Article

Analysing Drivers and Barriers of Accommodation Sharing in Dubai Using the Grey-DEMATEL Approach

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Abstract: The continuous growth of the sharing economy has the potential to transform the competition in the accommodation sector. At present, research on accommodation sharing is scarce. This paper identifies drivers and barriers to accommodation sharing in Dubai. Taking into account different viewpoints of accommodation sharing professionals in Dubai and the grey-based Decision-Making Trial and Evaluation Laboratory (DEMATEL) method, this study singles out the essential drivers and barriers and examines the cause and effect connections between them. The process starts with a review of the existing accommodation sharing literature and the feedback from the industry experts to identify the drivers and barriers. Then, the elaboration of the questionnaire, data collection from five experts, data analysis with grey-based DEMATEL, and the sensitivity analysis follow. The lower costs, higher value, ease of use, wealth of available information, and contributions to the development of the local economy and residents are the most influential drivers of accommodation sharing in Dubai. The difficulties related to learning and using new technology along with insufficient or underdeveloped accommodation sharing legislation are the most critical barriers. The paper ends with implications for the stakeholders, limitations, and future directions for research on accommodation sharing.

Keywords: accommodation sharing; drivers; barriers; DEMATEL; Dubai

1. Introduction

The accommodation sharing sector is evolving at a tremendous speed, mostly independently. In 2017, Mastercard examined the sector and its total transactions in an independent study. The results showed a value of approximately US$75 billion, set to double by 2020 to US$139 billion [1]. According to a report by the World Economic Forum by 2025, short-term rentals will increase from 7% (present value) to 17% of the annual revenues of the global hotel sector [2].

According to the European Commission, the total revenue from sharing economy platforms and hosts in the European Union was €28 billion in 2015 [3]. The tourism-related sectors, especially transportation and accommodation, generated the greatest part of the revenue. These sectors have been expanding since 2013. In particular, since 2015 some accommodation sharing giants have expanded their operations into the European market.

Based on a 2016 study by the European Parliament, the hypothetical maximum economic benefit from a more efficient use of resources by the sharing economy could reach €572 billion per year across the European Union [4]. However, many barriers might affect the estimated results by the European Parliament, especially restrictive legislation.

According to a 2016 Eurobarometer survey, more than half of the respondents knew about the sharing economy services, and 17% used at least once the services offered by a sharing economy
platform. Twenty-seven percent of respondents who showed the highest probability of using these platforms were aged between 25 and 39 years, and had finished their education [5].

In recent years, driven by technology innovation and the government’s favourable policies, Dubai’s shared accommodation industry has been evolving quickly, and the development mode is gradually maturing. The Dubai accommodation sharing market expanded after April 2016, when new regulations allowed the short-term rental of residential homes [6]. The number of Dubai Airbnb listings surpassed 20,000 in 2018. Of the total number of households in Dubai, 2% formed part of the holiday home market in 2018 [7]. This is the highest proportion compared to other global hubs. In Paris, the ratio of the listings on Airbnb to the total number of households is only 0.8 percent, while in New York it is only 1.2 percent. In 2018, more than 60% of active Dubai Airbnb listings were for entire apartments or villas, 31% for private rooms, and 8% for shared rooms. The hosts from Dubai Marina, Palm Jumeirah, Jumeirah Beach Residence, Downtown Dubai, and the Dubai International Financial Centre supplied most of the holiday apartments [8]. Landlords who participate in accommodation sharing are young and highly educated. Sharing of accommodation creates flexible employment and entrepreneurship opportunities.

According to analysts, to satisfy the growing demand of 20 million visitors by 2020 Dubai will have to provide a wide range of accommodation including not only five-star hotels but also affordable apartments and villas in less glamorous locations all over the emirate [9].

The original roots of accommodation sharing are resource efficiency, sustainability, and community building [10]. Countries and cities are becoming more proactive in terms of regulation and the harnessing of local economies [11,12]. However, there is no fully integrated strategy that can tackle all the existing challenges of accommodation sharing [13,14]. The most significant part of the existing research revolves around accommodation sharing in China, Europe, and the United States [15,16] and there are no studies focused on the Middle East, specifically on the drivers and barriers to accommodation sharing in this region. This study aims to fill this gap.

This paper identifies drivers and barriers for accommodation sharing considering different stakeholders. Using data collected from experienced hosts of Airbnb Dubai, we seek to determine the primary drivers and barriers. We examine the relationships between the drivers and barriers with the grey-based Decision-Making Trial and Evaluation Laboratory (DEMATEL) method.

The DEMATEL method has three steps. The first is to set up a grey pairwise influence scale for comparisons and set a five-level scale in the questionnaire. The second step is to generate a crisp direct-relation matrix for each respondent by asking them to compare in pairs the accommodation sharing drivers and barriers and obtain a grey direct-relation matrix. The final step involves the prominence-causal digraph and analysis of the sensitivity of the results by altering the value of the importance weights of the respondents. The findings are valuable for decision-makers in Dubai. Additionally, they can stimulate other Arab nations to adopt constructive regulations and policies and apply new practices to develop the accommodation sharing sector.

Following the brief introduction, in Section 2 we expand on the background of accommodation sharing and develop the main drivers and barriers based on the research literature and industry practitioners. In Section 3 we provide more information on the acquisition of data and the grey-based DEMATEL approach. We show, analyse, and discuss the results in Section 4. Finally, in Section 5 we offer a summary of the main findings and implications of the study.

2. Background, Drivers, and Barriers

2.1. Background of Accommodation Sharing

Driven by a myriad of social, economic, and technological factors, the sharing economy model is spreading all over the world [17–19]. Consumer concerns about social relations and sustainable consumption are two driving factors of the sharing economy mentioned in the scientific literature [20,21]. Due to increasing awareness of the negative impacts of the consumption habits, people are changing their
preferences and shifting to eco-friendly and socially responsible consumption [22]. The sharing economy increases the usage rate of current resources and reduces the investments into new development projects such as hotels, which in turn result in cost savings and a less negative environmental impact. According to Belk [23], one of the primary drivers of the sharing economy is a person’s attitude towards consumption. Due to more efficient sharing practices enabled by technology, buying and owning become less critical. The temporary access to goods and services becomes more appealing to customers as opposed to ownership [24]. According to Owyang et al., the most important economic driver of the sharing economy is the financial flexibility associated with non-ownership [25]. Finally, technology is regarded as the third major driver behind the sharing economy. Mobile technologies, online communications, social media, and developments in Information and Communications Technologies, including payment systems, have all made possible the wider adoption of a sharing economy on a global scale [23].

Researchers found that the benefits provided by the sharing economy represent a significant factor that influences consumers choices. Therefore, people engage in the sharing economy not only for the sake of sharing but in fact mainly for its benefits [26]. Often, consumer motivations and the benefits of engaging in the sharing economy are very hard to distinguish or almost impossible to separate [27]. The existing sharing economy research suggests three types of influencing factors but does not offer enough information related to the importance of their mutual influence [25].

According to Hamari et al. [17], the sustainability, economic gains, and enjoyment of engaging in the sharing activities are strong motivations in favour of collaborative consumption. Not everyone regards sustainability as sufficient motivation to join in sharing economy [18].

The debates on the concept of sharing economy and its sub concepts are evolving fast mainly due to its misunderstood “novelty” and the “socially-progressive feel-good rhetoric” [28]. According to Frenken et al. [29], the sharing economy has three sub concepts (on-demand economy, second-hand economy, and product-service economy), and three elemental characteristics (consumer to consumer interaction, physical goods, and temporary access).

According to Ertz et al. [30], collaborative consumption, also known as the sharing economy, is “the set of resource circulation systems which enable consumers to both obtain and provide, temporarily or permanently, valuable resources or services through direct interaction with other consumers or through a mediator”. Collaborative consumption involves delegation, empowerment, and quasi-empowerment, and consumers can switch their role from those who obtain to those who provide [30]. Furthermore, combining or using interchangeably “collaborative consumption” and “socially responsible consumption” is still debatable, mainly due to the differences in consumer behaviour [31].

The scholars who aim to promote the broad sense of this concept include peer-to-peer, business-to-peer, and other mechanisms [32]. According to Acquier et al. [33] the sharing economy has three foundational cores: “(1) Access economy, (2) Platform economy, and (3) Community-based economy”. The sharing economy refers to various types of assets to be shared while accommodation sharing refers only to the spaces (rooms, flats, houses, etc.) [11,34]. For this study, we define accommodation sharing as an economic model based on sharing underutilized spaces and making them accessible online to a community, for a fee or for free, without a transfer of ownership, leading to usage optimization.

Tussaydiah and Pesonen found that in tourists’ travel patterns, social and economic factors influence their participation in different activities and directly increase the length of stay [35]. Although there is a multitude of accommodation types available for tourists (hotel, hostel, chalets, cottages, friends, relatives, free accommodation), accommodation sharing services such as Airbnb are continually beating the competition. Thus, it is vital to understand the most influential factors when selecting the accommodation sharing option.

Kim et al. and Sohrabi et al. [36,37] examined and explained the factors that influence the consumers’ choice of hotels. According to Wong and Chi-Yung [38], the highest-ranking factors were
room price and type, service quality, hotel location, and brand reputation. Their studies did not make a comparison between consumer’s preferences for hotels and other accommodation types.

According to Guttentag [39], Airbnb’s weak point compared to the traditional options offered by hotels is the lack of many additional benefits (brand reputation, service quality, and security). Better prices and the immersion into local communities and culture are the main benefits provided by accommodation sharing [40,41].

According to Wang and Yeoman at al., the search for authenticity is trending in the tourism sector, and mass tourism is getting less space to accommodate this [42,43]. Many scholars found that more and more tourists are looking for authentic, genuine, and memorable experiences [44–46]. According to Lashley et al. [47], the hospitable behaviour driven by economic and competitive gains is making commercial hospitality inhospitable. Genuine local human contact and the hosts’ desire to please and to welcome others drives tourists to choose accommodation sharing [18,41].

Consumers, who view themselves as travellers more than tourists, tend to prefer the authentic experiences and very often form meaningful relationships with the hosts engaged in accommodation sharing. This enables travellers to discover more destination resources and add value to their stay [48].

2.2. Drivers and Barriers of Accommodation Sharing

As recommended by various management science scholars, we used the systematic literature review approach for this study [49,50]. Given the full access to the bibliometric information of each published article in the leading scientific journals starting from 1945, we utilized the database “Web of Science™ Core Collection” [51,52]. As suggested by Lockett et al. [53], we selected only peer-reviewed articles on the grounds of research quality and knowledge endorsement.

We used the following search “TOPIC: (accommodation) AND (sharing*) OR (peer-to-peer) OR (peer to peer*) OR (P2P)”. The search output was 1025 items published during a period of 40 years between 1978 and 2018. We narrowed the results to English-language only “ARTICLE” and “REVIEW” items. We excluded the proceeding papers, book reviews, editorials, news, letters, meeting abstracts, corrections, notes, and papers without authors. This iteration reduced the number of items to 843.

In the Web of Science™, an item can be attributed to more than one research area. Table 1 presents the ten main research areas and the number of items from the 843-paper dataset.

| Research Area                        | Paper Quantity | Research Area               | Paper Quantity |
|--------------------------------------|----------------|------------------------------|----------------|
| Economics                            | 323            | Urban Studies                | 67             |
| Environmental Studies                | 143            | Business                     | 57             |
| Management                           | 82             | Geography                    | 49             |
| Hospitality Leisure Sport Tourism    | 75             | Business Finance             | 46             |
| Environmental Sciences               | 71             | Political Science            | 44             |

The 1784 authors of the 843 selected articles affiliate to at least one organization. We generated the accommodation sharing research map using the location of the institutions and the service OpenHeatMap [54]. The colour range, from light grey to dark blue, indicates the contribution size per country (see Figure 1).

Scholars from the United States of America, United Kingdom, Canada, China, Germany, Spain, and Australia published more than a half of all the selected papers. Wu J., Weber t. A., Tussyadiah I. P., Dobbelare S., Yang Y., Van Kooten G. C., Ronald R., Piscicelli L., Matthiasson T., and Mairesse J. are the most prolific researchers of accommodation sharing.

Further, we identified the most relevant articles in the field of accommodation sharing with the HAMMER Network Analysis Interface for Literature Studies [55–57]. Considering the key principles of the stakeholder theory we analysed the content of these articles.
2.2.1. Drivers of Accommodation Sharing

After analysing the scientific papers and consulting the academic and industry experts, we developed seven drivers of accommodation sharing (see Table 2). Experts with professional knowledge and experience in management and accommodation were interviewed for this study, and included Airbnb Superhosts, management scholars, and officials from the Department of Tourism and Commerce Marketing of Dubai. The discussions took between 40 to 90 min.

The traditional models of selling stand-alone products are replaced by the empowerment of users to participate in collective value creation [58,59]. The service-oriented, especially hospitality and tourism firms, are starting to adopt this model because, in the sharing economy, the consumers are the source of suppliers and end-users.

Given that in mass consumption, the particular needs of the consumers are not taken into consideration, they have a limited influence on the design and nature of the service or product. As opposed to that, customized solutions (like Airbnb) include a mix of flexible elements and resources that can suit the specific needs of divergent types of consumers. In sharing economies, the knowledge of consumer consumption behaviour, including synergy-generating practices, determine the actions and strategies for hospitality and tourism product positioning [60–62].

Table 2. Drivers for accommodation sharing.

| Drivers | Description |
|---------|-------------|
| D1: Lower costs and higher value are associated with accommodation sharing [15,22,39,63–66] |
| D2: Sharing accommodation increases the usage rate of existing products and reduces the use of raw materials associated with the manufacturing of the new products [17,18,22,67–71] |
| D3: Accommodation sharing contributes to the development of the local economy and supports the residents [17,62,68,72–77] |
| D4: Accommodation sharing positively influences the creation of social relationships and helps to build community [15,72–74,78,79] |
| D5: Taking part in accommodation sharing is agreeable [15,35,66,80–83] |
| D6: The accommodation sharing system is user-friendly and highly informative [11,60,84,85] |
| D7: Innovative technologies and social media greatly influence the adoption of accommodation sharing [15,23,66,86] |

Driven by rising environmental awareness and in order to have a more sustainable society people seek ways to increase the efficient use of their resources [63,87,88].
According to the resource redistribution approach, efficiently deploying excess capacity of resources enhances sustainability. Collaborative consumption reduces the development and production of new products and the consumption of raw materials; thus, it can reduce the harmful impact on the environment [22,88–91]. Consumers who are more partial to greener consumption can manifest their sustainable behaviour and contribute to sustainable living through collaborative consumption [88].

Collaborative consumption, especially direct peer-to-peer interaction and personal experience sharing, allows clients and hosts to forge strong social connections [79]. Participants in collaborative consumption can make new friends and enrich their personal lives [29,92].

Germann Molz [76,93] defined the network hospitality as the manner in which people “connect to one another using online networking systems, as well as to the kinds of relationships they perform when they meet each other offline and face to face”. In the accommodation sharing business, hospitality is vital to the customer’s experience; however, it differs from the professional hospitality specific to hotels and tourism businesses [94,95]. The accommodation sharing system allows travellers to connect to local communities by fostering direct interactions between hosts and guests [39,96,97]. According to Albinson and Perera [87], the sense of community is a driver and also an outcome of the collaborative consumption.

2.2.2. Barriers to Accommodation Sharing

After analysing the scientific papers and consulting the academic and industry experts, we determined five barriers (see Table 3).

A vital element of collaborative consumption is the trust between the participants [22,98,99]. In the case of accommodation sharing, this implies thinking that it is safe to share the guest room with a stranger temporarily.

According to Keymolen [100] and Hawlitschek et al. [101], information and communication technology adds to the complexities of the trust relationship between the participants in the collaborative consumption. In the case of collaborative commerce, the companies’ willingness to participate is significantly motivated by the mediating role of the technology [15,102]. Lack of trust between the participants (guests, hosts, company) or toward the technologies supporting accommodation sharing can also be a barrier to accommodation sharing [15,23,66,86].

Lack of trust as a barrier for collaborative consumption could manifest at various levels of interaction, between buyers and sellers, between users and technology, and between users and company or even regulatory bodies [15,23,66,86].

| Table 3. Barriers to accommodation sharing. |
|------------------------------------------------|
| **Barriers** | |
| B1: Lack of trust between the participants (guests, hosts, company) or toward the technologies supporting accommodation sharing [15,23,66,86] | |
| B2: Doubts regarding accommodation sharing services and product quality and related benefits or losses [15,22,39,63–66] | |
| B3: Insufficient cost savings due to high prices [15,35,101,102] | |
| B4: Taking part in accommodation sharing involves understanding how to use new platforms and technologies [15,23,66,86] | |
| B5: Insufficient or underdeveloped legislation regarding accommodation sharing [103–105] | |

The perceived utility of collaborative consumption could also be a barrier. According to Bardhi and Eckhardt [24], people engage in collaborative consumption because they can obtain the desired service or product at a lower price. According to a study on motion picture file-sharing systems, the benefits that customers receive from engaging in the sharing activities outweigh the cost [106]. Therefore, we can conclude that the lack of cost savings could be a barrier for engaging in sharing activities, including accommodation sharing. Olson [98] and Priporar et al. [107] argue that poor quality of products and services could also dissuade consumers from engaging in accommodation sharing.
Collaborative consumption is influenced by various features of information and communication technology. For example, the ease of use and trialability [108] and the complexity of the e-commerce systems could motivate or stop many users from engaging and interacting online [109,110]. However, if the technology systems are too intricate, consumers will not take part in collaborative consumption [15,111–113]. Therefore, if the technology is not efficient and does not serve the goals of the customers, consumers will refrain from using accommodation sharing platforms.

2.3. Gap Analysis and Research Highlights

Following the systematic review and content analysis of accommodation sharing literature, we learned that no scholar had examined the status of accommodation sharing in Dubai. The largest part of the studies revolve around particular areas of accommodation sharing in China, Europe and the United States [15,16]. Trenz [111] examined several factors and their influence on the sharing economy and accommodation sharing. The number of hosts, listings, and users in the Dubai sharing ecosystem is constantly increasing. However, no researcher examined the drivers and barriers to accommodation sharing in this emirate. This study aims to fill this gap.

We analysed the drivers and barriers to accommodation sharing in Dubai with the grey-DEMATEL approach. After examining the relationships among the drivers and barriers, we pointed out the crucial ones. Below are the focal points of this study:

- Highlighting and developing drivers and barriers for accommodation sharing based on the existing literature and the feedback of experienced professionals.
- Examining and determining the crucial drivers and barriers for accommodation sharing with the insight of five expert hosts.
- Comparing the results of this study to the existing accommodation sharing research and validating them with feedback from practitioners.

3. Methodology

3.1. Grey-Based Decision-Making Trial and Evaluation Laboratory Approach

The authors of the decision-making trial and evaluation laboratory approach are the researchers from the Geneva Research Centre of the Battelle Memorial Institute [114,115]. With DEMATEL, we can examine the causal and effect relationships between a set of factors and identify the important ones. The results can be visualized in a diagram [116–119]. This approach is used by scholars in management science, including environmental management and financial management [120–124].

The shortcomings of DEMATEL are incomplete information, uncertainty, and subjective evaluation [125,126]. To overcome them, the grey system theory [127] can be combined with DEMATEL [116,117,128]. The main advantage of the grey systems is that they provide viable results with limited data [116,129–132]. For this study, we used the combined grey system theory with DEMATEL approach.

We adopted a three-step approach to identify the most important drivers and barriers to accommodation sharing in Dubai. The creation of the pairwise grey scale for comparison was the first step [117,120,133]. Based on previous research, we set up a scale with five levels for the questionnaire (see Table 4).

The second step was the creation of the direct-relation matrix based on the answers of each evaluator. The evaluators were asked to compare in pairs each accommodation sharing driver and barrier, respectively, using the scale in Table 4. Consistent with existing studies [117,119], we worked with the grey scale, converting data into crisp scores. Then, we generated a crisp matrix for each respondent by normalizing the grey direct-relation matrix.
Table 4. The linguistic scales for the importance weight of respondents.

| Linguistic Terms       | Values |
|------------------------|--------|
| No influence (N)       | 0      |
| Very low influence (VL)| 1      |
| Low influence (L)      | 2      |
| High influence (H)     | 3      |
| Very high influence (VH)| 4     |

The third step was the creation of the prominence-causal digraph and the sensitivity analysis. Similar to other researchers [120,133,134], we interviewed five experts and assigned different importance weights based on their knowledge, experience, and roles in the accommodation sharing sector. Then we generated the crisp overall matrix with weighted averages. After that, we normalized the direct-relation matrix, and we created the total-relation matrix for all five experts. Based on the total-relation matrix, we generated the prominence-causal digraph. To analyse the sensitivity of the results, we changed the weight of the importance of each evaluator, generated prominence-causal digraphs for each case and compared them.

3.2. Data Acquisition

Selecting hosts in Dubai was the first step of the data acquisition process. We selected Dubai for two clear reasons. First, Dubai and Abu Dhabi are the best cities to live in the Middle East based on six parameters: online recommendations; the quality of city’s natural and built environment; attractions and infrastructure; thriving business sector entrepreneurialism; immigration rate and diversity of the city; and the arts, culture, entertainment, and culinary scene in the city [135]. According to Euromonitor International’s Top 100 City Destinations 2018 for most attractive cities to international tourists, Dubai stood in the 7th position, surpassing New York, Kuala Lumpur, and many other European and American cities [136]. Second, Dubai aims to accommodate 20 million visitors in 2020 for the World Expo [137,138].

On the Airbnb platform, a host with a 4.8 or higher average rating with at least ten stays, with fewer than 1% cancellations for the last 12 months and a 90% response to the messages within 24 h can receive a Superhost status [139]. Between 1 and 30 June 2019 we contacted 43 Superhosts from Dubai. As respondents, we selected the five Superhosts who had the most extensive experience in the rental/accommodation industry (see Table 5). Response to the questionnaires took between 40 to 80 min.

Table 5. Background of organizations and evaluators.

| Number | Level on Airbnb Dubai | Experience on the Airbnb Platform | Experience in the Rental/Accommodation Industry | Type of Host                  | Number of Properties for Rent |
|--------|------------------------|-----------------------------------|-----------------------------------------------|------------------------------|-------------------------------|
| 1      | Superhost              | 2 years                           | 10 years                                      | Private owner                | 2                             |
| 2      | Superhost              | 2 years                           | 8 years                                       | Private owner                | 3                             |
| 3      | Superhost              | 2 years                           | 8 years                                       | Private owner                | 2                             |
| 4      | Superhost              | 2 years                           | 15 years                                      | Private owner                | 6                             |
| 5      | Superhost              | 2 years                           | 11 years                                      | Limited Liability Company    | 9                             |

4. Results and Discussion

4.1. Results

The pairwise influence matrices of the five evaluators are presented in the Tables A1–A5 and A8–A12. In our study, each evaluator received equal importance weights (0.2) because they have the same level of management and experience with Airbnb in Dubai. We performed the above-mentioned
steps of the DEMATEL approach in Section 3.1, as recommended by other scholars [120,140,141], with MATLAB software. Tables A6, A7, A13 and A14 contain the results of the iterations.

The prominence value (R+D) equals the sum of causal influence (R) and effect influence (D) of each driver and barrier, respectively. The more the driver or barrier influences the rest of the drivers or barriers, respectively, the higher will be its net-cause effect. If the net-cause effect of one driver or barrier is a positive value, then this driver or barrier is vital to another driver or barrier. The total prominence-causal interconnections of all seven drivers and five barriers, respectively, are presented in Figures 2 and 3.

By summing one standard deviation and the mean, we set the benchmark 1.1301 (θ = 0.9798 + 0.1503 = 1.1301) for accommodation sharing drivers and 1.9931 (θ = 1.6858 + 0.3073 = 1.9931) for the barriers to show essential relationships. The values of the total-relation matrix for the accommodation sharing drivers and barriers are presented in Tables 6 and 7, respectively.

### Table 6. Total relation matrix for accommodation sharing drivers.

| Driver | D1   | D2   | D3   | D4   | D5   | D6   | D7   |
|--------|------|------|------|------|------|------|------|
| D1     | 0.9627 | 1.2047 | 1.1031 | 1.1181 | 1.1123 | 1.1108 | 1.0944 |
| D2     | 0.7168 | 0.6334 | 0.6481 | 0.6355 | 0.6425 | 0.6462 | 0.6834 |
| D3     | 1.0164 | 1.1315 | 0.8887 | 1.0500 | 1.0377 | 1.0233 | 1.0269 |
| D4     | 0.9792 | 1.0637 | 0.9807 | 0.8673 | 1.0158 | 0.9946 | 0.9770 |
| D5     | 1.0136 | 1.1078 | 1.0141 | 1.0280 | 0.8951 | 1.0215 | 1.0181 |
| D6     | 1.0684 | 1.1685 | 1.0758 | 1.0911 | 1.0921 | 0.9436 | 1.1011 |
| D7     | 0.9885 | 1.1017 | 0.9883 | 1.0155 | 1.0168 | 1.0163 | 0.8797 |

### Table 7. Total relation matrix for accommodation sharing barriers.

| Barrier | B1   | B2   | B3   | B4   | B5   |
|---------|------|------|------|------|------|
| B1      | 1.9482 | 2.1986 | 1.9076 | 1.6633 | 1.5209 |
| B2      | 2.0963 | 1.9080 | 1.8764 | 1.6088 | 1.3874 |
| B3      | 1.8939 | 1.9334 | 1.4871 | 1.3818 | 1.2581 |
| B4      | 2.0179 | 2.0717 | 1.8341 | 1.3762 | 1.3404 |
| B5      | 1.7735 | 1.8008 | 1.4985 | 1.2983 | 1.0641 |

The values of the prominence and net cause-effect of the drivers and barriers for accommodation sharing in Dubai are presented in Tables 8 and 9, respectively.

### Table 8. The aggregated values of prominence and net cause/effect for accommodation sharing drivers.

| Driver | R Sum  | D Sum  | R+D    | R-D    |
|--------|--------|--------|--------|--------|
| D1     | 7.7060 | 6.7454 | 14.4514 | 0.9606 |
| D2     | 4.6059 | 7.4113 | 12.0172 | −2.8054 |
| D3     | 7.1747 | 6.9989 | 13.8736 | 0.4757 |
| D4     | 6.8784 | 6.8055 | 13.6839 | 0.0729 |
| D5     | 7.0981 | 6.8124 | 13.9105 | 0.2857 |
| D6     | 7.5405 | 6.7563 | 14.2967 | 0.7842 |
| D7     | 7.0067 | 6.7805 | 13.7872 | 0.2262 |

### Table 9. The aggregated values of prominence and net cause/effect for accommodation sharing barriers.

| Barrier | R Sum  | D Sum  | R+D    | R-D    |
|---------|--------|--------|--------|--------|
| B1      | 9.2385 | 9.7298 | 18.9683 | −0.4912 |
| B2      | 8.8769 | 9.9125 | 18.7894 | −1.0356 |
| B3      | 7.9544 | 8.6038 | 16.5582 | −0.6493 |
| B4      | 8.6403 | 7.3284 | 15.9687 | 1.3119 |
| B5      | 7.4352 | 6.5709 | 14.0061 | 0.8642 |
The first driver (D1: Lower costs and higher value are associated with accommodation sharing) has the largest prominence value (14.4514) and also the highest net cause/effect value (0.9606). The first barrier (B1: Lack of trust between the participants (guests, hosts, company) or toward the technologies supporting accommodation sharing) has the strongest prominence value (18.9683) and the fourth barrier (B4: Taking part in accommodation sharing involves understanding how to use new platforms and technologies) has the largest net cause/effect value (1.3119).

As recommended by previous studies [116,117,120,133], to evaluate the robustness of the results and to exclude a possible bias related to assigned importance weight we ran a sensitivity analysis. We selected the most important evaluator based on his characteristics and changed his weight for the sensitivity analysis. The obtained cause and effect digraphs are presented in Figures A1–A8. Although the weights changed the results remained almost identical. We can conclude that there is no issue with bias related to the assignment of weights for each evaluator.

4.2. Discussion of Results

4.2.1. Discussion of Results for Accommodation Sharing Drivers

The essential accommodation sharing drivers, according to the results obtained by applying the grey-DEMATEL approach, are a1 > a6 > a3 > a5 > a7 > a4 (see Figure 2). The causal factors a1 (D1: Lower costs and higher value are associated with accommodation sharing) and a6 (D6: The accommodation sharing system is user-friendly and highly informative) are the leaders of the cause group. Consequently, the first and sixth drivers are the primary causal factors. We presented the results to the high-rated hosts on Airbnb Dubai, and they confirmed them as essential drivers. During preceding interviews, experienced hosts stated that the lower costs, higher value, platform usability, and informational capabilities are the core of accommodation sharing. Consistent between American and Finnish travellers and Dubai hosts, the drivers of accommodation sharing are related to cost savings and positive social outcome.

![Figure 2](image_url)

**Figure 2.** The aggregated prominence-causal Decision-Making Trial and Evaluation Laboratory (DEMATEL) diagram for accommodation sharing drivers.

The third critical driver (D3: Sharing accommodation contributes to the development of the local economy and support the residents) and the fifth (D5: Taking part in accommodation sharing is agreeable) relate to the wellbeing of the participant in the sharing economy both from an economic and a psychological perspective. The fifth driver (D5: Taking part in accommodation sharing is
agreeable), the seventh (D7: Innovative technologies and social media greatly influence the adoption of accommodation sharing), and the fourth driver (D4: Sharing accommodation positively influences the creation of social relationships and helps to build community) are also causal factors.

Satisfaction and network possibilities influence the attitude and the willingness to use of the customers. The economic benefits, social relations, sustainability concerns, and network possibilities impact the attitude and intention to use of the hosts [10]. These features form the basis of the development and growth of the accommodation sharing platforms like Airbnb [23].

As shown in Figure 2, only a2 (D2: Accommodation sharing increases the usage rate of existing products and reduces the use of raw materials associated with the manufacturing of the new products) is an effect factor. Four causal factors influence a2: a1, a6, a3, and a4. This shows that lower costs, higher value, accommodation sharing system accessibility and wealth of information, and social relationships and community building mixed with accommodation sharing can help consumers act consciously and reduce the amount of environmental harm associated with the production and consumption of new goods and services. According to Sung et al. and Bellotti et al. [34], providers also consider sustainability together with societal and economic implications as active drivers of accommodation sharing adoption. The World Bank and European Commission presented similar findings in their reports concerning the environmental benefits of accommodation sharing [142,143]. The Internet of Things and the Blockchain are the main technologies expected to influence the future of accommodation sharing [101,144]. For the next ten years, the sharing economy will continue to grow, and sustainability issues will be of significant concern for regulators, platform providers, individual providers, and users [71,83,145,146].

4.2.2. Discussion of Results for Accommodation Sharing Barriers

The essential accommodation sharing barriers, according to the results obtained by applying the grey-DEMATEL approach are: a4 > a5 (see Figure 3). The causal factors a4 (B4: Taking part in accommodation sharing involves understanding how to use new platforms and technologies) and a5 (B5: Insufficient or underdeveloped legislation regarding accommodation sharing) influence the rest of the factors. The technological progress and legislation can hinder the diffusion of accommodation sharing both in developing and developed countries [15,22,63,69,96].

Figure 3. The aggregated prominence-causal DEMATEL diagram for accommodation sharing barriers.
Figure 3 shows the effect factors: $a_1 > a_3 > a_2$. The first effect factor $a_1$ (B1: Lack of trust between the participants (guests, hosts, company) or toward the technologies supporting accommodation sharing) is influenced by causal factor $a_4$ (B4: Taking part in accommodation sharing involves understanding how to use new platforms and technologies) and effect factor $a_2$ (B2: Doubts regarding accommodation sharing services and product quality and related benefits or losses).

The second effect factor $a_3$ (B3: Insufficient cost savings due to high prices) influences the third effect factor $a_2$ (B2: Doubts regarding accommodation sharing services and products quality and related benefits or losses). The third effect factor $a_2$ is also influenced by $a_4$, $a_5$, and $a_1$. This means that the doubts regarding accommodation sharing services and product quality and the benefits or losses related to it are caused by the lack of understanding how to use new platforms and technologies, insufficient or underdeveloped legislation regarding accommodation sharing and the lack of trust between the participants involved in accommodation sharing.

5. Conclusions

Researching the field of accommodation sharing is challenging. This study is the first to investigate the characteristics and the interrelations between the drivers and the barriers to accommodation sharing, respectively. By examining the accommodation sharing literature and developing drivers and barriers to accommodation sharing, this study expands the existing research. The grey-based DEMATEL approach was used for the first time in the field of accommodation sharing, and it yielded results with theoretical and practical implications.

Decision-makers can use the grey-DEMATEL technique to determine the most important drivers and barriers to accommodation sharing adoption and growth in a particular region and how to combine them in order to achieve the best outcome. Governments that are implementing various programs aiming to stimulate the expansion of accommodation sharing can use this method to evaluate the correctitude of their decisions. They can apply this approach periodically and adjust the directions of their programs according to the latest development trends in the accommodation sharing area.

The grey-based DEMATEL approach can be used by researchers to compare the results for different countries and regions. It can single out specific features of the drivers and barriers to accommodation sharing and their interconnections. This method could be applied periodically, and the obtained results could show specific trends in the adoption of accommodation sharing in a particular area.

This study is based on existing scientific literature and the insights of practitioners. However, it has some limitations related to the accurate completion of the questionnaires by the evaluators, namely distractions and overtiredness. The factors selected in this study as well as in the previous research have a degree of importance based on their reciprocal connectedness. When a driver or a barrier does not have a strong interconnection with another driver or barrier, the results may not be entirely accurate. Nevertheless, they are still elemental for the adoption of accommodation sharing in a defined context. This limitation could be overcome by integrating different approaches with the grey-DEMATEL.

Given the assumed values, the designated grey-scale for a linguistic variable could also be a limitation. The drivers and barriers to accommodation sharing could be further investigated without the grey-scale. Additionally, the aggregated values of the prominence and net cause/effect of accommodation sharing drivers or barriers could be integrated with a system dynamics model, and the results could be extrapolated over a period of time.

To determine whether the results of this study are relevant to other contexts, future research could make comparisons between Middle Eastern countries or even between regions or for the sharing economy in general. Given its flexibility, this approach can be used by various actors and decision-makers both in public and private institutions. This study provides a basis for future research on accommodation sharing in the Middle East.

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Appendix A

See Tables A1–A7 and Figures A1–A4.

Table A1. The linguistic scale direct-relation matrix for accommodation sharing drivers completed by the first evaluator.

| Driver | D1 | D2 | D3 | D4 | D5 | D6 | D7 |
|--------|----|----|----|----|----|----|----|
| D1     | 0  | 3  | 3  | 3  | 3  | 4  | 4  |
| D2     | 4  | 0  | 2  | 2  | 2  | 2  | 3  |
| D3     | 3  | 3  | 0  | 4  | 4  | 3  | 3  |
| D4     | 3  | 3  | 3  | 0  | 4  | 4  | 3  |
| D5     | 4  | 4  | 4  | 4  | 4  | 3  | 3  |
| D6     | 3  | 4  | 4  | 4  | 4  | 3  | 0  |
| D7     | 3  | 4  | 3  | 4  | 4  | 0  | 0  |

Table A2. The linguistic scale direct-relation matrix for accommodation sharing drivers completed by the second evaluator.

| Driver | D1 | D2 | D3 | D4 | D5 | D6 | D7 |
|--------|----|----|----|----|----|----|----|
| D1     | 0  | 4  | 4  | 4  | 4  | 4  | 3  |
| D2     | 4  | 0  | 1  | 1  | 2  | 1  | 2  |
| D3     | 3  | 4  | 0  | 4  | 3  | 3  | 4  |
| D4     | 3  | 4  | 3  | 0  | 4  | 4  | 2  |
| D5     | 3  | 3  | 3  | 0  | 3  | 3  | 3  |
| D6     | 3  | 4  | 3  | 3  | 3  | 0  | 4  |
| D7     | 3  | 4  | 3  | 3  | 3  | 4  | 0  |

Table A3. The linguistic scale direct-relation matrix for accommodation sharing drivers completed by the third evaluator.

| Driver | D1 | D2 | D3 | D4 | D5 | D6 | D7 |
|--------|----|----|----|----|----|----|----|
| D1     | 0  | 4  | 4  | 4  | 4  | 4  | 3  |
| D2     | 3  | 0  | 1  | 1  | 2  | 1  | 2  |
| D3     | 3  | 4  | 0  | 3  | 3  | 3  | 2  |
| D4     | 3  | 3  | 3  | 0  | 3  | 3  | 3  |
| D5     | 3  | 4  | 4  | 3  | 0  | 3  | 3  |
| D6     | 3  | 4  | 4  | 4  | 4  | 0  | 4  |
| D7     | 3  | 4  | 3  | 3  | 3  | 3  | 0  |

Table A4. The linguistic scale direct-relation matrix for accommodation sharing drivers completed by the fourth evaluator.

| Driver | D1 | D2 | D3 | D4 | D5 | D6 | D7 |
|--------|----|----|----|----|----|----|----|
| D1     | 0  | 4  | 4  | 4  | 4  | 3  | 2  |
| D2     | 3  | 0  | 1  | 1  | 1  | 1  | 2  |
| D3     | 3  | 4  | 0  | 4  | 4  | 4  | 4  |
| D4     | 3  | 3  | 3  | 0  | 4  | 4  | 3  |
| D5     | 3  | 3  | 3  | 3  | 0  | 3  | 4  |
| D6     | 4  | 2  | 3  | 3  | 3  | 0  | 4  |
| D7     | 3  | 4  | 3  | 4  | 4  | 4  | 0  |
Table A5. The linguistic scale direct-relation matrix for accommodation sharing drivers completed by the fifth evaluator.

| Driver | D1  | D2  | D3  | D4  | D5  | D6  | D7  |
|--------|-----|-----|-----|-----|-----|-----|-----|
| D1     | 0   | 4   | 4   | 4   | 3   | 4   | 4   |
| D2     | 4   | 0   | 3   | 1   | 1   | 1   | 2   |
| D3     | 3   | 4   | 0   | 4   | 3   | 3   | 3   |
| D4     | 3   | 2   | 4   | 0   | 4   | 2   | 3   |
| D5     | 3   | 3   | 3   | 4   | 0   | 4   | 3   |
| D6     | 3   | 4   | 4   | 4   | 0   | 4   | 0   |
| D7     | 2   | 2   | 3   | 3   | 3   | 3   | 0   |

Table A6. Overall crisp direct relationships for accommodation sharing drivers.

| Driver | D1       | D2       | D3       | D4       | D5       | D6       | D7       |
|--------|----------|----------|----------|----------|----------|----------|----------|
| D1     | 0.0000   | 3.8000   | 3.8000   | 3.8000   | 3.6000   | 3.8000   | 3.2000   |
| D2     | 3.6000   | 0.0000   | 1.8000   | 1.2000   | 1.4000   | 1.6000   | 2.6000   |
| D3     | 3.0000   | 3.8000   | 0.0000   | 3.8000   | 3.4000   | 3.2000   | 2.8000   |
| D4     | 3.0000   | 3.0000   | 3.2000   | 0.0000   | 3.8000   | 3.4000   | 3.4000   |
| D5     | 3.2000   | 3.4000   | 3.4000   | 3.4000   | 0.0000   | 3.4000   | 3.2000   |
| D6     | 3.2000   | 3.4000   | 3.6000   | 3.6000   | 3.6000   | 0.0000   | 4.0000   |
| D7     | 2.8000   | 3.6000   | 3.0000   | 3.4000   | 3.4000   | 3.6000   | 0.0000   |

Table A7. Normalized direct-relation matrix for accommodation sharing drivers.

| Driver | D1       | D2       | D3       | D4       | D5       | D6       | D7       |
|--------|----------|----------|----------|----------|----------|----------|----------|
| D1     | 0.0000   | 0.1727   | 0.1727   | 0.1727   | 0.1636   | 0.1727   | 0.1455   |
| D2     | 0.1636   | 0.0000   | 0.0818   | 0.0545   | 0.0636   | 0.0727   | 0.1182   |
| D3     | 0.1364   | 0.1727   | 0.0000   | 0.1727   | 0.1545   | 0.1455   | 0.1455   |
| D4     | 0.1364   | 0.1364   | 0.1455   | 0.0000   | 0.1727   | 0.1545   | 0.1273   |
| D5     | 0.1455   | 0.1545   | 0.1545   | 0.0000   | 0.1545   | 0.1545   | 0.1455   |
| D6     | 0.1455   | 0.1545   | 0.1636   | 0.1636   | 0.1636   | 0.0000   | 0.1818   |
| D7     | 0.1273   | 0.1636   | 0.1364   | 0.1545   | 0.1545   | 0.1636   | 0.0000   |

Figure A1. Overall DEMATEL prominence-causal relationship diagram for accommodation sharing drivers. The weight of the first evaluator is 0.4 and that of the rest is 0.15, respectively.
Figure A1. Overall DEMATEL prominence-causal relationship diagram for accommodation sharing drivers. The weight of the first evaluator is 0.4 and that of the rest is 0.15, respectively.

Figure A2. Overall DEMATEL prominence-causal relationship diagram for accommodation sharing drivers. The weight of the second evaluator is 0.4 and that of the rest is 0.15, respectively.

Figure A3. Overall DEMATEL prominence-causal relationship diagram for accommodation sharing drivers. The weight of the third evaluator is 0.4 and that of the rest is 0.15, respectively.

Figure A4. Overall DEMATEL prominence-causal relationship diagram for accommodation sharing drivers. The weight of each evaluator is 0.2.

Appendix B
See Tables B1–B7 and Figures A1–A4.

Table B1. The linguistic scale direct-relation matrix for accommodation sharing barriers completed by the first evaluator.

| Barrier | B1 | B2 | B3 | B4 | B5 |
|---------|----|----|----|----|----|
| B1      | 0  | 4  | 3  | 3  | 4  |
| B2      | 4  | 0  | 4  | 3  | 2  |
| B3      | 4  | 4  | 0  | 2  | 2  |
| B4      | 4  | 4  | 4  | 0  | 2  |
| B5      | 4  | 4  | 2  | 2  | 0  |
Appendix B

See Tables A8–A14 and Figures A5–A8.

**Table A8.** The linguistic scale direct-relation matrix for accommodation sharing barriers completed by the first evaluator.

| Barrier | B1 | B2 | B3 | B4 | B5 |
|---------|----|----|----|----|----|
| B1      | 0  | 4  | 3  | 3  | 4  |
| B2      | 4  | 0  | 4  | 3  | 2  |
| B3      | 4  | 4  | 0  | 2  | 2  |
| B4      | 4  | 4  | 4  | 0  | 2  |
| B5      | 4  | 4  | 2  | 2  | 0  |

**Table A9.** The linguistic scale direct-relation matrix for accommodation sharing barriers completed by the second evaluator.

| Barrier | B1 | B2 | B3 | B4 | B5 |
|---------|----|----|----|----|----|
| B1      | 0  | 3  | 3  | 4  | 4  |
| B2      | 4  | 0  | 4  | 3  | 1  |
| B3      | 4  | 4  | 0  | 1  | 1  |
| B4      | 3  | 3  | 4  | 0  | 1  |
| B5      | 4  | 4  | 1  | 1  | 0  |

**Table A10.** The linguistic scale direct-relation matrix for accommodation sharing barriers completed by the third evaluator.

| Barrier | B1 | B2 | B3 | B4 | B5 |
|---------|----|----|----|----|----|
| B1      | 0  | 4  | 4  | 2  | 2  |
| B2      | 3  | 0  | 3  | 4  | 1  |
| B3      | 3  | 3  | 0  | 1  | 1  |
| B4      | 3  | 3  | 3  | 0  | 1  |
| B5      | 3  | 3  | 1  | 1  | 0  |

**Table A11.** The linguistic scale direct-relation matrix for accommodation sharing barriers completed by the fourth evaluator.

| Barrier | B1 | B2 | B3 | B4 | B5 |
|---------|----|----|----|----|----|
| B1      | 0  | 4  | 3  | 3  | 4  |
| B2      | 4  | 0  | 3  | 3  | 2  |
| B3      | 4  | 4  | 0  | 2  | 2  |
| B4      | 3  | 4  | 3  | 0  | 1  |
| B5      | 4  | 4  | 2  | 2  | 0  |

**Table A12.** The linguistic scale direct-relation matrix for accommodation sharing barriers completed by the fifth evaluator.

| Barrier | B1 | B2 | B3 | B4 | B5 |
|---------|----|----|----|----|----|
| B1      | 0  | 3  | 2  | 4  | 3  |
| B2      | 4  | 0  | 4  | 3  | 3  |
| B3      | 3  | 4  | 0  | 2  | 3  |
| B4      | 3  | 4  | 4  | 0  | 3  |
| B5      | 2  | 2  | 2  | 2  | 0  |
Table A13. Overall crisp direct relationships for accommodation sharing barriers.

| Barrier | B1   | B2   | B3   | B4   | B5   |
|---------|------|------|------|------|------|
| B1      | 0.0000 | 3.6000 | 3.0000 | 3.2000 | 3.4000 |
| B2      | 3.8000 | 0.0000 | 3.6000 | 3.2000 | 1.8000 |
| B3      | 3.6000 | 3.8000 | 0.0000 | 1.6000 | 1.8000 |
| B4      | 3.2000 | 3.6000 | 3.6000 | 0.0000 | 1.6000 |
| B5      | 3.4000 | 3.4000 | 1.6000 | 1.6000 | 0.0000 |

Table A14. Normalized direct-relation matrix for accommodation sharing barriers.

| Barrier | B1   | B2   | B3   | B4   | B5   |
|---------|------|------|------|------|------|
| B1      | 0.0000 | 0.2727 | 0.2273 | 0.2424 | 0.2576 |
| B2      | 0.2879 | 0.0000 | 0.2727 | 0.2424 | 0.1364 |
| B3      | 0.2727 | 0.2879 | 0.0000 | 0.1212 | 0.1364 |
| B4      | 0.2424 | 0.2727 | 0.2727 | 0.0000 | 0.1212 |
| B5      | 0.2576 | 0.2576 | 0.1212 | 0.1212 | 0.0000 |

Figure A5. Overall DEMATEL prominence-causal relationship diagram for accommodation sharing barriers. The weight of the first evaluator is 0.4 and that of the rest is 0.15, respectively.

Figure A6. Overall DEMATEL prominence-causal relationship diagram for accommodation sharing barriers. The weight of the second evaluator is 0.4 and that of the rest is 0.15, respectively.
**Figure B3.** Overall DEMATEL prominence-causal relationship diagram for accommodation sharing barriers. The weight of the third evaluator is 0.4 and that of the rest is 0.15, respectively.

**Figure B4.** Overall DEMATEL prominence-causal relationship diagram for accommodation sharing barriers. The weight of each evaluator is 0.2.

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