

# FACTORS IN E-COMMERCE USAGE IN THE HOTEL INDUSTRY IN THAILAND: AN EMPIRICAL STUDY

Pongsak Hoontrakkul<sup>π</sup> and Sunil Sahadev<sup>1</sup>

Current Draft: Dec. 24, 07

## ABSTRACT

The study attempts to link external and internal factors related to a hotel to its dependence on e-commerce. In terms of managerial implications, the study gives an insight towards the reasons behind e-commerce usage in the hotel industry. This will be very useful for e-intermediaries in assessing new opportunities for expansion and market growth. Thailand being an important tourist destination in the world, provides an excellent context for the study. Further, Thailand being a developing country, the extent of use of the Internet is in its growth phase. While all the hotels that were surveyed had websites and had e-mail services to connect to the customers, there existed a large variation in their reliance on the internet to communicate and transact with the customers. The study tries to find the underlying reasons for this phenomenon. The results that have emerged from the study endorse some of the beliefs about the Internet usage in the travel and tourism industry and a general idea about the impact of the various factors on the intensity of use of e-commerce. It is important to find out more about the factors that influence the usage intensity of e-commerce in the hotel industry. The impact of the membership of an established hotel chain on the hotel's e-dependence should be examined in the future research.

**Key Words:** E-Commerce, Determination, Hotel Industry, Thailand

---

<sup>π</sup> The contents of this paper in part or in whole are entirely those of the authors and do not represent the views and opinions of Sasin of Chulalongkorn University and any organization associated with the authors. Comments are welcome. All correspondence is directed to Pongsak Hoontrakul, Senior Research Fellow, Sasin-GIBA, Chulalongkorn University, Sasa Patasala Building, 8<sup>th</sup> floor, Soi Chulalongkorn 12 (2), Phyathai Road, Bangkok 10330, Thailand. Private Tel. (662) 954 1689 ; Fax (662) 954 1690 ; Email : [Pongsak@Hoontrakul.com](mailto:Pongsak@Hoontrakul.com) URL : [www.Pongsak.Hoontrakul.com](http://www.Pongsak.Hoontrakul.com)

<sup>1</sup> Assistant Professor, Indian Institute of Management Kozhikode, Kunnamangalam PO, Calicut, India-673671, Phone: 091-495-2809103, fax: 091-495-2803010, e-mail: [sunil@iimk.ac.in](mailto:sunil@iimk.ac.in) Dr. Sunil Sahadev is an assistant professor of marketing at the Indian Institute of Management, Kozhikode, India. He completed his Ph.D. in Marketing from the Indian Institute of Technology Madras, India and has been working in IIMKozhikode for the past four years. Presently he is pursuing his Post-Doctoral Fellowship at the School of Management, Asian Institute of Technology, Thailand.

# **FACTORS IN E-COMMERCE USAGE IN THE HOTEL INDUSTRY IN THAILAND: AN EMPIRICAL STUDY**

**Pongsak Hoontrakkul and Sunil Sahadev**

Current Draft: Dec. 24, 07

## **INTRODUCTION**

The use of e-commerce has undoubtedly created a radical transformation in the tourism industry across the world. With increasing levels of adoption among potential consumers and service providers, the marketing of hotels and other related services have fundamentally changed in the past decade. Greater choice, convenience, and price transparency have immensely influenced consumers to shift from past practices towards the adoption of internet based services. On the other hand, service providers have been compelled to adopt e-commerce to match this transformation in consumer preferences. The extent of the use of e-commerce by the tourism industry has increased considerably over the years. Forrester (2004) estimates that in 2004, in the United States alone the travel and tourism transaction through the world wide web will be worth US\$ 53 billion. However there is a marked variation in the dependence on e-commerce by service providers. Firm related factors like size, age etc. undoubtedly influence a firm's level of adoption of e-commerce. Further, the location in which the firm operates also influences the degree of e-commerce adoption by hotels. In this paper we try to understand the factors that impact a hotel's dependence on e-commerce measured by the extent to which a hotel relies on e-commerce based methods to market its rooms. Location related factors are considered as moderator variables that influence the strength of the relationship between firm related factors and e-commerce adoption. In the next section, relevant

insights from previous studies have been reported followed by the methodology of the present study.

According to O'connor (1999), the main advantages that the internet provides as a marketing medium for travel and tourism sector are: (i) the global market reach, (ii) the customers who access the web-sites are much more interested rather than in a conventional marketing communication where, the message is targeted indiscriminately, (iii) the web-sites are not affected by capacity constraints, and (iv) the possibility of two-way communication offered by the internet. The UNCTAD (2000) background paper on e-commerce and tourism states that "the internet and its inherent interactivity empowers people to find information quickly and precisely on any destination or recreation that is capturing their interest". The internet has also presented the travel and tourism sector with the possibility of both connecting as well as transacting with global customers on a real time basis. The growth in the adoption of e-commerce in the travel and tourism sector has been facilitated by a number of factors including technological advancements, greater internet penetration among households, heightened competition in the travel and tourism sector etc.

The adoption and usage of e-commerce in the travel and tourism sector however has not been very uniform. The extent of adoption and usage has varied across countries as well as amongst enterprises within a country. It has been observed that the adoption of e-commerce is determined by factors like the size of the enterprise and the target market of the enterprise. A limited number of studies have focused on this aspect in the travel and

tourism related literature [eg. Wei et al (2001), Ozturan and Roney (2004), Buhalis and Deimezi (2004)]. The present study looks at the factors that influence the adoption and usage of e-commerce among the enterprises in the hotel industry.

### **Study background**

The hotel industry in Thailand is selected as a setting to explore the relative influence of factors in determining the adoption of e-commerce. Thailand has developed into a major destination for tourists from around the world, attracting about 9.31 million tourists in the year 2003 (TAT, 2003). The majority of the tourists come from East Asia and Europe. The tourism industry is expected to directly contribute about 5.4% of the GDP which translates into about US\$ 29.4 billions. Thailand has been ranked 28<sup>th</sup> globally by the World Travel and Tourism Council in their annual research report (WTTC 2004). Thailand has also been ranked amongst the first three tourist destinations in Asia in terms of the number of tourist's arrivals. The e-commerce sector is also witnessing a substantial growth in Thailand, and the total transaction size is expected to be in the region of about US\$ 651 million in 2003 (NECTEC 2003). Thailand is a growing market in terms of the e-commerce usage in travel and tourism. However the travel and tourism enterprises in the country are at different stages of utilization of the internet in their business activities.

### **Factors determining the intensity of e-commerce usage in Hotels**

The adoption and usage of information technology and other associated technologies has received significant attention in the travel and tourism related literature in recent years.

Studies have considered information technology related variables both as a dependent as well as an independent variable. For instance Ozturan and Roney (2004) and Wei et al (2001) look at the application of internet in the travel and hospitality industry by looking at the critical factors that lead to greater adoption. Martorell (2002), Connolly and Olsen (2000) and Bloch and Segev (1996) on the other hand consider e-commerce adoption as an independent variable that could affect and transform hospitality industry in the future. The main focus of these studies is to analyze and explain the main outcomes of rapid use of e-commerce in the travel and tourism industry. Both these streams have highlighted the variations in the use of internet across destinations and across enterprises, and tried to explain these variations from different perspectives. In the present study, a similar framework is adopted to assess the importance of certain contextual factors in the intensity of usage of e-commerce in the hotel industry in Thailand. The factors considered in this study have been mentioned in several other studies as possible influencers of e-commerce or IT adoption in the travel and tourism sector. The factors considered are classified into three major groups: (i) the location related factors (ii) the firm related factors and (iii) the technological resources of the firm. The study attempts to see the impact of these factors on the intensity of e-commerce usage in the hotel industry in Thailand.

E-commerce mainly helps in the generation of leads, presenting information about the tourism product to the customers, and facilitating the transaction process electronically mainly using the world wide web. Hotels using e-commerce to offer their services to potential customers therefore benefit mainly by reaching a global audience in a cost-effective manner. Hotels typically offer their rooms either through their own web-sites or

through the web-sites of e-intermediaries. Further, hotels can also gain valuable insights about the needs of its customers more accurately by directly contacting their customers through the world wide web.

According to Davis's (1989) Technology Acceptance Model, adoption of a technology by users is directly related to its perceived usefulness and the perceived ease of use. As far as the adoption of e-commerce in hotels are concerned, perceived usefulness is directly proportional to the Internet's ability to help the hotel in connecting to more customers and thereby increasing the sales and profits. However several external and internal factors affect the Internet's ability to provide these benefits in the hotel industry. Internal factors that could impact a hotel's ability to exploit the Internet include a hotel's size, grade and scope of operations. Old hotels are already well established and have forged strong connects with traditional marketing agents like travel agents or tour operators and hence may not feel the need to use e-commerce. Hence age of a hotel may be an important determinant of the use of e-commerce.

The average price at which a hotel offers its rooms to its customers is an indication of the grade of the hotel. Hotels that are very costly may not find the Internet to be an attractive option in reaching its potential customers who are often not very price sensitive and get their rooms booked through tour operators and travel agents. On the other hand since the Internet, which typically offers a low transaction cost, and helps in offering price transparency, is favored by customers who are interested in looking for cheap alternatives. Hence the grade of the hotel may adversely impact the reliance on e-commerce. Another internal factor that could possibly influence the level of e-commerce usage is the size of

the hotel expressed in terms of the number of rooms. Large hotels may find it difficult to sell its rooms entirely through traditional intermediaries or through walk-ins and so may rely on the Internet to a large extent. Further large hotels may have the resources to install the expensive technologies and trained manpower to establish an e-commerce based booking system. The survey conducted by Wei et al (2001) amongst the managers in the hotel industry supports the fact that the size of the hotel and the scope of activities of the hotel have considerable influence on the usage of e-mail and internet. In a study conducted with manufacturing enterprises, Zhu et al, (2002) found that the size of the enterprise influences the intensity of use of e-commerce based facilities and processes.

Hence the size of the hotel positively influences the dependence on e-commerce.

The scope of activities of the firm is considered as the other factors that influence the level of adoption of e-commerce. Certain hotels offer a limited set of services and facilities. However several hotels offer a large number of services and facilities like conference halls, health clubs etc. When a large number of facilities and services are offered, there is a natural tendency to project it more to a larger audience. This could compel a hotel to use more e-commerce than hotels which are limited in their offers.

In this study we consider two location specific external variables. The average occupancy rate at the location of the hotel and the total size of the market at the location measured in terms of the number of visitors to the location. The market size of a location will be a significant factor since hotels in smaller underdeveloped locations may try to use the Internet to reach out to the global population more than hotels located in a developed location.

The competition level amongst the hotels in a location, considered as part of the locational factor, can also influence the intensity of use of the Internet by a hotel. Many empirical studies (eg. Crook and Kumar 1998, Grover 1993, Iacovou et al 1995) have found evidence to suggest that competitive pressure drives innovation. In this study this factor is measured as the occupancy rate in the location where the hotel exists. High levels of occupancy rate imply that the hotels can expect to get their rooms filled with relative ease without much competition, while low levels of occupancy point towards higher levels of competition to attract customers between the hotels in the location.

The Location specific factors however also have a moderating impact on the strength of the relationships between the internal variables and the dependent variable. All the hotels in a specific location are equally affected by the location specific factors which reinforces the impact of the internal factors on the dependent variable. Hence we posit a moderating influence for the external variables on the relationship between the internal factors and the level of adoption of e-commerce.

## **THE STUDY METHODOLOGY**

The study was conducted through a questionnaire survey amongst hotels which had participated in a national level exhibition. 200 hotels of different grades and sizes and from various region of the country had participated in the exhibition. 95 hotels were randomly selected from the 200 odd hotels for the survey. The questionnaire was directly administered to the executives of the hotels.

The hotels considered in the study are located in seven very popular destinations in Thailand, e.g. Bangkok, Phuket, Pattaya, Chiang Mai, Krabi, Samui and Hat Yai. Table - 1 shows the number of hotels selected from each of these locations. Together these locations attracted about 24 million visitors in the year 2003 and were expected to attract about 25 million visitors in the year 2004. The figures include both foreign and domestic visitors. Also these seven destinations have a total of about 2000 tourist accommodation establishments in 2003. The tourism authority of Thailand defines a tourism accommodation establishment as a place in which rooms are provided for tourists. This includes hotels, resorts, guest houses etc. Figures 1, 2, and 3 show the distribution of the hotels in terms of their size (number of rooms), class (room rent) and age respectively. The following paragraphs describe the operationalisation of the factors considered in the study.

The market size for a location was measured as the total number of visitors who had visited that location. Related statistics were available for all the locations used in the study. The general occupancy rate was also available from the statistical report for each of the locations considered. The values of the three locational variables e.g. total visitor arrival, percentage of people from high Internet penetration countries, and average occupancy rate for the seven locations are given in Table - 2.

The sizes of the hotels were measured in terms of the total number of rooms in the hotels. The scope of operation of the hotels was measured by asking the hoteliers about their lines of activities, for example whether they limit their operations to providing just accommodation, or also include other facilities like a convention center, health spa, business center, conducted tours etc. The type of hotel signifies the economic segment that the hotel mostly catered to. This was measured on the basis of the average room rent of the hotel. The age of the hotel was ascertained directly from the hotel managers.

The intensity of use of e-commerce in the hotel was measured by asking the hoteliers about the percentage of their transactions with the customers that occur through the Internet. This also included instances when enquiries were received and finalized through e-mail, real-time transactions through the hotel's own web-sites or the web-sites of other e-intermediaries etc. Most of the hotels surveyed also received visitors through such means like walk-ins, telephonic contact, travel agents, travel wholesalers, GDS apart from the e-mail and Internet based possibilities.

### **Analysis**

Moderator Multiple regression was used to assess the impact of the selected factors (independent variables) on the intensity of adoption of e-commerce among hotels (dependent variable) through the moderating effect of the two external factors. Two multiple regressions were run. In the first regression the first external factor viz. the size of the market in the location was used and in the second regression the competition level at the location was used. The results of the multiple regression analysis are given in Table

– 3 and table-4. The moderator regression model proposed by Baron and Kenny (1986) was followed. In this model, three separate regression equations are generated to understand the moderating effect. In the first regression only the independent variables are included. In the second regression equation, apart from the independent variables, the moderating variable is also included. In the third regression equation along with the independent variables and the moderating variables, a cross product of the independent variable and the moderating variable is included. The change in R-square values between the three regression equations will indicate the moderating effect of the moderator variables.

## **Results**

The results of the two multiple regression analyses are given in Table – 3 and Table-4. From table-3 it is evident that the size of the market in the hotel's location has a significant moderating effect on the relationship between the internal factors and the level of dependence on e-commerce by hotels. The R<sup>2</sup> changes from .127 to .243 which is also significant in terms of the F value. Hence the moderating effect can be presumed. However from table-4, it is evident that the level of competition in the location of operation is not a moderating variable in the relationship between the internal factors and the dependent variable.

Of the internal factors only the age of the hotel and the size of the hotel have significant beta values. However, contrary to our assumption regarding the effect of size on e-commerce adoption, size has a negative impact on e-commerce adoption. This implies that small hotels have a greater tendency to adopt e-commerce than large hotels. This may be because of the fact that large hotels have a stronger relationship with traditional marketing agents like travel agencies and travel wholesales that make them less reliant on e-commerce. Further there is also the probability of large hotels who have a good relationship with travel agents to not to annoy them by relying on another marketing platform like the Internet. Age has a significant negative impact on adoption of e-commerce. This is as per our expectations as older hotels being more dependent on traditional intermediaries may not necessarily be too dependent on e-commerce.

## **CONCLUSION**

With the rapid penetration of the Internet, its use as a medium for communication and transaction is increasing. The study attempts to understand the factors that influence the usage of e-commerce in the hotel industry. Thailand being an important tourist destination in the world, provides an excellent context for the study. Further, Thailand being a developing country, the extent of use of the Internet is in its growth phase. While all the hotels that were surveyed had a web-site and had an e-mail service to connect to the customers, there existed a large variation in their reliance on the internet to communicate and transact with the customers. The study tries to find the underlying

reasons for this phenomenon. The results that have emerged from the study endorse some of the beliefs about the Internet usage in the travel and tourism industry.

It is important to find out more about the factors that influence the usage intensity of e-commerce in the hotel industry. The study gives a general idea about the impact of the various factors on the intensity of use of e-commerce. However further studies that explore the reasons in depth would give a clearer picture in this respect. It is also important to look into the other variables that may influence the e-commerce usage intensity. Since the sampling methodology deviates from the strict conditions of random sampling, the results need to be generalized with caution. This is one of the limitations of the study. The study also does not consider the impact of the membership of an established hotel chain on the hotel's e-dependence.

The study attempts to link external and internal factors related to a hotel to its dependence on e-commerce. In terms of managerial implications, the study gives an insight towards the reasons behind e-commerce usage in the hotel industry. This will be very useful for e-intermediaries in assessing new opportunities for expansion and market growth.

## References

Baron, A.R and Kenny, D.A (1986), "The Moderator-Mediator Distinction in Social Psychological Research, Conceptual, Strategic and Statistical Considerations", *Journal of Personality and Social Psychology*, Vol.51 (6), pp.1173-1182.

Bloch M., and Segev A. (1997). The impact of Electronic Commerce on the Travel Industry, *Proceedings of the 30th Hawaii International Conference on System Sciences (HICSS) Volume 4: Information Systems Track - Internet and the Digital Economy*, 48-62.

Buhalis, D and Deimezi, O. (2004). E-tourism developments in Greece: Information communication technologies adoption for the strategic management of the Greek tourism industry, *Tourism & Hospitality Research*, 5 (2), 103-31,

Connolly D. J and Olsen M. D. (2000). An Environmental Assessment of How Technology is reshaping the Hospitality Sector, *Tourism and Hospitality Research*, 3 (1), 73 - 93.

Crook, C. W., and Kumar R.L (1998), Electronic Data Interchange: A Multi-Industry Investigation Using Grounded Theory, *Information Management*, 34, 75-89.

E I U (2003), 2003 e-readiness rankings available at <http://www.eiu.com> accessed on 6/12/2004

Forrester. (2004), Online Leisure Travel Forecast 2004-2009 available at [www.forrester.com](http://www.forrester.com) accessed on 6/10/2004

Grover, V. (1993) An Empirically Derived Model for the Adoption of Customer Based Interorganisational Systems, *Decision Sciences*, 24(3), 603-640.

Iacovou, C.L., Benbasat, I., and Dexter, A.S.(1995), Electronic Data Interchange and Small Organizations: Adoption and Impact of Technology, *MIS Quarterly*, 19(4),465-485.

Kuan K. K. Y and Chau P. Y. K. (2001). A Perception based Model for EDI Adoption in Small Business Using a Technology-Organization-Environment Framework, *Information and Management*, 38, 465-485.

Martorell G. A. (2002). The Internet and Tourism Principals in the Belaric Islands, *Tourism and Hospitality Research*, 6(1), .25 -44.

Mukhopadhyay T., Kekre S., and Kalathur S. (1995). Business Value of Information Technology: A study of Electronic Data Interchange, *MIS Quarterly*, 19(2), 137-156.

NECTEC (2003) The Internet Index of Thailand available at: <http://iir.ngi.nectec.or.th/> accessed on 13/10/2004

O'Conner P (1999). *Electronic Information Distribution Tourism and Hospitality*, CABI Publishing, Cambridge.

Ozturan M and Roney S. K. (2004). Internet Use among Travel Agencies in Turkey: an Exploratory Study, *Tourism Management*, 25, 259-266.

TAT (2003), *Statistical Report 2003*, Tourism Authority of Thailand, Bangkok.

Tornatzky, L. G., and Fleisher, M. (1990). *The Process of Technology Innovation*, Lexington, MA: Lexington Books.

UNCTAD(2000) *Electronic Commerce and Tourism New Perspectives and Challenges for Developing Countries*, United Nations Conference on Trade and Development.

Wei S., Ruys H. F., van Hoof H. B and Combrink T. E (2001). Uses of the Internet in the Global Hotel Industry, *Journal of Business Research*, 54, 235- 241.

WTTC(2004) "Thailand Travel and Tourism Forging Ahead: The 2004 travel and Tourism Economic Research" available at <http://www.wttc.org> accessed on 11/10/2004.

Zhu K., Kraemer L. K., and Sean Xu (2002). A Cross country Study of Electronic Business Adoption Using the Technology-Organisation-Environment Framework, working paper of the Center for Research on Information Technology and Organisations, University of California, Irvine available at [www.crito.uci.edu](http://www.crito.uci.edu) accessed on 6/10/2004.

Table 1: Hotels considered in various locations

<b>Destination</b>	<b>No. of hotels selected for the study</b>
Bangkok	18
Chiang Mai	8
Hat yai	8
Pattaya	10
Phuket	17
Krabi	15
Samui	19

Table 2: Locational variables: values across the seven destinations

	Size of the market: total visitor arrivals in 2002 (in million)	Percentage of people from high internet penetration countries (%)	Average occupancy rate (%)
Bangkok	10.7	53.8	63.9
Chiang Mai	2.3	49.5	44.47
Pattaya	3.6	47.1	61.08
Phuket	3.4	62.1	57
Samui	0.754	75	60.51
Hat yai	1.569	18	52.76
Krabi	1.632	50	43.22

Table 3: Results of the regression analysis (moderating role of the size of the local market)

	Regression-1		Regression-2		Regression-3	
	B	significance	B		B	Significance
(Constant)	.238	.000	.244	.000	.211	.033
Grade of the hotel (G)	.015	.127	.015	.128	.007	.644
Age of the hotel (A)	-.003	.441	-.002	.519	.004	.387
Size of the hotel (S)	-.012	.155	-.009	.268	-.035	.011
Scope of activities of the hotel (Sc)	-.009	.609	-.006	.760	.026	.393
Size of the market in the hotel's location (Sz)			-.009	.285	.028	.471
G* Sz					.001	.723
A* Sz					-.002	.092
S* Sz					.007	.023
Sc* Sz					-.015	.170
R2	0.109		0.127		.243	
Adj R2	0.046		0.049		.111	
F	1.739		1.629		1.850	
Sig.	0.154		0.167		0.081	

Table.4 The moderating impact of the competition level on the market in the hotel's location

	Regression-1		Regression-2		Regression-3	
	B	significance	B		B	Significance
(Constant)	.238	.000	.271	.129	.429	.485
Grade of the hotel (G)	.015	.127	.016	.130	.062	.649
Age of the hotel (A)	-.003	.441	-.002	.501	.006	.856
Size of the hotel (S)	-.012	.155	-.012	.160	-.027	.717
Scope of activities of the hotel (Sc)	-.009	.609	-.010	.599	-.138	.484
Competition level in the market in the hotel's location (Cl)			-.004	.843	-.023	.739
G* Cl					-.005	.728
A*Cl					-.001	.812
S*Cl					.002	.841
Sc*Cl					.014	.516
R2		0.109		0.109		0.122
Adj R2		0.046		0.030		-0.030
F		1.739		1.36		0.802
Sig.		0.154		0.247		0.616

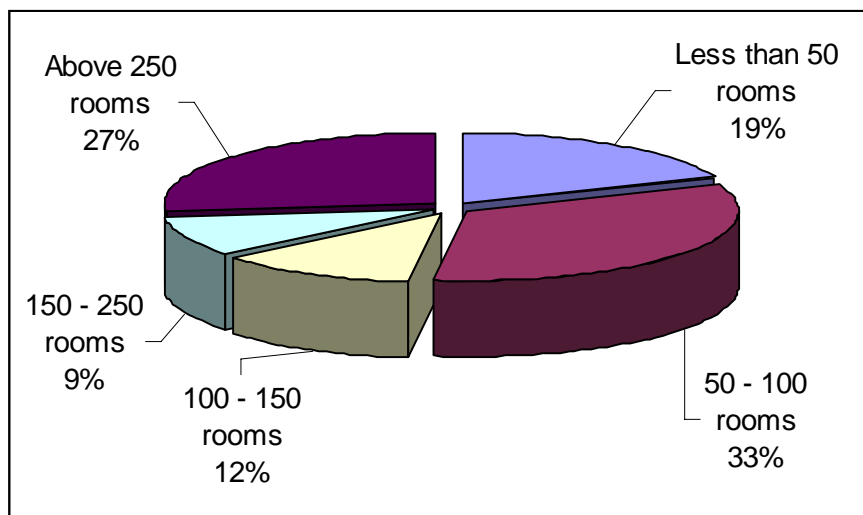


Figure 1: Size distribution of hotels according to number of rooms (sample size 95)

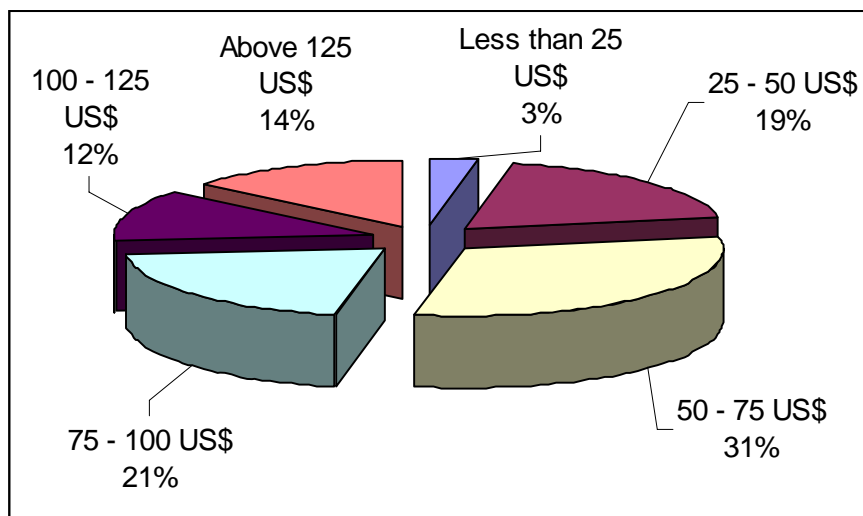


Figure 2: Distribution of hotels according to room rent (sample size 95)

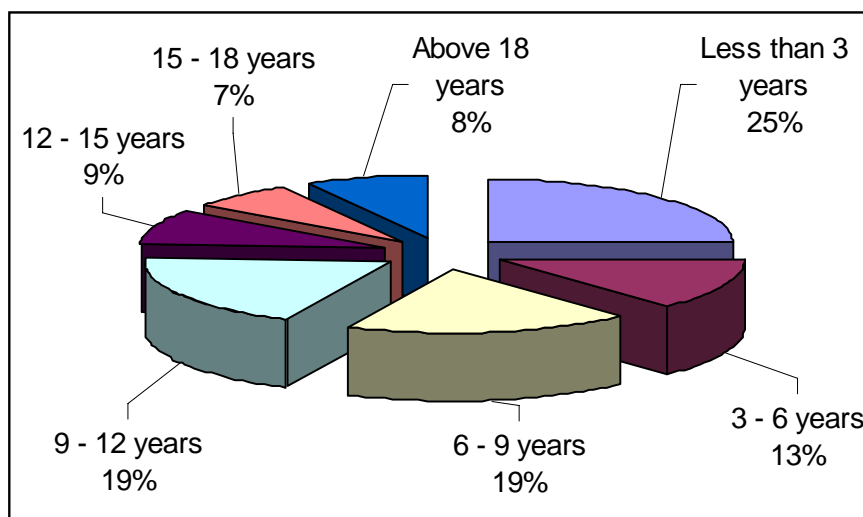


Figure 3: Distribution of hotels according to age (sample size 95)

