Understanding online and offline customer experience of shared vs. public mobility services – A semiautomated content analysis of user reviews

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Abstract
Despite rising user rates for shared mobility services, huge potentials of the market remain untapped. Therefore, firms providing digital platforms for peer-to-peer or public mobility seek to expand their understanding of customer experiences (CX) for service improvements. Using semiautomated content analysis, this study investigates, if and how online user reviews can be used to better understand the online (app) and offline (travel) CX. Based on over 7,700 reviews of two archetypal providers from independent websites, we extracted key drivers of (dis-)satisfaction. Our study highlights the need to systematically analyze user feedback, since it reveals authentic and nuanced CX insights.

Keywords: Shared Mobility, Customer Experience, User Reviews
1. Introduction

Due to technological advancements, interconnectivity between people is enhanced and many societies are moving from the traditional wisdom “you are what you own” to the new dictum “you are what you can access” (Belk, 2014, p. 1598f). This shift from ownership to sharing is illustrated by a sharp rise of sharing economy platforms, such as Airbnb as peer-to-peer (P2P) accommodation marketplace or Uber, representing a P2P ride sharing platform, which are both challenging established hotels and taxi businesses (e.g., Cramer & Krueger, 2016). A recent study showed, that 39% (21%) of Germans have used (offered) sharing economy services (Beutin, 2018). Related to car sharing, usage is growing at double-digit rates and within the next 5 years, the number of vehicles in car sharing fleets is expected to double (Briggs, 2018). Despite this growth, however, huge parts of the potential of sharing services remain untapped, both for P2P service platforms (e.g., BlaBlaCar) and Business to Consumer (B2C) service providers (e.g., Share Now). As such, it is highly important for these firms to understand key drivers of customer (dis-)satisfaction and, more generally, customer experience (CX) as determinants of service use.

So far, research in this field has mainly focused on differences for customers between owning and sharing (Bardhi & Eckhardt, 2017) and between P2P and B2C sharing options (Möhlmann, 2015). In general, studies focused either on shared mobility services (e.g., car sharing) or public mobility services (e.g., trains or buses). Our study aims to compare these two groups regarding CX and satisfaction. Furthermore, it is in particular difficult for the shared mobility firms to influence these experiences and the satisfaction levels directly, as consumers, instead of their own personnel, deliver the service (Eckhardt et al., 2019). Therefore, we evaluate what customers expect from the sharing economy firms regarding a constant and reliable service level. From a methodological point of view, we seek to examine, how customer reviews can be used for a comprehensive analysis of CX in the given context. Thus, we address the following research questions:

• RQ1: How do online reviews contribute to understanding the customer experience and satisfaction for shared mobility services?
• RQ2: What are the crucial elements of CX of shared versus public mobility services?
• RQ3: What do customers expect from shared mobility firms in terms of quality control and sanctioning?

To answer our research questions, we analyzed appr. 7,700 user reviews of a P2P mobility service (BlaBlaCar) and a public transport service (FlixBus) from three review sites. Using a semiautomated text analytics software (Caplena) for coding, we extracted key user experiences, quality perceptions and satisfaction ratings along the customer journey. We contribute both to literature on shared mobility services and digital marketing research, revealing that big volumes of online user reviews can be processed, analyzed and used for CX research with the help of an analytics software based on augmented intelligence. Key factors of CX in shared mobility could be extracted.

2. The Sharing Economy and the Changing Mobility Landscape

Although the concept of sharing economy is not new, a common definition is still lacking (Botsman, 2013) and terms such as “collaborative consumption”, “sharing economy” or “product service systems” are often used interchangeably (Belk, 2014, p. 1595). Collaborative
consumption can be described as an overarching concept, encompassing product service systems (e.g., temporary access to car sharing), collaborative lifestyles (such as sharing free space for accommodation on Airbnb) and redistribution markets, like eBay, to exchange underused products (Botsman & Rogers, 2011). According to Botsman (2013), the sharing economy is part of collaborative consumption. While some scholars are focusing on the sharing aspect, as “economic system in which assets or services are shared between private individuals” (Habibi, Kim and Laroche, 2016, p. 277), other researchers highlight that interactions could be "market mediated in which no transfer of ownership takes place." (Bardhi & Eckhardt, 2012, p. 881). Incorporating both aspects, and adding platforms, we follow Eckhardt et al. (2019, p. 7), defining sharing economy as "scalable socio-economic system that employs technology-enabled platforms to provide users with temporary access to tangible and intangible resources that may be crowdsourced". Due to these platforms, people with a demand for mobility and people who offer to share their resources, can find each other more easily and exchange goods or services.

Within the sharing economy, a distinction can be drawn between P2P markets and B2C markets. In P2P markets, consumers share resources, whereas, in B2C markets, companies provide the recourses that are going to be shared by consumers (Behrendt, Henseling and Scholl, 2019). For example, P2P platforms, such as the ridesharing service provider BlaBlaCar, are in general only offering the match between people offering and requesting rides. In contrast, B2C offers, like the transportation service FlixBus, additionally include the provision of mobility services itself, such as the bus ride, seat and other amenities (Botsman, 2013). For both offers, the digital platform is a key part of the service delivery providing relevant information, payment processing and other key functions.

One of the largest segments within the field of the sharing economy is mobility. Related to car sharing, for example, “Share Now”, as one major German car sharing service provider, now has over 4 million users (BMW, 2019). Massive traffic problems, limited space and high fees for parking in cities as well as pressing environmental issues like climate change have given momentum to new mobility concepts (e.g., Bardhi & Eckhardt, 2012). Furthermore, a shift of consumer’s mentality can be observed which reinforces the ongoing positive trend of sharing (e.g., Eckhardt et al., 2019). Next to the rising demand, technological developments enabled new forms of sharing on a large scale, such as P2P platforms (Belk, 2014).

3. Customer Experience and Satisfaction in the Context of (Shared) Mobility Services

3.1 Concept and elements of the customer experience

Customer experience (CX) is a holistic construct that includes the entire experience with a firm and its offerings throughout the various touchpoints along the customer journey, from pre- to post-consumption stages (Verhoef et al., 2009). CX “encompasses every aspect of a firm’s offering - the quality of customer care, of course, but also advertising, packaging, product and service features, ease of use, and reliability” (Meyer & Schwager, 2007, p. 118). It is not only affected by elements which can be controlled by the firm, but also by elements that are beyond the firm’s control, such as the social environment in a service encounter (Verhoef et al., 2009).

In the case of (shared) mobility services, CX encompasses several online and offline touchpoints, i.e. the platform, interactions with firm employees as well as with private persons (co-travelers and private drivers in the case of ride-sharing) (e.g., Eckhardt et al., 2019; Möhlmann, 2015). Due to the nature of the mobility service and the service design
(platform mediation), digital touchpoints are dominant when planning and booking a trip, whereas tangible (e.g., the vehicles) and personal touchpoints (e.g., interactions with drivers) are significant elements of the actual travel experience. Therefore, multiple elements need to be identified that determine the overall CX, and thus, customer satisfaction.

3.2 Possible drivers of (dis)satisfaction with the service experience

In order to develop a categorization of crucial elements of the CX, we reviewed current research on customer satisfaction and experience, on service and app quality, and on shared (mobility) and public transport services. The resulting categorization was used as a theoretical foundation and initial framework for the coding process (see 4.2).

Customer satisfaction has been acknowledged as one of the key outcome variables of CX. As such, it can be defined as a “consumer’s post-purchase evaluation and affective response to the overall product or service experience” (Kungumapriya & Malarmathi 2018, p. 74). It can encompass single, as well as many experiences with a product or service and is often understood as the result of comparing customer expectations with actual delivered performance (Lemon & Verhoef, 2016). Churchill and Surprenant (1982) point to the attitudinal character of satisfaction, which is based on evaluations of different attributes of the product or service. Thus, satisfaction is influenced by a complex set of factors which include emotional and social factors next to cognitive evaluations (e.g., Fournier & Mick, 1999). Many of these potential factors can be identified within service quality research. Whereas satisfaction represents an overall evaluation, service quality is typically conceptualized as a multidimensional construct that drives customer satisfaction (Cronin & Taylor, 1992). With the advent of new technologies and the increased importance of digital channels, service quality in an electronic environment gained more research attention (e.g., Parasuraman, Zeithaml, and Malhotra, 2005). Even though service quality is mainly defined in functional and technical terms, it can comprise social and emotional aspects, such as the empathy of service staff and the social environment (Carreira, Patricio, Natal, and Magee, 2014).

We propose that potential drivers of customer satisfaction can be linked to quality perceptions of the platform, to the travel experience itself and to the customer service. First, since the platform is a key element of the business models in question, a thorough investigation of quality perceptions of the relevant digital platforms (i.e., apps and website), is needed. Second, the perceived quality of the travel experience itself will be investigated. We delineate travel experience as the ‘people processing’ part of the experience, which requires the consumer to actively enter the service system (i.e., traveling to the meeting point, waiting, entering the vehicle etc.). The travel experience is expected to represent a complex construct, including diverse factors such as punctuality, vehicle condition, information provision, offboard facilities, safety and many more (e.g., Mouwen, 2015). Third, in this study, customer service quality specifically refers to perceptions related to support provided by the staff of the firm outside the core travel experience, i.e. assistance provided by the support hotline. Moreover, we also expect to identify factors that affect the overall perception of and satisfaction with the mobility service, such as related costs and general attributes of the business and service concept, as opposed to single touchpoints. Specifically, sustainability has been put forward as a main consumer motive when using shared mobility services or public transport. Existing research, however, has provided conflicting results about the relevance of sustainability in the context of (shared) mobility services (e.g., Bardhi & Eckardt, 2012; Behrendt et al., 2019; Möhlmann, 2015).
Finally, it has also been noted that consumers might exhibit specific (lower?) expectations in the case of shared services – potentially influencing the formation of (dis)satisfaction. Since platform providers have less control over the service quality (esp. in P2P sharing), customers might be more willing to forgive service deficiencies, since the service providers are peers. Moreover, consumers might not regard private service providers as employees of the platform, and thus could be less likely to hold the platform accountable (Eckhardt et al., 2019). Thus, it is valuable to examine, what consumers expect from the sharing platform in terms of quality control, regulation and possibly sanctioning in case of service failures.

4. Method

Secondary data in the form of online customer reviews offers a rich source of information and gives insights into the drivers of customer satisfaction. An advantage when working with online customer reviews is the rather quick and non-obtrusive collection of a large volume of unbiased data. The open-ended format allows for detailed feedback and might lead to unexpected results (e.g., Kuckartz, 2016). Although the comments might not be reflective of the entire CX, they highlight elements that are outstanding and of concern to the customer (Cadotte & Turgeon, 1988). The structuring content analysis has been chosen as the research method in order to filter out aspects and topics from the material in a systematic and comprehensive way (Mayring, 2015; Kuckartz, 2016).

Traditionally, manual coding and structuring of plain text, meant a tremendous load of work. In our analysis, we employed the program Caplena, which supports the review coding based on augmented intelligence (Caplena, 2019a). Augmented intelligence is using Natural Language Processing technology, and can be understood as a sub-category of artificial intelligence. The augmented intelligence has been trained to comprehend misspellings, slang and the context-dependent meaning of homonyms (Caplena, 2019b). When coding the free text manually, the AI is steadily learning and is able to suggest codes after a certain number of manually coded reviews. If the proposed categorization by the AI shows a high accuracy rate, the categorization can be applied automatically. Caplena allows for the establishment of a category system with two hierarchy levels (main- and sub-categories).

As first step, review sites with a sufficient number of reviews on the companies were identified. Hereby, the review site had to be owned by a party independent of the reviewed firm and the reviews had to be publicly accessible (Yang & Fang, 2004). The app store Google Play was chosen, offering the highest volume of accessible reviews for this study (Google Play, 2020). Additionally, the international review sites Utopia and Trustpilot were selected (Utopia, 2020; Trustpilot, 2020). We inspected 10,000 reviews from Google Play, 5,000 for each firm. We excluded hoax reviews and unrelated comments. In total, 3,227 reviews for BlaBlaCar and 3,418 reviews regarding FlixBus were coded. Additionally, 393 (77) FlixBus (BlaBlaCar) reviews from Trustpilot (Utopia) were categorized, adding up to over 7,700 customer comments.

The next step was the a priori determination of the main thematic categories in line with the research questions and the literature review. Therefore, the main thematic categories included elements of CX and drivers of customer (dis-)satisfaction for FlixBus and BlaBlaCar (RQ 2). Then, factors regarding quality control and sanctioning expectations were included (RQ 3). CX was further divided into app/platform, travel experience and customer service quality, costs and overall concept. A preliminary category system was compiled based on the literature review (deductive approach). In an iterative process, the category system was
steadily revised and new sub-categories were established. Comprehensive coding guidelines were developed including definitions of the (sub-)categories, key examples and coding rules. The codes were differentiated by the polarities “negative” and “positive”, to account for satisfying and dissatisfying (quality) perceptions and experiences. We included also the star ratings, filtering the 4-5 and 1-2 star ratings as indicator of (dis-)satisfaction. Thereby, we considered that star ratings on Google Play referred to the app/platform, whereas Trustpilot and Utopia have a broader scope.

5 Results

The most frequently cited category in the reviews was the app/platform quality serving for 76% (72%) of the BlaBlaCar (FlixBus) reviews. However, despite this obvious focus on the app due to the high amount of reviews from Google Play, the reviews also contained a considerable amount of comments on the non-app-related CX. Costs were mentioned in 27% of the BlaBlaCar reviews, followed by the travel experience (18%), the overall concept (13%) and the customer service quality (1%). Regarding FlixBus, the travel experience was cited in 30% of the reviews, followed by the costs (9%) and the service quality (5%).

<table>
<thead>
<tr>
<th>Source</th>
<th>Drivers of satisfaction (+)</th>
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<tbody>
<tr>
<td>BlaBlaCar</td>
<td>General app quality (34%) - PQ</td>
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<tr>
<td></td>
<td>Social environment (43%) - TXQ</td>
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<tr>
<td>FlixBus</td>
<td>Ease of use (42%) - PQ</td>
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<td>Driver behavior (58%) - TXQ</td>
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<tr>
<th>Source</th>
<th>Drivers of dissatisfaction (-)</th>
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<tr>
<td>BlaBlaCar</td>
<td>Usage package/service fee (60%) - C</td>
</tr>
<tr>
<td></td>
<td>Usage package/service fee (67%) - C</td>
</tr>
<tr>
<td>FlixBus</td>
<td>Technical functioning (34%) - PQ</td>
</tr>
<tr>
<td></td>
<td>Driver behavior (58%) - TXQ</td>
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Table 1: Key drivers of customer (dis-)satisfaction

Concerning the drivers of satisfaction with the app (see Table 1), the ease of use was found to be the most frequently cited determinant for both companies, followed by the technical functioning of the app. Apart from the app, the cheap fare was a crucial factor for satisfaction for both companies. Moreover, positive driver behavior was identified as a determinant of satisfaction for FlixBus in both the Google Play and the Trustpilot reviews. The social environment was a frequently mentioned satisfier for BlaBlaCar in both the Google Play and Utopia reviews. The rating system was valued by the BlaBlaCar customers, since it establishes trust. In order to clarify details about the ride, direct contact with the driver prior to booking the ride was important to the users.

1 The complete codebook including exemplary reviews can be provided on request.
Analyzing the drivers of dissatisfaction with the app (Table 1), the findings for both companies coincided: technical functioning of the app was the most often-cited sub-category in the Google Play reviews, followed by the request or removal of an app feature and the ease of use. Apart from the app, delays and the poor provision of information were determinants of dissatisfaction for FlixBus. As for BlaBlaCar, the usage package/service fee was the most frequently cited negative factor in both the Google Play and Utopia reviews, indicating a high influence on dissatisfaction. Furthermore, cancellations by BlaBlaCar drivers contributed to customer dissatisfaction.

When comparing the drivers of satisfaction and dissatisfaction for BlaBlaCar and FlixBus and disregarding distinctions that stem from the different offers of the companies, three main differences stood out. The positive social environment was a frequently mentioned driver of satisfaction for BlaBlaCar (esp. on Utopia), while it was only mentioned in 0.2% of the total FlixBus reviews from Google Play. This can likely be traced back to the confined space and a perception of a rather private service in the cars, or the platform rating system. On top of that, sustainability was cited in 0.1% (3.6%) of the total FlixBus (BlaBlaCar) reviews from Google Play. Despite the low percentage of comments, the difference indicates that sustainability is more likely to be a relevant factor when using shared mobility services, as opposed to public transport. The higher number of mentions regarding the driver behavior and punctuality as satisfiers and dissatisfiers in the FlixBus reviews could be an indicator that BlaBlaCar users have lower expectations regarding the professionalism of the driver, since the providers are peers.

The results regarding quality control and sanctioning (RQ 3) indicate that the consumers expect protection against misdemeanors of the service providers from BlaBlaCar as platform owner. Passengers wished for more protection against the cancellation of rides, nonappearances or rejections of requests by the drivers in 0.7% of the reviews. 35% of these comments contained the suggestion that drivers should be held accountable and penalized for these actions, e.g. by the introduction of cancellation fees. Interestingly, although it is expected that BlaBlaCar punishes the misbehavior of the drivers, other interferences are not desired, which is shown by the negative mentions regarding the moderation of all content exchanged by the users through BlaBlaCar and the prevention of direct contact between the driver and passenger in the Utopia reviews (see Table 1).

6. Discussion

Our study contributes to theory and management in several ways. First, the study reveals, that content analysis of customer review data from open-access sites yields relevant insights on CX and satisfaction. The analysis of large volumes of unstructured qualitative data is a rather new research opportunity, which offers high external validity and authentic customer data. These large datasets, as ours with over 7,700 coded user reviews, have the potential to create robust results and represent a broad customer base. As most surveys offer rather limited information beyond the preselected topics, review data can be used for a more nuanced understanding of the consumer perspective. For example, reviews containing topics of particular interest could be could selected by a specific code and then re-assessed to get indepth insights. Moreover, reviews in broad categories could be re-coded more granularly for new insight structures. Second, the study sheds light on possibilities to integrate artificial or augmented intelligence into new research routines and processes. Both business and research can utilize software tools like Caplena to be able to process and handle data more time- and cost-efficiently. Third, our research identifies differences as well as similarities between the
crucial elements of customer experience for public and shared mobility companies. The fare is a driver of satisfaction for both FlixBus and BlaBlaCar customers and also the relevance of (dis)satisfying app quality dimensions coincided. The main differences consist in the higher number of mentions regarding the social environment and sustainability as drivers of satisfaction for BlaBlaCar. Still, functional quality dimensions and cost-related aspects seem to dominate the CX and satisfaction – not only when traveling with public transport, but also when using a P2P mobility service.

From a practical point of view, several recommended actions can directly be derived from this research. First, managers could indeed use customer review sites and draw upon huge amounts of customer feedback to improve their services. Investments in AI-supported analytics software should prove valuable. Although obviously customers focus on reviewing the app on an app-centered website or app store (Google Play), a significant amount of comments regarding customer travel experience, costs or alike can still be derived. Especially in the absence of other information sources, this data should not be neglected. As such, this method represents a non-obtrusive way of customer feedback collection. Consumer reactions to app updates or other service changes, e.g. of the pricing structure, can be observed and analyzed immediately. Our results suggest, for example, that marketing strategies for P2P ride sharing should emphasize the star ratings and direct contact options build up trust, plus social and environmental benefits, whereas FlixBus as B2C service should focus on classical service dimensions, such as positive driver behavior, reliable services, transparent and on-time travel information and on-board amenities. Still a crucial foundation of both types of services is a stable and easy-to-use platform and a fair and transparent pricing scheme.

As all research, this study comes with some limitations. First, the dataset might not be representative, as Yi (1990) suggests, that customers with extreme experiences might be most likely to leave reviews. On top of that, the influence of the review site on the content of the reviews has to be considered, as well as the relatively small number of coded comments from Trustpilot (393) and Utopia (77), in particular. Hence, further research methods should be employed to gain a broader perspective, especially on the travel experience. This rather exploratory study might serve as a basis for further research, which could validate the findings with standardized and representative quantitative research methods. As valid for most new software, additional features (e.g., ex-post deletion of comments) would enhance the coding and data purification. Furthermore, as for many AI tools, irony, figurative speech and slang were hardly interpreted correctly. However, the rapid development of natural language processing will probably soon lead to higher levels of accuracy. Finally, investigating a broader range of P2P and B2C sharing offers from other industries or countries would further enhance knowledge in this domain.

References


Utopia (2020). Available at: https://utopia.de/ [Accessed on 28/04/2020].


