Hotels Pricing at Travel Search Engines

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ABSTRACT

Web 2.0 applications have been increasingly recognized as important information sources for consumers, including the domain of tourism. In the center of the travelers' interest is the use of these applications in order to compare and choose hotels for their accommodation at various tourism destinations. It is important to investigate the issues related to the presence of the hotels on some of the most dominant tourism search engines and to the prices that they present. This paper compares the search engines and determines whether the cheapest and the most complete one can be discovered. This paper focuses on analyzing the hotel prices presented on their official websites and on the following eight tourism search engines: Booking.com, Expedia. com, Hotelclub.com, Hotels.com, Orbitz.com, Priceline.com, Travelocity.com, and Venere.com. The data analysis, by the use of the descriptive statistics, showed that only 23% of the hotels examined are found at all the search engines. Furthermore, the price analysis showed that there are differences among the search engines. Although some search engines statistically give lower prices, there is not a single search engine that always gives the lowest price for every hotel.

Keywords: Hotel Pricing, Hotel Search Engines, Online Travel Pricing, Tourism 2.0, Travel 2.0, Travel Search Engines, Trust, User Generated Content

INTRODUCTION

As Information and Communication Technology (ICT) is evolving and the use of the World Wide Web is becoming more widespread, the Web 2.0 emerges. Web 2.0 facilitates interactive information sharing and collaboration among the users. Searching for travel related information is one of the most popular online activities (Bray & Schetzina, 2006); so in order to follow this market tendency a lot of Web 2.0 applications on tourism have been created. The

search engines related to tourism constitute a type of online communities and Web 2.0 applications. They contain useful information about hotels, restaurants, air-tickets, car rentals and other travel services. Gretzel and Yoo (2008) showed that most of the travelers utilize such information about where to stay. Therefore, it is important to know which search engine, if any, could provide the best hotel prices. So, this study investigates the room prices given by the hotels websites as well as by popular travel search engines. Furthermore, it would be interesting to know the presence of the hotels on every search engine in order to identify the most integrated one. The next section provides

some background on Web 2.0 and tourism. Then we present the methodology and the section that follows describes the results. Finally, the last section concludes.

THEORETICAL FOUNDATIONS & BACKGROUND

By the early 1990s when the Web diffusion started, the ICT evolution led now days to Web 2.0. People with common interests can be gathered in online communities that provide the users with a collection of various interaction possibilities (Miguens et al., 2008). New terms such as social networking, consumer generated content and word of mouth are widely used and therefore it is important to make a reference to them.

Web 2.0 Technologies

The term Web 2.0 emerged in late 2004 in the work of Tim O'Reilly. This term is used in order to describe the new generation of the World Wide Web and is associated to web applications that allow and facilitate interactive information sharing and collaboration among the users. The website is no longer just a static page but it is turned into a dynamic platform which allows users the autonomous generation of content and gives them the possibility of expressing their own experiences (Litvin et al., 2008). By the use of the technology, the Web is evolving from a business-to-consumer marketing media to one where peer-to-peer generation and sharing of data are the basis (O' Connor, 2008). This can be easily shown as new forms of websites are created, of which the basic characteristic is the ability of sharing information and content online, as the consumer-user of the website can present his/her opinion, reviews and ratings concerning a specific product or service. The content added by the consumer is called "consumer-generated content" (Burgess et al., 2009) and the websites that give their users this opportunity are a form of social networking and constitute the epitome of Web 2.0.

The basic Web 2.0 technologies and applications in the first place are the wikis, the blogs, the RSS and the peer-to-peer networks (Tredinnick, 2006). However, the business models (e.g., social network sites) come on the top of all the technological innovations. They constitute information sources and include price comparison services. The exploitation of user contributed content adds value to commercial services. The Web 2.0 business models give users the opportunity to participate interactively and derive profitable returns by spreading information online and by reading other users' generated content (UGC). This form of communication that refers to interpersonal communication among consumers concerning their personal experiences with a firm or a product is called "Word of Mouth (WOM) communication" (Duhan et al., 1997).

Participation in Online Communities and its' Problems

As it was mentioned above the participation in social networks is spreading. But why do people participate in these networks? The reasons include socio-psychological variables such as keeping relationship with members, seeking a sense of belonging, and seeking identity (Chung & Buhalis, 2008). There also hedonic variables such as having fun with contents, entertainment and being amused by members. Finally, there are variables related to information acquisition such as obtaining up to date information, sharing experiences and finding efficient information easily.

However, the social network sites are not without problems (Chen, 2006). As everyone has the right to deposit his/her point of view there might be an information overload problem which influences the credibility of the information presented (Bellman et al., 2006). Misleading information can affect the decision making process and cause lack of trust. This is something unavoidable because the communication through the online environment does not allow the use of other contextual clues (for ex-

ample, a person's facial expression) to permit the evaluation of the opinions (Dellarocas, 2003).

For the reasons mentioned above and in order to make the information presented more credible, some websites often display demographic data or data such as the length of membership or the usernames. The anonymity and the authenticity are also two problems highlighted by the researchers of Web 2.0, as registration is not needed in every website in order to post something (Puri, 2007). In addition, someone can create multiple user accounts by using different e-mail addresses.

Web 2.0 and Tourism

The Web 2.0 applications are applied in many domains and especially in the tourism sector. Searching for travel related information is considered to be one of the most popular online activities. Online communities have been recognized as important information sources for consumers and as an effective marketing channel for marketers involved with the tourism industry. These applications have been named Travel 2.0 applications by Philip C. Wolf (Miguens et al., 2008).

In Travel 2.0 applications the tourists post information that concerns their opinion and personal experiences, reviews and multimedia elements such as photos and videos of hotels and destinations (Money & Crotts, 2003). They can also pose questions and look for the answers (Chung & Buhalis, 2008). One basic characteristic of the online social travel networking is that it is acting as a dissolver of boundaries and a catalyst to globalization (Puri, 2007) by allowing the interaction and the spreading of information among people who do not share the same social habits and cultural ideas. This makes the communication multicultural and therefore the collaboration multidimensional. In addition, information is created by users and not by marketers and this makes it more credible (Senecal & Nantel, 2004) and exempted by economic profits.

The traveler's decisions may become very complicated since s/he may have never visited a destination before or s/he may not be familiar with the service provider and this makes the Word-of-mouth information even more widespread (Chatterjee, 2001). On the other hand, if information is provided by a third party like the travel network communities it is considered to be more reliable and trustworthy, subsequently the online communities are regarded as one of the most influential information source as they provide up-to-date information about destinations.

The role of the online travel communities has to be examined by two scopes, by the managers' and by the travelers' scope (O'Connor, 2008). We will shortly refer to the first one by mentioning that the content presented on travel websites help managers to better understand how they can manage their image and positioning on the site by improving and promoting their services. By the travelers' scope, the content generated online concerning tourism serve two distinct roles. Firstly, the travelers provide information about products and services (Gretzel, 2008). Secondly, they make recommendations (Park & Lee, 2008). One of the key effects of the travel communities is the support that they provide during the consumer decision making process. Travelers generally collect and review various forms of travel information early in order to minimize the risk of making a poor decision. They follow the following five stages during the travel planning process: 1) need recognition, 2) information search, 3) evaluation of alternatives, 4) purchase decision, 5) post purchase evaluation (Cox et al., 2009).

Most people use the UGC travel sites in the stage of the information search and after they have already chosen the destination and during seeking information on accommodation options (Cox et al., 2009). So, the UGC sites relevant to tourism really provide information about products and services and serve as recommendations. Most users of tourism Web 2.0 applications find the travel reviews extremely important in order to choose where to stay (77.9%), where to eat (33.6%), what to do during their staying (32.5%), where to go (27%) and when to visit the destination (26.6%) (Gretzel & Yoo, 2008).

METHODOLOGY

Given the growth in Web 2.0 sites related to tourism our objective is to compare some of the most dominant search engines concerning hotels and the official websites of the selected hotels as well. More precisely, we want to distinguish the differences in price that might exist among them and to derive conclusions about the presence of the hotels on them. The data used come from the websites Booking.com, Expedia.com, Hotelclub.com, Hotels.com, Orbitz.com, Priceline.com, Travelocity.com, Venere.com and Tripadvisor.com, during the time period September to November 2010.

For each one of the twenty seven European Union capital cities we have gathered information for eighteen hotels, six for each category of the 3-stars, 4-stars and 5-stars, randomly selected from the list of the hotels that Tripadvisor gave for each city. For each one of the four hundred eighty six hotels we listed the city where the hotel is located, its name, its official website and the price of the room (when it was mentioned), the number of the assigned stars and the number of its rooms. By Tripadvisor we also recorded its popularity index, the number of reviews and the percentage of recommendations. By each one of the rest of the search engines we recorded the price and the hotel's rating when this information was available. The price refers to single bed room and the monetary unit that is used is the euro. The statistical analysis is based on the descriptive statistics in order to find the minimum, the maximum and the mean values as well as the standard deviation. In some cases we calculated some important frequencies and percentages too. These statistical elements allow the comparison among the variables that we want to examine and are important for the achievement of the study's objective. For the statistical analysis we have used the SPSS v18 package.

During the collection of the data the main problem was the lack of information. Many hotels were not presented on all the search engines and especially for the 1-star and the 2-stars hotels so we did not use these two categories as the analysis could not lead us to safe conclusions. In addition to this, not all the hotels had an official website with prices presented on it. To be more precise by the 486 hotels, the 464 (144 of the 3-stars, 159 of the 4-stars and 161 of the 5-stars) presented prices at their official websites.

RESULTS

Presence of Hotels on the Search Engines

First of all it is important to check the presence of the hotels on the search engines, namely the number of the hotels that participate to the research and are found in all or at least at half of the search engines, for all the categories in total and for each category separately (Tables 1 and 2).

We can see that 23% of the 486 hotels are found in all search engines, which is a very low percentage. This percentage is 18,5% for the 3-stars hotels, 21,6% for the 4-stars and 29% for the 5-stars hotels. At the last row of Table 1 we can see the frequencies and the percentages of the hotels found at least at half of the search engines, in total and for each category separately. We observe that 66,3% of the hotels are found in at least at half of the search engines. For both the occasions we remark that the percentage is increased as the category of the hotel gets higher. This shows that the search engines are more complete for the 5-stars hotels rather than for the 4-stars or the 3-stars hotels.

Table 2 presents the frequencies and the percentage of the examined hotels that are found in each search engine. By this table we want to find which search engine seems to be the most complete.

Overall and for each one of the hotel categories, Hotels.com (91,56%) and Booking.com (91,15%) are the most complete search engines. On the other hand, Venere (63,78%) and Hotelclub (63,37%) have the less examined hotels. The majority of the 3-stars hotels is found at Booking (91,98%) while the least options are found at Hotelclub (56,79%). Concerning the category of 4-stars hotels, the search engine

Table 1. Percentage of the investigated hotels found in the search engines

Hotels found:	All Categories		3-Stars Hotels		4-Stars Hotels		5-Stars Hotels	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
In all the search engines	112	23%	30	18.5%	35	21.6%	47	29%
At least at the half of the search engines	322	66.3%	91	56.2%	106	65.4%	125	77.2%

Table 2. Percentage of the investigated hotels found in each search engine

	All Categories		3-Stars Hotels		4-Stars Hotels		5-Stars Hotels	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Booking	443	91,15%	149	91,98%	143	88,27%	151	93,21%
Expedia	440	90,53%	145	89,51%	145	89,51%	150	92,59%
Hotelclub	308	63,37%	92	56,79%	99	61,11%	117	72,22%
Hotels	445	91,56%	144	88,89%	145	89,51%	156	96,30%
Orbitz	353	72,63%	97	59,88%	123	75,93%	133	82,10%
Priceline	353	72,63%	102	62,96%	123	75,93%	128	79,01%
Travelocity	393	80,86%	107	66,05%	139	85,80%	147	90,74%
Venere	310	63,78%	111	68,52%	104	64,20%	95	58,64%

where most of them are presented are Hotels and Expedia (89.51%) while the most incomplete one is Hotelclub (61,11%). Finally, for the 5-stars hotels the most complete search engine is Hotels (96,3%) while Venere (58,64%) has the least hotels.

Cost Analysis

Next, the descriptive measures of trend and dispersion for the prices of the rooms were investigated (Table 3).

From the total sample of the 464 hotels, now we take into consideration only those that presented prices on their official websites. The minimum price found at the search engines and the website is 18,82€ and the maximum price is 514,22€. The mean value is 115,73 and the standard deviation is 63,46. This happens because these descriptive measures concern all the categories of the hotels found in all the European Union capitals and a big difference to the prices was observed among these cities.

Regarding the 144 3-stars hotels, the minimum price given by the search engines and the websites is 18,82€, the maximum price is 168,57€, the mean price is 74,58€ and the standard deviation is 28,65. Regarding the 159 4-stars hotels, the minimum price is 30,12€, the maximum price is 252,22€, the mean price is 108,22€ and the standard deviation is 41,79. Regarding the 161 5-stars hotels, the minimum price is 58,05€, the maximum price is 514,22€, the mean value is 164,39€ and the standard deviation is 73,63. So, we remark that as the hotel category increases so the minimum price, the maximum price, the mean price and the standard deviation increase.

We observe that there are some big differences between the minimum and the maximum

Table 3. Descriptive measures of trend and dispersion for the price of the rooms

Price of the Search Engines	Total Sample	Minimum Value	Maximum Value	Mean Value	Standard Deviation
All Hotels	464	18,82	514,22	115,736	63,4614
3-Stars Hotels	144	18,82	168,57	74,589	28,65707
4-Stars Hotels	159	30,12	252,2	108,225	41,79004
5-Stars Hotels	161	58,05	514,22	164,394	73,6327

prices that are found at the search engines and the websites which are caused by the fact that there are differences in the quality of life and the living standards among the European Union capitals.

In Table 4, we calculate the descriptive measures of the prices of the investigated hotels given by each search engine separately.

Table 4 presents the minimum, the maximum and the mean price as well as the standard deviation given by each search engine for all the hotel categories and for each category separately. In general and according to the mean price, Expedia appears to be the cheapest search engine while Travelocity the most expensive one (about 10% more expensive than Expedia). Regarding the 3-stars hotels, Orbitz and Hotels give the lowest prices and Travelocity the highest ones. Regarding the 4-stars hotels, Hotels appears to be the cheapest and Travelocity the most expensive one. Finally for the 5-stars hotels, Expedia seems to be the cheapest search engine and Venere the most expensive one, while the range between their mean values is 16,74€.

Table 5 presents the frequencies and the percentages where each search engine was the most expensive of all or the cheapest of all. We also think that it would be interesting to check the percentage where each search engine was the cheapest for more than 10% in comparison to the others in order to check how the percentages are differentiated between these last two cases.

Table 5 firstly presents the frequencies and the percentages of the hotels where each search engine is the cheapest of all for all the catego-ries of the hotels and then for each category separately. We take into consideration the 464 hotels for which there were also prices at the hotel's website. So, Hotels.com appears to be the cheapest for 15,30% of these 464 hotels. On the other hand, Venere appears to be the cheapest only for 2,37% of these hotels. By specifying the hotels category, Hotels appears to be the cheapest for the 15,28% of the 144 3-stars hotels as well as for the 15,72% of the 159 4-stars hotels. Regarding the 5-stars hotels, Priceline appears to be the cheapest for the 17,39% of the 161 5-stars hotels, followed by Hotels.com with 14,91%. While for Venere we can see that it was never the cheapest search engine at this category.

In addition Table 5 presents the frequencies and the percentages where each search engine was the cheapest of all for more than 10% (both the rest engines and the official hotel's website). Overall Hotels seems to be the most attractive, since it is the cheapest for more than 10% for 3,23% of the hotels, while Booking and Travelocity follow with small differences. The corresponding percentages for each category separately are also presented on Table 5. We observe that the percentage is lower in comparison to the first query that we posed. This means that usually the prices among the search engines are relatively close.

Finally, Table 5 shows the percentages of the hotels where each one of the eight search engines had the most expensive price compared to the other search engines and to the official hotels' website. In general for all the categories

Table 4. Descriptive measures of the prices of the investigated hotels for each search engine

Prices at Engine:	All Categories					3-stars hotels				
	Total Sample	Minimum Value	Maximum Value	Mean Value	Standard Deviation	Total Sample	Minimum Value	Maximum Value	Mean Value	Standard Deviation
Booking	443	18	550	115,23	66,799	149	18	189	71,78	29,978
Expedia	440	21	526	111,68	64,128	145	21	204	71,34	30,045
Hotel-club	308	26	528	123,85	74,203	92	26	180	74	29,383
Hotels	445	17	529	111,87	64,595	144	17	198	70,78	29,905
Orbitz	353	21	522	118,08	66,864	97	21	178	70,89	28,626
Priceline	353	18	779	120,59	74,906	102	18	779	81,79	76,218
Travelocity	393	26	390	124,21	63,48	107	26	257	84,23	40,966
Venere	310	21	550	117,8	73,801	111	21	199	76,55	33,022
Prices at Engine	4-stars					5-stars hotels				
	Total Sample	Minimum Value	Maximum Value	Mean Value	Standard Deviation	Total Sample	Minimum Value	Maximum Value	Mean Value	Standard Deviation
Booking	143	29	261	109	45,299	151	59	550	164	77,54
Expedia	145	28	244	103,34	42,19	150	57	526	158,72	75,129
Hotel-club	99	36	247	109,88	45,899	117	50	528	174,88	85,738
Hotels	145	20	250	101,75	43,241	156	56	529	159,22	73,956
Orbitz	123	38	240	108,68	45,162	133	59	522	161,2	76,481
Priceline	123	28	267	111,16	47,157	128	39	516	160,57	76,742
Travelocity	139	41	273	113,22	43,605	147	50	390	163,7	70,337
Venere	104	36	260	109,16	48,119	95	59	550	175,46	92,944

of the hotels, Travelocity was the most expensive of all at the 17,46% of the hotels. On the other hand, Expedia had the lowest percentage 5,39%. If we take into consideration the categories of the hotels we can see that for the 3-stars hotels Priceline has the greatest percentage 22,92% and Venere the lowest one 4,17%. Regarding the 4-stars category, Travelocity appears to be the most expensive for 22,01% of the hotels, while on the other side there is Expedia with 3,14%. Regarding the 5-stars category, Travelocity seems to be the most expensive for 13,04%

of the hotels, while on the other side there is Hotels with 3,73%.

CONCLUSION

It is commonly accepted that by the diffusion and the evolution of the Information and Communication Technologies the electronic travel market is advancing. Consumers widely use the Web 2.0 tourism applications in order to be informed about their destinations.

Table 5. Percentage of the investigated hotels where the search engine is the cheapest of all, for more than 10% of all and of the most expensive of all

	All Categories		3-stars hotels		4-stars hotels		5-stars hotels	
Cheapest of all (all search engines and hotel website)								
	Fre-quency	Percent-age	Fre-quency	Percent-age	Fre-quency	Percent-age	Fre-quency	Percent-age
Booking	31	6,68%	15	10,42%	10	6,29%	6	3,73%
Expedia	55	11,85%	19	13,19%	21	13,21%	15	9,32%
Hotelclub	24	5,17%	7	4,86%	11	6,92%	6	3,73%
Hotels	71	15,30%	22	15,28%	25	15,72%	24	14,91%
Orbitz	58	12,50%	17	11,81%	21	13,21%	20	12,42%
Priceline	44	9,48%	5	3,47%	11	6,92%	28	17,39%
Traveloc-ity	33	7,11%	6	4,17%	11	6,92%	16	9,94%
Venere	11	2,37%	6	4,17%	5	3,14%	0	0,00%
Cheapest for more than 10% of all (all search engines and hotel website)								
Booking	14	3,02%	6	4,17%	4	2,52%	4	2,48%
Expedia	9	1,94%	4	2,78%	3	1,89%	2	1,24%
Hotelclub	4	0,86%	0	0,00%	3	1,89%	1	0,62%
Hotels	15	3,23%	5	3,47%	4	2,52%	6	3,73%
Orbitz	13	2,80%	4	2,78%	4	2,52%	5	3,11%
Priceline	9	1,94%	1	0,69%	1	0,63%	7	4,35%
Traveloc-ity	12	2,59%	2	1,39%	3	1,89%	7	4,35%
Venere	6	1,29%	4	2,78%	2	1,26%	0	0,00%
Most expensive of all (all search engines and hotel website)								
Booking	31	6,68%	8	5,56%	8	5,03%	15	9,32%
Expedia	24	5,17%	11	7,64%	5	3,14%	8	4,97%
Hotelclub	41	8,84%	11	7,64%	16	10,06%	14	8,70%
Hotels	25	5,39%	9	6,25%	10	6,29%	6	3,73%
Orbitz	39	8,41%	13	9,03%	13	8,18%	13	8,07%
Priceline	70	15,09%	33	22,92%	25	15,72%	12	7,45%
Traveloc-ity	81	17,46%	25	17,36%	35	22,01%	21	13,04%
Venere	25	5,39%	6	4,17%	6	3,77%	13	8,07%

The statistical analysis showed that only 23% of the sample of the hotels appears at all the search engines that we examined. This is a relatively low percentage and given the number of the visitors of these applications and their interest, the hotels should spend more time managing how they could be presented on such sites. They should exploit these alternative channels for selling their products. Also, the city tourism authorities should support their

city's tourism by informing the hoteliers among these possibilities. Furthermore, the fact that the search engines are more up-to-date about the 5-stars hotels than about the 4-stars and the 3-stars hotels triggers the suspicion that the managers of the lower categories' hotels do not pay enough attention to the promotion of their enterprise through the internet. However, it may also be the case that the travel search engines are interested more for upper level hotels.

According to the cost analysis, the higher the category is, the higher the mean values of the prices are. This is logical as the hotels at the higher categories have better quality of services and more amenities. Differences in prices are also observed, with Expedia having the lowest mean value 111,68€. These prices can give us a general idea but they are not absolutely representative of the general trend of the prices. Hotels is the cheapest of all other search engines and of the hotel's website for 15,30% of the hotels, Orbitz comes next (12,50%) and finally Venere (2,37%). However, these percentages get lower when the query changes and we look for how many hotels each search engine is for more than 10% cheaper than all the others, including the official hotel's website. In this case, Hotels is the cheapest again but only for 3,23% of the hotels which means that there are not very big price deviations. On the other hand, Travelocity appears to be the most expensive of all at 17,46% of the occasions. So, we cannot conclude that any specific search engine always gives the best prices.

In some cases we observe big differences between the minimum and the maximum values or the high standard deviations. This is due to the fact that there are differences among the capital cities of the European Union at the general level of the prices, the quality of life and the living standards. The phenomenon that some search engines are cheaper than others or than the official hotel's website might be attributed to the fact that they take directly the whole amount of money from the credit card without giving the chance of cancellation as it is usually feasible by the official hotel's website.

In addition to this, the search engines do not always clarify if the taxes are included. So the electronic customer pays less while doing the reservation through the search engine but s/he is called to pay the difference at the hotel. Furthermore, the hotels may give low prices to the most famous search engines and have profit by the high sales. Finally, there is a new tendency in the travel industry which is called allotment. According to Wikipedia (December, 2010) this term is used to explain the phenomenon where pre-negotiated hotel rooms are bought out and held by travel organizers who have prepaid the hotels and agree with them to dispose the rooms to any price, even if it is lower than the official price of the hotel. The hotels have profit as they assure that a block of their rooms is already paid.

The results of this study can be useful for the search engine managers in order to see the general tendency of the prices and to compare their search engine to the others. By this comparison they can decide which price policy they will apply to attract more visitors and electronic clients. The hotel managers can easily see the prices of other hotels of the same category. They can also find out which search engines are the most complete and make the required actions to appear on them if they are absent. The tourist organizations and agents can be beneficiated as well. The results of the study can facilitate them to keep their customers more satisfied by proposing the most beneficial solutions after having looked at the search engines that appear to be the most complete or that usually give the lower prices. Finally, the comparison of the search engines presented at this study can help each client/guest to check which search engine usually is the most economical way to book a hotel.

If we consider that the current time period is economically unstable, the prices are valid only for the specific time period that we examined and may vary if we repeat the research in the future, so the results may be differentiated. This limitation can turn into a fuse and a suggestion for future research.

To conclude, we could say that the Web 2.0 applications provide us with plenty of information and possibilities. The evolution of the technology will create new innovative challenges and by using our critical thinking we must evaluate all the sources and choose the solutions that seem to be the most beneficial.

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