

DECISION-MAKING BASED ON ONLINE REVIEWS: THE SMALL AND MEDIUM HOTELS MANAGEMENT

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Abstract

The decision-making process based on the user-generated content (UGC) can be used by several industries such as movies, books, tourism and hotels. This paper presents a fine-grained analysis of UGC for small and medium hotels (SMH). We collected and analysed 1500 online reviews from 50 SMH. This data was cross-referenced in order to find patterns that could support decision-making. The findings show that Room and Service were the concepts that guests pay more attention to in their review and ratings. For the concept Location, was identified an upward trend for hotels near trade centres and points of access to public transport. Tendencies to evaluate positively the hotels using high ratings were also identified. Although reviews receive high ratings, there is a significant number of negative considerations in these reviews. This paper also points the main features which SMH managers should prioritise according to the profile of the guest. For example, we found that British guests value tea- or coffee-making facilities in the room. This research concludes that online reviews provide useful information to help the SMH management in making decisions to increase customer satisfaction and to manage existing resources efficiently.

Keywords: Web 2.0, User-Generated Content, Online Reviews, Small and Medium Hotels.

1 Introduction

Considering the current economic context, better knowledge of the tourism industry seems to be necessary in order to help hotel managers enhance customer satisfaction. In Europe, the reality faced by Small and Medium Enterprises does not allow for a large investment in technologies to support decision-making. However, Web 2.0 has made available some technologies that have changed the way users create, share, post, search for, and collect online information, and they offer new and more efficient ways of communication by enabling users to make their ideas and opinions available to a potential audience of millions of people. This information is called User-Generated Content (UGC) (Eclestone and Griseri, 2008; Ye et al., 2011).

A type of UGC from which benefits can be drawn are the reviews and ratings from Web 2.0 users. During the purchase decision process, consumers seek multiple information sources to help them evaluate the alternatives and choose from among them. The information generated by the opinion and criticism of other consumers with regard to products or services is advantageous only if consumers can assess the quality of the product or service – such as the intangible products of the hotel industry – after consumption (Ye et al., 2011).

The new technologies brought to everyday business by Web 2.0 are favourable for integration in the Small and Medium Enterprises management. Information from social networking sites and blogs, and comments on hotel and evaluation sites can reduce the uncertainty about the quality and risks involved, while helping and making the travel preparation process more fun and efficient (Huang et al., 2010). When planning a trip, many people go to online review sites in order to acquire new ideas of destinations of where to travel and to exclude hypotheses (destinations and hotels that they would not like). Thus, the reviews, ratings and pictures provided by customers on travel sites often provide potential hotel consumers with their first impression (O'Connor, 2010).

Ye et al. (2011) conclude that the reviews made by users on sites specialised in the analysis and evaluation of hotels have a significant impact on the number of bookings made in these deals. Positive reviews from a hotel on these platforms can significantly increase the number of bookings made at that hotel.

In order to evaluate hotel reviews, we use concepts from an ontology of the hotel domain. An ontology can be understood as a vocabulary used to formalise concepts and their relationships. In the hotel industry, Room, Staff and Location are examples of these concepts. The main concepts used to classify the reviews come from the ontology, Hontology, developed by Chaves and Trojahn (2010).

Our main research question is: How the Web 2.0 technologies, namely online reviews, help the SMH management? The approach adopted in this paper can be followed by any hotel with online reviews in any country. We apply it to the Lisbon region, in Portugal. To the best of our knowledge, this is the first paper to approach online reviews about SMH in Portugal.

In order to answer this question, we first need to answer the following questions:

- What are the most valued concepts of the ontology (CO) (i.e. features) of SMH in the Lisbon region? What are the most commonly used qualifiers to mention these concepts?
- What is the consistency between the rating assigned by customers who do online reviews and the content of the review of these same customers?
- What is the customer's perception (e.g. positive or negative) about the quality of SMH in the Lisbon region?
- Do the SMH management use Web 2.0 technologies to provide feedback to their customers?

This paper is structured as follows: Section 2 presents a literature reviews. Section 3 describes the methodology used to develop this work. Section 4 introduces a sample characterisation and presents the data analysis. Section 5 makes a discussion on the results reached, and, finally, Section 6 closes the paper and also mention some limitations and future works.

2 Literature Review

The literature review is organised into three parts. First, we focus on Web 2.0, UGC and Electronic Word of Mouth in the hospitality industry. Then, we discuss the Small and Medium Enterprises definition and the tourism industry, and, finally, we address the impact of Web 2.0 in the SMH.

2.1 Web 2.0 and Electronic Word of Mouth

Web 2.0 can be seen as a concept in which companies leverage the value created by users, be it through the interaction with customers to maintain the company image, improving relations with them, or reaching new markets and audiences (Mazurek, 2009). Thus, Web 2.0 has modified the way business reputation is developed. Organisations need to consider the opinions of their consumers online, particularly as dissatisfied customers tend to tell their experiences to people more often than satisfied customers (Breazeale, 2009). Not only can these opinions reveal what is bad and should be improved, what is well and is appreciated in products of a particular company, or the market in general, but they can also often provide new ideas of how to develop a given product or even ideas for new products (Mazurek, 2009).

Opinions from Web 2.0 users are called UGC. Wunsch-Vincent and Graham (2007) define UGC as: i) content made publicly available over the Internet, ii) which reflects a "certain amount of creative effort" and iii) which is "created outside of professional routines and practices". UGC that is aimed at discussion and critical evaluation of products or services is also known as Electronic Word of Mouth. Electronic Word of Mouth holds a great advantage over traditional Word of Mouth, because by eliminating constraints of time and location, Electronic Word of Mouth presents a much greater range of potential receptors (Cheung et al., 2009). Electronic Word of Mouth can influence the buying decisions as well as the consumers' perceptions of quality (Stringam and Gerdes, 2010). When a user performs a review of a product or service, the review normally serves to recommend a product or service or to discourage consumers from buying it (Sen and Lerman, 2007).

When a person makes an overall judgement about a product or service, negative aspects tend to receive more attention than positive ones, that is to say, the impact of negative aspects is greater than the impact of positive ones. This is called the negativity effect (Lee and Youn, 2009; Sen and Lerman, 2007). Negative information is more easily noted because generally negative attributes are directly linked to poor quality products or services. By contrast, positive information is seen as ambiguous, since any product, regardless of its quality, can have positive attributes (Lee and Youn, 2009). Thus, according to Lee and Youn (2009) organisations should concentrate more effort on preventing the proliferation of negative comments than getting extremely positive feedback. However, no negative information about a product or service might suggest to users that the communicator has commercial intentions, and is trying to manipulate the system to increase the confidence of users (Lee and Youn, 2009).

2.2 Small and Medium Enterprises definition and the tourism industry

In 1996, the European Commission defined micro-businesses as companies that employ between zero and nine employees, small companies as employing between 10 and 49 people, mid-sized companies between 50 and 249 people, and large companies over 250 people (Morison and Conway, 2007). Thomas (2000) notes that, despite the difficulty in establishing a precise and broadly accepted definition of small business, there are certain distinctive characteristics that are generally accepted as characteristics of a small company. A small business tends to be independent, and concentrates on a particular service. The management is carried out by the owner, who also takes on most of the responsibilities.

In the hospitality sector, there is no official definition of SMH, as there are no uniform criteria for classification in the academic field (Morison and Conway, 2007). Nonetheless, with regard to the number of bedrooms, though the numbers may fluctuate, a general view in industry and academia is that small hotels have less than 30-50 rooms, medium size hotels have from 50 to 100-120 rooms and big hotels have more than 100-120 rooms (Barjaktarovic et al., 2010; Bastakis et al., 2004). In this study, we used the definition based on the number of rooms proposed by Barjarovic et al. (2010), in which SMH have less than 120 rooms.

Small and Medium Enterprises have a significant impact in the economic context of a region. In European economies Small and Medium Enterprises are a pillar of their corporate structures, and they make up the vast majority of the businesses. (IAPMEI, 2008). In Portugal, Small and Medium Enterprises are dominant in the national business structure. At the end of 2005, they accounted for 99.6% of business units in the country, 75.2% of jobs created (private employment) and more than half (56.4%) of business volume. The same study shows that Portugal had around 297,000 Small and Medium Enterprises in late 2005, which generated about 2.1 million jobs and over 170,300 euros of turnover (IAPMEI, 2008). In the tourism industry the percentage of Small and Medium Enterprises was 99.9%, generating 84.6% of employment and 82.3% of turnover in this industry in late 2005. These numbers underline the importance of research on Small and Medium Enterprises in the tourism industry.

2.3 Web 2.0 and Small and Medium Hotels

Hospitality reviews on the social web enable hotels to get feedback about the quality of their services as well as that of their competitors and the industry level in general. They also make it possible to identify failures in aspects that are really important to consumers (i.e. those that generate the most complaints). On the other hand, the reviews also make it possible to identify the products and areas most valued by the customers (i.e. the categories that receive more positive feedback).

Managers can identify the categories that influence both the decision to book the hotel itself or to stay in the area of the hotel, and the industry in general (Stringam and Gerdes, 2010; Litvin et al., 2008; Papathanassis and Knolle, 2011). This information can be useful to direct scarce resources to bridge the gaps of service that will really have a significant impact on consumers' perceived quality of the hotel (Stringam and Gerdes, 2010). As a result, more efficient use can be made of the resources invested in new equipment or installations in the hotel, and decisions regarding the recruitment and training of hotel staff can be improved (Stringam and Gerdes, 2010).

Management should be aware of these online reviews in order to identify details that lead to the satisfaction of most customers, and which, despite involving some degree of investment, might succeed in gaining some customers (Stringam and Gerdes, 2010). In addition, monitoring negative online reviews can provide the hotel management with information about what causes dissatisfaction among their customers, and actions that can be taken to prevent and respond appropriately and effectively to these situations (Sparks and Browning, 2010).

According to Xie et al. (2011), to avoid negative reviews, hotels must maintain a high quality of service in relation to the service commitment (i.e. number of stars). Hotels should also monitor the most important sites for evaluating hotels to prevent the onset of dishonest messages. They should also use the right of reply, which is normally allowed and encouraged by this kind of site (O'Connor, 2010; Litvin et al., 2008; Stringam and Gerdes, 2010). This way they can respond to negative comments, giving reasons and stating measures taken to solve the problem that generated the negative comments, even offering some sort of compensation for more serious cases. If the hotel has learned from mistakes and taken steps to improve the services offered in the future, users' attention may be drawn to the latest comments from guests who were happy with the service (Xie et al., 2011).

The fact that the service failure could have been avoided increases the likelihood that consumers will have to criticise adversely the hotel review sites. However, an appropriate response to service

failures, may potentially increase customer retention, and create an opportunity to establish lasting relationships with them (Jeon and Jeong, 2008; Sparks and Browning, 2010).

3 Methodology

In order to attain our research objectives, we conducted an exploratory study and analysed 1500 reviews on SMH in Lisbon using the following methodological phases:

First phase: We gathered the names of all hotels in the Lisbon region registered in the National Registry of Tourism (2011) up to March 31, 2011 according to the following criteria: i) the hotel must be independent (i.e. not belong to a chain of hotels); ii) it must have fewer than 120 rooms; iii) it must have at least 30 reviews available for 2010 on Booking.com and Tripadvisor online pages, with text, in Portuguese, English or Spanish (for hotels that did not have enough comments for 2010, we supplemented them with reviews from the beginning of 2011). In cases where there were more than 30 reviews, we selected the comments with more description (i.e. the 30 longest comments). Due to fact that the number of hotels present in the National Register of Tourism that met all requirements fell short of the desired number (50 Hotels), we also used the list of housing program DiscoverPortugal (2011). This list comes from the site of Tourism of Portugal from April 15, 2011. We selected the first seven hotels in the city of Lisbon that met the criteria described above.

Phase two: We loaded 1500 reviews to a spreadsheet, and subsequently analysed them using the following parameters:

- Polarity: We identified the polarity of the general revision taking into account six categories: positive, negative, mixed, neutral, irrelevant, or uncertain, as proposed by Godes and Mayzlin (2004);
- Relevance of CO: We chose the segments of the reviews containing relevant CO (maximum three per review);
- CO: We identified the CO present in each segment selected;
- Strength of the Polarity (for each CO, polarity was identified in the following categories: very negative, negative, neutral, positive, or very positive. The strengths of the polarity were classified according to the approach of Turney (2002). In this approach, the classification is chosen by the association of adjectives, adverbs of positive or negative connotation for the chosen parameter (e.g. clean, dirty, nice, nasty, comfortable and uncomfortable). For the classification of the strength very positive and very negative, the criterion used was the presence of adjectives or expressions of extreme tilt (e.g. stainless, dirty, good, bad, very, and could not have done more to);
- Qualifier of each CO, i.e. the term attributable to a positive or negative use of the CO.

In addition to classifying the reviews on the basis of the ontology, we sought to identify what type of customer made the review. In this case, we used the categories provided by Booking.com and TripAdvisor sites (see Table 1). Other attributes that were evaluated were the date that the review was made, the origin country of the reviewers, the number of stars of the hotel and the rating given by each user to the hotel. Because the assessment system was different on the two sites, (TripAdvisor uses a scale from 1 to 5 and Booking.com from 1 to 10), we set the ratings of Booking.com to a scale of 1 to 5 (i.e. from 1 to 2.4 is equivalent to a rating of 1, from 2.5 to 4.4 is equivalent to a rating of 2, etc.).

Third phase: We analysed the sample data through Excel pivot table function. The data were analysed by means of the intersection of several variables. The purpose of this stage of the study was to identify possible patterns of market preference, which could support the decision-making of the SMH managers. We also identified measures to improve the satisfaction rate of both potential customers and the allocation of financial and human resources.

3.1 Sample Characterisation

After gathering the data according to the methodology presented, we obtained a sample with 1500 reviews from 50 hotels. Of these hotels, 8% had 18-30 rooms, 42% had 31-50 rooms, 34% had 51-80 rooms, and 16% had 81-120 rooms. From the 1500 reviews, we chose 4039 excerpts from the comments, all of them containing CO. We characterised the sample as follows:

- Types of customer: are the types of customer identified on the sites used in this study. Table 1 presents the frequency of each type.
- Concepts of the ontology (CO): We identified 24 CO in the reviews. The most frequent concepts were Room, Staff, Location, Hotel, and Breakfast. These five concepts make up 88.2% of the total CO in the study. Table 2 presents the frequency of the CO identified in the sample.
- Qualifiers: The most frequent qualifiers identified from a total of 187 were: cleanliness, friendliness, helpfulness, centrality, size, silence, diversity, price, proximity to public transport, design, bed, and Internet. These qualifiers represent 68% of total qualifiers.
- Polarity: Most of the reviews analysed (69.59%) had mixed polarity (i.e. the reviews had at least two of the three classifications: positive, negative and neutral.) However, it was found that there were more reviews with only positive polarity (24.02%) than negative (5.59%), which is in line with the results of Stringam et al. (2010).
- Strength of the Polarity (SP): The most frequent SP were positive (49.62%), followed by negative (33%). Within the extremes, very positive had the highest frequency (11.92%) and very negative had 2.72%. The neutral SP made up only 2.65% of total occurrences.
- Country of origin of the reviewers: Reviews were collected from users of 72 countries. The countries with higher incidence in this study were Portugal (25.62%), United Kingdom (15.24%), Brazil (10.05%), USA (7.58%) Spain (6.59%) and Ireland (4.32%).
- Number of stars: In terms of industry classification of hotels, from the 4093 segments of the reviews, 49% are for 3-star hotels, 22% for 2-star hotels, 19% for 4-star hotels, 6% for 5-star hotels, and 4% for 1-star hotels.

| Type of customer | % | Type of customer | % | Type of customer | % |
|-----------------------|-------|----------------------------|-------|--------------------|--------|
| Young couple | 19.56 | Couple | 15.57 | Other | 0.67 |
| Individual travellers | 18.50 | Family with young children | 4.99 | Unable to identify | 0.40 |
| Mature couple | 17.23 | Family with older children | 4.86 | Co-workers | 0.33 |
| Group of friends | 16.63 | Extended family | 1.26 | Total | 100.00 |

Table 1: Type of customer.

| CO | % | CO | % |
|-----------|------|------------|------|
| Room | 31.3 | Service | 3.54 |
| Staff | 18.5 | Bathroom | 2.95 |
| Location | 16.9 | Parking | 1.63 |
| Hotel | 11 | Restaurant | 1.16 |
| Breakfast | 10.5 | Others | 2.47 |

Table 2: Concepts of the Ontology.

3.2 Data Analysis

In the data analysis, we try to correlate the variables described in Section 4.1. We split the analysis into strength of polarity, CO and country of origin of the reviewer, and a vertical analysis of the more frequent CO.

3.2.1 Strength of Polarity (SP)

- Concepts of the Ontology (CO) and Strength of Polarity (SP): According to Table 3, we observed that almost 50% of the customers demonstrated negative SP in the comments that referred to the room. However, when referring to the staff, the vast majority of comments are positive. The Bathroom concept received a negative connotation in 86.55% of comments. Conversely, when comments referred to a balcony, they were always classified as positive.
- Ratings and SP: Regarding the rating (on a scale from 1 to 5 stars) explicitly made by the customers, 4-stars received 43.98%, 5-stars 30.07%, 3-stars 19.89%, 2-stars 4.39%, and 1-star 1.66%. We also tried to understand the relationship between the evaluations made by the consumers and the strength of the polarity in the comments. According to Table 4, this ratio presents a positive trend. In this analysis, the data were consistent, i.e. in the feedback with higher ratings (4 and 5 stars) there were more excerpts of comments with a positive connotation. In reviews with a 4-star rating, the most frequent SP was the positive (55.16%). However, there were many CO with negative SP (30.66%). Reviews with a rating of 5 stars present the highest percentage of CO with positive and very positive SP, and the lowest percentage of negative and very negative SP. In the case of reviews with a rating of 3 stars, there is a higher percentage of occurrences of CO with negative SP than positive SP. The same phenomenon occurs with reviews rated 1 and 2 stars; the reviews show the highest percentage of CO with negative and very negative SP and fewer positive or very positive SP.

| (%) | Positive | Negative | Very positive | Very negative | Neutral |
|------------------|----------|----------|---------------|---------------|---------|
| Room | 41.22 | 46.52 | 6.33 | 3.24 | 2.69 |
| Staff | 70.01 | 11.78 | 15.13 | 1.74 | 1.34 |
| Location | 65.64 | 10.28 | 22.17 | 0.29 | 1.62 |
| Hotel | 55.16 | 23.99 | 16.59 | 2.47 | 1.79 |
| Breakfast | 32.71 | 44.71 | 9.41 | 5.88 | 7.29 |
| Service | 27.27 | 60.84 | 2.80 | 4.90 | 4.20 |
| Bathroom | 8.40 | 81.51 | 2.52 | 5.04 | 2.52 |
| Parking | 52.38 | 44.44 | 3.17 | 0 | 0 |
| Restaurant | 29.79 | 53.19 | 8.51 | 6.38 | 2.13 |
| Bar | 29.17 | 54.17 | 16.67 | 0 | 0.00 |
| Swimming Pool | 42.11 | 42.11 | 10.53 | 0 | 5.26 |
| Balcony | 50 | 0 | 42.86 | 0 | 7.14 |
| Check-in Service | 45.45 | 45.45 | 0 | 9.09 | 0 |
| Others | 22.73 | 59.09 | 0 | 4.54 | 4.54 |

Table 3: Concept of the Ontology vs. Strength of Polarity.

| (%) | Positive | Negative | Very positive | Very negative | Neutral |
|-----|----------|----------|---------------|---------------|---------|
| 5 | 58 | 17 | 21 | 0 | 4 |
| 4 | 55 | 31 | 11 | 1 | 2 |
| 3 | 35 | 53 | 4 | 5 | 2 |
| 2 | 17 | 61 | 1 | 19 | 2 |
| 1 | 7 | 75 | 3 | 14 | 0 |

Table 4: Rating vs. Strength of the Polarity.

3.2.2 Concepts of the Ontology (CO)

- **CO and the country of origin of the reviewer:** Analysing the countries of origin of the reviewers and the CO with the highest occurrence in this study, one can recognize that for all the countries, the most commonly discussed CO in the comments are Room, Staff, Location, and Hotel.

According to Table 5, Dutch people also stressed the Breakfast, while Americans hardly mentioned this CO.

- **CO and qualifiers:** The most frequently used qualifiers to describe the concept Room were cleanliness (17.96%), size (14.32%), silence (12.58%) and bed (9.65%). For the Bathroom, the most frequent qualifiers used in reviews were size (16.81%), shower (15.97%) and cleanliness (15.13%). Staff were more frequently described as friendly (40.96%), helpful (37.35%), professional (4.95%), having knowledge of the area (4.55%) and communicative (4.02%). For Services, the most frequently used were availability of the Internet (62.24%), and booking (18.18%). For Breakfast, the diversity of the menu and food quality made up 44% and 19.53% of the qualifiers respectively. For Parking, the most frequent qualifiers were Presence/Absence (49.21%), Price (22.22%) and Accessibility (11.11%). For the Hotel in general, the most frequently used qualifiers were price (30.27%), cleanliness (17.04%), silence (11.66%) and design (11.21%). Location was qualified in terms of centrality (35.10%), proximity to public transportation (22.17%) and surroundings (15.57%).
- **CO, number of stars and qualifiers:** We also observe that there is no relation between the number of stars and the CO. Independently of the number of stars, the five most commonly mentioned CO were: Room (30.92%), Staff (18.80%), Location (18.25%), Hotel (11.38%), and Breakfast (10.25%). On the other hand, analysing the qualifiers, we can note that in the comments regarding the hotels rated 5-stars, there was little use of the qualifiers cleanliness, proximity to transport and price. Cleanliness was the most frequently used qualifier in the reviews of 1 and 2-star hotels. By contrast, the helpfulness of the staff and size were little mentioned in the comments of the 1-star hotels. Table 6 presents a summary of these results. As expected, the qualifier design was more commonly mentioned in the comments related to 5-star hotels. The qualifier engaging was repeatedly mentioned (in percentage) in the comments from 1- to 5-star hotels, but with negative SP in 1-star hotels and positive SP in 5 star hotels.

| (%) | Room | Staff | Location | Hotel | Breakfast | Services | Bathroom |
|-----------------|-------|-------|----------|-------|-----------|----------|----------|
| Portugal | 28.78 | 16.56 | 15.11 | 16.05 | 9.01 | 3.31 | 4.24 |
| UK | 33.23 | 18.41 | 17.16 | 9.52 | 12.01 | 2.18 | 2.03 |
| Brazil | 29.34 | 20.41 | 18.37 | 9.18 | 10.46 | 5.36 | 3.32 |
| USA | 32.18 | 22.71 | 18.61 | 8.83 | 6.94 | 4.10 | 1.26 |
| Spain | 30.11 | 11.90 | 16.73 | 15.99 | 11.90 | 1.86 | 6.32 |
| Ireland | 34.24 | 22.28 | 15.22 | 8.15 | 11.41 | 1.63 | 1.63 |
| The Netherlands | 28.92 | 21.69 | 15.66 | 16.87 | 13.25 | 1.20 | 0 |
| Canada | 34.18 | 17.72 | 16.46 | 8.86 | 10.13 | 5.06 | 3.80 |

Table 5: Country of origin of the reviewer vs. CO

| Stars / Qualifier (%) | Cleanliness | Friendliness | Helpfulness | Centrality | Size | silence/noise | Variety | Price | Prox. of PT | Design |
|-----------------------|-------------|--------------|-------------|------------|------|---------------|---------|-------|-------------|--------|
| 1 | 10.29 | 8.00 | 2.86 | 10.86 | 2.86 | 5.14 | 5.71 | 6.29 | 7.43 | 4.57 |
| 2 | 9.94 | 8.47 | 7.46 | 5.65 | 6.89 | 6.10 | 4.29 | 5.20 | 3.28 | 2.15 |
| 3 | 8.38 | 7.22 | 6.16 | 6.06 | 4.90 | 5.20 | 6.01 | 5.30 | 4.19 | 2.52 |
| 4 | 6.42 | 7.21 | 7.86 | 3.93 | 5.50 | 4.72 | 2.36 | 1.97 | 3.28 | 3.80 |
| 5 | 1.28 | 8.51 | 11.49 | 8.51 | 9.36 | 5.11 | 3.83 | 2.55 | 0.43 | 6.81 |

Table 6: Number of stars vs. qualifier

3.2.3 A vertical analysis of the most frequent CO

After analysing the existing relationships between variables, we carried out an in-depth analysis of the most frequent CO, their qualifiers and the SP assigned to them.

- **Room:** According to Figure 1, the most frequent qualifiers with regard to Room were cleanliness (18%), size (14%), silence (13%), and bed (10%). Most users who mentioned cleanliness, comfort, scenery, and the Internet did so with a positive evaluation, while those who mentioned air conditioning, bed and sound proofing did so with a negative evaluation.
- **Staff:** The vast majority of comments that mentioned Staff cited friendliness and helpfulness as strengths, according to Figure 2. Knowledge and indication of sights and landmarks as well as foreign language skills were also valued. However, when comments referred to professionalism, in most cases it was to highlight instances of the lack of professionalism of the Staff.
- **Location:** As for Location, being near the city centre, proximity to access points for public transport, and proximity to the beach were largely considered as positive or very positive (see Figure 3). When there was reference to the neighbourhood, we identified a negative SP, and a very negative SP for unsafe surroundings of the hotel. Conversely, comments that mentioned a safe neighbourhood, quiet, and a luxurious appearance received a positive or very positive evaluation. The availability of parking near the hotel was also identified as a major factor. Accessibility was referenced as a negative aspect by noting the hotel is located away from the road, or is hard to find.
- **Hotel:** For comments about the Hotel concept, there was a trend to attribute positive polarity for value for money, cleanliness of the common areas of the hotel, scenery, comfort, and hotel decoration (see Figure 4). However, we also identified a tendency for negative evaluations in cases that referred to a lack of silence, and a poor state of conservation of hotel infrastructure.

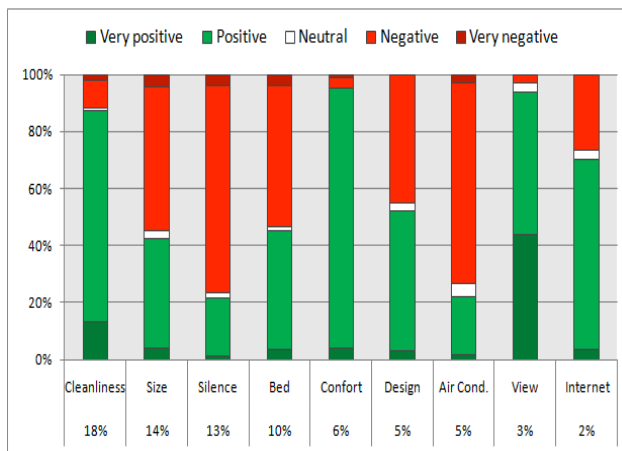


Figure 1: Room: Qualifiers vs. Polarity

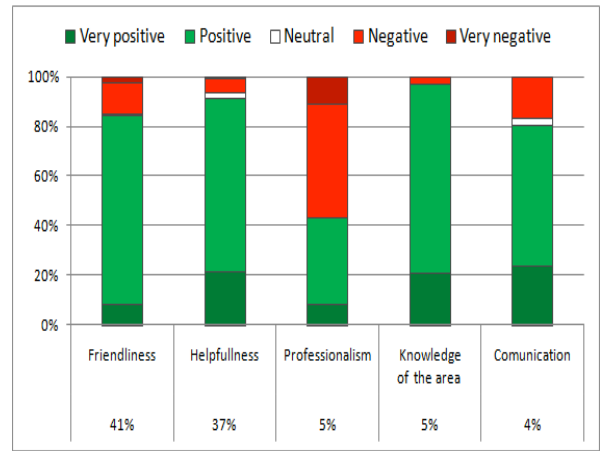


Figure 2: Staff: Qualifiers vs. Polarity

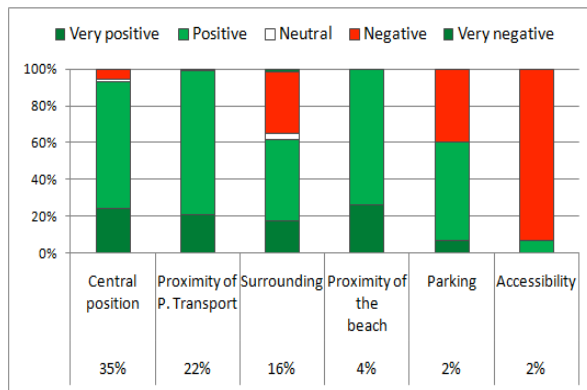


Figure 3: Location: Qualifiers vs. Polarity

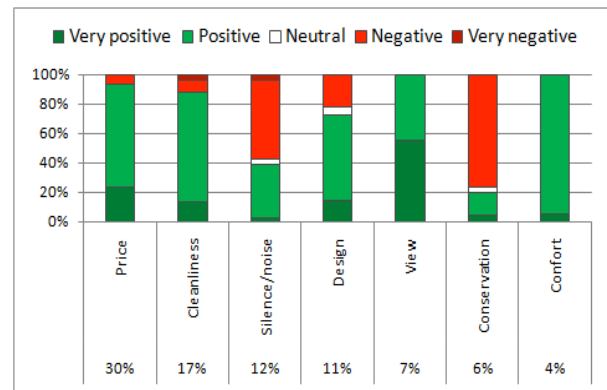


Figure 4: Hotel: Qualifiers vs. Polarity

4 Discussion

Reviews have a significant impact on the online booking of hotel rooms, leading to a potential impact on profits of hotels. This paper presented a fine-grained analysis of the Web 2.0 data about SMH in Portugal. From this analysis, the following items emerge to discussion:

- The SMH management should monitor reviews with high and low ratings equally carefully.** After analysis of the 1500 online reviews made by Web 2.0 users, it was found that 69.54% had mixed polarity. This means that even in reviews with high ratings (in this study 4 and 5), there is a significant number with negative considerations. Thus, a SMH may have a good average rating, but continue to have negative aspects highlighted in the reviews.
- The SMH management should include skills identified in the online reviews in the applicant profile when recruiting new employees, and undertake the training of existing staff.** We identified the main skills that users appreciated in Staff. Friendliness and helpfulness were the most frequently mentioned. Staff professionalism, knowledge and consequent ability to give useful information about local places of interest and facilities, as well as the ability to communicate in different languages were also valued by reviewers. As Sparks and Browning (2011) note, the quality of the interactions with staff is critical in influencing trust perceptions of the hotel.
- When SMH management receive a booking for British guests, they could ensure the necessary equipment is available in room.** By monitoring and analysing reviews it is possible to identify opportunities to increase customer satisfaction with little investment. For example, we found that customers from the United Kingdom, Ireland and Wales valued tea- or coffee-making facilities in the room and complained about the lack of this facility. Reisinger and Crofts (2010) state that it is essential to accept cultural divergence in order to achieve broader business congruity. They also stress that hotel managers need to set up different strategies to meet the preferences of diverse customers. We believe that the findings described in our empirical research can support future research on cultural aspects (e.g. national and industry) as suggested by Chen et al. (2011).
- Although the SMH management cannot change the location, they can highlight any pleasant aspects of their location.** For the concept location, we identified an upward trend for hotels near trade centres and points of access to public transport. We suggest actions such as informing and helping guests become aware of any points of interest locally as well as informing their guests about the public transport adjacent to the hotel.
- If budget is a constraint for the SMH management, Room and Service (Staff) should have priority.** As in the studies of Stringam and Gerdes (2010) and Stringam et al. (2010), Room and Service (Staff) were the categories that guests pay more attention to in their reviews and ratings. Cleanliness is also a major concern recognized in this study. Other widely discussed categories were location, hotel (in general), breakfast, and hotel services. In light of the reviews studied,

management should target existing resources to keep the rooms clean. Less luxurious hotels should retain their basic design, but ensure that the rooms are soundproof and that the beds are comfortable. With regard to service, we found that the availability of, functioning of and price for the Internet (and Wi-Fi) had great relevance in the comments analysed. The SMH management should consider that an accessible and reliably functioning Internet service can be very valuable.

- **Most hotel management do not seem to use hotel review sites to communicate with their guests.** Confirming what was found by Litvin et al. (2008) and O'Connor (2010), most hotel management do not seem to use hotel review sites to communicate with their guests. Out of the hotels analysed, only one was identified as using its right of reply on the Tripadvisor site. It should be noted that there is no such option on the site Booking.com.

5 Conclusions

Finally, we conclude that regular monitoring of reviews on Web 2.0 sites can serve as a useful decision support tool for SMH management. Through this monitoring, SMH management may, if there are regular reviews, measure the perception of customers' satisfaction, and their expectations of the service provided by the hotel. They can also identify gaps and strengths in customer service, identify new ways to increase customer satisfaction and adjust operational strategies to minimise the differences between the expected and received. The necessary adjustments can be identified from comments from their own customers in reviews of the hotel itself, or by searching for trends within the full spectrum of users throughout the hotel market. The online reviews also have potential to support decisions pertaining to investments by identifying the core elements desired by the customers.

As regards the limitations of this study, there are important things to highlight, such as the detract from the methodological robustness of the study. First, some smaller hotels in Lisbon did not hold significant review numbers in the chosen sites. Second, the inadequate number of hotels precluded the use of a random sample, and this constrains any generalisation of the study's findings. For future studies it is advisable to use a database with all the SMH of the city/region under study, which would enable the choice of a random sample of SMH. We also limited the choice to three CO per review.

This study is exploratory in nature, so it requires the identification of issues needing emphasis in future investigations. Thus, we propose to carry out a case study in SMH, where we study the reasons that lead the management to ignore or attend to online reviews, and what benefits they obtain with the monitoring of online reviews.

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