

Comparing Airbnb and traditional accommodation experiences using text-mining methods – the hedonic and utilitarian values framework

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Abstract

In recent years, Airbnb has disrupted the accommodation industry, becoming both a valid alternative and a serious competitor to traditional accommodation. Understanding the consumer values associated with Airbnb and hotel accommodations is critical to comprehending travellers' preferences for the one or the other. This study illuminates the utilitarian and hedonic aspects of travellers' accommodation experiences with Airbnb and hotels and compares their roles and constitutions. We further examine which aspects elicit satisfaction and dissatisfaction, uncovering the qualities and weaknesses of the accommodation types. Using text-mining methods (STM, sentiment analysis), we analysed 437,820 web-scraped reviews from travellers who stayed at an Airbnb or a hotel via Booking.com in Prague, Czechia. We found that hedonic values – the host, neighbourhood ambiance, enjoyment, and homeliness – are the distinguishing aspects of Airbnb experiences, while utilitarian categories associated with convenience – room comfort, food and drink, and cost-effectiveness – distinguish hotel experiences. We further found that the key quality of one form of accommodation is simultaneously the main weakness of the other: in hotels, the main source of satisfaction is the room, and the main dissatisfying aspect the staff, while in Airbnb, the host elicits only positive sentiments, and the room is the main source of dissatisfaction. We also revealed a substantive common base of the experiences. Practical and theoretical implications are discussed.

Keywords: Airbnb, consumer value, accommodation experience, structural topic modelling, sentiment analysis

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1. Introduction

Airbnb, which is regarded as a ‘disruptive innovation’, has significantly transformed the tourism and hospitality accommodation industry as well as travellers’ behaviour (Purohit *et al.*, 2023; Yoo & Yoon, 2022). Within a decade after Airbnb was founded in 2008, the company exceeded the market value of most traditional hotel chains, including Hilton (Aznar *et al.*, 2019; Kosoff, 2017). It is now both a valid alternative and a serious competitor to traditional businesses. Many studies have empirically confirmed Airbnb’s disruptive influence: e.g. Zervas *et al.* (2017) found that Airbnb’s entry into Texas has negatively impacted hotel room income, while Mhlanga (2020) revealed how Airbnb disrupts hotels’ pricing power, particularly during periods of peak demand. Gao *et al.* (2022) and Yoo and Yoon (2022), however, emphasised that Airbnb and traditional accommodations not only compete with but also complement one another, and travellers often use both services, as their requirements and desires vary with each trip. Hotel representatives, Airbnb managers, and practitioners need to understand the main qualities and weaknesses of each respective type of accommodation to target and satisfy their clientele accordingly.

An extensive stream of research has directed attention to travellers’ accommodation experiences and preferences, aiming to uncover the aspects of Airbnb that set it apart from hotels (e.g. Ju *et al.*, 2019; Lee *et al.*, 2020; Thomsen & Jeong, 2021). However, there are prevailing inconsistencies in the findings. Volz and Volgger (2022) and Lee and Kim (2018) utilised the conceptual framework of hedonic and utilitarian consumption values to summarise the two main lines of argument in the existing research – the utilitarian proposition (e.g. Guttentag *et al.*, 2018; Li *et al.*, 2021) emphasising lower prices and the hedonic proposition (e.g. Belarmino *et al.*, 2019; Ju *et al.*, 2019) highlighting social value as the key differentiators of the Airbnb experience. In reaction to this division of the evidence, Gao *et al.* (2022) and Yoo and Yoon (2022) emphasised the need for a more comprehensive understanding of the differences between Airbnb and hotel experiences. The issue has been that only a handful of studies are comparative in design, and those focusing solely on either Airbnb or hotel experiences have examined many of the same aspects – typically room, location, host/staff, and cleanliness (e.g. Thomsen & Jeong, 2021; Xiang *et al.*, 2015) – but, since they are not comparative in nature, they have been unable to account for the nuanced differences. This study aims to delve not only into the distinctive aspects of Airbnb and hotel experiences but also into the differences in these seemingly identical categories to gain a more nuanced perspective of the distinguishing features. To achieve this, we employed a comparative design controlling for geographical context, timeframe, and methods of data collection and analysis. The potential of this approach has been proven in Gao *et al.*’s 2022 study, which investigated specifically all the topics with higher prevalence in Airbnb online reviews in comparison to hotel reviews, and in Yoo and Yoon’s 2022 study that used an online survey to determine the perceived importance of a predefined set of attributes, relating them to preferences for lodging options. Further, Mody *et al.* (2019) and Xu (2020) successfully employed a comparative design focusing on the comparison of experiential dimensions and on differences based on the level of sharing, respectively.

The present study attempts to overcome some of the limitations of existing comparative studies in this domain. The first concerns the lack of such studies, which has prevented deeper insights into the appertaining differences. Second, the existing comparative studies such as Gao *et al.* (2022), Mody *et al.* (2019), and others focused solely on the unique aspects of the Airbnb experience and failed to investigate the nuanced dissimilarities in common dimensions and the unique aspects of hotel experiences. Third, most studies have failed to compare travellers’ levels of satisfaction with all the important aspects of both types of accommodation, which might further help to understand their experiences as well as the advantages and disadvantages of these different forms of accommodation. Finally, to the best of our knowledge, none have comparatively investigated travellers’ experiences from the perspective of utilitarian and hedonic values, although understanding their roles and constitutions might significantly help to comprehend the differences and advance the current debates on their importance. To address these gaps, our research questions are as follows:

RQ1. What are the (hedonic and utilitarian) aspects of the Airbnb experience and the traditional accommodation experience, as expressed by travellers in online reviews?

RQ2. What are the distinctive aspects of the Airbnb experience versus the traditional accommodation experience?

RQ3: How do the common aspects of Airbnb and traditional accommodation experiences differ (in their prevalence and lexical construction)?

RQ4. Which aspects elicit satisfaction or dissatisfaction among travellers using Airbnb versus traditional accommodation?

The aim of this study is to illuminate comparatively both the unique and common aspects of travellers' experiences in the two forms of accommodation and to shed light on travellers' satisfaction with all appertaining aspects. To answer the research questions, we used text-mining methods – frequency analysis, structural topic modelling, and sentiment analysis – and analysed online reviews of Airbnb and traditional accommodations in Prague, Czechia. The investigation and interpretation were guided by the framework of hedonic and utilitarian consumption values. Our findings contribute to the ongoing debate on the role of hedonic and utilitarian values in travellers' behaviour and preferences in the peer-to-peer versus traditional accommodation industries. It also provides explorative findings relevant to future conceptualisations of hedonic and utilitarian values in hospitality research, which are still lacking (Li *et al.*, 2021). In addition, hedonic and utilitarian values in consumption have been subject to extensive debate within the broader context of the transition from mass to individualised consumption (Akhmedova *et al.*, 2021; Babakaev *et al.*, 2019). This study serves as a pertinent contribution to this discourse.

2. Literature review

2.1. Theoretical framework of utilitarian and hedonic values in consumption experience

From a theoretical perspective, consumer research has conceptualised consumption experience as the impression formed in the encounter between a customer and a product or service (Walls, 2013), which encompasses both hedonic and utilitarian sets of values (Babin *et al.*, 1994; Holbrook & Hirschman, 1982; Strahilevitz & Myers, 1998). The experience is acknowledged as a critical source of competitive advantage, reflecting consumer preferences for product and service attributes (Akhmedova *et al.*, 2021; Woodruff, 1997). It influences purchase intention, satisfaction, loyalty, and word-of-mouth communication (Kranzbühler *et al.*, 2018). While the utilitarian category covers functional, practical, and economic values, the hedonic category includes social, emotional, experiential, and symbolic values (Żymkowska, 2018; see also Talonen *et al.*, 2016).

Utilitarian values pertain to the pragmatic attributes and functionalities of products or services and are typically motivated by rational considerations associated with effectiveness (Overby & Lee, 2006). Commonly, they are connected to cost-effectiveness, convenience, and time-saving benefits (Tsou *et al.*, 2019).

Hedonic values connote subjective and more personal aspects of the experience, often pertaining to their affective, experiential, and social facets (Hirschmann & Holbrook, 1982). Such values encompass enjoyment, pleasure, excitement, experiences, and emotional connections that customers derive from their interactions with a product or service (Overby & Lee, 2006). Moreover, they are associated with the uniqueness of a product or service (Dedeoglu *et al.*, 2018).

The concepts of hedonic and utilitarian values in consumption experience have been part of traditional wisdom in the marketing discipline as well as in tourism and hospitality studies and have been usefully applied in practice in numerous contexts. Many studies have opted for an explorative approach, as he-

hedonic and utilitarian values can be constructed differently in different contexts. For example, Gholizadeh *et al.* (2021) analysed online reviews from Google Play to examine utilitarian and hedonic motives for using educational apps and their associations with satisfaction. They first explored online reviews to find the most representative words for predefined categories of ‘perceived usefulness’, ‘perceived cost’, and ‘perceived enjoyment’ in the specific context of educational apps. Only then they used the identified keywords as seed words for topic modelling and categorised reviews into utilitarian, monetary, hedonic, and unknown. They further compared how these common categories were constructed differently across various apps in terms of the associated vocabulary used. A different explorative approach was chosen by Sánchez-Franco *et al.* (2021), who inductively identified the most coherent topics in online reviews of intelligent personal assistants and subsequently classified them as utilitarian, hedonic, and social. Using this approach, they managed to reveal the key importance of hedonic and social benefits for customer satisfaction and prevention of boredom.

In the field of accommodation, however, empirical studies have largely relied on existing constructs of hedonic and utilitarian values that were validated in different contexts outside the accommodation industry. For example, Li *et al.* (2021) compared customer experiences between Airbnb and hotels, and Lee and Kim (2018) examined the effect of utilitarian and hedonic values on the satisfaction experienced by Airbnb guests. However, both studies used the existing measure of utilitarian and hedonic values developed by Voss *et al.* (2003), which has not been validated in the lodging context and therefore results in severe limitations. Even though there have been extensive academic debates about the role of hedonic and utilitarian values in Airbnb and hotel experiences, only a handful of studies have dealt with the question of what constitutes these values in these specific contexts. Zhang *et al.* (2019) and Tsou *et al.* (2019) stated that the use of existing conceptualisations together with the lack of comparative studies have prevented an identification of what signifies Airbnb and hotel experiences specifically. This study therefore aims to exploratively examine the hedonic and utilitarian values of both peer-to-peer and traditional accommodation experiences from a comparative perspective. Additionally, it aims to support further theoretical progress in this area, including future conceptualisations of the values pertaining to the lodging sector and a deeper understanding of the roles of hedonic and utilitarian values in the two different modes of accommodation.

We further explore travellers’ satisfaction and dissatisfaction with all the identified hedonic and utilitarian aspects of both types of accommodation. The fact that consumption experience values can have positive and negative connotations is their inherent and essential characteristic – they convey information regarding consumer (dis)satisfaction with individual aspects of the provided service (Lee, 2022; Zhang *et al.*, 2019). Such information holds critical implications for quality improvement and the long-term success of a service and unveils more intricate layers of its competitive (dis)advantages. Yet, many existing empirical studies, which have focused on identifying various aspects of the Airbnb guest experience, have overlooked the positive or negative sentiments associated with the individual aspects (e.g. Belarmino *et al.*, 2019; Lee *et al.*, 2020; Sutherland & Kiatkawsin, 2020). By considering the sentiment orientations, this study aims to deliver a more holistic and in-depth comprehension of Airbnb and hotel accommodation experiences.

2.2. Airbnb’s self-positioning as a hedonic product: differences between Airbnb and hotels

Airbnb, which was founded in 2008, strategically differentiates itself from traditional accommodation forms. In 2014, the company launched its famous campaign ‘Belong Anywhere’ and centred its customer communication on three core values: uniqueness, belonging, and authenticity (Garay-Tamajón & Morales-Pérez, 2023). Airbnb’s listings were also renamed ‘homes’ (Zhu *et al.*, 2019). Through the lens of the theoretical framework of consumption values outlined above, Airbnb has positioned itself as a he-

donic product and thereby targeted social, symbolic, emotional, and experiential values (Volz & Volgger, 2022; Żymkowska, 2018). We will here summarise the key characteristics distinguishing Airbnb accommodation from hotels.

Most distinctions between Airbnb and hotel accommodations root in the fact that peer-to-peer services emphasise variety, whereas services provided by traditional businesses tend to be standardised (Cheng & Jin, 2019). While Airbnb offers a range of options from a couch in a shared apartment to entire houses, windmills, and islands, hotel rooms incline to be more uniform. Airbnb further encourages that localised elements and the hosts' personal styles are reflected in the listings (Lutz & Newlands, 2018; Mody *et al.*, 2019). Along with a closer encounter between host and traveller, this is intended to generate a homely feeling that can purportedly never be achieved in a traditional hotel (Zhu *et al.*, 2019). On the other hand, the standardisation of hotels guarantees a greater predictability, a certain level of service provision, and professionalism (Lu & Tabari, 2019). Airbnb's embrace of aspects previously associated solely with the private sphere (trust, belonging, warmth, and personal relationships) has sparked debates on whether these constitute its key competitive advantage over hotels, catering to the hedonic preferences of travellers longing for individualised over mass consumption (Akhmedova *et al.*, 2021; Babakaev *et al.*, 2019).

2.3. *Airbnb and hotel experiences: current knowledge on utilitarian and hedonic characteristics*

An extensive stream of research has directed attention towards travellers' accommodation experiences and preferences, aiming to uncover what aspects of Airbnb sets it apart from hotels (Ju *et al.*, 2019; Lee, 2022; Lee *et al.*, 2020; So *et al.*, 2018; So *et al.*, 2022; Sutherland & Kiatkawsin, 2020; Thomsen & Jeong, 2021; Tsou *et al.*, 2019; Xiang *et al.*, 2015; Zhang, 2019; Zhu *et al.*, 2019). However, inconsistencies in findings prevail. Volz and Volgger (2022) and Lee and Kim (2018) utilised the framework of hedonic and utilitarian consumption values to summarise the two main lines of argument in existing studies: the hedonic proposition and the utilitarian proposition.

Scholars highlighting hedonic characteristics have concluded that social, symbolic, and experiential dimensions are of higher importance to travellers who stay in an Airbnb than functional and monetary benefits. For example, Gao *et al.* (2022) found that a pleasant host-traveller interaction and homeliness are the key features of highly rated Airbnb listings and distinguish Airbnb accommodations from hotels. Furthermore, according to Ju *et al.* (2019) the host is the most important aspect in Airbnb experiences and the host's friendliness the strongest dissatisfier when found to be lacking. This evidence was further supported by Belarmino *et al.* (2019), who employed a comparative design and concluded that while the host is the most significant aspect in Airbnb experiences, for hotel experiences it is the room. The findings of Purohit *et al.* (2023) suggest that authenticity is the key determinant of attitudes towards Airbnb experiences. Regarding repurchase intentions, Zhang *et al.* (2019) showed that social and emotional values are more significant than technical and economic values for Airbnb guests. Drawing on the concept of an experiencescape, Mody *et al.* (2019) found that Airbnb outperforms hotels in all experience dimensions related to communities and localness. Zhu *et al.* (2019) then investigated in more detail how the homely feeling is constructed in Airbnb experiences.

The second group of authors posits functional and economic aspects as crucial to Airbnb experiences and as the reasons for travellers to choose Airbnb over hotels. Interestingly, while these authors also identified the host as a crucial part of the Airbnb experience, they understand the host's role as utilitarian, associated with efficient communication (Xu, 2020) and facilitation of the stay (Cheng & Jin, 2019). According to their findings, at the centre of both Airbnb and traditional accommodation experiences are practical attributes, primarily the room and amenities and secondarily a safe or convenient location, low cost, and easy access (Guttentag *et al.*, 2018; Cheng & Jin, 2019; Xu, 2020). Guttentag *et al.* (2018) further specified that these categories attract Airbnb guests more than experiential attributes such as

local authenticity, novelty, interaction, home benefits, and a sharing economy ethos. From a marketing perspective, Li *et al.* (2021) also found that the utilitarian consumption pathway is stronger for Airbnb guests compared to hotel guests. They concluded that hotel brands are increasingly shifting toward providing experiences, a feeling of uniqueness, and enjoyment, and surprisingly, they found that these hedonic characteristics are associated more strongly with hotel experiences than with Airbnb experiences. One of the newest studies, Ding *et al.* (2023), offered a more complex insight, finding that Airbnb guest preferences depend on the type of property and, while travellers who stay in entire places are more concerned with the hedonic value, those who stay in shared spaces care more about the utilitarian value.

What has not yet been properly paid attention to, however, are the common dimensions of the two types of accommodation experience. Many studies analysing Airbnb experiences have agreed that the host, cleanliness, location, and room are the most important dimensions as perceived by travellers. The same categories, however, have been consistently identified in hotel experiences as well, with the exception that instead of the host, it is the staff who matter in this context (Thomsen & Jeong, 2021; Xiang *et al.*, 2015). The present study thus aims to fill this gap and – led by the framework of hedonic and utilitarian values – to investigate not only the unique dimensions of Airbnb experiences, which are the subject of the largest volume of studies in this domain, but also the unique aspects of hotel experience as well as nuances in the construction of, prevalence of, and satisfaction with the common categories of both experiences.

3. Methods

3.1. Data collection

We created two corpora of online reviews, one of Airbnb accommodations and one of hotels registered on the Booking.com platform. Booking.com is one of the largest intermediary platforms for traditional accommodations. We obtained the Airbnb online reviews from an independent open initiative, Inside Airbnb, which regularly scrapes and publicly shares diverse data from Airbnb's website, covering many metropolises where Airbnb operates. For Booking.com, no such database is available. We therefore used a web scraping tool, Octoparse, to collect the data ourselves (on the web scraping method, see e.g. Parvez *et al.*, 2018).

The two corpora include all accommodations in the city of Prague that were active at the time of data collection on the Airbnb and Booking.com platforms and all their respective online reviews in English posted between November 2017 and November 2019. The data set comprises 14,185 Airbnb accommodations along with 315,238 appertaining reviews and 659 Booking.com accommodations (from the categories of hotels, hostels, and guesthouses) along with 122,582 appertaining reviews. 85% of the collected Airbnb reviews pertain to single apartments where the host did not physically share the accommodation with the guests. 15% of the Airbnb reviews pertain to separate rooms in a shared apartment, while a negligible remainder (0.4%) pertains to shared rooms. Concerning the traditional accommodations from Booking.com, the reviews mostly pertained to hotels (82%), followed by hostels (15%) and finally guesthouses (3%).

Figure 1 summarises the analytical steps undertaken in this study. To ensure the suitability of our data for a comparative design, we maintained a consistent approach in terms of exploring data within the same geographical context, the same time frame and language for the collected reviews, and we used the same analytical steps and their sequences during both the pre-processing and the analyses. The Airbnb and Booking.com platforms lend themselves particularly to a comparative analysis as they follow similar steps when collecting reviews from guests. A questionnaire is sent via e-mail to each guest who booked accommodation via the respective platform. The questionnaires contain an open prompt, in response to which guests can provide a free-form description of their experiences. The collected data

are then made publicly available on the page pertaining to the accommodation in question. On both platforms, customers are given no more than a month to complete the questionnaire; therefore, their review is authored in the immediate post-consumption phase, this minimising the mitigating effects of later, time-induced memory problems (Zhang *et al.*, 2018).

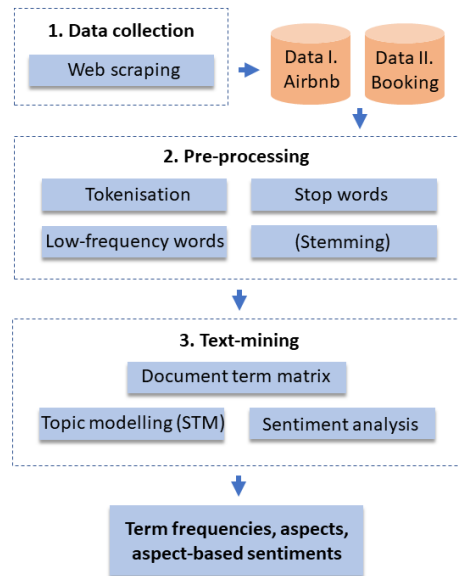


Figure 1: Research design of the present study

The use of user-generated content (UGC) in the form of online reviews has grown in popularity in the last years. Such data enable an exploratory and unobtrusive research design and, thanks to their open structure, they have proven to be a rich source of information regarding perceived consumption values (Gholizadeh *et al.*, 2021; Perikos *et al.*, 2018; Sánchez-Franco *et al.* 2021; Xiang *et al.*, 2015; Zhang *et al.*, 2019). Existing studies analysing online Airbnb and hotel reviews, however, have had limitations; foremost, only a handful employed a comparative design (Belarmino *et al.*, 2019; Gao *et al.*, 2022; Xu, 2020) and they often focused solely on topic identification with no exploration of their construction and sentiment. In terms of methods, most studies applied Latent Dirichlet allocation (LDA) or Latent Semantic Analysis (LSA) (e.g. Liu *et al.* 2021; Xu, 2020). These methods create uncorrelated topics, meaning that their algorithms do not recognise dependencies between topics. By contrast, the Structural Topic Model (STM) applied in this study, and for example by Gao *et al.* (2022), allows for the correlation of topics, which better corresponds to real language and allows for the relationships among them to be modelled (Mostafa, 2022).

Geographically, many scholars have stressed the need to expand research on Airbnb experiences to new destinations (Lee, 2022; Sutherland & Kiatkawsin, 2020; Gao *et al.*, 2022). While a few related studies cover the European context (Sthapit *et al.*, 2019; Chiappa *et al.*, 2020; Kirkos, 2022), Central and East Europe so far have been neglected. This study uses data from Prague, Czechia, one of the most touristic cities in Europe.

3.2. Data pre-processing

During pre-processing, we adhered to best practices in text-mining (Eler *et al.*, 2018; Perikos *et al.*, 2018; Silge & Robinson, 2017). The same procedures in the same sequence were applied to both corpora of reviews. First, we cleared the data of non-English languages and automated messages that Airbnb posts among reviews (e.g. about cancellations or hidden e-mail addresses and phone numbers). Next, we

transferred the samples into a bag-of-words format using tokenisation into words. Third, for dimensionality reduction and, thus, classification improvements, we removed stop words, numbers, special signs, and words occurring at a low frequency (below 50 for term frequency analyses and below 300 for topic modelling).

For the removal of stop words, we used a validated *Snowball* lexicon in R containing 200 basic stop words (articles, prepositions, conjugations of the verb ‘to be’, etc.) and added our own list of stop words tailored to our specific data set (Silge & Robinson, 2017). *Snowball* was chosen over other lexicons meant for the tidy format, such as *Smart* or *onix*, as it solely consists of neutral words. The other lexicons contain additional words such as ‘help’, ‘appreciate’, ‘near’, ‘new’, and ‘thanks’, which carry a useful semantic meaning in the context of this study and which we therefore did not wish to be removed from the analyses.

Then, for the term frequency analyses we applied stemming, a procedure that converts words to a common stem. Stemming resolves issues with, for example, the third person singular in English (ending in -s), plural nouns (ending in -s), and various forms of the same word (e.g. ‘recommend’, ‘recommended’, and ‘recommendable’ are merged after stemming). For topic modelling, stemming is not recommended since it can negatively affect topic stability (Schofield & Mimno, 2016). Therefore, we skipped stemming for the structural topic modelling and instead removed a larger number of low-frequency words than were used for frequency analyses to increase computational efficiency. Finally, we manually corrected typos and language errors (e.g. changing ‘apartement’ to ‘apartment’) to enhance the algorithms’ ability to detect identical words or their stems.

Table 2: Data dimensionality descriptions before and after pre-processing

	Airbnb reviews	Booking.com reviews
Number of accommodations	14,185	659
Number of reviews	315,238	122,582
Average number of reviews per accommodation	22	186
Overall number of words in reviews	12,799,653	4,731,565
Average number of words per review	41	39
Number of words in reviews after removing stop words, numbers, and special signs	5,430,350	2,037,436
Number of words after removing low-frequency words (below 50 occurrences)	4,557,631	1,930,391
Number of unique words after removing low-frequency words (below 50 occurrences) and stemming*	2,930	2,005
Number of words after removing low-frequency words (below 300 occurrences) without stemming**	4,055,740	1,572,580

Note:

* Data in this format were used as input for the frequency analyses.

** Data in this format were used as input for topic modelling.

In Table 2, we present a detailed account of our dimensionality reduction outcomes. In line with Zipf’s law, the volume of our data files was significantly reduced (Banks *et al.*, 2018). From the original 13,000,000 words contained in the Airbnb reviews and the 5,000,000 words contained in the Booking.com reviews, 4,500,000 and 2,000,000 semantically meaningful words remained in the final files,

respectively, including 3,000 unique words for Airbnb and 2,000 for Booking.com. As later discovered in the text frequency analyses, the Airbnb file was only larger due to a significantly greater representation of unique first names. Once they had been merged, the number of unique words was approximately the same in both corpora.

3.3. Data analyses

The analyses were driven by three main objectives: (1) to investigate the language that travellers use to review their Airbnb and hotel experiences with a focus on identifying repeating coherent topics; (2) to compare the identified topics between Airbnb and hotel experiences in their uniqueness, prevalence, construction, and relationships to each other; and (3) to assess the associated positive and negative orientations with the identified topics and to compare these. To tackle the first objective, we applied term frequency analyses and structural topic modelling (STM). For the second objective, we explored the detailed outputs of STM. For the final objective, we used an aspect-based sentiment analysis.

3.3.1. Structural topic model (STM)

Structural topic model (STM), similarly to other large-scale topic modelling methods such as LDA and LSA, attempts to extract the hidden structure of a seemingly unstructured set of textual data. STM creates clusters of semantically similar words, estimating for each word a probability (*beta*) of belonging to the given cluster, i.e. the topic. The assumption is that each document contains a mixture of topics, and each topic contains a mixture of words (Roberts *et al.*, 2019). This differs from simpler clustering procedures such as k-means, where each document can belong to only one cluster (Liu *et al.*, 2013). As a Bayesian generative model, STM finds the most likely solution based on many iterations (Roberts *et al.*, 2019). However, the number of topics needs to be determined by the analyst. This means that, typically, many possible solutions are created, and then the most meaningful outcome needs to be chosen. Creating too many topics can result in a hardly interpretable model, while too few topics may produce unspecific categories (Mostafa, 2022). The *stm* package in R contains several useful diagnostics to facilitate the selection of the most optimal outcome (Roberts *et al.*, 2019; Silge, 2018).

Through the outputs of STM, relevant keywords associated with individual topics can be thoroughly examined alongside expected proportional representations of individual topics in the overall texts (*gamma*). Such results are highly relevant to this study's objectives as some dimensions of consumer experiences may be identified in both sets of accommodation reviews, although they may differ in their construction or prevalence. STM's critical advantage over the more widely used LDA is its ability to account for correlations between topics. This characteristic more accurately corresponds to real-language features than LDA's assumption of uncorrelated topics (Mostafa, 2022). Moreover, the found relationships can then be explored, which provides new insights into the data structure.

3.3.2. Aspect-based sentiment analysis as a measure of (dis)satisfaction

STM attempts to extract topics but provides no information on whether they are mentioned with a positive or a negative connotation. Thus, we employed an aspect-based sentiment analysis to account for the guests' subjective assessments of the various service dimensions (Lee, 2022; Zhang *et al.*, 2019). Since quality lexicons for the English language are available, we chose to identify the sentiments using machine learning (Saberi & Saad, 2017). We used the *nrc* lexicon, which has been specifically validated for use with reviews (Mohammad & Turney, 2010). Based on the lexicon, we identified words associated with positive or negative sentiments within each topic. For instance, words such as 'clean', 'perfect', 'helpful', and 'recommend' were classified as positive, while words such as 'noisy', 'problem', 'dirty', and 'small' were coded as negative by the *nrc* lexicon. Next, a proportion of words with an identified sentiment association in a topic was counted, with the remaining words being considered neutral, which is the majority in natural language (Silge & Robinson, 2017).

4. Results

4.1. Term frequency analyses

Term frequency analyses showed that the vocabulary used by travellers reviewing their stay in either Airbnb or a hotel is substantially the same, with some distinctive features. Figure 2 displays the 70 most frequent stems of words used in Airbnb and Booking.com hotel reviews; we found that these terms represent more than half of all the used words in both corpora after pre-processing (specifically 56% in Airbnb reviews and 52% in hotel reviews). In both modes of accommodation, travellers were found to care mostly about the *apartment* or *room* itself, its *location*, the *host* or *staff*, *cleanliness*, and *transportation* (*metro*, *tram*, etc.). The Pearson correlation coefficient of 0.6 indicates a substantial overlap between the terms used in Airbnb and hotel reviews.

The distinctive features specific to Airbnb reviews included the terms *communication*, *response*, *thank*, *home*, *cosy*, *enjoy*, *feel*, *provide*, *kitchen*, *tip*, etc., most of which are associated with hedonic – that is, emotional, experiential, or social – values. We found that *communication*, *response*, and *tip* are 13 to 17 times more likely to appear in Airbnb reviews than in hotel reviews. Regarding the latter, the distinctive most common terms are *service*, *reception*, *food*, *wifi*, *coffee*, *hostel*, *hotel*, *carparking*, *bar*, *people*, *noisy*, *money*, and *price*. Predominantly, these terms relate to amenities, convenience, and economic value, which are associated with utilitarian values such as pragmatism, functionality, and economic value. *Reception*, *breakfast*, and *air conditioning* are 13 to 27 times more frequent in hotel reviews than in Airbnb reviews. These results suggest a substantive common utilitarian base of consumption values for both accommodation types, while hedonic values are the distinctive feature of Airbnb and different utilitarian values constitute the distinctive feature of hotels.



Figure 2: Word clouds of the top 70 terms used in Airbnb and Booking.com hotel reviews (stemmed)

In Figure 3, the proportional term frequencies are visualised to also explore the less frequent terms (Silge, 2018). Even among the less frequent stems, terms relating primarily to services and equipment appear as the most distinctive features of hotel experiences (*buffet, lobby, counter, bacon, carpet, socket, etc.*). By contrast, in Airbnb reviews, terms associated with feelings, impressions, and communication prevail as the distinctive features (*stylish, message, quick, beautiful, cute, etc.*). Proportional term frequencies also revealed a cluster of low-frequency words in Airbnb reviews consisting of various first names (highlighted by a red circle in Figure 3). Belarmino *et al.* (2019) had a similar finding when analysing Airbnb reviews from different cities in the United States. After all the first names were detected and merged into one category, they became the second most common word group in Airbnb reviews

overall. In hotel reviews, after applying the same steps, first names were in 27th place in terms of frequency. This result suggests a personal touch in the Airbnb experience.

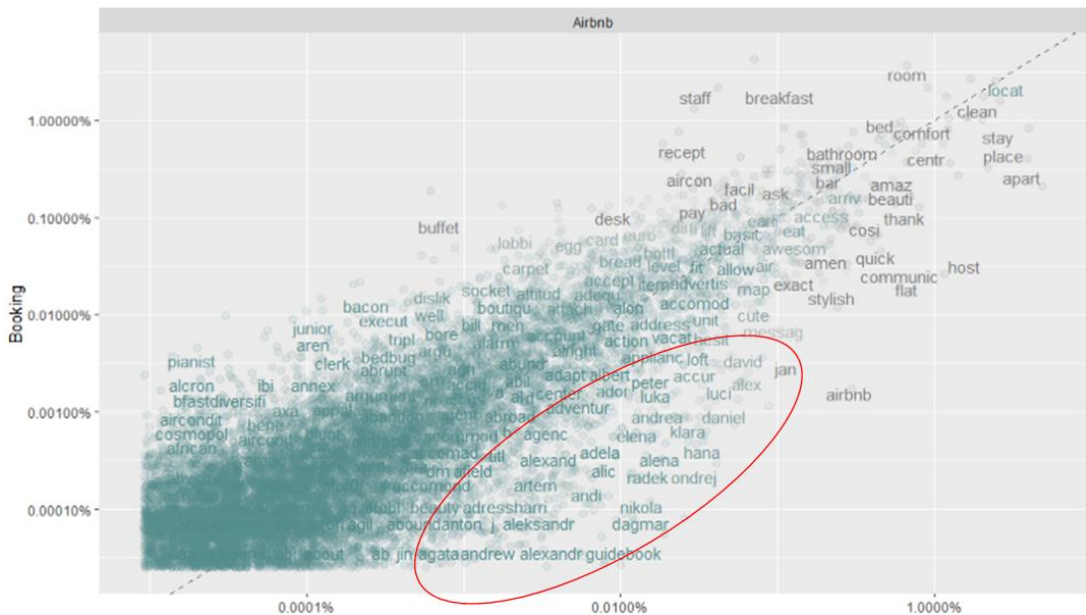


Figure 3: Proportional term frequencies – comparison of Airbnb and Booking.com hotel reviews

Note: Stems with approximately the same proportional frequencies in both corpora lie directly on the dotted diagonal line. There is a direct correlation between the distance separating words from the line and their level of importance within either Booking.com or Airbnb reviews. Words more common to Booking.com hotel reviews can be found further above the line, while stems with a higher relevance for Airbnb reviews lie below the line. Also, the higher a stem is placed on the diagonal axis, the more frequently it appears overall.

4.2. Topic modelling

4.2.1. Topic extraction – fitting the STM

The final number of topics (K) was determined based on a set of measures available in the *stm* R package in combination with a meaningful human interpretability of the model (Roberts *et al.*, 2019; see also Mostafa, 2022). The resulting analytics for ten iterated models of two to eleven topics are plotted in Figures 4 and 5 for Airbnb reviews and Figures 6 and 7 for hotel reviews. The goal with diagnostics is to maximise the *held-out likelihood*, which is based on the principle of cross-validation, creating subsets, and evaluating the suitability of a solution for each subset (Roberts *et al.*, 2019; see also Mostafa, 2022). *Lower bound*, as a convergence criterion measuring the extent of change occurring during model iterations, should also be maximised (Roberts *et al.*, 2019). By contrast, *residuals* estimating how well the model matches the text structure should be minimised (Taddy, 2012). Furthermore, a compromise between the *semantic coherence* evaluating the frequency with which the most high-loading terms modelling a given topic co-occur (Mostafa, 2022) and the *exclusivity* of topics should be reached (Roberts *et al.*, 2019).

For the Airbnb corpus, the diagnostics suggested approximately seven to ten topics to be the most optimal solutions. For the Booking.com hotel reviews, it was eight, ten, or possibly more topics. Based on the human interpretability of the extracted topics and their high-loading terms, up to eight modelled topics were found to be unique, coherent, and meaningful in both corpora of reviews. By contrast, attempts to model nine or more topics resulted in topics becoming incoherent, overlapping, or unclear in meaning. Therefore, we arrived at the solution of eight extracted topics from both corpora as the optimal option.

Comparing Airbnb and traditional accommodation experiences using text-mining methods – the hedonic and utilitarian values framework

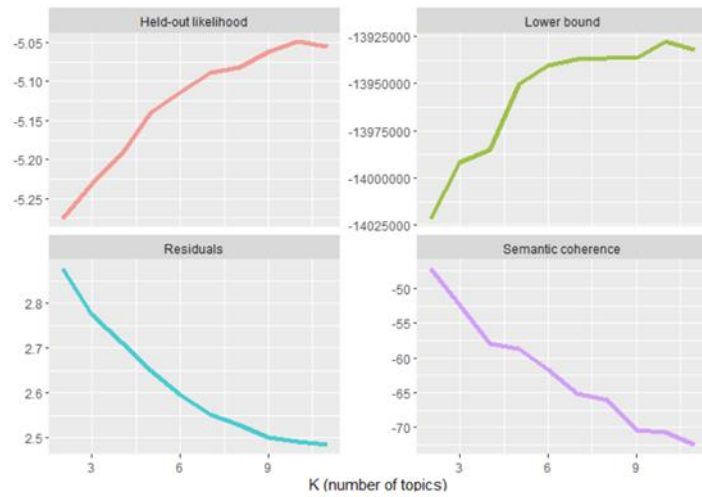


Figure 4: Model diagnostics by number of topics – Airbnb reviews

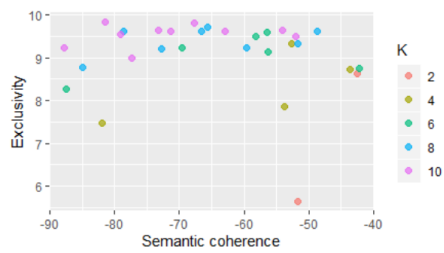


Figure 5: Topic semantic coherence and exclusivity comparison – Airbnb reviews

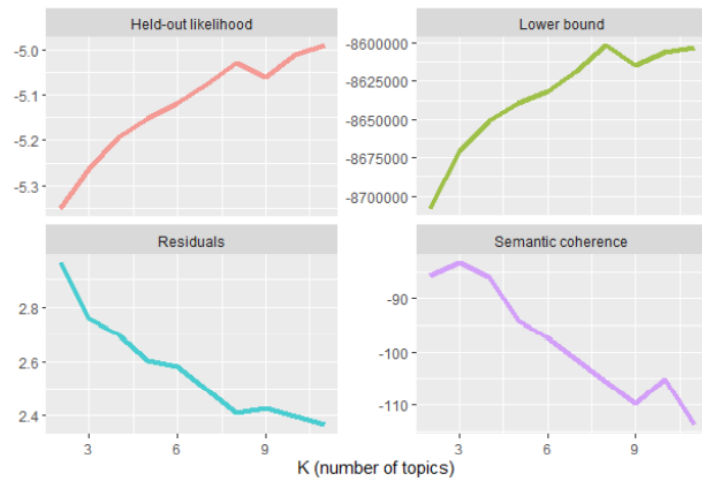


Figure 6: Model diagnostics by number of topics – Booking.com hotel reviews

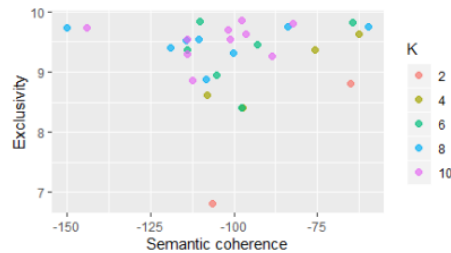


Figure 7: Topic semantic coherence and exclusivity comparison – Booking.com hotel reviews

4.2.2. Topic identification – Airbnb reviews

This section presents the hedonic and utilitarian aspects identified in the Airbnb experience (RQ₁). Table 3 summarises the eight topics extracted from the Airbnb reviews, with the first column containing their labels. Following a standard procedure (Lee, 2022; Zhang, 2019), the labels were assigned in a logical connection to the topics' keywords (listed in the third column). We explored the top 50 high-loading terms of each topic to understand the underlying concept and its construction. The keywords are listed in descending order based on their *beta* probabilities – that is, the probability of their belonging to that topic (Roberts *et al.*, 2019). It needs to be noted that the words with the highest frequency naturally also have the highest *beta* probability. While current studies often explore only up to ten keywords (Gao *et al.*, 2022; Liu *et al.*, 2021; Xu, 2020; Zhang, 2019), analysing a larger set of keywords enabled us to gain a more nuanced understanding of the topics' meanings and later also of their nuances in comparison to the topics from hotel reviews. The second column of Table 3 displays the *gamma* probability, which is the calculated prevalence of a topic within the overall corpus. Based on *gamma*, the importance of a topic can be inferred.

Utilitarian aspects of the Airbnb experience. We classified four of the eight identified topics in Airbnb online reviews as clearly utilitarian, referring to functional, practical, and economic consumption values. Interestingly, their prevalence is among the lowest relatively to all the identified topics. The first utilitarian aspect, 'Transport proximity', is constituted by keywords indicating various means of transport and distance from key places in the city (e.g. *centre, restaurant, bar, shops*). This solely functional and practical dimension of the Airbnb experience has already been identified for example by Lee (2022) and Zhang and Fu (2020). This study, however, provides a more detailed overview of the associated keywords, which allows for a deeper examination of the key places that travellers care about in relation to transport proximity (see Table 3). The second utilitarian topic, 'Room and furnishings', refers to functional (*room, kitchen, bed, bathroom, toilet, wifi, towels*, etc.) and economic (*price, money*) qualities. 'Room' has been consistently identified in previous studies as an important part of the accommodation experience, which is only logical since this is the main product that travellers purchase (Belarmino *et al.*, 2019). Interestingly, only the topic of room consists of words referring to value for money. Airbnb guests thus comment on the monetary aspect only in relation to the room, and contrary to Ding *et al.* (2023), value for money was not identified here as a separate coherent topic. The third utilitarian aspect, 'Attractions proximity', is constructed by words referring to attractions in the city (*old, town, wenceslas, square, street, charles, bridge, castle, river, sights, stairs, views*) and descriptions of distance (*walk, right, minute*, etc.). This is clearly practical. The fourth and final utilitarian aspect is 'Check in/out'. This topic focuses on the smoothness and efficiency of the processes of checking in and out of the accommodation. Travellers review *arrival, leaving*, dealing with *keys, luggage*, and time constraints (*late, flight, morning, minute, hour*). A similar topic was also identified in Ding *et al.* (2023) and it is logical that Airbnb guests pay attention to easy access as there is typically no reception in Airbnb accommodations and the procedure is not standardised as it is in hotels.

Table 3: Topics extracted from Airbnb reviews and their associated keywords according to the STM

Topic label	Topic prevalence (γ)	Top 50 words representing the topic based on β probability	Dimension – utilitarian (U) or hedonic (H)
Host hospitality	0.212	location, stay, host, place, help, apartment, prague, clean, friendly, response, tips, lovely, gave, amazing, questions, places, wonderful, local, needed, welcome, quickly, hospitality, beautiful, quick, visit, provide, exactly, need, jan, kind, information, comfortable, accommodating, described, experience, visiting, jana, useful, expected, eat, communication, perfect, city, accommodation, messages, david, josef, tomas, suggestions, alex	H
Overall impression	0.156	apartment, recommend, clean, communication, easy, check, spacious, amazing, stay, space, central, walking, distance, comfortable, stylish, value, fantastic, place, beautiful, quick, amenities, view, host, modern, attractions, awesome, prague, convenient, response, ideal, spot, lovely, smooth, group, centrally, brilliant, process, terrace, incredible, top, daniel, facilities, close, perfect, worth, balcony, sparkling, fabulous, enough, service	U/H
Neighbourhood ambience	0.134	nice, flat, clean, centre, city, cosy, house, quiet, comfortable, equipped, place, apartment, need, recommend, stay, kind, area, friendly, fast, close, far, like, new, host, neighborhood, warm, location, carparking, person, cool, tidy, situated, liked, calm, reach, pretty, balcony, cute, prague, near, owner, people, foot, neighbourhood, looks, pictures, bright, beautiful, spend, communication	U/H
Transport proximity	0.129	minute, close, tram, near, centre, city, metro, station, walk, restaurant, public, apartment, transport, easy, area, stop, bus, train, transportation, bar, shops, place, need, supermarket, stay, easily, access, convenient, neighborhood, park, quiet, stops, cafes, prague, clean, food, trams, shopping, far, subway, local, corner, outside, right, grocery, carparking, accessible, couple, ride, front	U
Enjoyment and homeliness	0.102	prague, place, thank, enjoy, love, stay, home, come, feel, trip, wonderful, beautiful, recommend, lovely, visit, apartment, comfortable, pleasant, needed, martin, happy, return, weekend, explore, family, looking, like, hope, welcome, long, need, decorated, exploring, make, city, location, making, special, pleasure, future, book, visiting, zuzana, clean, petra, base, relax, beautifully, katerina, relaxing	H
Room and furnishings	0.090	room, kitchen, bed, bathroom, location, place, people, shower, price, noisy, sleep, money, beds, rooms, bedroom, clean, comfortable, large, water, floor, stay, toilet, problem, fine, windows, use, door, wifi, space, light, hot, enough, apartment, open, private, basic, pretty, towels, issue, like, guests, window, shared, issues, loud, street, bedrooms, expected, group, size	U
Attractions proximity	0.088	old, town, location, walk, apartment, square, right, minute, restaurant, walking, street, bridge, quiet, building, distance, charles, castle, bar, prague, comfortable, plenty, river, heart, close, tourist, large, sights, stairs, area, spacious, sites, steps, elevator, beautiful, high, stay, machine, floor, attractions, coffee, space, wenceslas, safe, family, walked, cafe, busy, including, views, lift	U
Check in/out	0.088	arrive, airbnb, like, apartment, experience, provide, first, late, check, meet, airport, stay, coffee, make, feel, left, air, early, keys, luggage, find, use, extra, leave, hot, breakfast, morning, flight, found, key, asked, appreciated, star, tea, hour, host, give, machine, touch, food, taxi, pick, available, checked, booked, door, booking, service, showed, evening	U

Hedonic aspects of the Airbnb experience. We classified two of the identified aspects in Airbnb reviews as clearly hedonic, meaning social, emotional, experiential, and symbolic values. ‘Host hospitality’ is the single most prevalent aspect in Airbnb online reviews. This finding confirms the host’s crucial importance in the realm of peer-to-peer accommodation (Belarmino *et al.*, 2019; Ju *et al.*, 2019; Kirkos, 2022; Yannopoulou *et al.*, 2013; Zhang *et al.*, 2019). Within this topic, travellers focus on the hosts’ helpfulness, friendliness, and responsiveness. In this corpus, travellers mostly commented on the hosts’ communicativeness and amenability (*tips, welcome, hospitality, questions, provide, messages, suggestions*). Very often, they referred to their host by their first name (*jana, david, josef, tomas, alex*), which indicates a rather informal relationship. They described them as *lovely, amazing, wonderful, quick, accommodating, and perfect*. These results are contrary to Cheng and Jing’s 2019 study, which concluded that travellers perceive the host only as a facilitator rather than a source of authentic tourist-host interaction. We found that travellers largely associate the host with emotional, experiential, and social values. The second, clearly hedonic dimension that we identified is ‘Enjoyment and homeliness’. This is constructed by terms relating to feelings and experiences (*thank, enjoy, love, home, feel, wonderful, beautiful, pleasant, happy, pleasure, relax*) (Lee, 2022; Zhang & Fu, 2020). This dimension is connected to the social value, the host, as evidenced by the use of their first names (*martin, zuzana, petra, kate-rina*), as well as to the entirety of the *stay*, the city of *prague*, and the physical *place* itself. This finding supports the premise that peer-to-peer accommodation creates a feeling of home and authenticity (Gao *et al.*, 2022; Zhu *et al.*, 2019).

Mixed utilitarian-hedonic aspects of the Airbnb experience. Two of the identified aspects could not be categorised as solely utilitarian or hedonic. One is the ‘Overall impression’, which is also the second most prevalent topic in Airbnb reviews. This is a general topic associated with keywords from many other dimensions (e.g. *communication, check in/out, distance, amenities*) together with the high-loading keywords *recommend* and *value*. A similar aspect was also identified in Airbnb reviews in Zhang (2019), Cheng and Jin (2019), and Lee (2022). This topic refers to all functional, economic, social, and emotional values; therefore, we classify it as a mixed dimension of hedonic and utilitarian values. The second mixed utilitarian-hedonic aspect is ‘Neighbourhood ambiance’, which was also identified in Belarmino *et al.* (2019). Using key words, travellers articulated their impressions of the accommodation surroundings and referred to intangible experiential characteristics (*cosy, quiet, comfortable, warm, calm, cute, bright, beautiful*) as well as to functional characteristics (*city, centre, equipped, and carparking*).

4.2.3. Topic identification – Booking.com hotel reviews

This section presents the hedonic and utilitarian aspects identified in traditional accommodation experiences (RQ1). Table 4 presents the eight coherent topics extracted from Booking.com hotel reviews. The layout of Table 4 is identical to that of Table 3; the columns contain the labels of the identified topics, followed by their prevalence in the whole set of reviews as per the *gamma* probability. This is followed by the top 50 words representing the topics ordered by *beta* probability, and finally, the classification of whether the specific topic refers to utilitarian, hedonic, or mixed values.

Table 4: Topics extracted from Booking.com hotel reviews and their associated keywords according to the STM

Topic label	Topic prevalence (γ)	Top 50 words representing the topic based on β probability	Dimension – utilitarian (U) or hedonic (H)
Overall impression	0.254	location, staff, clean, nice, friendly, breakfast, help, rooms, comfortable, room, spacious, hotel, value, quiet, amazing, central, facilities, lovely, modern, fantastic, polite, kind, superb, design, atmosphere, brilliant, tidy, convenient, awesome, decor, recommend, old, new, interior, complain, pleasant, fabulous, warm, equipped, liked, efficient, personnel, stylish, outdated, view, centrally, maintained, attractions, spotless, decorated	U/H
Room and furnishings	0.126	bed, room, bathroom, shower, beds, comfortable, hostel, kitchen, toilet, like, clean, people, towels, hard, space, dirty, double, pillows, uncomfortable, enough, bath, single, light, bathrooms, bedroom, size, use, mattress, large, broken, curtains, showers, sleep, need, bathtub, sheets, cleaning, changed, new, feel, nice, towel, shared, hair, soft, toilets, separate, wall, used, head	U
Room (dis) comfort	0.126	room, noisy, aircon, floor, hot, wifi, water, street, outside, open, door, sleep, windows, window, building, tv, elevator, poor, cold, people, morning, warm, loud, hear, lift, rooms, fan, stairs, fridge, problem, smell, inside, location, internet, kettle, difficult, heating, top, connection, view, first, summer, slow, temperature, entrance, closed, need, air, worked, walls	U
Attractions proximity	0.124	stay, hotel, prague, old, place, recommend, town, apartment, beautiful, love, walking, square, bridge, like, charles, distance, feel, right, view, wonderful, lovely, amazing, restaurant, location, castle, walk, visit, places, property, family, welcome, attractions, area, come, building, quiet, river, home, hostel, suite, tourist, expectations, minute, trip, terrace, bar, heart, meet, sights, apartments	U
Services and staff	0.119	reception, hotel, service, check, arrive, room, asked, staff, desk, front, early, kind, late, thank, booked, first, airport, english, like, morning, help, checkin, gave, rude, ask, experience, make, left, taxi, booking, guests, stay, lady, leave, speak, welcome, give, hour, personnel, wanted, provide, wait, card, find, found, cleaning, free, checked, come, extra	U/H
Transport proximity	0.116	close, centre, minute, city, near, station, walk, metro, tram, car-parking, hotel, easy, far, bus, old, public, restaurant, town, train, transport, stop, area, car, access, walking, location, airport, distance, pool, park, quiet, convenient, shopping, right, find, need, reach, shops, transportation, free, trams, stops, street, easily, subway, foot, front, nice, use, sauna	U
Food and drink	0.088	breakfast, room, food, coffee, restaurant, bar, hotel, tea, choice, buffet, free, fresh, selection, variety, large, options, delicious, eat, plenty, location, quality, available, nice, tasty, eggs, included, area, drinks, machine, dinner, limited, choices, position, lobby, choose, fruit, drink, comfortable, bread, served, liked, spa, wide, including, cold, making, complimentary, poor, juice, enough	U

Value for money	0.047	price, money, hotel, star, pay, cheap, basic, fine, paid, high, expensive, expected, worth, location, breakfast, decent, quality, simple, expect, room, standard, accommodation, reasonable, euro, cost, rate, euros, extra, low, perfect, charged, included, exchange, place, hotels, option, facilities, amount, ok, complain, deal, fair, needs, cash, need, pretty, proximity, booking, budget, higher	U
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Utilitarian aspects of traditional accommodation experiences. We classified six out of the eight identified topics in hotel reviews as clearly utilitarian. The first utilitarian aspect is ‘Room and furnishings’, which is also the second most prevalent topic. This pertains to functional attributes such as the *bed, room, bathroom, and shower* (Belarmino *et al.*, 2019; Gao *et al.*, 2022; Xu, 2020). Interestingly, another utilitarian topic is centred on the room as well; we labelled this aspect ‘Room (dis)comfort’. It is linked to functional elements that provide more convenience such as *air conditioning, wifi, tv, elevator, fan, fridge, kettle*. This is the third most prevalent topic. This topic is also uniquely associated with numerous high-loading negative terms (e.g. *noisy, hot, poor, loud, problem, smell, difficult, slow*). The third utilitarian topic in hotel reviews, ‘Attractions proximity’, is constructed by keywords referring to the city’s sights, other attractions (*restaurants, bars, views*), and distance. This result supports the findings of Belarmino *et al.* (2019) that also identified attractions proximity as important for travellers staying at hotels; it moreover hones findings of other studies that merely identified location more generally as an important aspect (e.g. Gao *et al.*, 2022; Xu, 2020). The next and related utilitarian topic is ‘Transport proximity’, by which travellers refer to distance (e.g. *close, centre, minute, near*) and transport means (e.g. *metro, tram, bus*). The fifth utilitarian topic identified here is ‘Food and drink’. Regarding food and drink, hotel guests care about *freshness, selection, variety, taste, amount, and quality*, they appreciate *complimentary* food or drinks, and mostly reviewed the breakfast. Importantly, they did not describe any feelings or experiences associated with food and drink, rather constructing this aspect as solely utilitarian. Similarly, Xu (2020) and Gao *et al.* (2022) found food and drink to be a coherent topic in hotel reviews. The last utilitarian aspect of hotel experiences that we identified is ‘Value for money’ (Gao *et al.*, 2022). Travellers reviewed the price and commented on it in association with hotel *stars, expectations, worth, standard, location, and reasonability*. They evaluated their experience as *cheap, basic, fine, expensive, decent, or fair*. The topic also includes keywords referring to an *exchange*, mentioning *Euros and rates*. This is clearly constructed as a utilitarian dimension of the experience.

Hedonic aspects of traditional accommodation experiences. We did not identify any aspect of the hotel experience that could be classified as solely hedonic.

Mixed utilitarian-hedonic aspects of traditional accommodation experiences. One of the two mixed aspects that we identified is concurrently the most prevalent topic in the hotel reviews. ‘Overall impression’ comprises references to functional attributes (e.g. *location, cleanliness, food, room, facilities*) as well as to hedonic attributes, mostly social (*staff, friendly, help, polite, kind*) and symbolic (*design, modern, outdated, decorated, stylish*). This is a general topic summarising the stay and containing recommendations. A comparable topic was also identified by Gao *et al.* (2022). The second utilitarian-hedonic aspect, ‘Services and staff’, again refers to both functional attributes related to services (*reception, hotel services, check in/out*) and social attributes connected to the staff. Importantly, when referring to the staff, hotel guests use impersonal terms such as *lady, personnel, or staff*, indicating a distant and formal relationship. They mention the staff in relation to *help, kindness, but also rudeness*.

4.2.4. Comparing the identified Airbnb and hotel accommodation experience aspects

We compared the identified aspects of Airbnb and traditional accommodation experiences in terms of their uniqueness, prevalence, construction, correlation, and sentiment.

Uniqueness and prevalence

Results in this section show the identified distinctive aspects of the Airbnb experience versus traditional accommodation experiences (RQ2) as well as the distinctive features of the aspects identified as common (RQ3). In Figure 8, the probabilistic representations (*gamma*) of the identified topics in Airbnb and Booking.com hotel reviews are graphed for the purpose of comparison. The results reveal four common and four unique dimensions in both Airbnb and hotel experiences. However, Airbnb guests devoted less space in their reviews to the common dimensions (47%) than hotel guests did (61%). Thus, the Airbnb experience appears to be more distinct. Moreover, the unique dimensions of the Airbnb experience are predominantly hedonic, while the unique dimensions of the hotel experience are utilitarian or mixed. Overall, the hedonic dimensions constitute 31% of the Airbnb experience, while none were identified in hotel experiences. The mixed utilitarian-hedonic dimensions constitute 29% of Airbnb experiences and 37% of hotel experiences, while utilitarian dimensions account for 40% of Airbnb experiences and 63% of hotel experiences.

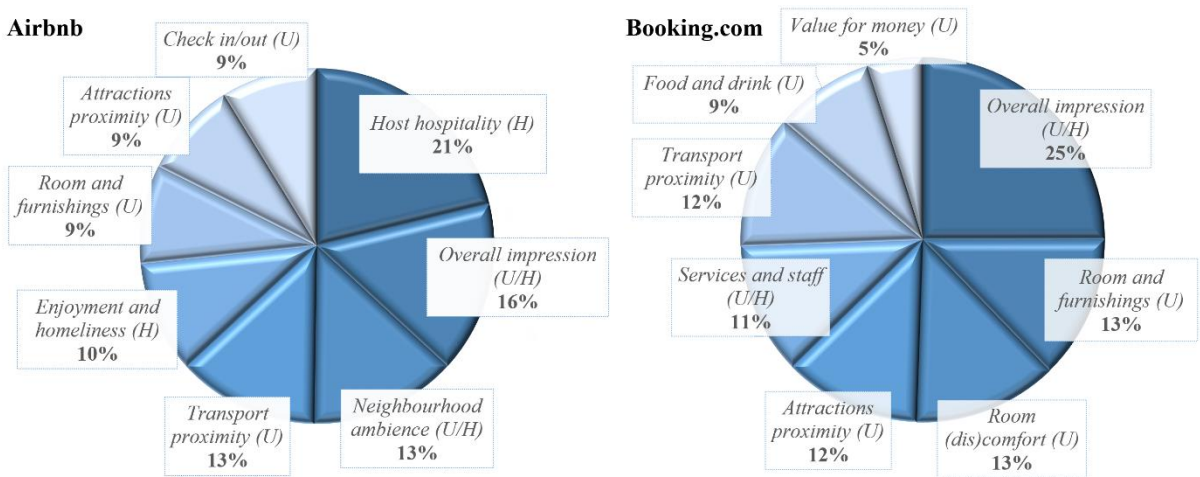


Figure 8: Topics comparison between Airbnb and Booking.com hotel reviews

Distinctive aspects of the Airbnb experience. Unique aspects constitute 53% of the Airbnb reviews and 39% of the hotel reviews. ‘Host hospitality’ emerges as a unique topic in the Airbnb experience; it is also the most important topic. Even though the corpus is heavily dominated by reviews of entire domiciles – meaning not physically shared with the host – 21% of the Airbnb corpus pertains to the host. This suggests that the guest-host relationship is critical to Airbnb guests, even if there is limited or no in-person contact (Belarmino *et al.*, 2019; Ju *et al.*, 2019; So *et al.*, 2022). The second unique dimension of the Airbnb experience is ‘Neighbourhood ambience’ (13%). Airbnb indeed promises a local experience (as exemplified in their ‘Live like a local’ campaign), which might be the reason why Airbnb guests evaluate the whole neighbourhood, while hotel guests do not reflect on this factor (Cheng & Jin, 2019; Mody *et al.*, 2019). Third, Airbnb guests perceive a unique dimension of ‘Enjoyment and homeliness’ (10%), which is solely hedonic and has no parallel in hotel experiences as perceived by guests. Finally, ‘Check in/out’ is the last unique aspect of the Airbnb experience (9%). Given the less standardised check in/out processes compared to traditional accommodations, it is logical that Airbnb guests pay attention to its smoothness and flexibility, while hotel guests do not.

Distinctive aspects of hotel experiences. The unique dimensions of the Booking.com hotel reviews are, in descending order of importance: ‘Room (dis)comfort’, ‘Services and staff’, ‘Food and drink’, and ‘Value for money’. Compared to Airbnb’s unique dimensions, these are significantly less hedonic. ‘Room

dis(comfort)', in conjunction with the common topic of the 'Room and furnishings', accounts for a quarter (26%) of the entire hotel experience, as reflected in guest reviews. Thus, the room is by far the most important element traditional accommodation guests reviewed. It stands at the centre of their experience, while the host is central to the Airbnb experience (i.e. the social value). It is unsurprising that the aspects of 'Services and staff' and 'Food and drink' are unique to hotel reviews, since Airbnb accommodations are usually self-catered and do not typically provide services, staff, or restaurants. However, the uniqueness of the 'Value for money' dimension in the hotel context was unexpected as some studies emphasise the financial motivations of Airbnb guests, with Airbnb accommodations being on average cheaper than traditional accommodations (Guttentag *et al.*, 2018; So *et al.*, 2022). Nevertheless, Airbnb guests did not evaluate price in the reviews as systematically as traditional accommodation guests did.

Common aspects of Airbnb and hotel experiences. The first common dimension, 'Overall impression', is the second most important topic in Airbnb reviews, constituting 16% of the whole corpus, and the most important topic in Booking.com hotel reviews, comprising 25% of the corpus. Thus, both Airbnb and hotel guests devote a considerable amount of review space to summing up their entire experience and making a recommendation. The second common topic is 'Transport proximity', which is of a similar level of importance for guests in both accommodation modes, albeit slightly more so for Airbnb guests (13% versus 12%). The third common topic is the 'Room and furnishings'. However, though the room is the core product consumers purchase in the context of accommodation (Xu, 2020), for Airbnb guests it is ranked only sixth in importance (9%) out of the eight dimensions they reviewed. On the contrary, for hotel guests it is the second most important dimension (13%). Regarding location, 'Attractions proximity' is also important to both Airbnb and hotel guests, though slightly more so for the latter (9% versus 12%). The reason for this discrepancy may be that Airbnb accommodations are typically dispersed over wider areas than traditional accommodations (Gyódi, 2019). Airbnb guests are probably aware of this fact and overall do not ascribe as much importance to the accommodation having a central location as traditional accommodation guests do.

Topics construction

This section addresses the distinctive features of the common aspects of Airbnb and traditional accommodation experiences in terms of their lexical construction, i.e. the language that guests used in their reference (RQ3). Although we identified four common topics in the Airbnb and hotel experiences, we found that they differ not only in their prevalence but also in their construction. The third column of Table 3 for Airbnb and Table 4 for hotels each presents the top 50 terms that construct the topics. The general topic, 'Overall impression', is in both cases a mixture of all the other topics, which itself creates a difference in its construction since both corpora have unique dimensions distinct from the common ones. When giving an overall recommendation, both Airbnb and hotel guests comment on *cleanliness*, *location*, *amenities*, and *convenience*. While Airbnb guests specifically also evaluate the *host*, the process of *check in/out*, and *worth*, hotel guests focus more on the *room*, *staff*, *food*, and *design*. In both cases, these represent a mixture of utilitarian and hedonic values.

Another common topic, 'Transport proximity', was constructed almost identically by Airbnb and hotel guests. The top nine keywords are the same in both corpora (*close*, *centre*, *minute*, *city*, *near*, *station*, *walk*, *metro*, *tram*) and both groups of guests care about the same means of transport (*metro*, *tram*, *car*, *train*). The difference is that Airbnb guests also mention transport proximity in association with words referring to food shopping (*supermarket*, *food*, *grocery*), which hotel guests do not. Instead, they mention proximity to *airport*, *pool*, and *sauna*.

The topic 'Room and furnishings' is in both cases linked to the physical features of the accommodation such as the *room*, *bathroom*, *bed*, *shower*, and *toilet*. Contrary to the findings of Xu (2020), this study

found that Airbnb guests did not provide more subjective descriptions of the room than guests of traditional accommodations. However, Airbnb guests mentioned *price* and *money* in relation to this topic, which hotel guests did not. In hotel reviews, we identified a separate topic concerning economic value, while Airbnb guests mentioned this specifically in association with the room and furnishings (Cheng & Jin, 2019).

In the 'Attractions proximity' dimension, both Airbnb and hotel guests mention the same attractions, namely typical tourist spots in Prague such as the *old town*, *charles bridge*, *river*, *castle*, and *wenceslas square*. They both also care about proximity to *bars*, *restaurants*, *views*, and *sights* in general. Airbnb guests specifically also value proximity to *cafes*.

Topic correlations

Correlations provided us with further information about the topics' constitution. Since the STM creates correlated topics, we were able to calculate the value of the Pearson correlation coefficient between individual topics (Mostafa, 2022). In the context of Airbnb, we found a moderate correlation (0.35) between the 'Host hospitality' and 'Enjoyment and homeliness' topics, meaning that in the Airbnb context, the social value is associated with the emotional and experiential value (i.e. the host is often mentioned together with the guests' feelings concerning the stay). Furthermore, the 'Host hospitality' is also important for the 'Overall impression', with a correlation coefficient of 0.5. All the other associations between topics identified in the Airbnb experience were very weak.

We found no moderate or strong correlations between the aspects of the hotel experience. Only a weak correlation (0.12) was revealed between the 'Room and furnishings' and 'Room (dis)comfort' topics, which is logical since both refer to the room, merely emphasising different aspects of it. The remaining topics do not appear together in the Booking.com reviews in a systematic way.

Topic sentiments

The sentiment analysis tackled the question of which aspects are sources of either satisfaction or dissatisfaction for guests of Airbnb versus traditional accommodations (RQ4). Both corpora of reviews were found to be positively skewed, which aligns with existing research (Bridges & Vásquez, 2018; Cheng & Jin, 2019; Thomsen & Jeong, 2021). About one-fifth (19%) of the analysed texts in both corpora are associated with positive sentiments. However, there is a considerable difference in the scope of negative sentiments. Travellers who stayed in traditional accommodations used twice the proportion of words with negative sentiments to describe their experience compared to travellers who stayed in Airbnb accommodations (4.7% versus 2.5%). Nevertheless, this result does not necessarily imply that the experience in traditional accommodations is truly more negative. Prior studies have linked the positivity bias in Airbnb reviews to the greater degree of personal interaction between guests and hosts, which tends to discourage complaints and criticisms, owing also to the lack of anonymity and the reciprocity of the Airbnb review system (Bridges & Vásquez, 2018). The remaining language of the reviews in both corpora is neutral.

Figures 9 (for the Airbnb corpus) and 10 (for the Booking.com hotel corpus) plot the proportion of positive and negative sentiments in the identified dimensions of guest experiences. The shares have been calculated based on the sum of *beta* probabilities of words associated with positive or negative sentiments. Thus, the importance of a word for a topic has been taken into the account. The sentiment analysis revealed 'Overall impression', 'Enjoyment and homeliness', 'Neighbourhood ambiance', and 'Host hospitality' to be the four topics that Airbnb guests associate the most with positive sentiments. 15% to 27% of words creating these topics are associated with positive sentiment. Concurrently, these four topics constitute the most hedonic dimensions of the Airbnb experience. The utilitarian dimensions are much less positive and tend to be neutral, for example 'Attractions proximity' and 'Transport

proximity'. Some even score relatively high for negative sentiments, for example 'Check in/out' (5% share of negative words) and 'Room and furnishings' (6% share of negative words), thus constituting the least positive dimension of the Airbnb experience. Hence, it appears that Airbnb guests are more satisfied with the hedonic dimensions and less satisfied with the utilitarian dimensions of their accommodation experience.

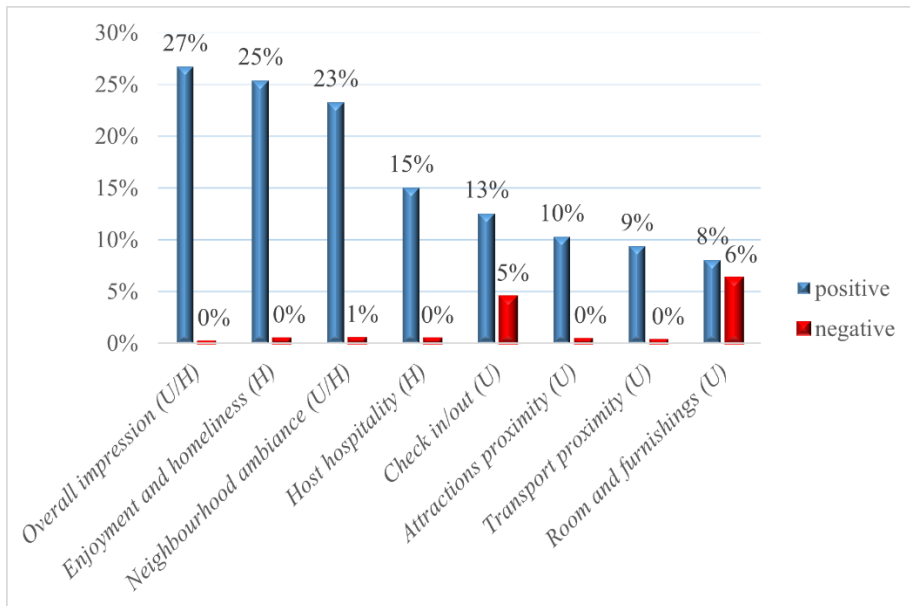


Figure 9: Shares of terms associated with positive and negative sentiments in Airbnb experience aspects

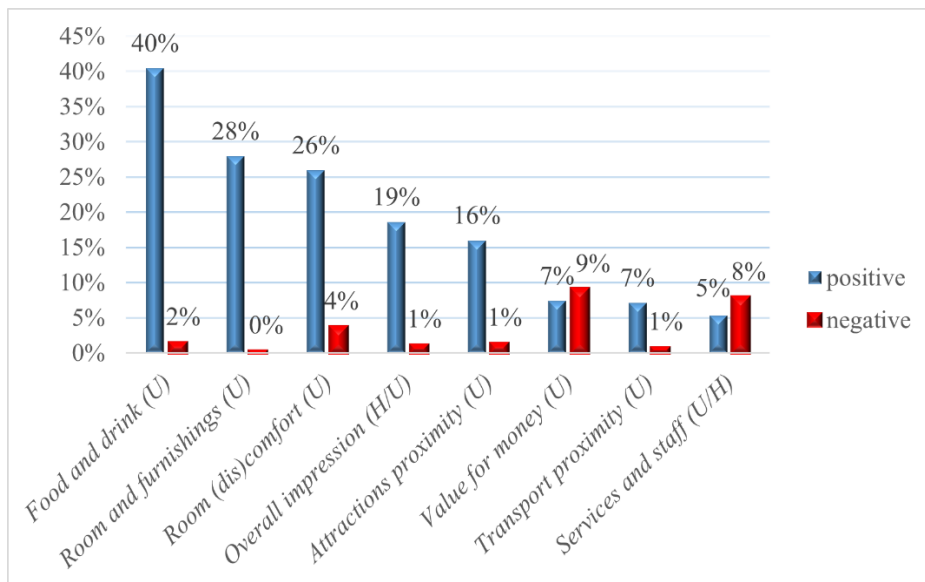


Figure 10: Share of terms associated with positive and negative sentiments in hotel experience aspects

By contrast, hotel guests expressed rather negative sentiments in relation to the partly social dimension. Regarding 'Services and staff', the proportion of negative words (8%) exceeds that of positive words (5%). Similarly, 'Value for money' elicits more negative sentiments (9%) than positive (7%). The most

positive topics for hotel guests include ‘Food and drink’, with up to 40% of words carrying a positive sentiment, followed by ‘Room and furnishings’ (28%), ‘Room (dis)comfort’ (26%), and ‘Overall impression’ (19%). ‘Attractions proximity’ is also quite positive (16% positive, 1% negative), whereas ‘Transport proximity’ is rather neutral (7% positive, 1% negative). Overall, the utilitarian aspects of traditional accommodations, such as ‘Food and drink’, ‘Room and furnishings’, and ‘Room (dis)comfort’ are the main sources of satisfaction, while the partly hedonic value of ‘Services and staff’ leaves guests feeling less satisfied.

5. Discussion and Conclusions

This study empirically compared travellers’ Airbnb and hotel experiences using the conceptual framework of utilitarian and hedonic consumption values. Our findings confirm the role of hedonic values as the distinguishing feature of the Airbnb experience crucial to travellers, which corresponds to the hedonic proposition in existing research (e.g. Belarmino *et al.*, 2019; Ju *et al.*, 2019). We further specify that hedonic values in the context of the Airbnb experience consist of social, emotional, and experiential values associated with the host, the enjoyment and homeliness of the stay, and partly with the overall impression and neighbourhood ambience. Among these dimensions of hedonic values, the host is a crucial entity and the overall most important aspect for travellers who stay in Airbnb accommodations. The authenticity of the guest/host relationship is encouraged by the fact that travellers know and very often use the hosts’ first names. Although our corpus is heavily dominated by reviews of entire places (meaning not shared), contact between travellers and hosts proves crucial, even when it is limited. Additionally, we found that the host aspect correlates with the aspects of enjoyment and homeliness in Airbnb reviews.

We further conclude that a vast part of the Airbnb experience also consists of utilitarian dimensions. Importantly, however, these do not distinguish the Airbnb experience from hotel experiences, as we identified the same set of utilitarian aspects in both Airbnb and hotel experiences. The common aspects we identified are ‘Attraction proximity’, ‘Transport proximity’, and ‘Room and furnishings’. These are not only very similar in terms of their lexical construction, but also in terms of their prevalence in the two corpora of online reviews. One significant difference is that travellers who stay in Airbnb accommodations associate ‘Value for money’ solely with the aspect of the room and no other aspects, while travellers who stay at hotels discuss money so coherently that we identified this as a separate, distinct topic. To the best of our knowledge, this set of conclusions significantly advances existing knowledge in the domain as such a complex comparison, even in terms of topic construction, has to date not been carried out.

To advance current knowledge, we also identified distinct aspects of the hotel experience in comparison to the Airbnb experience. We found these to be ‘Convenience of the room’, ‘Value for money’, ‘Services and staff’, and ‘Food and drink’, especially breakfast, which is in line with the findings of Gao *et al.* (2022). The topic ‘Value for money’ is mentioned by travellers in connection to the hotel’s number of stars, their expectations, the location, breakfast, and other factors. Interestingly, concerning ‘Services and staff’, the latter were referred to impersonally and associated mostly with the services they provided rather than with social interactions or emotions arising from the guest–staff relationship, as it was the case in the Airbnb context. It should be noted that in the hotel experience, we did not identify any solely hedonic aspects of consumption.

We further examined the sources of satisfaction and dissatisfaction in the two contexts, a perspective that has often been neglected by comparative studies to date (e.g. Mody *et al.*, 2019; Belarmino *et al.*, 2019). This approach offered stimulating conclusions: in the Airbnb experience, the main sources of satisfaction are the hedonic and mixed identified aspects of consumption (i.e. ‘Overall impression’, ‘En-

joyment and homeliness', 'Neighbourhood ambiance', and 'Host hospitality'). The main sources of dissatisfaction are the utilitarian dimensions: 'Room and furnishings' and 'Check in/out'. However, the level of reported dissatisfaction was generally low in both types of accommodations, and both sets of reviews were positively skewed, similarly to the findings of Thomsen & Jeong (2021) and Cheng and Jin (2019) that previously studied sentiments in Airbnb reviews. In the hotel accommodation experience, the main sources of satisfaction are 'Food and drink', 'Room and furnishings', 'Room (dis)comfort', and 'Overall impression'. The main sources of dissatisfaction are the aspects of 'Services and staff' and 'Value for money'.

5.1. Theoretical implications

This study extends the current knowledge on the role and construction of utilitarian and hedonic values in consumption in the contexts of peer-to-peer and traditional accommodations. First, it contributes to the body of literature in the domain of tourism and hospitality studies on peer-to-peer accommodation, its distinct aspects, and travellers' preferences (e.g. Belarmino *et al.*, 2019; Gao *et al.*, 2022; Garay-Tamajón & Morales-Pérez, 2023; Guttentag *et al.*, 2018; Cheng & Jin, 2019). As Airbnb is regarded as a disruptive innovation, the question of why travellers choose it over hotels is crucial to comprehending traveller behaviour and the changes in the accommodation industry caused by Airbnb's entry to the market (Aznar, *et al.* 2019; Purohit *et al.*, 2023; Yoo & Yoon, 2022).

Many studies have attempted to investigate the preferences of Airbnb users, mostly focusing holistically on aspects of the Airbnb experience and the motives of Airbnb users. These approaches have led to inconsistent findings, highlighting either the host and authentic local experiences or lower prices (Volz & Volgger, 2022). Gao *et al.* (2022), Yoo and Yoon (2022), and Volz and Volgger (2022) emphasised the need for comparative studies incorporating the point of reference of traditional accommodations to further develop knowledge in this field and to arrive at a more complex understanding of the uniqueness of the Airbnb experience. These studies themselves attempted to fill this gap, but only delivered fragmentary findings. Yoo and Yoon (2022) and Volz and Volgger (2022) did not choose an explorative approach, instead investigating a predefined set of attributes based on the literature. Both studies used online surveys and relied on guests' self-assessments, approaches that are prone to biases. By contrast, this study examined immediate post-consumption data in an unobtrusive way. Moreover, Volz and Volgger (2022) specifically focused on boutique hotels in comparison to Airbnb accommodations, not on hotels in general. The closest approach to this study was applied by Gao *et al.* (2022), which applied structural topic modelling to online reviews as well. Their focus lay on identifying topics that appear more in Airbnb reviews than hotel reviews. In this study, by contrast, we thoroughly investigated not only the different prevalence of topics in both Airbnb and traditional accommodations but also their constitution. We moreover focused not only on the differences in the common topics but also identified the unique aspects of both Airbnb and traditional accommodation experiences.

Furthermore, our investigations were guided by the theoretical framework of utilitarian and hedonic values. Scant research has focused on what constitutes utilitarian and hedonic consumption values in accommodation, how they differ in peer-to-peer and traditional accommodations, and how they affect travellers' satisfaction and dissatisfaction in these two contexts. Nevertheless, utilitarian and hedonic values are considered a critical source of competitive advantage and reflect consumer preferences and satisfaction (Akhmedova *et al.*, 2021; Woodruff, 1997). Filling in these gaps, the present study also contributes to the literature on utilitarian and hedonic values in consumption (e.g. Babin *et al.*, 1994; Hirschmann & Holbrook, 1982; Sánchez-Franco *et al.*, 2021; Tsou *et al.*, 2019; Volz & Volgger, 2022) and provides explorative findings relevant for future conceptualisations of hedonic and utilitarian values specifically in hospitality research, which are still lacking (Li *et al.*, 2021). In addition, hedonic and utilitarian values have been subject to extensive debate within the broader context of the transition from mass to individualised consumption (Akhmedova *et al.*, 2021; Babakaev *et al.*, 2019). This study serves

as a pertinent contribution to this discourse, considering hotels as representatives of mass consumption and Airbnb as epitomising individualised consumption. From a methodological perspective, our study demonstrates the relevance of online reviews for utilitarian and hedonic values examinations and proves the usefulness of structural topic modelling and sentiment analysis in order to process textual online reviews and extract insights into the consumption experience.

5.2. Managerial contributions

The conclusions of this study have significant practical implications for Airbnb managers and practitioners as well as for hotel representatives. First, our findings are useful for the development of strategies to create and promote experiences that are both well designed and marketed. Furthermore, our study identified the main sources of satisfaction and dissatisfaction in Airbnb and hotel experiences and thereby provides guidance on the strengths of the respective type of accommodations as well as the aspects in need of improvement.

One practical implication of our findings is that social value should be at the centre of Airbnb's communications and listings directed at travellers. In online reviews of Airbnb accommodations, travellers care mostly about host hospitality, often using hosts' first names when referring to them, which indicates that the personal touch of the Airbnb experience suits them. For Airbnb practitioners, it might be relevant to know that the appreciated characteristics of a host are responsiveness, friendliness, and informativeness. On the other hand, the social value has been found to be one of the main weaknesses of hotel experiences. We suggest that hotels pay attention to improving the guest-staff relationship. The most frequent complaints are rudeness, not speaking English, and long waiting times. The staff and services provided by hotels have been revealed as the main source of dissatisfaction among hotel guests. Our other findings also confirm the importance and distinctiveness of hedonic values in the Airbnb experience compared to hotel experiences. The aspect of the host was found to be associated with other hedonic categories, such as homeliness and enjoyment. Next to the social value, these aspects are one of the main sources of satisfaction among Airbnb guests. Creating a home feeling and feelings of enjoyment is crucial to these guests. Furthermore, Airbnb guests also reflect on the wider surroundings of the neighbourhood and its ambiance. In this respect, however, not only hedonic values play a role; guests do not only want to feel cosy and comfortable in their surrounding area, they also want it to be clean, quiet, and conveniently located. These practical attributes might therefore also be considered in Airbnb listings' strategic communication.

While the main competitive edge of Airbnb accommodations are hedonic values, for hotel accommodations it is the room, specifically its furnishings and comfort. Both the standard and extra features of a room are significant sources of satisfaction among hotel guests. It must be emphasised that at the same time, the room was found to be the main dissatisfier in Airbnb accommodations, and thus their biggest weakness. In their reviews, hotel guests also paid much more attention to the room in comparison to Airbnb guests.

Another advantage of hotel accommodations over Airbnb is the standardised process of checking in and out. This should be paid attention to in the Airbnb context as it proved to be the second main source of guest dissatisfaction. The hotels' next significant advantage and the main source of satisfaction for their guests is the provision of food and drink in hotel restaurants, especially breakfast. Regarding food and drink, hotels should focus on a large selection, freshness, and taste, which are the most appreciated qualities by guests. Lastly, both Airbnb and hotel guests place a lot of importance on practicalities such as transport proximity and attractions proximity, meaning that the centrality of an accommodation is crucial in both contexts.

6. Limitations and Future Research

As is the case with any research, this study has certain limitations. First, although our data cover a new geographical context, they are still only drawn from one city. More destinations therefore need to be covered to help generalise and validate the findings. Our results might be specific to Prague, Czechia. Second, we used Airbnb and Booking.com platforms as representatives of peer-to-peer accommodation and traditional accommodation, respectively. However, future research might focus on other platforms (e. g. HomeAway, TripAdvisor), since the chosen platforms could potentially skew the dimensions by which guests describe their perceived consumption experiences. Third, we analysed reviews in the English language only. Future studies might focus on other languages and compare the results (Zhu *et al.*, 2019). Fourth, our data were collected prior to the COVID-19 pandemic and cover the time period from 2017 to 2019. Future possible research directions might include a comparison of the peer-to-peer and traditional accommodation experience before, during, and after the pandemic. According to Adamiak (2023), the pandemic had different effects on peer-to-peer and traditional segments of accommodation. Finally, we did not differentiate between entire domiciles, shared apartments, and shared rooms on Airbnb. The reason was that the vast majority of our reviews related to entire domiciles; however, as showed by Xu (2020) and Lee (2022), taking the type of accommodation into account might yield different insights. Based on our study, a possible research direction in the future might involve developing and validating a scale for hedonic and utilitarian consumer value measurements for the specific context of peer-to-peer accommodation. We attempted to reveal how hedonic, mixed, and utilitarian values are constructed in this novel context. A further qualitative study would also be useful for achieving a deeper understanding of the possible influences on reviewers when writing their reviews – for example, previous reviews, the effects of a specific platform, or the guest–host relationship.

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