Online reviews: A pathway to improve hotel management

Avaliações online: Um caminho para melhorar a gestão do hotel

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Abstract

The purpose of this study is to verify how online reviews can become a useful tool for the improvement of hotel businesses through an in-depth analysis of selected scientific papers. This systematic literature review analyses refereed journals in English, Spanish and Portuguese, published worldwide between January 2008 and January 2020 and containing the keywords: online reviews, hotel improvement, hotel performance and hotel development, in 11 different databases. After examining 59 relevant papers, a range of approaches showing how online reviews support hotel business development are uncovered. Besides contributing to the existing literature by extending the current research on the use of online reviews, the findings of this study also provide hoteliers with insights on how to take advantage of online reviews. Although several studies approach hotel business development using online reviews, only a few studies have gathered these papers to verify their applications and managerial implications. Thus, this paper aims to fill this research gap.

Keywords: online reviews; hotel performance; hotel management; systematic review.

Resumo

A partir de uma revisão sistemática da literatura, o objetivo deste estudo é verificar como as avaliações online podem ser uma ferramenta útil para melhorar o desempenho das empresas hoteleiras. Esta revisão sistemática da literatura analisa revistas com arbitragem científica em língua inglesa, espanhola e portuguesa, publicadas mundialmente entre janeiro de 2008 e janeiro de 2020, contendo as palavras-chave: avaliações online, melhoria dos hotéis, desempenho hoteleiro e desenvolvimento de hotéis em onze diferentes bases de dados. No final da análise dos 59 artigos relevantes, sobressaem várias abordagens que mostram como as avaliações online apoiam o desenvolvimento de negócios dos hotéis. Para além de contribuir para a literatura existente, aumentando a pesquisa atual sobre o uso de avaliações online, os resultados

deste estudo também fornecem aos hoteleiros informações sobre como tirar proveito destas avaliações. Embora vários estudos se centrem no desenvolvimento de negócios dos hotéis usando avaliações online, apenas alguns estudos reuniram esses documentos para verificar as suas aplicações e implicações ao nível da gestão. Assim, este artigo vem preencher essa lacuna de pesquisa.

Palavras-chave: avaliações online; desempenho hoteleiro; gestão hoteleira; revisão sistemática.

1. Introduction

User generated content (UGC) refers to the way internet users exchange information through platforms such as social media. UCG comprises online reviews, which are recommendations and opinions shared by customers on social media, review or booking websites and electronic word-of-mouth (e-WOM), which refers to online positive or negative opinions about any product or service someone has experienced (Anagnostopoulou, Buhalis, Kountouri, Manousakis & Tsekrekos, 2019; Ait-Bakrim, Attouch, Guerreiro & Perez-Aranda, 2019; Phillips, Barnes, Zigan & Schegg, 2017). UCG has dramatically changed consumer behaviour, especially in the hospitality industry (Phillips, Zigan, Silva & Schegg, 2015). Besides influencing decision making during the purchase process of hospitality products and services, the introduction and use of online review systems are a recent example of disruptive innovation in the hospitality industry (Lui, Bartosiak, Piccoli & Sadhya, 2018).

Since the first online hotel review for Captain's House Inn on TripAdvisor in 2001, a lot has changed. E-WOM has become a reliable source of information for tourists and travellers that are willing to book an accommodation anywhere in the world, since they comprehend non-commercial, authentic, experiential and detailed information about tourist products (Ait-Bakrim *et al.*, 2019). Thousands of online reviews are voluntarily posted every second by people who have experienced all kinds of tourist services.

Throughout the years, research regarding online reviews has significantly increased in the major tourist markets, which shows the growing interest of researchers and practitioners in the subject. However, despite the vast body of literature concerning the utility of online reviews and e-WOM from a customer perspective, not as many studies on how hoteliers can benefit from data mining to improve business performance have emerged. Since recent studies prove the potential of UGC to assist hoteliers, more resources are recommended to be employed in research on online reviews (Antonio, de Almeida, Nunes, Batista, & Ribeiro, 2018). Therefore, this systematic literature review aims to uncover a variety of general contributions that the analysis of online reviews can bring to hoteliers, regardless of their category, location or size. Furthermore, this study not only intends to explore some managerial applications, but also aspires to identify the main stages of data mining research techniques and present a general framework that helps to synthesize the most recurring methodologies. By doing so, this review expects to present a comprehensive overview of data mining studies regarding the hotel industry.

By analysing a selection of peer-reviewed scientific articles, this systematic review contributes to the existing literature and to practitioners by presenting a variety of applications of online reviews and managerial implications to assist hoteliers in improving

their business. Results are expected to provide a relevant contribution to knowledge development, besides helping hotel managers and researchers to understand how to take advantage of online reviews from a business perspective.

The study is divided into 5 main sessions, as follows. In the next session, the methodology for the selection of papers is fully explained. Next, an overall view of the selected articles is provided. After that, the results are discussed, and then a final conclusion is presented along with research limitations and recommendations for future studies.

2. Methodology

Based on previous studies, such as Kizildag, Altin, Ozdemir and Demirer (2017) and Le, Scott and Lohmann (2019), a systematic literature review is conducted and divided into five stages to explore how the analysis of online reviews can lead to performance improvement in the hotel industry. First, the research questions were defined. Second, the review protocol was formulated. Third, literature research was conducted. Next, relevant literature was selected. Finally, the findings were synthesized, presented and discussed (Figure 1).

The main objective of this study is to verify how online reviews can lead hotels to the improvement and development of their business. This goal led the authors to the following questions: 1) What kind of contributions can the analysis of online reviews bring to hotel managers and marketers? 2) How are they commonly obtained, filtered and analysed by scholars and researchers?

After the definition of the main objective and research questions, the review protocol was created. The following keywords were defined: online reviews, hotel improvement, hotel performance and hotel development. Since the last three terms have similar definitions regarding the positive results for hotel businesses, all of them were included in the review protocol.

Next, a literature search containing the aforementioned words in the abstract was conducted through the following 11 databases (presented in alphabetical order): (1) Academic Search Complete; (2) Business Source Complete; (3) Complementary Index; (4) Directory of Open Access Journals; (5) IEEE Xplore Digital Library; (6) Library, Information Science and Technology Abstracts; (7) Procedia Computer Science; (8) Scielo; (9) ScienceDirect; (10) Scopus; and (11) Supplemental Index. The review covered the period from January 2008 until January 2020 as the volume of online guests' evaluation for hotels started to become popular from 2006 (Duan, Yu, Cao & Levy, 2016). Only peer-reviewed scientific papers were included in the search to ensure the quality of the review. Three options of languages were included in the search: English, Spanish and Portuguese.

As shown in Figure 1, a three-filter process was applied during the search process. In January 2020, a total of 398 articles were presented. After duplicate records were excluded, the total amount of publications that meet the search criteria decreased to 123. Then, an abstract screening process justified the exclusion of 54 articles for the following main reasons: not part of the scope of this review or unable to answer the research questions, duplicated material not previously detected. Furthermore, any remaining Internet

publication, news, conference material, books or book chapters were excluded. Following this procedure, 69 remained for full-text assessment.

Figure 1. Systematic literature review process
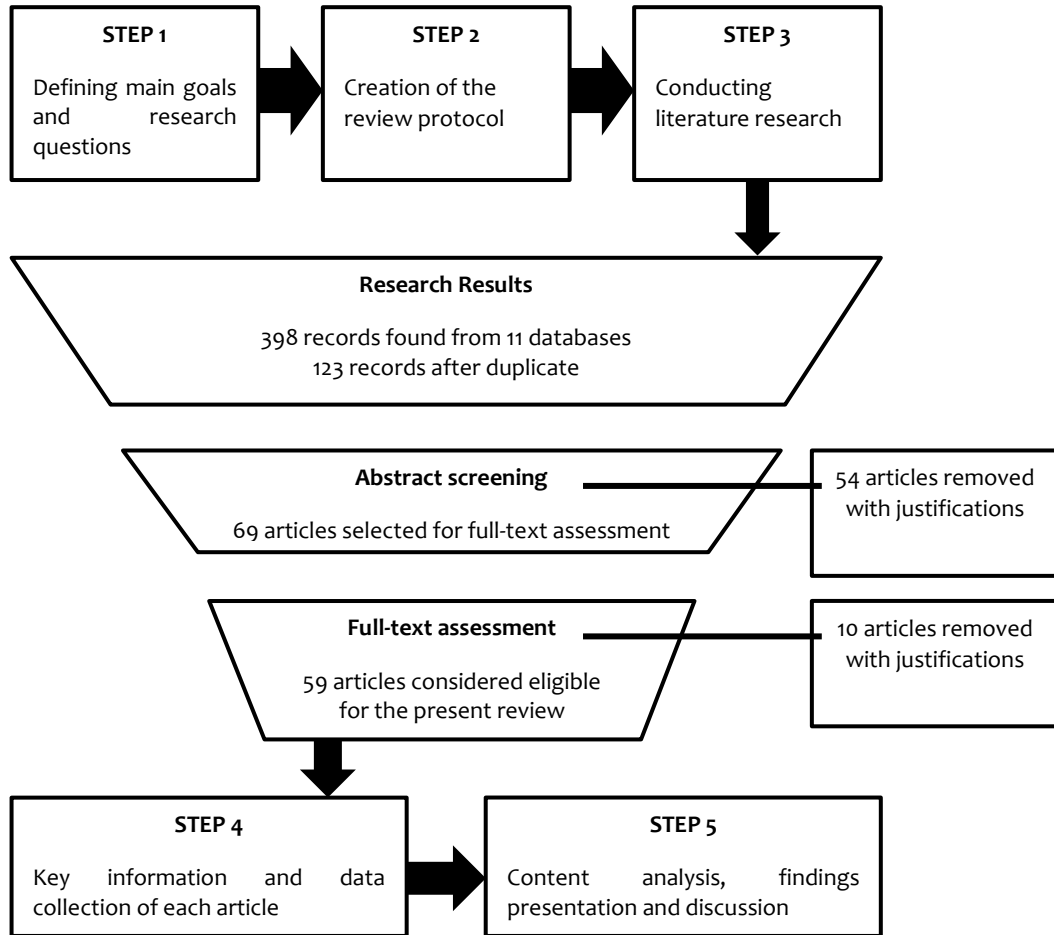
Source: Adapted from Le *et al.*, 2019.

During the full-text assessment procedure, 10 articles were excluded for the following reasons: Neither collected or analysed online reviews, nor provided hoteliers with practical implications (Ait-Bakrim *et al.*, 2019; Kamboj & Rahman, 2017; Kim, Kim & Park, 2017; Nizamuddin, 2015; Păunescu & Moraru, 2018; Tsaur, Huang & Luoh, 2014). The main focus of the study is to validate or develop an online review related system or algorithm (Xiang, Du, Ma & Fan, 2018), while the focus of the study and managerial implications were related to another type of accommodation (Xu, 2020) and studies were identified as review papers (Baker, Eziz & Harrington, 2019; Kizildag *et al.*, 2017). Finally, 59 articles were considered for this study. Next, all 59 articles had their key information, such as authors, year, journal, title, online platform approached by the study, hotel locations, purpose and managerial implications, were classified and inserted into an Excel spreadsheet. Finally, the findings were presented and discussed.

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3. Results

3.1. Overall view of selected papers

Among the articles considered for the purpose of this study, three journals stand out as representing more than one third of the publications (Table 1). The International Journal of Hospitality Management, Tourism Management and the International Journal of Contemporary Hospitality Management ranked in 4th, 2nd and 6th positions, respectively, in the Tourism, Leisure and Hospitality Management category of Scimago Journal and Country Rank in 2018.

Table 1. Articles selected according to the scientific journal

Journal name	No of articles	%
International Journal of Hospitality Management	9	15%
Tourism Management	8	14%
International Journal of Contemporary Hospitality Management	4	7%
Asia Pacific Journal of Tourism Research	2	3%
Cornell Hospitality Quarterly	2	3%
International Journal of Information Management	2	3%
Journal of Electronic Commerce Research	2	3%
Journal of Hospitality and Tourism Research	2	3%
Procedia Computer Science	2	3%
Others	26	44%

Slightly above three-quarters of the selected articles were published during the past four years (Figure 2). As social media and review websites started to gain popularity among consumers, data mining studies and the development of new methodologies also attracted the attention of researchers and practitioners of the hospitality industry.

Figure 2. Timeline of the number of publications
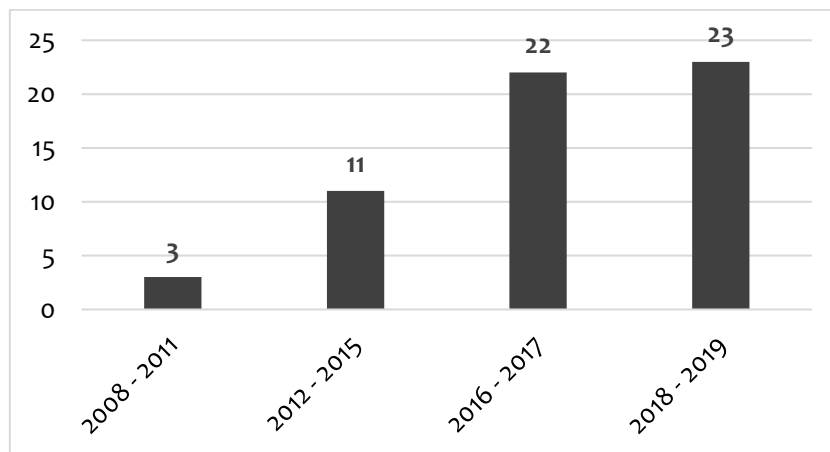
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When it comes to the geography of the studies, 22 out of 59 publications have chosen hotels located in the United States (37%), followed by hotels located in China, mentioned in seven articles (12%), and the United Kingdom, where hotels are selected by three articles (5%). If markets are segmented by continent, it becomes clearer that North America, Europe and Asia represent the majority of markets analysed (Figure 3). Some articles collected data from hotels located in more than one country (Bacik, Kmeco, Richard, Olearova & Rigelsky, 2019; Francesco & Roberta 2019; Li, Law, Vu, Rong & Zhao, 2015; Lima & Viana, 2017). Additionally, two authors used data samples from mixed destinations across Europe (Bulchand-Gidumal, Melián-González & López-Valcárcel, 2011; Slivar & Bayer, 2017), while two studies extracted data from hotels worldwide (Ahani, Nilashi, Ibrahim, Sanzogni & Weaven, 2019b; Ban, Choi, Choi, Lee & Kim, 2019). Consequently, Figure 3 below presents 68 entries instead of 59 (total number of selected articles). Finally, in one paper, the hotel location was not mentioned (Wang, Lu, Chi & Shi, 2015).

Figure 3. Number of publications according to hotel location. March 20, 2020.
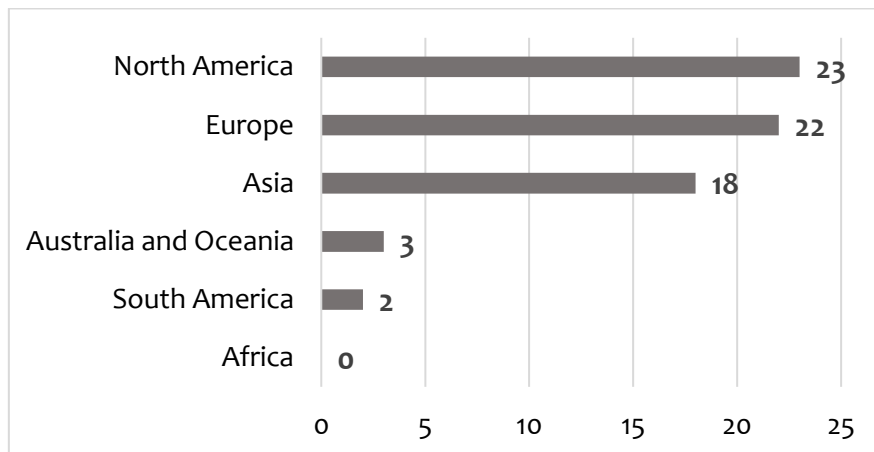
A total number of 35 articles extracted data from TripAdvisor (Figure 4), which figures as the leading global advice website dedicated to tourist products and services with more than 300 million members and 500 million reviews of hotels, restaurants, and other travel-related businesses worldwide (Zhao, Xu & Wang, 2019). That database is extensively used by scholars and researchers, who wish to explore the usefulness of its countless amount of data from textual reviews in order to find valuable and more accurate managerial implications. The platform stands out in the hospitality industry due to the opportunities for detecting strengths and weaknesses, benchmarking against competitors, measuring customer overall satisfaction, improving hotels image and visibility in the market (Lima & Viana, 2017).

The second source of UGC mostly used by the reviewed papers was Booking.com, internationally recognized as the current leading accommodation booking platform. Besides accumulating a huge amount of online reviews over the years, the platform only allows customers to post rating and reviews if they have booked and stayed at the accommodation, which ensures the authenticity of the information (Xu, Wang, Li & Haghighi, 2017). Still, it is

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worth mentioning that some authors opted to work with composite reviews obtained from several sources since they might provide a more complete comprehension of customer trends and behaviours (Kim, Lim & Brymer, 2015), as well as validate the possibility of combining reviews from multiple sources (Antonio *et al.*, 2018). However, its extraction is considered more challenging due to its open structure and different programming languages and evaluation parameters of each website. As a result, the number of review platforms surpasses the number of articles analysed by this study as shown in Figure 4, as follows:

Figure 4. Online reviews platforms used by scholars. March 20, 2020.
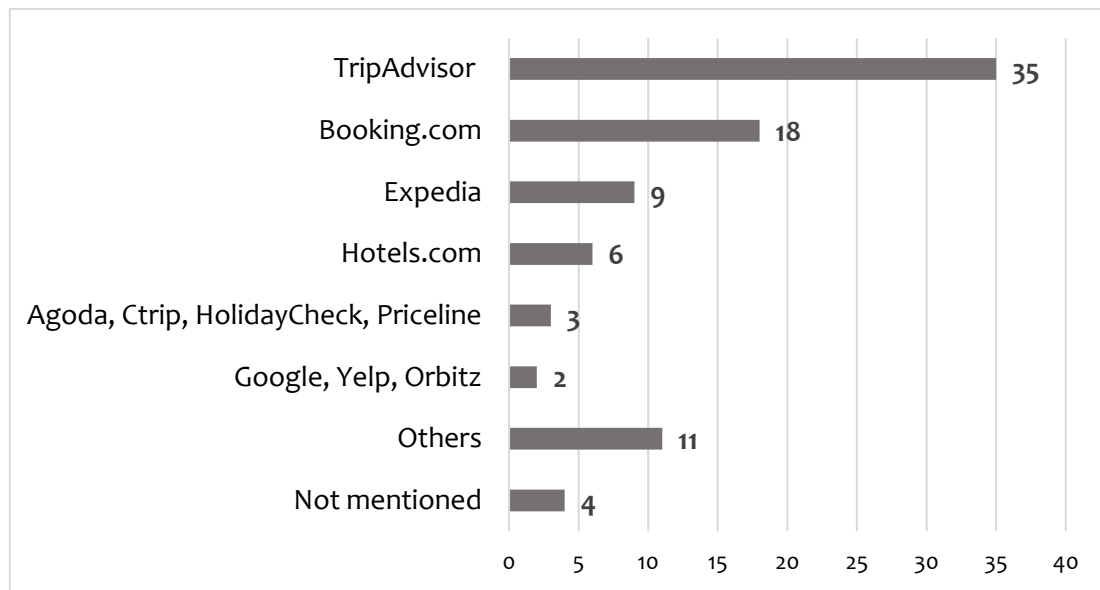
3.2. Online review as a tool for hotel businesses improvement

A few years after the first personal opinion was posted on TripAdvisor in 2001, studies on how this UGC could be explored by hoteliers started being published. As the volume of online guests' evaluation for hotels started to become popular from 2006 (Duan *et al.*, 2016), the oldest article reviewed by this study was published in 2008. By analysing collected reviews through regression analysis and other statistical methods, Jeong and Jeon (2008) found out more about hotel performance attributes that could contribute to guest satisfaction, return intention and recommendation.

Throughout the following years, as new methods and technologies emerge, different approaches and possibilities take place. Also, the number of hotel online reviews posted on booking and opinion platforms increased dramatically on a daily basis, the reason why the advance of new approaches, such as machine learning methods, become crucial in order to keep track of the massive amount of information shared by travellers around the world

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(Ahani, Nilashi & Ibrahim, 2019a; Ahani, Nilashi, Ibrahim, Sanzogni & Weaven, 2019b; Xu, 2019).

As pointed out by Ahani, Nilashi and Ibrahim (2019a), Ahani *et al.* (2019c), Ban *et al.* (2019), Bi, Liu, Fan and Zhang (2019), Bulchand-Gidumal *et al.* (2011), Çalı and Balaman (2019), De Pelsmacker, van Tilburg and Holthof (2018), Kapilevich, Karvounis and Zagulova (2016), Li *et al.* (2015), Phillips *et al.* (2015), Phillips *et al.* (2017), Raguseo and Vitari (2017), Singh, Torres and Robertson-Ring (2016), Torres, Adler and Behnke (2014), Torres, Singh and Robertson-Ring (2015), Xu (2018), Xu *et al.* (2017), Zhang and Mao (2012) and Zhao, Fang, Li and Ye (2018), due to their constant update, online reviews and comments must be constantly monitored by hotel marketers and managers for the purpose of identifying accurate improvement necessities, new customers' demands and shifts in behaviour, in this way, enhancing business performance and customers' overall satisfaction. However, due to the large number of reviews that can be posted in a short period of time, an efficient data extraction method is necessary (Bi *et al*., 2019; Tsujii, Fujita & Tsuda, 2013; Xu, 2019).

Moreover, hotel businesses should focus on the most reoccurring unfavourable subjects in order to promote successful improvement (Ahani *et al.*, 2019c; Kim *et al.*, 2015; Tsujii *et al.*, 2013; Zhao *et al.*, 2019; Zhou, Ye, Pearce & Wu, 2014). Negative reviews should not be ignored since it is an opportunity to improve service quality and adapt to consumer requests (Baltescu, 2016; Bayer & Emir, 2017; Kim *et al.*, 2015; Loo & Leung, 2018). Still, strategies for limiting the number of negative comments must be considered, such as encouraging customers to communicate their dissatisfactions via other channels (Duan *et al.,* 2016; Geetha, Singha & Sinha, 2017; Zhao *et al.*, 2019). Hu and Chen (2016) even propose a system to measure the impact of unfavourable reviews and inform managers to reply to them at the right time, whilst Moro, Rita and Coelho (2017) suggest a selection procedure for choosing the most suitable user profiles to direct efforts in answering reviews.

Kim and Park (2017), Lui *et al.* (2018), Torres *et al.* (2014), Xie, Zhang and Zhang (2014), Xie, Kwok and Wang (2017a), Xie, So and Wang (2017b), Xie and So (2018) and Xu (2018) recommend managers to adopt effective response strategies to online reviews with a view to increasing business performance. Additionally, Zhao *et al.* (2019) suggest that hoteliers should focus on online reviews posted by infrequent travellers due to the fact that their perception of hotels tends to be more negative when compared to frequent travellers, whilst Sheng, Amankwah-Amoah, Wang and Khan's (2019) findings reveal that responses to repeated reviewers are not worth it if the aim is improving subsequent review ratings. In short, most scholars come to the conclusion that answering reviews, either positive or negative, has become an important strategy in the hospitality industry. Slivar and Bayer (2017) reveal that many hoteliers, especially branded hotels, have already realized this necessity.

Still, regarding the valence of reviews, studies found that travellers mostly post reviews for showing their positive experience than the negative ones (Bayer & Emir, 2017; Tontini, Bento, Milbratz, Volles, & Ferrari, 2017). Additionally, these positive reviews can also offer an overview of customer overall satisfaction with the products and services provided by the hotel, which can provide accurate data for marketers to promote their strengths and attract new customers (Ahani *et al.*, 2019c). The researchers also confirmed that positive reviews,

overall number of reviews, ratings and ranking position on online reviews websites favourably impact RevPAR and booking transactions, what in turn, enhances financial performance (De Pelsmacker *et al*., 2018; Kim and Park, 2017; Phillips *et al*., 2015; Phillips *et al*., 2017; Singh *et al*. 2016; Torres *et a*l. 2015), however, it was observed by Raguseo and Vitari (2017), that the valence of online reviews exert more influence in the profitability of not-branded chain hotels, which are unfamiliar to the guests and require deeper analysis of potential customers on review platforms.

Another relevant finding obtained through the analysis of online reviews, is that different levels of satisfaction are found, according to the cultural traits and origins of guests, which require hotel managers to analyse in detail the demands of different markets. Therefore, understanding the traveller's preference and satisfaction become essential to better adapt the offer of products and services, besides developing different marketing strategies for each segment (Ahani, Nilashi & Ibrahim, 2019a; Ahani *et al*., 2019; Francesco & Roberta, 2019; Mariani & Predvoditeleva, 2019; Xu, 2018; Xu *et al*. 2017; Zhou *et al*., 2014). The researchers also suggest that tailored marketing campaigns on social media can also be more effective if online reviews are used as a tool to track shifts in customer preferences or even segment markets according to their geographical location (Francesco & Roberta, 2019; Mariani & Predvoditeleva, 2019; Zhao *et al*., 2018).

Guests' online evaluations can also be used by hoteliers to analyse their competitors' reviews. By doing so, hotels can analyse their strengths and weaknesses in relation to their players, benchmark themselves against competitors and make important strategic marketing decisions so as to have a better online image and improve their performance (Baltescu, 2016; Ban *et al*., 2019; Bayer & Emir, 2017; Mariani & Predvoditeleva; 2019; Tontini *et al*. 2017; Xu, 2018, 2019; Xu *et al*. 2017).

Annisa, Surjandari and Zulkarnain (2019), Baltescu (2016), Ban *et al.* (2019), Fasone, Hofer and Scuderi (2016), Geetha *et a*l., 2017, Lertputtarak and Samokhin (2017), Li, Ye and Law (2013), Lima and Viana (2017), Limberger, Meira, Añaña and Sohn (2016), Tontini *et al.* (2017), Xu, (2018, 2019, 2020), Xu *et al.* (2017), Zhang and Mao (2012) and Zhou *et al.* (2014) identify through online reviews that intangible services are considered an important core attribute and have a great impact on customer experience, especially among leisure travellers, regardless the geographical area of the studies. Therefore, ensuring staff efficiency and outstanding performance is a must, since it has a correlation with customer overall satisfaction and might lead to complaints and negative reviews when not properly delivered.

Findings also suggest that intangible services must be constantly enhanced by systematic service training and appropriate work environment (Ban *et al*., 2019; Geetha *et al*., 2017; Lertputtarak & Samokhin 2017). Moreover, marketing and front-office departments should team-up to successfully implement strategies in line with customers' feedback and avoid potential gaps between strategies and tactics (Mariani & Predvoditeleva, 2019).

With regard to tangible aspects, studies demonstrate that room quality and F&B have a great impact on overall customer satisfaction, with those attributes alternating ranking positions according to the geography and samples of each study (Annisa *et al*., 2019; Baltescu, 2016; Ban *et al*., 2019; Kim, Li, Han & Kim, 2017; Lertputtarak & Samokhin, 2017; Limberger *et*

al., 2016; Phillips *et al.*, 2017; Tontini *et al.,* 2017). Moreover, it is shown that room quality can directly affect financial profitability and guests' willingness to recommend the accommodation, besides leading to customer grievances and unfavourable reviews when performed under the traveller's expectations (Anagnostopoulou *et al.*, 2019; Baltescu, 2016; Kim, Li *et al.* 2017; Lertputtarak & Samokhin, 2017; Lima & Viana, 2017; Phillips *et al.*, 2017; Xie *et al.*, 2014; Xu *et al.*, 2017).

In sum, guest reviews reveal that activities that attest the quality of tangible and intangible services should never be neglected by business dedicated to the well-being of their customers, such as hotels (Bacik *et al.*, 2019; Xu, 2019). In fact, the influence of online reviews on a customer's purchase decision is increasing in such a manner that providers of low-quality products in the hospitality industry will gradually be eliminated from the online market, despite offering lower prices (Phillips *et al.*, 2017; Zhao *et al.*, 2018).

Anagnostopoulou *et al.* (2019) demonstrated that hotel location is a very significant feature when considering profitability, which means that managers should be aware that unchangeable attributes have also an effect on business performance. Kapilevich *et al.* (2016) verified that strategical location allows hoteliers to charge a higher price. Additionally, Baltescu (2016) finds that online reviews in the hotel industry mainly focus on location and distance from attractions. Lertputtarak and Samokhin (2017) verified that the majority of negative online reviews related to the location were due to the fact that they were far from main roads and tourist spots, even though Fasone *et al.* (2016) did not find significant differences in perceived hotel quality located near to and distant from the main tourist attractions.

Sustainable practices in the hospitality industry were also addressed through the examination of guest reviews. By collecting guests' reviews of selected hotels in Germany, Gerdt, Wagner and Schewe (2019) found out that sustainability measures that lower guests' perception of comfort, such as water-saving shower heads for instance, might affect guests' satisfaction and lead to unfavourable reviews, one reason why measures that enable guests to decide for themselves whether they want to contribute should be considered. Additionally, Qi, Li, Zhu and Shi (2017) provided suggestions to help Chinese hotels improve their environmental performance without affecting customer's overall satisfaction after analyzing the guest perception of indoor environmental quality through online reviews. Moreover, Kim, Li *et al.* (2017) found that green initiatives are significative drivers of hotel performance, capable of leading hotels to higher revenues and reducing consumption costs.

Recent studies analysed consumer generated media to identify customer's preferences and satisfaction to help hotel managers and marketers understand travellers' features, prospects, and behaviours through machine learning methods (Ahani, Nilashi & Ibrahim, 2019a; Ahani, Nilashi, Ibrahim, Sanzogni & Weaven, 2019b; Zhao *et al.*, 2019). Also, novel machine learning approaches enabled the conversion of UGC into a precise market segmentation tool in order to assist hoteliers in the development of more effective marketing and management plans, improvement of resources allocation and formulation of a decision support system to monitor customer satisfaction and assist hotels in reorganizing their operational activities or marketing strategies (Ahani, Nilashi, Ibrahim, Sanzogni & Weaven, 2019b; Çalı & Balaman, 2019).

In summary, this study shows that the analysis of online reviews has become an indispensable marketing tool for managers due to the fact that their content supplies managers with key information to enhance hotel service and create promotion regarding profit, besides allocating their resources in a more appropriate way. It also becomes clear that customer generated media can be used in several different ways, according to hoteliers' and scholars' purpose. However, the use of appropriate software to collect and analyse large volumes of text would be a requirement for practitioners that would like to explore the full potential of this unbiased, voluntary and available source of information (Ahani, Nilashi & Ibrahim, 2019a; Ahani *et al.* 2019; Ban *et al.*, 2019; Çalı & Balaman, 2019; Francesco & Roberta, 2019; Moro *et al.*, 2017).

4. Discussion

Besides playing an important role in guests' decision-making process when booking a hotel room, online reviews also supply hoteliers with strategical information about their business performance, which can lead to more accurate management decisions. However, this available and open information needs to be properly extracted and analysed in order to assist hoteliers and practitioners of the hotel industry. Several different methods are tested and discussed in each article. However, it is possible to present a general framework of how mostly data mining studies are conducted (Figure 5).

Figure 5. General framework of analysed studies
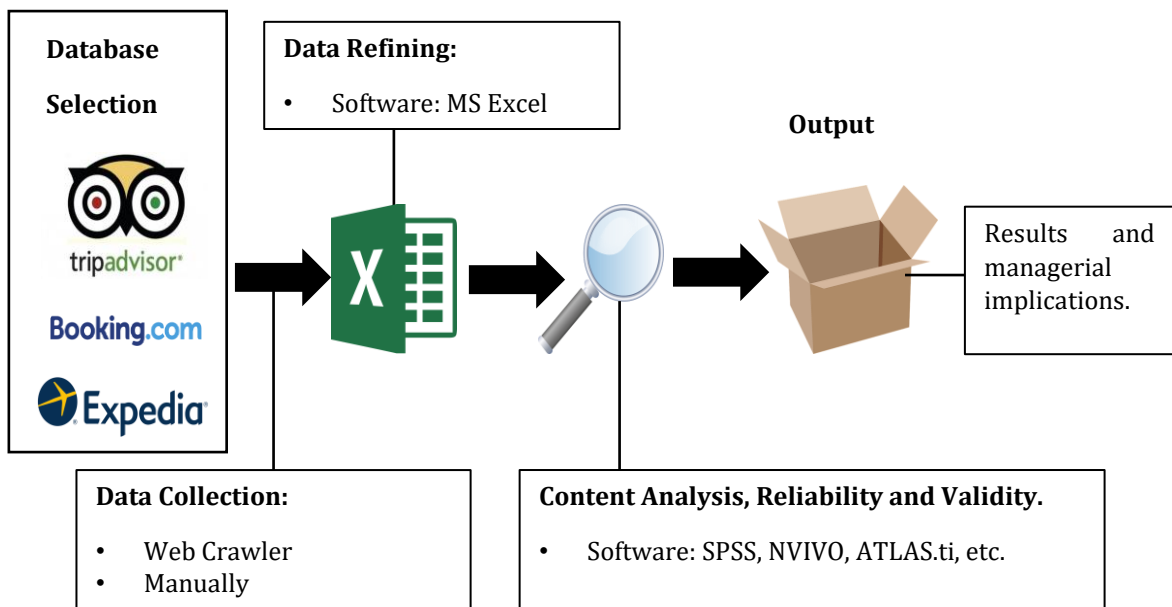
Source: Adapted from Ban *et al.*, 2019.

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Articles analysed in this review extracted data from social media, booking and review websites with the purpose of finding relevant information to assist hoteliers worldwide improving their performance. Studies were mainly conducted in the American, European and Chinese markets. Although similarities among these markets were found regarding the evaluation of core attributes, such as room quality and staff efficiency, cultural market segmentation is recommended in order to find specific demands and offer superior quality products and services.

Regarding data sources, TripAdvisor, Booking and Expedia were the most popular databases among researchers. Some studies mentioned the utilization of a web crawler to download hotel reviews from the internet due to the amount of data to be collected (Bi *et al.*, 2019; Gerdt *et al.*, 2019; Hu & Chen, 2016; Lee, Hu & Lu, 2018; Wang *et al.*, 2015; Xie *et al.*, 2014, Xie *et al.*, 2017b) and a few studies stated that the collection was done manually (Limberger *et al.*, 2016; Loo & Leung, 2018). The authors recognized that manpower and time are great constraints.

If on the one hand, most recent studies state that online review analysis still remains challenging due to their long and open structure, on the other hand, this same open structure provides more details about guests' experiences and perception about the hotels. Fortunately, due to the fast advance of technology, online reviews can be collected and analysed in many different ways (Xu, 2019). Hiring a third-party company may be costly, thus building an effective marketing and management team with some analysis expertise is also a way to take advantage of UGC since data is freely available.

Although this research was able to uncover a significant number of managerial implications and develop a general framework capable of illustrating the main stages of data mining techniques, it is important to point out the most recurrent research gaps identified among the selected works. These gaps can be divided into the following six main categories. The first category would be the limited sample of hotel units, which in many of the analysed studies are unable to represent the entire hotel industry of a location, provide general implications for hoteliers worldwide or reflect a standardized market behaviour. Secondly, many studies opted to work with only one or few locations. This issue prevents their findings from being generalized to other markets. Thirdly, most works have only chosen one or two platforms as a source of online reviews due to the challenging task of extracting ratings and reviews from different websites, since they present different layouts and characteristics. Even so, findings based on data derived from a single platform may not be comprehensive enough to represent all customers. Next, mostly very recent studies do not have their results validated, since these methodologies have not been extended or confirmed by further research. Subsequently, most of the studies only extracted online reviews in their native language or in English, which can obstruct the detection of cross-country and cultural patterns and behaviours. Lastly, some studies could have performed long-term online review observation to explore the relevance of change of customer perceptions and perceived quality of the business over time. Other research gaps include technical inability to identify issues deriving from human language and impossibility to detect and exclude fake reviews, which can affect results to some degree.

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The findings of this study also show that the aforementioned practices are spread across the most consolidated markets. Although important gaps have been identified, the extraction of unstructured text from online reviews, and its further refining and analysis, has allowed scholars to obtain relevant information about overall hotel performance, consumer behaviours, needs of improvement and market demands among other practices presented in this study. Scholars and practitioners must be aware that further knowledge and technical improvement are necessary to conduct the analysis process appropriately in order to obtain the desired results.

5. Conclusion

The main purpose of this study was to verify how online reviews could be used as a tool for hotel business improvement as well as to identify a variety of contributions that the analysis of online reviews could bring to hoteliers, regardless their category, location or size. Through an in-depth analysis of 59 refereed articles, the most recent and recurrent techniques were identified. Furthermore, the articles have been classified according to their journal, year of publication, market region and UGC platform. Additionally, key managerial implications provided by the studies were presented.

Findings suggest that online reviews can be used as an efficient tool for business development in many different ways when efficiently extracted and combined with appropriate analytical methods. Hence, using software devoted to analysing large volumes of text or appealing to third-party companies focused on online review and social media data aggregation is currently necessary, since data mining involves techniques to extract meaningful information from UGC and turn it into a structured form by applying statistical analysis, computational linguistics and machine learning. Also, hotel industry professionals and scholars must clearly define what type of data they want to obtain from online reviews, as methods will undoubtedly differ according to the desired information. If on the one hand, the daily growing number of online reviews requires specific software and data mining knowledge, on the other hand, it may provide hoteliers with more accurate results at a cheaper price when compared to traditional approaches, such as conducting customer surveys, which are costlier and more time consuming when compared to the novel approaches enabled by recent technologies.

This literature review contributes to the existing literature by extending the current research on the use of online reviews for the hospitality industry. This work also provides important practical contributions. The variety of applications of online reviews presented in this study can provide managers, marketers and other practitioners from the hospitality industry with insights on how to take advantage of online reviews to improve their business performance.

Study limitations include the research approach, which has only focused on practical implications for the hotel industry obtained through the analysis of online reviews. No data mining approaches and analysis methods were studied in depth. Only English, Spanish and Portuguese language articles published from January 2008 to January 2020 were analysed. Future studies could consider the analysis of other material, practical implications for other

types of accommodation and more detailed online reviews analysis and data mining approaches. Also, considering the findings that have emerged from this work, validation of results from the most recent studies, long-term online reviews observation, as well as geographical, cultural and language extension of the presented studies should be considered.

Acknowledgements

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