Hotels vs. Peer-to-Peer Accommodation Rentals: Text Analytics of Consumer Reviews in Portland, OR

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Collaborative Consumption

The Sharing Economy

People coordinating “…the acquisition and distribution of a resource for a fee or other compensation.”

Belk, 2014

A business model based on shared value, rocket-charged by social media.

http://www.airbnbnycmarathon.com/
How The Hotel Industry Got Blindsided ... And Why Yours Could Be Next

Airbnb was recently valued at an eleven figure sum, which overshadows all, except the largest hotel chains. The usual criticisms to tech valuations aside, the impact of Airbnb on the traditional hotel industry is definitely being felt. But why did the industry fail to spot this threat for so long? How does something like Airbnb come out of the ordinary and change the rules of an entire industry? And how could something like this be repeated in another industry?

Airbnb picks Portland as first ‘Shared City’ in effort to address tax issues, encourage livability

Airbnb versus hotels

Room for all, for now

But there are signs that the sharing site is starting to threaten budget hotels

Airbnb Had $56 Million Impact On San Francisco: Study

One of the major questions about the sharing economy or collaborative consumption companies is how these services affect local economies and what economic benefits they bring.

SHORT-TERM RENTALS

Portland council prepares to catch up to short-term rental market with permit process

Mayor Charlie Hales releases proposal for Airbnb-style rentals in apartments, condos

Nearly 3 in 4 Airbnb listings in New York City illegal, NY attorney general says

Portland may soon allow Airbnb-style rentals in apartments, condos

Airbnb legalization, courthouse funding top Multnomah County board’s Thursday agenda
Competitive Advantages?

**Hotels:**
Hotel attributes are used as selection criteria, affect satisfaction and post-purchase behavior.

Well-researched, although results vary.
(e.g., Dolnicar & Otter, 2003; Xiang et al., 2015)

**P2P Accommodation:**
Low-cost, social & experiential values.
(e.g., Guttentag, 2013; Owyang, 2014; Tussyadiah, 2015)
Study Goals

Identify similarities and differences in terms of attributes considered important to evaluate hotels and P2P accommodation.

Keywords most frequently mentioned in online consumer reviews represent important attributes and, thus, competitive advantages of hotel and P2P accommodation.

➔Text Analytics of UGC
Data Mining

• Web Sources:
  • TripAdvisor (up to 50 pages of reviews for all hotels)
  • Airbnb (all reviews for all P2P listings)

• Context: Portland, OR
  • Regulatory undertakings: permit, tax

• Time: November 2014

18,166 reviews

2,130 reviews
Study Methods

Data Preprocessing:
• Sentence splitting
• Tokenization
• Eliminating stop words
• POS tagging
• Lemmatization

Stanford POS tagger
(Toutanova, Klein, Manning, & Singer, 2003)
Study Methods

Keyword Extraction:
• Term Frequency (TF)
• Automated Term Recognition (ATR) to extract domain-specific word clusters (bigrams, trigrams)

Word Co-occurrence Networks:
• Nodes: high frequency keywords
• Edges: Jaccard Coefficient
• Layout: Fruchterman-Rheingold’s (1991) algorithm

*TermExtract*
(Nakagawa, 2000; Nakagawa & Mori, 2002)

igraph package in R
Figure 1. Term Frequency (TF) Distribution: Hotel vs. P2P Accommodation Reviews

a. Hotel Reviews
(Mean of TF = 49.04, s.d. of TF = 959.96)

b. P2P Accommodation Reviews
(Mean of TF = 25.36, s.d. of TF = 238.32)
High-Frequency Keywords

**Hotel Reviews:**
- Nouns: staff, breakfast, service, airport, restaurant, parking.
- Adjectives: small, big, hot, old, free.

**P2P Accommodation Reviews:**
- Nouns: pnname*, place, house, neighborhood, experience.
- Adjectives: cozy, warm, cute, lovely, sweet.

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Amenities & Services
Factual

Home & Hosts
Emotional
Word Clusters

Hotel Reviews:
• **Services:** front desk staff, hotel staff, room service, great service.
• **Freebies:** free breakfast, free parking, breakfast room, parking lot, shuttle service.
• **Location:** downtown portland, great location, portland airport, airport hotel, portland area.

P2P Accommodation Reviews:
• **Host & Home:** great host, pname place, pname house, pname home, great place, wonderful host.
• **Experience:** great time, great stay, great experience.
• **Location:** great location, walk distance, downtown portland, great neighborhood, quiet neighborhood.
Figure 2. Co-occurrence Networks: Hotel vs. P2P Accommodation Reviews

(a. Hotel Reviews
(Nodes: 44; Edges: 100; Density: .106; Min TF = 500)

(b. P2P Accommodation Reviews
(Nodes: 41; Edges: 100; Density: .122; Min TF = 50)
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Figure 2. Co-occurrence Networks: Hotel vs. P2P Accommodation Reviews
a. Hotel Reviews
(Nodes: 26; Edges: 100; Density: .308)

b. P2P Accommodation Reviews
(Nodes: 25; Edges: 100; Density: .333)

Figure 3. Co-occurrence Networks around Recommend
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Conclusion

• P2P accommodation: Hospitality of the host and the locale – emphasis on desire for community and social interactions

• Hotel attributes unparalleled to P2P accommodation: amenities and deals (e.g., shuttle services, free breakfast)

Recommendation: augment advantages, overcome disadvantages

• P2P accommodation: added conveniences
• Hotels: making guest experiences more personal, local recommendations
Thank You.
Questions?