site	20	33.9	23	26.1	100	36.9	1.392	.499
Does your property enable guests to access Internet from their rooms	7	11.9	14	15.9	67	24.7	2.627	.269
Does your property have a business center for guests to access the Internet	11	18.6	5	5.7	51	18.8	5.008	.082
Homepage includes information on the hotel	45	76.3	47	53.4	182	67.2	9.058	.011*
Homepage has information on availability	9	15.3	13	14.8	56	20.7	1.761	.415
Homepage includes virtual tours of the property	14	23.7	3	3.4	35	12.9	11.555	.003**
Home page contains information on hotel promotions	29	49.2	16	18.2	100	36.9	6.541	<.001***
Homepage contains information on reservations	22	37.3	25	28.4	95	35.1	1.787	.409
Homepage contains information on special packages	29	49.2	14	15.9	85	31.4	18.223	<.001***
Homepage contains information on surrounding areas and location	29	49.2	32	36.4	120	44.3	2.652	.266
Homepage contains photographs of property features	42	71.2	39	44.3	154	56.8	10.511	.005**
Homepage contains other information	5	8.5	1	1.1	14	5.2	4.453	.108

*Degrees of Freedom = 2*

*Note: \* = significant at the .05 level*

*\*\* = significant at the .01 level*

*\*\*\* = significant at the .001 level*

less information on the hotel on their web pages than the resort and full-service properties; they included significantly fewer virtual tours of the property, and their web pages contained significantly less information on hotel promotions and significantly less information on special packages than the more up-scale properties (See Table 3). No significant differences of web page use were found in any of the other variables.

### **Property size has effect**

As was the case with the analysis based on property type, the study also found significant differences in mean scores of several variables when the properties in the sample were grouped together based on their size. The properties in the sample were divided into three groups: hotels with fewer than 100 rooms (small); hotels that had between 101 and 300 rooms (mid-size); and properties that had more than 300 rooms (large).

The study found a significant difference in the area of e-mail use. With a probability score of .001 we could reject the null hypothesis, and conclude that the 84.4 percent use of e-mail in the large properties was significantly higher than e-mail use in the mid-size and small properties (See Table 4).

In looking at the effect of property size on the specific uses of e-mail, the study found many additional significant differences. As far as using e-mail in communicating with line staff and other managers on property was con-

cerned, properties over 300 rooms used e-mail significantly more often than the mid-size and small hotels. The small properties used e-mail significantly less in communicating with corporate offices, and the large properties used it significantly more than the other properties in communicating with other hotels. No significant differences in e-mail use were found when it came to using it as a tool to communicate with vendors, suppliers, or customers (See Table 4).

### **Small sites track more**

Similarly, when the effect of property size on whether a property had a web page was analyzed, there were significant differences. Surprisingly, mid-size properties had significantly fewer homepages on the web than the small and large properties (See Table 5). When it came to tracking the number of reservations made through the web, the study found that the small properties tracked the reservations received through the web more often than the mid-size and large properties (See Table 5). The study also found a significant difference with regard to whether a property had a business center that allowed guests access to the Internet. As might be expected, the large properties had significantly more business centers than their counterparts in the small and mid-size categories (See Table 5).

When it came to looking at the effect of property size on the contents and use of a web page, the study found significant differences

**Table 4**  
**Chi-square analysis by property size**  
**For properties using e-mail**

	Less than 100 rooms (n=77)		100-300 rooms (n=255)		More than 300 rooms (n=96)		Pearson chi- square	Prob- ability
	Freq.	%	Freq.	%	Freq.	%		
Use e-mail	44	57.1	174	68.2	81	84.4	13.808	.001***
Use e-mail to communicate with line staff	4	5.2	16	6.3	24	25.0	29.039	<.001***
Use e-mail to communicate with other managers on property	7	9.1	47	18.4	57	59.4	36.054	<.001***
Use e-mail to communicate with corporate offices	10	13.0	109	42.7	55	57.3	4.713	<.001***
Use e-mail to communicate with vendors/suppliers	7	9.1	29	11.4	15	15.6	1.765	.414
Use e-mail to communicate with guests/customers	29	37.7	76	29.8	22	22.9	4.130	.095
Use e-mail to communicate with other properties	13	16.9	72	28.2	43	44.8	15.436	<.001***

*Degrees of Freedom = 2*

*Note: \* = significant at the .05 level*

*\*\* = significant at the .01 level*

*\*\*\* = significant at the .001 level*

among properties of various sizes in almost all of the variables under study. The null hypothesis could be rejected in six instances (See Table 5). The web pages of the mid-size hotels included information on the hotel less often than the web pages of the small and large hotels. The web pages of the small hotels less often contained information on availability of rooms than the web pages of the mid-size and large properties. The web pages of the large hotels con-

tained significantly more virtual tours of the hotel, and more information on reservations and special packages than the smaller sized hotels. And finally, the web pages of the mid-size hotels contained significantly fewer photographs of property features than the web pages of the small and large properties.

The study found that the Internet is still a relatively new phenomenon for many hospitality managers, despite the fact that

**Table 5**  
**Chi-square analysis by property size**  
**For properties using the web**

	Less than 100 rooms (n=77)		100-300 rooms (n=255)		More than 300 rooms (n=96)		Pearson chi- square	Prob- ability
	Freq.	%	Freq.	%	Freq.	%		
Does your property have a homepage on the Web	56	72.2	153	60.0	72	75.0	9.441	.009**
Is information on your property included in other Web sites	43	55.8	129	50.6	60	62.5	.185	.911
Does your Web site allow your customers to make reservations	25	32.5	100	39.2	41	42.7	4.422	.110
Do you track the number of reservations made through your Web site	37	48.1	79	31.0	34	35.4	7.334	.026**
Does your property enable guests to access Internet from their rooms	10	13.0	44	17.3	16	16.7	2.303	.316
Does your property have a business center for guests to access the Internet	5	6.5	30	11.8	36	37.5	32.113	<.001***
Homepage includes information on the hotel	55	71.4	156	61.2	73	76.0	17.533	<.001***
Homepage has information on availability	6	7.8	55	21.6	20	20.8	7.340	.025*
Homepage includes virtual tours of the property	12	15.6	24	9.4	20	20.8	8.206	.017*
Homepage contains information on hotel promotions	19	24.7	79	31.0	50	52.1	17.553	<.001***
Homepage contains information on reservations	20	26.0	88	34.5	39	40.6	4.079	.130
Homepage contains information on special packages	14	18.2	76	29.8	41	42.7	11.954	.003**
Homepage contains information on surrounding areas and location	33	42.9	107	42.0	51	53.1	3.912	.141
Homepage contains photographs of property features	48	62.3	133	52.5	63	65.6	6.039	.049*
Homepage contains other information	5	6.5	13	5.1	5	5.2	.230	.891

*Degrees of Freedom = 2*

*Note: \* = significant at the .05 level*

*\*\* = significant at the .01 level*

*\*\*\* = significant at the .001 level*

both corporate executives and information technology experts consider it to be the most important technological tool of the future.

#### **E-mail used externally**

E-mail was mostly used to communicate with the outside world, such as corporate offices, other properties, and customers. Respondents indicated they very seldom used it to communicate with their peers and staff at the property level. Average e-mail use was about two hours a week, and a large majority (80 percent) indicated they had used it fewer than three years.

A majority of the respondents indicated their properties had a web page, yet they also stated that the development and maintenance of the web page was done by outsiders, who were either independent technology experts or corporate officers. Almost all the web pages of the properties in the sample contained information on the hotel and photographs of property features. More than half the properties allowed guests to use their web pages to make reservations, yet very few of them offered information on availability on the web page, which would be a relatively simple procedure. Web pages in the U.S. lodging industry are currently designed for web browsers rather than for guests planning to make reservations.

When the impact of property type on e-mail and web page use was assessed, several significant differences in use were

found. Most importantly, it was found that limited-service hotels use e-mail significantly less than full-service and resort hotels. Moreover, they used it significantly less both as an internal communication tool, and as a tool to communicate with their corporate offices.

The limited-service properties also had significantly fewer web pages, and included significantly fewer virtual tours and information on special packages and promotions. This might be because, for instance, resort properties have more to offer, or have more resources to develop an attractive web page. Yet, it might also be because they are more familiar with the Internet and more aware of its potential benefits.

The effect of property size on the use of e-mail and a web page was even more dramatic. We found that large properties with more than 300 rooms used e-mail significantly more than properties in the smaller categories, and had a higher presence on the world wide web. Once again, one might argue this is because they have the financial means to do so, yet it might also be because they have more expertise available to do so, or because they are more aware of the benefits of these new technologies.

Not only did large properties use e-mail more often than hotels in the smaller categories, but their use of e-mail was also different. They were more prolific in using e-mail as a communication tool with line staff, other managers on property, corporate offices, and other

hotel properties. Obviously, the larger the property, the larger the number of employees and the bigger the need for communication with peers and staff. Yet, the larger properties might also be considered more aware of the virtues of using e-mail as an internal communication tool than their smaller-sized counterparts. It is considered cheaper and more efficient than the common paper trail, and more environmentally friendly, which, obviously, are important considerations for properties with limited financial means.

In general, when looking at the descriptive statistics, one might conclude that the smaller, limited-service properties in the U.S. have a lower presence on the Internet than their more up-scale and larger counterparts. This may be due to the fact that development and maintenance of a presence on the Internet still involves major costs, and that a tool such as e-mail is considered more economical for properties with large numbers of employees than for properties that have a limited number of rooms and employees. Yet, with technology becoming more cost-effective all the time, and with technological awareness increasing daily, it is to be expected that most U.S. lodging properties will eventually use e-mail and the Internet as cheap and efficient alternatives to paper, telephone, and fax. If the larger, more upscale properties are convinced of the financial and organizational benefits, it would make sense if the smaller, limited-service properties

followed their example, especially if creating and maintaining an Internet presence will continue to become more cost-effective and more common in the future.

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<sup>13</sup> Ibid.: 82.

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