



Semantic Fields to Improve Business: the hotels case

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ABSTRACT:

The decision-making from a tourist depends on the social media experience. For tourists, the importance of qualitative sources (for example, comments in forums of websites, blogs and social networks: Internet technologies) is increasing for tourist enterprises. A representative percentage of tourists choose destinations thanks to the opinions of other users. In this article, we use the methodology of sentiment analysis and opinion mining to capture keywords and linking messages with a singular semantic field to find the principal concepts of online comments collected in Booking and TripAdvisor opinion platforms for tourists staying in hotels. We conclude that hotels find in the semantic fields a tool for observing internal strengths and weaknesses and external opportunities and threats.

Keywords: Social Network; Interactivity; Technology; Opinion Mining.

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THE OPINION IN THE INTERNET ARENA

The analysis of customer's opinions is more relevant in the Broadband Society (Fondevila-Gascón 2013), taking in consideration the dependence of these opinions in the decision-making. Social media lead the marketing and e-commerce strategy of enterprises. Concepts like SEO (Search Engine Optimization), SEM (Search Engine Marketing) and SMM (Social Media Marketing) reflect the need of a deep study of the digital qualitative arena.

In this new framework, sentiment analysis is a crucial qualitative methodological tool to assess consumer steps in the process of taking a decision. The tourism sector, the first in generation of billing in e-commerce, is an adequate way to validate the influence of opinions and to suggest formulas to improve the qualitative research.

For a tourism enterprise, Internet assumes the digital marketing activity. In the last years, research on data mining is focused on opinions and semantic field to understand the process of analyzing the contents, intending to discover the connotative message (for example, irony).

Social network parts on the human need to establish a relationship in a community. It implicates the apparition of a network, and it is the list of users you share a connection and view and track your contacts list (Boyd 2007). This concept is miscellaneous, and it is linked to psychology, topography, sociology and other disciplines. The psychosocial development of alignment and interaction networks is necessary to study a very key item. Social networks make up a core that can be established (directly or not) by the intentionality of people. Social networks are spaces where individuals exchange personal and professional information with others (Celaya 2008). The union between partners is linked in communications that can be performed in a forced or a random scope. Broadband Society, cloud journalism (Fondevila-Gascón 2010) and the Internet create solid systems defending the welfare state and business.

We can find different types of social networks: professional, generalist and specialized. They are centred on a particular field (Fondevila-Gascón et al. 2012). Depending on the goal, social networks could be for leisure, for business and micro blogging (Fondevila-Gascón & Perelló 2014). Horizontal and equal conditions with shared information are other classification (ONTSI 2012). Following the degree of public or private opening and according to the level of integration, the network can be horizontal or vertical.

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Opinions in the Internet allow easy access to information about products or services to purchase (Zhu & Zhang 2010). Virtual opinion platforms share experiences, assessments and access to large volume of data (Henning-Thurau et al. 2004, Khammash & Griffiths 2011). Data confirms the weight of opinions: 74% of Internet users in Spain claimed to read reviews from other users before making a purchase and 45% relied on these opinions (AIMC 2014), in a way of clear electronic Word-of-Mouth (eWOM) (Fondevila-Gascón & Mir-Bernal 2014; Fondevila-Gascón et al. 2014).

Companies try to expand their means of finding information (Fondevila-Gascón, Carreras-Alcalde & Del Olmo Arriaga 2012), in order to know what factors motivate consumers to publish their ratings on the network (Serra & Salvi 2014). In this environment, instant messaging increases leader role (Fondevila-Gascón et al. 2014).

The eWOM is a source of positive and negative information (Chatterjee 2001). According to behaviour by users, there are active consumers (they post their experiences and opinions in forums or websites) and passive consumers, that search for information thanks to the reviews offered on the network (Wang & Fesenmaier 2004). However, opinions remain for a long time and can be read by a lot of users (López & Sicilia 2013).

In platforms on hotel reservations, positive and negative reviews increase consumer awareness about hotels (Vermeulen & Seegers 2009). The influence of comments depends on the trend of comments and final numerical rating (Sparks & Browning 2011).

For tourism businesses, the intention is to find the factors that influence the consumer choice. They try to look for the figure of the gatekeeper or the opinion leader, in the communication arena. The social media platforms allow the opportunity to contact with a friend and influential active users. The participant can obtain assessments and, in turn, get an assessment of the own opinion as useful for other individuals.

The analysis about opinion platforms and social networks is recent but intensive, and it includes metrics (Fondevila-Gascón et al. 2016). The facility to publish opinions and value the services offered by an enterprise and the fact to share with other participants help them to make the decision to purchase and to the companies to improve their services if necessary. Tracking axes opinion belongs to the platforms of opinion and the websites of the companies. This is especially noticeable in the hotel industry, specifically in the hotel booking sites. Companies like TripAdvisor, Booking, Expedia, Kayak or Trivago offer travelers to share their experiences and help current and future guest's spaces.

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Websites create an open a space where the member can insert a comment with the opinion on accommodation and a descriptive title of it. The individual can also evaluate numerically its experience, usually with a marker that allows a score of 5 or 10. The comment is completed automatically with the date it was issued. The option to assess whether the comment is useful for the user is also offered. The numerical assessment helps in case of proliferation of comments.

We observe platforms dedicated exclusively to collect and provide the user reviews and others that are part of a web site dedicated primarily to another service, such as booking flights or hotels. The page SimilarWeb evaluates traffic of a web to which we can access and generates global or country rankings and categories. Booking and TripAdvisor are positioned in 2016 as world leaders in their respective categories, "Bed and hotels" and "Hotels". The location in different categories of companies in the same sector is by a reason: Booking was born as a travel booking website; TripAdvisor did as a site dedicated to sharing travel experiences.

Booking.com was in 2016 the world's leading online accommodation bookings. An amount of 850,000 nights were reserved each day from their website. It emerged in 1996 with the aim of ensuring the best price for all types of accommodation from bed and breakfasts to five exclusive apartments and luxury 5-star hotels. It is available in 40 languages and offering more than 694,000 properties, operating in 215 countries. The purpose of Booking is to help travelers find, book and enjoy the best accommodations around the world, adapting to every budget. The added value is guaranteed to get the lowest price, secure and no management fees. Booking hotel offers a search engine where the customer can indicate the chosen destination or hotel to stay, the travel date, number of guests and the type of trip to perform, business or leisure. There is a registration area and access and other language selection and currency. There is a lack of advertising of other brands that are not attached to their services.

The customer receives an overview of tenders: hotel name, certification and location, people at the same supply and when the last, assessment of accommodation on the web and many comments and target price was performed. Access offers allows permission to the area where visitors leave comments. This section allows viewing the overall score awarded in hotel and cleanliness, location, comfort, treatment of staff or quality or price ratio. The user reads downstream comments from previous guests (advantages, disadvantages and staff score).

Information policy of Booking blocks access to customer information: the email address of the client is removed to prevent direct contact between hotel and client (Colaco 2010). The platform establishes the conditions to hotels want to appear on website reserves. A hotel that tries to dissociate

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itself from the power of reservation platforms and opinion must create a website of attractive stocks and to provide customer confidence, accessible from mobile devices and social networking presence.

TripAdvisor was defined in 2016 as the largest travel community in the world. It offers tips million travellers and a variety of functions to plan trips and redirect links to major travel booking sites. The platform had 340 million visits per month in 2016, and offered more than 225 million views and comments on more than 4.9 million hotels, restaurants and attractions. TripAdvisor was available in 45 countries. The main objective is to help travellers plan their trips with the help of the experiences that other travellers posted on the web. Advisor enables high customer (common register) and accommodation (mentioned by a user or a business partner of the platform). Each discharged hotel has its own page in TripAdvisor. There pictures, ratings, location and outstanding services appear. In assessing Booking is offered in more detail. In fact, it can be consulted to see if the hotel is recommended for a family trip, couples, solo or business.

About comments on accommodation, users who publish present a more complete profile, with an age range, visited cities or type of trips to be made. This allows the individual a level rise and is increasingly visible on the web, giving credibility. In comments a danger point is that a negative experience of a customer reference may cause negative comments on the assessment of the housing, or negative and positive labour. Platforms based in eWOM opinion are another tool for companies that begin to consider customers as part-time workers because they can influence productivity. Overall, the negative eWOM is more frequent when the number of customers that comment is reduced, leading companies to stimulate or encourage the use of such platforms in order to obtain greater participation in the assessment of its services.

Typological proliferation of hotels (monument hotel, spa hotel, ski hotel, typical hotel holiday hotel mountain hotel casino, sports hotel, business hotel, holiday hotel beach, airport hotel, motel or hotel GL) can be a motivation for insertion of opinions. The analysis of online reviews is recent, and is performed by quality studies and surveys. The breakneck pace of e-business requires an accelerated interpretation of the interaction the effect of determining the impact of a comment on the network (Serra & Salvi 2014). The company can use it to understand customer predilections.

We have to take in consideration that between 73% and 87% of searchers on hotels, restaurants or travel agencies stress that the conflicting opinions affect buying decision (Pang & Lee 2008). The consumer opinions on platforms and social networks are analyzed by applications that

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detect aspects influencing future consumer (Chatterjee 2001). It is known to the client, to have an updated profile their tastes and preferences.

For the resolution of the understanding of the commentary to the final consumer, it is possible to declassify three concepts: quantity, credibility and quality of messages. That trilogy concentrates power influencing consumers who decide to purchase the service or product (Zhu & Zhang 2010).

The amount of online comments on a social network or platform of opinion encourages the prospective buyer. In this regard, the registration number of comments describing the strengths and weaknesses of a product or service generates an image that influences the final decision (Park & Lee 2008). The quality of the messages determines the impact on the customer. The company should take care of the formal part (spelling, syntax) and style (passion, empathy, imagination), which affects a greater or lesser extent in the final decision of the client (Bhattacharjee & Sanford 2006). The credibility of information is prioritized as an element of complex management because of the difficulty of selecting comments from a real or fictitious profile. This differentiation generates confidence greater or lesser degree through publications of the beneficiary (Luo et al. 2014).

METHODOLOGY

This article, following a qualitative methodology based on a content analysis, develops a classification system of polarity in texts written in social platforms. The main features are the use of semantic dictionaries and syntactic structure of sentences to classify a text as subjective, positive or negative.

In this research we studied the comments made by guests in Barcelona four hotels selected by similar characteristics. The comments are taken from the opinion platforms of opinion Internet Booking and TripAdvisor in a period of time. Selected hotels share the condition of 4 stars, in Barcelona city and different companies, with a non-random sample of convenience. The selected hotels were Sb Diagonal Zero Hotel, Hotel Barceló Sants, Hotel Crowne Fira and Sants Hotel NH.

The content analyzed comes from TripAdvisor and Booking, and we attended also the data from social networks YouTube, Twitter and Facebook. We select 30 reviews and comments of Booking and TripAdvisor. Therefore, the sample ($n = 240$) reaches 240 comments. After that, a list is done with the keywords listed in the various texts that show signs of polarization. To do this, the adjectives that appear in 240 selected comments are elected.

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In this framework, the polarity of comments online simplifies the interpretation of results. Semantic analysis tries to objectify the feeling the author of the commentary, which can also be fictitious. However, the flow of information available on the net, beyond its positive or not, involves technical complexity of the analysis of the opinions. Nevertheless, solutions to monitor the flow of reviews are developed scientifically (Pang & Lee 2008). This allows knowing the polarity (positive, negative, neutral or mixed) of content.

About the research effort in the sample of opinion focused on the classification of polarity, two perspectives are collected. A generic process establishes a classification (Pang, Lee & Vaithyanathan 2002) from a training set where texts are annotated with their polarity and a classifier is constructed by machine learning. Another part is the semantic orientation of words: each term that expresses an opinion is annotated with a value representing their polarity (Turney 2002).

Attending these proposals, most of the sample of opinions systems is focused on word processing in English. In the concrete case of texts in Spanish, the host is The Spanish OS Calculator (Brooke, Tofiloski & Taboada 2009), developed at Simon Fraser University in Canada. This system wants to diagnose the feeling and polarity containing individually adjectives, adverbs, nouns and verbs. To treat intensification the researchers use intensifiers, that is, expressions that modify the polarity of certain words. Intensifier types are amplifiers (increasing polarity) and reducers (produce the opposite effect). Each intensifier is associated with a weighting factor. The dependency tree allows defining a strictly syntactic procedure (Jia, Yu & Meng 2009). These data helps enterprises (hotels, in this case) to improve the contact with customer, to obtain loyalty and profitability.

RESULTS

- ***Principal Keywords***

First of all, we show the impact of social networks in the selected hotels (Table 01). The number of likes the hotel or hotel chain in Facebook, the number of followers on Twitter and the number of subscribers and the number of views on YouTube are noted. Data are collected in May 2015.

Following these data, a significant difference between the Facebook page of the hotel chain and the hotel is observed. Some of the hotels do not have official Facebook page (NH Sants). Instead, Hotel Barceló Sants, Sb Diagonal Zero Hotel and Hotel Crowne Fira itself that have their own page, in addition to the official website.

Table 01. Social media impacts in the analyzed hotels

Hotel	Facebook	Twitter	YouTube
Hotel Barceló Sants	155.389 likes (chain) 1.203 likes (Hotel Barceló Sants)	133.649 followers	269 subscribers, (Hotel Barceló Sants), 1359 subscribers (chain Barceló) 120.134 views (Hotel) & 3.827.488 views (chain)
Hotel NH Sants	112.215 likes (chain)	24.803 followers	269 subscribers 120.134 views
Hotel Crowne Fira	317.615 likes (chain) 3.294 likes (hotel)	54.432 followers	305 subscribers 44.561 views
Hotel SB Diagonal Zero	9.728 likes (chain) 650 likes (hotel)	2.153 followers	34 subscribers 2.296 views

Source: The Authors.

The hotel with most likes is Hotel Crowne Fira (3,294 likes) and hotel chain to which it belongs. Finally, Sb hotel Diagonal Zero is situated with the least number of likes on the list (650). On Twitter, the hotel with greater number of followers is Barceló Sants Hotel (133,649 followers), followed by Crowne Fira, hotel chain NH Hoteles and Sb Diagonal Zero Hotel (2,153 followers).

In YouTube, all hotels have viewing channel itself, albeit with large differences between them in number of subscribers and their channel displays. The only hotel that manages its own channel is Hotel Barceló Sants. The rest use the hotel chain account as sender of the message that wants to offer to attract new audiences to their establishments. Hotel Barceló Sants (Barceló hotel chain) leads the number of subscribers, with 1,359, followed by Crowne Fira, NH chain and Sb Diagonal Zero Hotel. In displays, the channel Barceló Sants records equals NH Group (120,000 views). The Crowne Fira ranks third, and Sb Diagonal Zero Hotel room. Therefore, the positioning network is diverse: Barceló Hotels dominates on Twitter and YouTube, and Fira hotel Crowne Facebook.

The analysis of the keywords found in the online comments made by customers of the Hotel Barceló Sants shows adjectives used to describe their experience during the stay at the hotel. The collection of words to get a positive or negative bias comes from the online Booking and Trip platforms. Each keyword is placed in its corresponding semantic field, so that the selected word that interferes with one of the different parts of a hotel (rooms, hotel, staff, breakfast, location, bathroom, reception service, Internet, value, cleaning, experience, bed, food, restaurant, noise, facilities, furniture, business, drink, size, quality, television, bar, decor, parking, mini-bar, restaurant and public areas).

It can be observed that, according to guests staying, the rooms have a satisfactory comfort and convenience. In general, the comments are positive despite the comment of a guest review of the hotel and breakfast calling it bad. The location is one of the most positive elements of this hotel (near Sants

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station). The bed and service are strong points. In contrast, noise and internet entities are the worst hotel ratings.

Comments on the Barceló Sants hotel on TripAdvisor opinion platform are positive for hotel rooms (comfort). Customers say that the rooms are not too large. Overall, valuations are positive (adjectives as excellent, good or modern), including the staff (friendliness and efficiency of workers in the hotel). The location is outstanding. The noise comes from the negative side of the room and the poor quality of food products. It will depend on the prioritization of items of Quality of Service and its agreement with the hotel management the seriousness of the aspects criticized. Summing Booking and TripAdvisor, analyzed 60 comments reflect the comfort of the rooms, friendly staff, the location, the bathroom and the bed. The facilities and decor are associated with modernity and space. The negatives are the food, noise and ventilation of the hotel.

The comments by users staying at the Hotel NH Sants refer to room negatively by the small size. In general, it is considered that the hotel is good and the atmosphere is pleasant. The hotel's location is a strong point. As for breakfast, three customers believe the price is high compared to the quality they offer their products. The bathroom concentrated negative opinions (gives off unpleasant odors and is small). Comments on television and parking also appear.

In TripAdvisor, numerous negative comments are about the size of the rooms. The hotel generally meets on rules of thumb but two especially negative comments. Opinions about hotel staff are very positive. It is considered that the hotel has efficient, friendly and attentive staffs that solve all eventualities that may need. Breakfast deserves positive consideration, as well as (advantaged, comfortable to move and close to attractions) location. The bathroom, reception and service perform their function for all those travellers who stayed at the hotel. However, customers criticize the noises because of the bathrooms.

In the case of the pooled analysis, a negative polarity marked in the opinion on the rooms (size) and the bathroom (noise) is observed. Instead, cleaning rooms receive commendations. The hotel is generally well received. The staff stands out for its kindness and good treatment. About breakfast, the users consider it expensive. Location comments are positive. More than 10 clients comment that the location is close and is well placed in relation to the places they wish to visit. Half advise customers not stay in this hotel. Cleaning and decoration accumulate laudatory adjectives. Internet and air conditioning provide a negative view.

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Hotel Diagonal Zero receives Booking positive comments about the hotel room (comfort and comfort). Customers include modernity referring to facilities and finishes. The location offers various questions (from the centre but treasuring the new image of Barcelona next to the beach). The spa or jacuzzi ranks first positive feedback. Opinions on the spa or the mini-bar are negative for the high price of using their services.

About TripAdvisor, there is a focus in the positive aspects of the rooms (comfort and modernity in the decoration). In general, the opinions are positive, focused on modernity, technology and way of working. About the staff, there are positive reviews for staff and quality hotel breakfast. Jacuzzi and spa (especially the first) receive praises. Overall, the customer perceived care rooms and comfortable spaces (positive polarity in all opinions made by guests). The hotel meets the basic needs that customers demand. About breakfast, it is felt that the hotel could improve product quality (expensive price for breakfast). It generates location opposed.

Booking comments about the Hotel Crowne Fira underline the room size (large). Breakfast highlights the quality of products and variety offered at breakfast. The friendliness of the staff is strength. The negative point is the hotel bathroom, dirty according to various hosted customers. Restaurant price is considered expensive and lacking in quality. The bed, the spa or the value of the hotel meet customer requirements.

In sum, the reviews on TripAdvisor and analyzed using semantic analysis provide a very positive overall image of the Hotel Crowne Fira, starting with the size of the rooms. The polarity is positive in each of the analyzed feedback. Breakfast highlights the quality of products and variety. In contrast, it is considered that some rooms provoke noise and cannot rest properly. The bed or the value of the hotel meets the requirements as well as television. In overall, the excellence of the facilities stands out for its modernity and practicality. The location is also emphasized. Negatives are the noise and restaurant.

- ***Semantic Field's Application***

Overall, a list is created by the semantic field. The field is the most talked about of the rooms and the resort in general. The first semantic field analyzed is the bathroom that is part of the rooms where guests have stayed. There are 27 keywords used by customers to explain their experience in the different resorts that make the online comments. We visualize the keywords that bring polarity to prayer most commonly used they are "great" and "good". The most commonly used negative keyword is "small", referring to the size of the bathroom. The second analyzed semantic field is the bar, with a

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simple comment. The third field is the relationship between values: in the 12 comments about a predominance of positive feedback is observed. One of the predominant semantic fields is bed room hotels, with 13 reviews. The word used is "comfortable". The following semantic field is analyzed decoration of the hotel complex, striking element (20 comments). The word "modern" in one of the most used among travellers adjectives used. Breakfast, with decor similar to hotel figures, is one of the highlights.

One of the highlights in the analysis of comments is their treatment of customers and the opinion they have of the rooms. This is the most talked semantic field (more than 70 opinions). The keywords are "comfortable", "clean", "large" and "small." The room size is relevant.

The following semantic field is the description of the hotel in general. It describes the hotel in a general way without being as accurate as are other semantic fields. We must analyze the general idea that transcribes the issuer, as it is a strong point for a future final customer. The words most used by end customers are "good", "excellent" and "exceptional", positive concepts that move the impression of the host. Negative polarity is also detected.

The hotel facilities and cleanliness are part of another semantic field (40 comments). The comments provide an insight into the state of the building and cleaning carried out by the cleaning staff of the hotel. The hotel reception is one of the elements with the staff that are valued within the online comments. Besides these two semantic fields (closely related) we found the service as one of the highlights. These three fields tend to value these aspects in their comments noting the attention, work and service play different workers in the hotel. They highlight the attention and friendliness of workers. One of the most striking semantic fields is the location of the hotel in the city.

CONCLUSION

The analysis of online comments through a sample of 240 comments taken from Booking and TripAdvisor at four Barcelona hotels and its positioning on social networks Facebook, Twitter and YouTube, we observe strengths and weaknesses that can determine the communication strategy and marketing of these companies.

We establish semantic fields as elements that can be found in a hotel. Once divided the various semantic fields, the function is to relate each keyword with varying degrees of polarization. These concepts are issued by an issuer or hotel guest in their online comments. First of all we detected keywords. After it, the polarization (positive or negative) and the respective semantic field are classified.

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The results show generally positive views. The fact that hotels have opinion platforms provides that they observe their strengths and weaknesses. The hotel can create an empathic connection with the customer through this channel. This phenomenon brings innovative possibilities to the sector. It creates new sources of employment and reorients strategies and marketing communication.

In a prospective way, this methodology can be applied to analyze certain semantic fields from keywords provided by hotel and client. It may also be instructive to compare the fact polarities of semantic fields of hotels of different rank or type, and different geographical area. In any case, thanks to the semantic fields, hotels have platforms for observing strengths and weak points. It helps enterprises to take appropriate decisions, to conquest customers' loyalty and to monetise.

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Campos Semânticos para Melhorar os Negócios: o caso dos hotéis

RESUMO:

A tomada de decisões a partir de um turista depende da experiência de mídia social. Para os turistas, a importância das fontes qualitativas (por exemplo, comentários em fóruns de sites, blogs e redes sociais: tecnologias de Internet) é crescente para as empresas turísticas. A percentagem representativa de turistas escolhem destinos graças às opiniões de outros usuários. Neste artigo, utilizamos a metodologia de análise de sentimento e mineração opinião para capturar palavras-chave e mensagens de ligação com um campo semântico singular para encontrar os principais conceitos de comentários on-line coletadas em plataformas de opinião de reserva e dicas para os turistas que se hospedam em hotéis. Conclui-se que os hotéis de encontrar nos campos semânticos uma ferramenta para a observação de forças e fraquezas internas e oportunidades e ameaças externas.

Palavras-Chave: Rede Social; Interatividade; Tecnologia; Mineração de Opinião.