

Using digital technologies to improve customer experience in credence services: lessons from the automotive industry

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This paper extends our understanding of how consumers evaluate the quality of services high on credence attributes and investigates how new digital technology can help reduce some of the risks and difficulties involved with buying and consuming credence services and thereby improve the customer experience. Empirically, this paper takes a user-centered perspective by focusing on the user journey of buying automotive services as its main analytical unit, aiming at identifying the possible pains, risks and difficulties that users face when buying and consuming automotive services. Practical ways to overcome the identified pains using new digital technology are discussed.

1. Introduction

Consumers find it more difficult to evaluate the quality of services than goods as services are intangible and heterogeneous. This leads to distinctive evaluation processes when dealing with services compared to goods in all stages of the buying and consumption processes (Wilson; Zeithaml; Bitner; Gremler, 2016). The literature distinguishes between three categories of properties: search, experience and credence. The quality of offerings with high search properties can be determined prior to a purchase, while offerings with a high degree of experience properties can only be evaluated properly after purchase and consumption. By contrast, offerings with high credence properties may be impossible to evaluate even after purchase and consumption. For services in general and for credence services particularly, consumers are forced to rely on different cues when assessing the quality of the service. Service providers can use various physical evidence (e.g. advertisement material, interior and exterior) to signal certain qualities about their offerings. Moreover, with the rise of the internet 2.0, consumers can search for information through social media and online review sites, thereby reducing risk and helping consumers feel more confident about their choice of service provider. Recently, new technologies such as smart phones, virtual reality and augmented reality have emerged, giving new opportunities for service providers to create cues that will reduce the perceived risk of buying and consuming service offerings. Yet, research on how these technologies might influence consumers' evaluation of service quality of credence services particularly, remains under-researched.

The empirical focus of the paper is automotive services which are considered as a credence service. In automotive services consumers' lack of technical knowledge lead to high perceived risks when buying automotive services which can potentially make it a frustrating and uncomfortable experience. However, we find empirical evidence revealing that providers of automotive services can reduce this perceived risk by integrating new digital technology in the service delivery. Empirically, this paper takes a user-centered perspective by focusing on the user journey of buying automotive services as its main analytical unit, aiming at identifying the possible pains, risks and difficulties that users face when buying and consuming automotive services. Practical ways to overcome the identified pains using new digital technology are discussed.

After the conceptual framework is outlined, the research methodology and results are described followed by the findings and discussion. The paper ends with a conclusion and suggestions for further research.

2. Conceptual framework

There is a general agreement among service scholars that consumers face more difficulties when evaluating the quality of services than goods (Wilson et al., 2016). Grönroos (1990) found two different aspects that customers evaluate when buying and consuming service offerings. The first one is the outcome of the service, referring to what the customer actually receives, whether e.g. a haircut, a financial offering or a funeral, is perceived as satisfactory. The other one is the processual aspects of the service, which is also termed the service delivery system (Normann; 2002). The processual aspects refer to how the service is delivered to the customer, including the human and non-human interactions between the customer and the service provider, as well as the physical evidence involved in the production of the service. These include reliability, responsiveness, assurance, empathy and tangibles (Parasuraman; Zeithaml; Berry, 1988). Depending on the industries, the outcome can be more important than the process or vice versa. Following this, Swan & Comb (1976) found that even though the customers perceive a satisfactory output they can still be unsatisfied with the overall service experience if the process is unsatisfactory. An important question is then how managers can help customers evaluate both the outcome and the processual aspects of the service both before, during and after the service purchase and consumption. How customers can and do evaluate these aspects depends on the type of service (Powpaka, 1996).

2.1. Search, experience and credence services

The literature distinguishes between search, experience and credence properties (Darby; Karni, 1973). With search products and services, users can easily assess the quality prior to purchase, employing various tangible cues such as style, technical specifications, online user reviews etc. As services are characterized by intangibility, fewer tangible cues typically exist than in assessments of product, making the quality of the service more difficult to evaluate prior to purchase (Bebko, 2000; Parasuraman; Zeithaml; Berry, 1985). The quality of services high in experience properties (e.g. a haircut, going to the cinema or dinner in a restaurant) can be evaluated only after consumption (Wilson et al., 2016). Hence, the customer has to experience the service using sensory attributes such as taste, smell and feel before he can judge whether it was a good or a bad service. Services with credence properties cannot confidently be evaluated even after purchase and consumption because of lack of technical expertise, which makes it difficult to make a reliable assessment. Following this, it is the provider who typically determines the customer's requirements (Mortimer; Pressey, 2013). Examples of services with predominantly credence properties include many legal and financial services, healthcare, as well as automotive services, which are the empirical focus of this paper. Hence, few consumers possess sufficient mechanical skills required to evaluate whether a brake replacement on his/her car has been performed properly.

2.2. Consumer evaluation of credence services

Customers' evaluation of products and services depends on whether and when they can access and assess information about their attributes (Nelson, 1970). As noted earlier, credence services include high levels of characteristics that may be impossible to evaluate both before and after consumption. Accordingly, the credence properties produce a different type of decision making for credence services than for other types of services (Mortimer; Pressey, 2013).

In a comparative study of search, experience and credence services, Mitra et al. (1999) have found that services with high credence properties are perceived as more risky, as explained by lower levels of pre-purchase knowledge which cause customers to do more information search and rely more on both personal as well as impersonal information sources. To reduce the degree of perceived risk in a purchase, they recommend service providers to concentrate on quality, reliability (to what extent the service is "correctly" produced) and durability when communicating with customers. Following this, Galetzka et al. (2006) differentiate between service reliability and service validity. Referring to Van Raaij & Pruyn (1998), they see service validity as a concept that covers whether service specification and realization match the expectations. Thus, service validity is related to the input stage of the service process as specifications of needs are typically made before actual service production.

Service reliability, on the other hand, relates to whether the service is realized as specified and covers both the outcome (what is delivered to the customer) of the service process, as well as the service delivery system (how the service is delivered to the customer) (Galetzka et al., 2006). As consumers cannot easily evaluate the performance of credence services, even after purchase and consumption, Mattila & Wirtz (2002) found that learning from consumption experiences will be low. Accordingly, Murray (1991) demonstrates how services with predominant credence properties tend to involve higher levels of perceived risk which will promote increased, pre-purchase search for information. Hence, Mortimer & Pressey (2013) find that consumers place more emphasis on the opinion of salespeople, consumer reports and the experience of friends. As customers in credence service industries are often unable to evaluate the quality of the outcome, they tend to rely on the processual aspects as an indicator of the quality of the service they have received (Baker; Lamb, 1993). Also, trust can help the customer get more confident when buying and consuming credence services (Johnson; Grayson, 2005). In light of new digital technologies, this paper investigates new ways of helping customers evaluate the quality of credence services in general and within automotive services in particular.

2.3. Digital technology and credence services

The literature on the influence of digital technologies on customer journeys is extensive, but of particular interest to this paper are the multichannel perspective and the service management perspective. From a multichannel perspective, focus has been on the choice of the proper channel for the right touchpoints in the customer journey. Channels include offline and online, as well as mobile channels (Lemon; Verhoef, 2016). Much research is concentrated on improving the path to purchase by considering the balance between “showrooming” (search in store, buy online) and webrooming (search online, buy in store) (Brynjolfsson; Hu; Rahman, 2013; Rapp; Baker; Bachrach; Ogilvia; Beitelspacher, 2015). However, these studies tend to apply a company perspective (e.g. how can we sell more) and not the customer perspective (how can the customer experience be improved). Moreover, focus has been on customer journeys and channel choice related to the purchase of products, not services, and the majority of the studies has focused on the path to purchasing. Examinations of post purchase channels have been addressed far less (De Keyser; Schepers; Konus, 2015).

Consultants have emphasized the increasing importance of applying new digital technologies such as smart phones, to improve the customer journey (Brinker; Lobaugh; Paul, 2012). Accordingly, mobile devices enable companies to provide tailored, time-sensitive, and location-sensitive touchpoints (Bart; Stephan; Sarvary, 2014). However, research has mainly focused on mobile shopping and buying behavior (Hui; Inman; Huang; Suher, 2013), while the post purchasing phases in the customer journey have been particularly neglected.

In the service management literature, self-service technology has been a hot topic for several decades (Normann, 1991). According to service management scholars, digital technology, such as self-service, can help reduce the number of employees involved with service delivery thereby making the service more efficient to produce. However, implementation of self-service technologies often results in customer dissatisfaction, either because of technology and process failure or due to poor design

(Meuter; Ostrom; Roundtree; Bitner, 2000). Clearly, the service management literature is firm-centric, exploring how companies (on short term) can benefit from applying new digital technology in the delivery of (low cost) services, whereas the customers and their experiences are often ignored.

Hence, user-centric research is clearly required to uncover how new digital technologies can be used to create new or improve existing touchpoints in the customer journey (Lemon; Verhoef, 2016) and how this will affect the customer experience in the end. Particularly, research on how new digital technology can be applied to increase the customer experience in the context of credence services has been neglected.

3. Methodology

To find out how new digital technologies can help customers reduce the perceived risks associated with buying and consuming credence services we have collected data about the customer experience in the context of automotive services. Additionally, we have collected data about which new digital technologies exist and how they are currently used as well as their future potentials in the automotive industry. In line with Lemon & Verhoef (2016) we conceptualize the customer experience as a journey over time consisting of multiple touchpoints related to before, during and after the actual service delivery. Where the service management literature typically employ techniques such as service blueprinting, these techniques have been criticized for not being sufficiently customer focused (Bitner; Ostrom; Morgan, 2008). Hence, we use the more customer-centric techniques developed within the service design thinking literature (Stickdorn; Schneider, 2011) such as customer journey mapping and pain mapping (Osterwalder; Pigneur; Smith, 2015). The data for the customer journey maps was collected by students enrolled at Zealand Institute of Business and Technology from the AP programme in service management and automotive management. The students collected the data as part of a course in service design. A total of 9 customer journey maps form the basis of the data which were synthesized from observation made in three different automotive service companies. Also customer reviews made by customers were analyzed to map the customer pains. The data collection was facilitated and verified by the two authors of this paper. Data about new digital technologies was obtained through desk research by reading trend reports from various consultant companies (Transport-, Bygnings- og Boligministeriet 2018; Jessen 2007; KPMG 2018; McKinsey & Company 2019).

4. Findings and discussion

This section is structured based on the generic customer journey map which was synthesized from the user journey maps collected from the studied automotive services providers. The user journey consists of the four touchpoints: (1) Booking, (2) Checking in, (3) During and (4) Pick-up. Each touchpoint is analyzed separately. First, the pains, risks, difficulties and obstacles that customers face when buying and consuming automotive services is identified in regard to their associated touchpoints. Thereafter, the digital technologies associated with the touchpoint is described as

well as a discussion of how this technology can help reduce some of the credence properties involved.

4.1. First touchpoint - booking

Due to the credence properties of automotive services, it can be difficult for the service provider to set the price initially when the customer calls in. Typically, the mechanic needs to diagnostic the car before he can estimate a price. And even after the initial price is set, something unexpected can occur which will possibly influence the price. Taking a customer-centric view, the data reveals that the customers find it risky not knowing what the price will be initially when booking automotive services. One type of customer typically books the service without asking what the price will be. This segment somehow accepts the premise of the service provider about the difficulties of setting a fixed price before car diagnostic. Another more price sensitive customer segment typically agrees with the service provider on a fixed price for the basic service. If something unexpected occur, the provider informs the customer about the extra charge before doing the job. Hence, this exemplifies how some of the credence properties related to the booking touchpoint can be reduced through basic analogue communication between the provider and the customer. However, new digital technologies have been developed to minimize the credence properties of the uncertainty related to not knowing the price when booking automotive services.

The company, Super Tire Service (sds.dk) has developed an online tool called “service check calculator” which can be accessed from their homepage. The service check calculator makes it possible for the customer to tap in the registration plate number (the type of the car will automatically appear), the kilometers drove, the service interval and some additional options (loaner car etc.). Subsequently, the system provides the customer with a list of what is included in the offer and a price (unexpected extra services are not included).

Similar to many other service industries, the use of price comparison sites has also found its way to the automotive services industry. Autobutler.dk is the Danish version of a price comparison site within automotive services. At Autobutler.dk car owners can create a job (e.g. regular service check or repair work such as new breaks or cam belt change etc.). Autobutler finds three offers from automotive service providers in near location of the customer. The customer can easily compare the offers both regarding to the specifications, prices and conditions. After the job is done, Autobutler follows up and ask whether the price was in accordance with the offered price and similar questions.

Another digital technology called, “Connected car” allows the user to book from the car or the mobile when it is time for a service check. The mechanic can read out the necessary information from the car that helps with the identification of needs and diagnosing. This technology makes it easier for the mechanic to find out what is wrong and set the price accordingly. It also reduces the chance, that extra work has to be done which will make the price higher.

Recently, when buying a car, the customers are in many cases offered a service agreement. The customer pays a monthly fee for having all service checks and repairs included for a limited number of years. Hence, service agreements on new cars

can help remove the price uncertainty related to the booking touchpoints at least for the number of years it is valid.

4.2. Second touchpoint – checking in

When the customer arrives at the automotive service provider the next touchpoint is to check in. Typically, the customer needs to draw a number, stand in a waiting line, give the plate number and sign documents. Moreover, if the customer ordered a loaner car there are some additional paper work and hand over to be done.

The frustrations and pains in this touchpoint are manifold. The first pain point is related to the long waiting time at the registration desk: *“There was a long waiting line at the registration desk and only one service employee served the customers”*. There is a peak period in the morning where most customers wish to leave their car for repair or service check while working which leads to long waiting lines. Getting a loaner car is also something customers find problematic: *“A new gear box should have been ordered, but they forgot to do this. The customer said that she wants a loaner car, but when she arrived she could not get one”*.

One technology which can reduce some of these frustrations is quick check-in, which we know from the airport and most recently from fast food chains. Quick check-ins give the customer the opportunity to deliver his car without personal service. It consists of a touch screen where the customer follows a set of steps for delivery of the car. This technology is gradually being implemented in the automotive industry on a trial basis.

Moreover, the use of number plate scanners when customers enter the parking area of the automotive service provider can help reduce some of the waiting time. Instead of relying on the information given orally at the reception (which can often lead to incorrect delivery of information due to mumbling or typing errors), the registration can happen automatically by scanning the number plate.

4.3. Third touchpoint - during the service

The touchpoint with the most critical pains and frustrations is the during-touchpoint. Touchpoints are normally considered as moments where the customer somehow interact with the service provider. In this case, the customer is not physically involved because this touchpoint mainly consists of backstage processes primarily where the mechanic checks or repairs the car. However, the customer is typically highly mentally involved through having worries of various kinds. Due to the service's credence properties it is impossible for the customer to assess if a repair is necessary, how much time it will normally take to do the repair as well as the price of the repair: "*The bill was higher than agreed and the customer was not informed*". In another customer complaint it was stated that: "*The mechanic had replaced the windscreen wipers without the customer's consent*". Following this, due to lack of transparency in the service delivery, customers fear that mechanics will overcharge for repairs that they did not do or charge for repairs that were not needed. This is exemplified in the following quote: "*The customer refilled the windscreen washer fluid, but still the mechanic could refill 2.4 litre, which was perceived by the customer as strange*".

The earlier mentioned Connected car technology connects the car, user and the automotive service provider via a mobile app. The mechanic has the opportunity to read the car's error codes online and see live data while driving, which can be used for remote diagnosis. Furthermore, this can be used as documentation for the customer to minimize some of the uncertainty related to the credence properties of automotive services.

Although Video is an old technology it has quite recently been introduced to automotive services as a mean to do documentation during service and repair. The video program is integrated with the automotive service provider's IT systems and makes it possible to attach requests for extra repairs. The video is recorded by the technician and is sent directly to the customer instead of a more traditional call with long and complex explanations. The customer gets a better insight into the extent of the repair and a more personal review of the technician. After the video, the customer can see offers from the automotive service provider and with a single click approve the additional repair.

4.4. Fourth touchpoint - pick-up

At this touchpoint, the customer picks up his car after service check or repair. The touchpoint starts with the service provider calling the customer to inform him that the car is ready. However, customers experience that company often forget to inform them that the car is ready to be picked up: *"The customer was told that he could pick it up the day after, but after two and a half days, he had to call the company himself"*. Another customer experienced that: *"The repair took longer than agreed-upon and he was not informed"*. Another concern that customers have when picking up the car is understanding the bill. Typically, it consists of several technical terms and fees that are not easy for a non-professional to understand. Some customers experience that the bill has suddenly increased such as in the following quote: *"They agreed that the maximum price was 9.000 D.kr but when he arrived the price was 12.500 D.kr. and he had to negotiate the price to 9.500 D.kr."*

A typical CRM system or the connected car technology can be used for companies to inform the customer about the status of the repair to avoid surprises when picking-up the car.

4.5. Summing up

In this section, it was discussed how various digital technologies can help reduce some of the credence properties in different touchpoints of the customer journey within automotive services.

5. Conclusion

With increasing competition in services in general and within automotive services particularly, providers need to put the user experience in focus of their business. Particularly within credence services such as automotive services where the quality of the provided service is difficult to evaluate even after purchase and consumption, it is critical to reduce some of the risks that customers perceive.

In this study, we looked at the user experience within automotive services. Four touchpoints were identified and the digital technologies which can potentially reduce some of the credence properties were discussed.

Overall, our results indicate that most credence properties exist in the during touchpoint where the car is being serviced or getting a repair. Although video would not be classified as a new technology, it seems like video has a huge potential to reduce some of the worries that customers experience. The use of video recordings of the process of repairing or servicing the car makes the service delivery more transparent thereby reducing the perceived risk involved with the customer's evaluation of the reliability of the service, both compared to the instrumental aspects of the service realization as well as the price paid. Hence, digital technology can be used during the process to document complete work and thus help convince the customer that service has been performed correctly. Consequently, the customer will have a better chance of evaluating the quality of the performed service by watching the video. Thus, this study indicates that digital technologies can be used to transform credence attributes into experience attributes in regard to automotive services. Suggestions for

further research could be to investigate whether this finding can be generalized to other services with credence attributes.

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