Augmented Reality in the travel industry: A perspective how modern technology can fit consumer's needs in the service industry

Research Paper

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ABSTRACT

Purpose – We discuss the opportunities of modern technologies as a tool according to the service dominant logic approach (Lusch, Vargo, Bolton, & Webster, 2006). We anticipated the use of augmented reality (e.g. experienced preview of holiday villages) has a positive effect (Azuma & others, 1997) and assigned this assumption into the travel industry (Guttentag, 2010). We expected a gain on the value-in-use as well as the co-creation of value for both operant resources. We suggested consumers to generate a value in the experience of goods or service (value-in-use) as well as the optimization of the service along their own preferences (co-creation value) (S. L. Vargo & Lusch, 2004). At the same time the other entity can generate very detailed data about consumers' preferences and use them for strategic planning (co-creation value) plus give an extraordinary service to the other operant (value-in-use). This may lead to an improvement of the customer relationship as well as an increase in sales (Cronin Jr, Brady, & Hult, 2000).

Design/Methodology/approach – To investigate the advantages of augmented reality, we implemented a qualitative research approach according to Albert and Tullis (Albert & Tullis, 2013). Therefore, we ask consumers (as prosumers) of such an experimental-oriented solution in the field of travel industry.

Findings – After analyzing our qualitative data, we find that augmented reality can improve current sales processes in the travel industry. Consumers can be transferred to a prosumer and create a win-win situation for both, the service industry as well as the consumer.

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Research limitations/implications (if applicable) – According to Berg (Berg & Lune, 2004) a qualitative research approach cannot be significant at all. Therefore future research must enlarge the number of cases as well as the research methods. Furthermore, we only looked at a small sample of young people. In contrast to older people, younger people have a less of technology anxiety. Academics can use our findings for adopting current SDL-approaches as well as use cases in the field of information systems. New technologies (e.g. Big Data) can help to get a better understanding of personal augmented experiences (Schmidt, Möhring, Maier, Pietsch, & Härting, 2014).

Practical implications (if applicable) – Travel industry managers can also benefit from our research. Implementing such an information system can help to increase customer service level, satisfaction and reduce consumer complaints as well as increase the turnover.

Originality/value – Related to earlier insights (S. Vargo, Maglio, & Akaka, 2008), our research findings shows that modern information technology can positively influence the different perspectives of value defined in the SD-Logic.

Keywords: augmented reality, service dominant logic, consumer experience, travel industry

1 Introduction

Although travelling becomes a matter of course for many people, the travel industry is under pressure and has to cope with increasing competition and decreasing margins (Carey, Kang, & Zea, 2012). The digitization (Markovitch & Willmott, 2014) of the travel industry is in full swing (Andrew McAfee, 2014). The technological revolution initiated by the internet has changed the market conditions dramatically (Buhalis & Law, 2008). Offerings have become interchangeable and thus can be easily imitated by competition (Carey et al., 2012). Therefore a change in focus towards the customer is inevitable (Carey et al., 2012) and the customer experience has to be improved (Markovitch & Willmott, 2014).

In the travel industry the customer starts with the explorative search for suitable offerings and end with the return from the journey (Coltman, 1989). Up to know, approaches for improving the customer experiences have concentrated on the earlier phases such as the supporting the search

with a suitable web-site and the easy of booking (Buhalis & Law, 2008; Olsen & Connolly, 2000) . The journey itself was mostly out of scope.

The approach presented here addresses the later phases of the buying cycle in the tourism industry especially the journey itself. By enhancing the customer experience with augmented reality (Azuma & others, 1997; Carmigniani et al., 2011; Kipper & Rampolla, 2012), the traveler receives assistance during the whole trip. E.g.: the traveler receives navigation guidance to the airport or hotel, assistance in the case of problems. He me also receive individually tailored offerings within his reach. By this means it is possible not only to increase the value to the customers but also to initiate value-co-creation (S. Vargo et al., 2008). Using modern technology it is not only to give advice and suggestions to the customer but also to use its feedback to learn about the travelers' needs. Thus the offerings can be further developed and optimized.

In this paper we present an approach to initiate value-co-creation using augmented reality. The paper is structured as follows. First background of our research is discussed. Then we present the research method and the data collection. In the following section, data are analyzed and the research model developed. Finally a conclusion and outlook is given.

2 Background

Information systems technologies as well as marketing play a crucial role in the travel industry (Buhalis & Law, 2008). The travel industry has a huge mindshare, because nearly everybody is in contact with it and many people work in the travel industry. Going on holidays is an important thing for most people and they spend a lot money for this (Buhalis & Law, 2008). All people, who want to go to holidays have to decide under the premise of incertitude and with a lack of information (Buhalis & Law, 2008). The development of modern IT-systems and technologies have improved the information to the customer in the last years (Buhalis & Law, 2008) by establishing Internet travel agencies and forums for travel reports. Before the appearance of this platforms people had only few information or such of bad quality. Only travel brochures with pictures and short descriptions published by the hotelier and or the tour operator were created and the traveler had to trust in them.

Nowadays prospective travelers have access to huge information bases, which are created independently from the supply side on a peer-to-peer basis. Travelers can exchange information about hotel etc. on a very short and easy way. Often internet travel agencies run their own evaluating platforms as well (Schegg & Fux, 2010; Buhalis & Mamalakis, 2015). Consumers are now

better informed because of the evaluations and experiences of other consumers. That leads to the point that information given by a travel brochure does not provide value any more. With regard to these changed circumstances, the sector has to change his strategy (Buhalis & Law, 2008).

A possibility to modernize the business strategy could be to develop the marketing by design. The travel industry belongs to the service industry, so it seems that a service-oriented development of the marketing could be a suitable approach. In this case a marketing view according to service dominant logic Vargo & Lusch described in their remarks 2004 (S. L. Vargo & Lusch, 2004) can be applied.

The authors implement in their article „Evolving to a New Dominant Logic for Marketing" an alternative perspective on marketing, which is focused on the exchange of service and not even longer strongly on the exchange of goods (S. L. Vargo & Lusch, 2004). They designed their „service-dominant" point of view on eight foundational premises, which were later revised in wording and supplemented through two further premises (Lusch et al., 2006). The 10 foundational premises of the „service dominant logic" according to Vargo & Lusch (2008) are shown in the following table.

Foundational premises	**Modified / new declaration**
FP 1	Service is the fundamental basis of exchange
FP 2	Indirect exchange masks the fundamental Basis of exchange
FP 3	Goods are a distribution mechanism for service provision
FP 4	Operant resources are the fundamental source of competitive advantage
FP 5	All economies are service economies
FP 6	The customer is always a co- creator of value
FP 7	The enterprise cannot deliver value, but only offer value propositions
FP 8	A service-centered view is inherently customer oriented and relational
FP 9	All social and economic actors are resource integrators
FP 10	Value is always uniquely and phenomenological determined by the beneficiary

Table 1 Lean on Vargo & Lusch 2008 (S. Vargo et al., 2008)

Based on the foundational premises shown in the table, the service-dominant logic could be basically summarized and interpret with regard to (S. Vargo et al., 2008) like in the following.

The application of knowledge and skills, for example between companies and consumers, build the foundation for an exchange as a service (S. Vargo et al., 2008). In this way „value –in use" is generated for both entities (S. L. Vargo & Lusch, 2004 FP1). Although the service is not obvious in every taken transaction, it is always present (S. Vargo et al., 2008 FP2). In many cases the good

providing the value while using it, consequential distributes the service (S. Vargo et al., 2008 FP3). The foundations for competitive advantage are operant resources. They enable the entities to react in the desired advantageous manner (S. Vargo et al., 2008 FP4). The proceeding of individualization in the economy boosts the importance of service in every industry (S. Vargo et al., 2008). Therefore, in the meantime every economy could be regarded as based on service (S. L. Vargo & Lusch, 2004 FP5). Consumer needs and wishes can be identified by integrating them into the entire process of service and value as an active operating resource, hence an interactive creation of value takes place (S. Vargo et al., 2008; S. L. Vargo & Lusch, 2004 FP6). The enterprise could propose a value, which differs it from other competitors, but is not able to create it autonomously (S. Vargo et al., 2008). The creation of value indeed only occurs, if the consumer accepts the proposition and understands that his individual need can be satisfied by cooperation with the supplier (S. L. Vargo & Lusch, 2004 FP7). According to this a service-centered point of view is inherently oriented on the consumer as well relational (S. Vargo et al., 2008 FP8). All actors integrate resources and interact in a special an individual manner together (S. Vargo et al., 2008; S. L. Vargo & Lusch, 2004 FP9). This leads in every single case to unique value and additional benefit, too (S. Vargo et al., 2008 FP10).

In this paper the findings of Vargo & Lusch, 2004 and later, are transferred into the context of travel industry. In order to find a beneficial approach for redesigning marketing strategy, a service dominant logic point of view is discussed. Under the assumption that travel agencies are more service-driven than their online competitors, they are in the focal point of the research. Further a greater strategically need to react and practical benefit for this audience were suggested.

According to the service – dominant logic of marketing (S. L. Vargo & Lusch, 2004), travel agencies could improve their business by serving the consumer a special kind of service. Therefore the agencies could establish a consumer-oriented application, which differs the own offer from other agencies or the online competitors. While consumers have to take a decision under uncertainty (Buhalis & Law, 2008), the offer of further information about the holidays could be a possibility to improve the service of the agency (S. Vargo et al., 2008). If the information are only available with the support of the agency a value could proposed to the consumers. Taken this offer means interacting and exchanging for both entities, the travel agency as well as the consumer. This leads to value in use by exchanging information as a good. The good, here information, gives while using it, a special and unique service and value to the customer as well as to the travel agency. Each entity gains an individual value by using and exchanging the service. The consumer gather further information and becomes a co-creator of the own value by taken the value proposal. Using the information offered by the tour operator means to be well-informed as well as to take a good decision for holidays with a higher probability. The provider is inherently more customer-oriented

than competitors offline and especially online. So improving the service by marketing strategy redesign could increase sales. Further there is the possibility to gain insights about consumer preferences.

In order to improve the marketing by design the paper enters to the question, which influence modern information systems could have on the creation of value. According to S. Vargo et al. (2008) a good concept to realize can be seen by using and integrating modern information technologies. As a possible technology named Augmented reality is discuss in the following.

There are some different definitions for the concept Augmented Reality (AR). A well-established definition is given by Azuma & others (1997). He defines AR as a version of Virtual Reality (VR). In a Virtual Reality or a Virtual Enviroment (VE) the user is completely immersed to a synthesized environment with no touch-points to the real world (Azuma & others, 1997). In an Augmented Reality application the user can experience the real world as well as virtual entities added to this (Azuma & others, 1997). Both technologies are very similar to each other. According to Azuma's definition AR is a system that combines real and virtual aspects, gives the user the opportunity to interact in real-time and is realized in three dimensions. The definition is taken under the premise of independence on selected technologies or devices. Therefore this paper as well as the qualitative study is based on the remarks of Azuma.

There are many capabilities where VR and AR can be used beneficial. The range of the fields is broad and wide. It tends from the medicine and the education of doctors (Azuma & others, 1997) to economic sectors like marketing (Williams & Hobson, 1994; Williams & Hobson, 1995). Some authors, like for example Williams and Hobson (1994, 1995), argued that VR can be used as a marketing tool in the travel industry. Further there are assumptions propose that VR can have an impact on the travel industry (Guttentag, 2010).

Based on this, we see a high advantage for using this technology in the context of service in the travel industry. The use of an Augmented Reality application serves the customer a special bundle of information. Common media like for example pictures and short media clips are working in only 2-D. Compared to this Augmented Reality involves the consumer much better. In consequence of the 3-D technic combines with the possibility to add digital information to the real world, the consumer have a much more better experience and can be informed in a better way as well. The consumer can not only get in touch with the real world scene in fact he can gets a lot more information like distances for example.

The integration of AR into the marketing instruments can help to redesign the marketing strategy in a service dominant logic way.

On the one hand the consumer could get an individual value while using the application offered by the agency. The experience of the information allows to get a better impression of relevant aspects like rooms, location of the hotel etc. In consequence of the better information the consumer can take his decision with less risk. We expect that the consumer could gain value through the experience of the good and the service (value in use) as well as the optimization of the service along their own preferences (co-creation value) (S. L. Vargo & Lusch, 2004). On the other also the agency can generate value when people using the offered service (co-creation value). While using the application they can generate detailed data about consumer preferences and use the for further strategic planning (value in use) (S. L. Vargo & Lusch, 2004). Additionally the agency can give a special and highly consumer-oriented proposal in contrast to other competitors, online as well as offline. This value proposition could be very attractive to the consumers. This may lead to an improvement of the customer relationship as well as an increase in sales (Cronin Jr et al., 2000).

3 Research Method and Data Collection

3.1 Research Methods

To explore how Augmented reality can be useful in the travel industry to fit consumer's needs, we use a qualitative research approach. Qualitative research allows the researcher to get a deeper understanding and examination of the experience of people (Hennink, Hutter, & Bailey, 2010). We collected insights form a naturally setting of the people to get details of how experiences and behavior are shaped (Hennink et al., 2010). We implemented a qualitative research approach according to Albert and Tullis (2013).

To build a theory of the use of augmented reality in the travel industry, we choose the methodology of Grounded Theory (B. G. Glaser, 1998). According to Glaser and Strauss there are several procedures to implement through Grounded Theory (B. Glaser & Strauss, 1967). Overall, there is a need for systematically analyzing the hole data (including categorizations and coding's, etc.) during the research process. Before developing a theory, the authors must implement a qualitative study (e.g. interviews) and collect different answers (Creswell, 2012).

After transcription of the interviews, we analyze the qualitative data via coding procedures according to Strauss and Corbin (Strauss & Corbin, 1990). First we used open coding technique to identify coherencies in the raw interview data and developed initial categories (Strauss & Corbin, 1990, p.

58). Then we analyze the different initial categories and their relations (axial coding) (Strauss & Corbin, 1990). Finally, we introduced a core category and build a theory (Strauss & Corbin, 1990). For coding different software tools like MAXQDA (Schönfelder, 2011) can be used.

3.2 Data Collection

The data for our qualitative research was collected in guideline-based personal interviews. We asked 10 students to tell us their opinions about travelling and the use of AR in context of booking holidays.

We chose students as target audience because of some different reasons. One of the main reasons was that we assumed a high involvement for the topic travelling and holidays in this group. Hence the subject is important for most people, young students are much more experience-oriented in every way. Discovering the world and telling friends about the new experiences is very popular. Usually they own enough money to spend for at least one holiday-trip each the year, but their budget is restricted so that they would regret the investment for unlovely holidays. Additionally they are more open-minded about modern information technologies (Laguna & Babcock, 1997).

The participants of our study are between 21 and 28 years old. One half of the interviewee are male, the other five persons are female. The range of their earned incomings goes from 0 to 700 € per month and they go for holidays from 0, 5 to 5 times a year. The following table covers the personal attributes of the asked persons in an anonymized way:

Asked person	**Age**	**Gender**	**Course of study**	**Ø Income per month**	**Ø Holidays per year**	**Ø Invest per holiday**
Denise	21	f	Management	230 €	1	800 €
Dorothee	23	f	Management	200 €	1,5	450 €
Marita	24	f	Management	400 €	1,5	500 €
Karola	22	f	Management	400 €	1,5	1.000 €
Lena	28	f	Study for lectureship	0 € *	0,5	600 €
Lucas	22	m	Management	350 €	5	200 €
Howard	23	m	Management	650 €	1,5	500 €
Teddy	28	m	Study for lectureship	0 € *	0,5	200 €
Christopher	28	m	Management	600 €	1,5	350 €
Max	23	m	Management	500 €	1	350 €

*Table 2: asked persons; *: means no own earnings, but financial support by the family, etc.*

In the 4th quarter of 2014 until the end of the 1st quarter 2015 we designed the study, interrogated the participants and analyzed the data of the research. Each interviews lasts about 10 minutes. The interviews were recorded and afterwards transliterated.

After a short introduction of the data privacy we started with simple questions about the person itself and their attitude toward travelling. Then we showed them a short video to describe them VR and consecutively AR (WELT, 2015). The video showed the use of data glasses in the context with a city trip through New York. It was explained that the glasses give a 360°-view of the situation and location. Further the video declared the option that people were able to walk through different scenes in the VR. A helicopter course over the skyline of New York and a taxi trip are the examples given in the video. Additionally to this we explained the participants that in an AR environment they can gather further information like e.g. distances, proportions or prices of for example a hotel room. We continued the interviews with question about the technology and about their opinion of combination the technology with the field of travel.

4 Data Analysis and Model Development

After analyzing our qualitative data via open coding techniques with MAXQDA (Schönfelder, 2011), we got 38 different codes. These codes were frequently used, because all over the interviews we found 172 hits:

Name of the interviewee	**Number of assigned codes**
Denise	16
Dorothee	30
Marita	20
Karola	26
Lena	13
Lucas	15
Howard	12
Teddy	13
Christopher	13

Max	14

Table 3: Hit of codes per asked person

According to the selective coding (cf. Grounded Theory), the core category can be defined as the use of AR in context of booking holidays. Our final model is defined in the following figure:

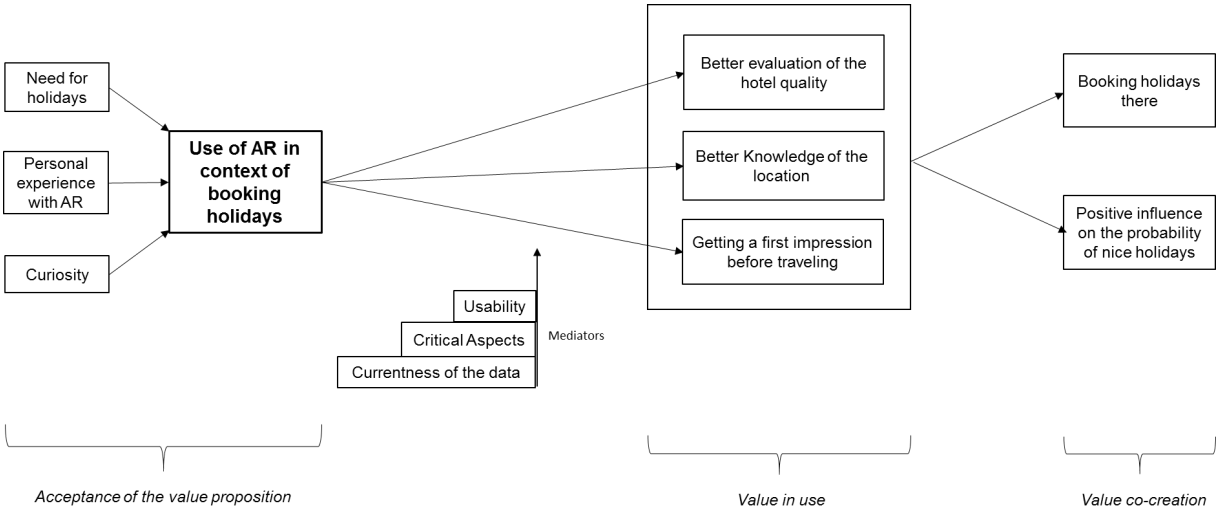

Figure 1: Model of the use of AR

Personal experience people took with AR, curiosity, need for holidays

In our qualitative analysis we found three factors, which influence peoples' attitude toward the adoption of an AR application as a service.

One factor we found is the **personal experience people took with AR** the technology in the past. In 70 % of the cases, the respondent told us that they have already encountered with AR or a similar technology. All of them told that they have tried out Google Street View (Street View - Google Maps, 2015).

This tool belongs rather to the field of virtual reality, but the technologies were related or use Google Street view (cf. Lieberman & Christopher, 2011). So it could may accepted, that the people could imagine how about getting further information, which is characteristic for AR. The range of frequency and topic the tool was used is wide and differs between the interviewee. Some said they used it with no concrete intension and shared Dorothee's statement:

"I just keep a short look into Street View"

But there are also those, who used it more intensively and already in matters of travelling. As an apt quotation of this case the information Max has given can be seen:

"I've used Google Street View in the past and I used it already in conjunction with travelling. Last time I could see the lay of the campsite with regard to the street."

This possible application is also confirmed by Marita's statement:

"I use Google Street View before I go for holidays in a regular basis. I go along the street and keep a look for the distance to the Beach. I want to know this detail. I like this possibility to do."

On basis of the information got through the collected data, we assume a positive influence of the individual experience toward the attitude of the use of AR in the context of the travel industry. We anticipate that a first experience with AR or a similar technology will lead to a raised acceptation of the service and the value proposition as well. The advantage and the value of the service given through the application can be seen easily by people familiar with AR or a similar technology.

Another factor we found in our research is **curiosity**. People's intension to use a technology can also due to curiosity. Nearly half of the people we asked confirmed to use Google Street View because they were curious about. The answers of Teddy and Christopher characterize the intention of using induced by curiosity.

"I just want to keep a look in, because it was new and innovative" (Teddy)
"I was interested in using the tool. I just want to have a look on." (Christopher)

Based on the data of the qualitative research, there is evidence to suggest that curiosity could influence the use of an augmented reality application in a positive way. There might be people, who would apt to use the technology in first instance because they are curious about and not because they want to generate a value while using the proposition.

As a third influencing factor we identified the personal **need for holidays**. The interviewees we interrogate go for holidays for 1, 6 times in medial per year. This implies that all of them have an internal a personal level of need for holidays. Therefore we suspect the following connection: When people reach their personal need for holidays they start to look for information about their next trip. In search of the best information and the best offer, they are more tended to use a technology, which proposes them the possibility of a desired value.

In the following we extinguish the mentioned factors to have a positive influence on consumers' willingness to use an AR application while collecting information about holidays and making a decision. Nevertheless we do not imply a necessity for these factors, we only refer to a positive effect.

Use of AR in context of booking holidays

In general most people we interviewed could imagine to **use AR in context of booking holidays** application as a complimentary service of a tour operator. This opinion was advanced by 90 % of the participants. With regard to the data it seems possible that people recognize the value of an AR application and accept the value proposition which is given through the service.

If the acceptation of the value proposition occurred, the opportunity for generating value in use occurs. An AR tool provides the user with more detailed information about the planned trip, for example view of the hotel or the estimation of the site. On account of this we take the assumption that the consumer could generate an individual value in use, because in consideration of the additional information a well-informed and sure decision could be taken.

Getting a first impression before travelling for evaluation

Our research confirms this assumption. The participants of the survey mentioned consistently the benefit of an AR application. Advantages are seen in **getting a first impression before travelling, the better evaluation of the hotel and better knowledge of the location**.

The participants of our study see the main advantage on getting a first impression. Nearly all of the asked persons, what means 90%, assume that the use of AR could give them the advantage of a first impression. Often this is literally named as the main advantage. An apt quotation can be cited Christopher, when he said:

"It is possible to get a slight first impression about the reality. I think this is the main advantage."

This received opinion is further supplemented. For example Howard added that after using there is the probability *"to form an opinion about the hotel is good or bad."*

This advantage assumed for evaluating the hotel, for example in Howard statement, is seen in a different context in a similar way. The interviewees mentioned also that the technology can help to

improve the knowledge of place. In this relation Karola noted the transfer between airport and hotel as cited in the follow:

"Having the information means not to arrive at the destination without knowledge. Otherwise the transfer is often a journey into blue distance."

Hence Lena added that the additional information could be used to make a better decision about small and huge holiday satisfiers:

"If I would know that there is a gravel beach instead on a sandy beach, I would take other bathing shoes with me. It might be also possible that I would change my decision, if the hotel or the site of the hotel does not satisfy my preferences."

Luca agreed in the opinion of Karola and Lena and added another interesting factor for the benefit of the technology. His following statement reflects that he thinks that it could be also possible to minimize the hazard of a disappointment:

"I think it could help to anticipate the first impression, which could be negative engaged."

Although all participants had positivity for using an AR application before booking holidays, some marked aspects that could have an influence on the willingness to do. We respect this as mediators in the following.

Mediators: currentness of data, usability, critical aspects

The **currentness of data** was a mentioned aspect. It was critical noted, that the advantage of the technology only exists, if "*Everything is always up-to-date*" (Dorothee). Others than that, mentioned the **usability** of the application. Dorothee noted further that everybody should get the possibility to use the innovative application in a comfortable way:

"The convenience and the adaptability should be considered also with a view to people with special need like spectacle wearer."

Along the aspect of convenience and adaptability Lucas also marked, that the use *"should not occupy a long time."*

In addition to these opinions people added further **critical aspects** like the congruity between the authenticity of the shown reality and the reality on-site. The aspect that "*It's not all it's cracked up to be.*" (Dorothee) was observed and discussed by many interviewees. Most referred to the pictures. Aside to this invisible factors also referred to as. For example Lena said:

"There are differences in the furnishing of the hotel rooms. I mean, I think it is not possible to take an own video of every single room so that there can be discrepancies to the reality."

Dorothee shares Lena's sorrow in her statement:

"The best room will be shown, but in the end I got another one."

In order to increase the willingness of the consumers to use the service given by the AR application, these mediators should be included.

Positive influence on the probability for having nice holidays and booking holidays there

The argumentation people derived from the value in use implies that an AR application has the ability for a **positive influence on the probability for having nice holidays**. All participants of our research were in complete agreement about that correlation. In many cases they express that opinion in a very clear and straight manner like for example Dorothee "*Yes, I trust in*." or Howard "*Yes, surely*." But there were also statement that gives a detailed description of the relation between the more information generated through value in use and the rise of the probability of having nice holidays.

Teddy's opinion is an apt quotation therefore. He answered to the question "Do you think that the technology could help to increase the probability for having nice holiday?" like in the following:

"Yes, definitely. One can be sure about the proposal is suitable or not a priori. That means that there is no chance for a disappointment."

Not only a consumer-oriented goal could be reached through the value-in-use induced by the AR application but also an economics goal of the travel agent could be implemented. The analysis of the data showed that the opportunity to this special service influences the attitude toward the travel agent in a positive way. At the beginning of our survey we asked people, where they usually book their holiday trips. Most of them, about 70 %, told us that they preferred the internet. After

introducing AR and its possibilities in the context of travelling we interrogated the people again about their preferences for the booking way. We found that the opinion of the interviewees has changed in 80 % of the cases. Participants told us that if a travel agent offers such a service and there is no discrepancy in the price of the interesting trip, they would **booking holidays there** and not online.

The analysis of your qualitative research results in the assumption that a travel agent and a consumer could co-create a value by given service through an AR Tool. This means that both entities could benefit in an own individual way by integrating resources and interchange services.

In consumers' point of view the service of an AR application is advantageous for one's own end. The anticipation of getting useful information about the holidays and the possibility to take a well informed decision tends to result in the acceptation of the value-proposition. Although a mediating effect must be respected and controlled if procurable, the findings shows an evidence for using the AR application as a service and generating and individual value-in-use is most likely. The value-in-use participants mentioned can be described as extended information. This fact implicates to be more well-informed before taking a decision and booking a holiday trip. Therefore, consumers could improve their individual probability for having nice holidays, because they have the opportunity to take a decision based on their own evaluation as well as aligned along the own preferences.

In addition to the consumer the travel agent could benefit from offering the service of this tool. If consumers accept the value proposition given by the AR application, they become a co-creator of the travel agent. Whenever accepting the value-proposition using the offered application, consumers' show information and details about their preferences. For example it is possible to ask consumers question while using the technology and finding out what they really want and giving the best individual offer. Furthermore there exists the possibility to use technical options of the application like for example eye tracking or counting the click on objects or information. By this way information can be generated and evaluated by modern big data technologies. In that way it might be possible for the travel agent to optimize his overture as well as the marketing strategy constantly align the consumers' preferences. This may implicate an increase of sales.

5 Conclusion and Outlook

In this article we present a qualitative study to explore the use of augmented reality in the travel industry. Based on the qualitative data we develop a model via Grounded Theory. Therefore we got

several interesting insights. We find out, that people in meantime are willing to use an AR tool before booking holidays, if the service is complimentary. The opinions of the participants have showed, that the attitude to use could be positive influenced by the individual internal factors need for holidays, individual experience with AR and curiosity. The further analysis of the data implies that people gain a value through the information given by the technique. To be better informed before taking the decision for the holiday means to be enabled to evaluate the hotel and the hotel site in a better individual way as well as getting a first impression and minimize the probability to be disappointed. This value in use could be influenced by the mediators, currentness of data, the usability and other critical aspect like e.g. the truthiness of information. Summarized our findings implicate that the use of an AR application has a positive impact to the consumers as well as the travel agent. While consumers can rise the probability to book the holidays they really want, travel agents can increase sales, because they give the consumers the opportunity through the service of the systems to have nice holidays as well as renew the marketing strategy and the proposal constantly.

We contribute to the current management and information systems literature. Our model can help researchers to understand why consumers use augmented reality in the travel industry and how this behavior is influenced. The use of an AR application gives the supplier the opportunity to give the consumer a value proposition through service and encourage them to become a co-creator of the own value. It seems to be possible that the other operant, here the consumer, accepts the value proposition and starts to become a co-creator of the own value as well of the value of the supplier as well while using the service. On the one hand the consumer could raise the probability to have nice holidays because of minimize the risk of a disappointment. On the other hand the consumer enlarge the value of the supplier, when showing preferences and booking there. In addition the supplier enlarges the value of the consumer as well as the own value at the same time. Giving the consumer the opportunity to take a well-informed decision means to raise the probability of nice holidays. This may lead to an increase of sales what is a value for the travel agent.

Our qualitative research could lead to the implication, that the implementation of an AR application has a positive impact on the values of the both operant resources according to the service-dominant logic (S. L. Vargo & Lusch, 2004; S. Vargo et al., 2008).

Furthermore, there are managerial implications. Travel agencies can use our results for decision making, how they can use augmented reality in practice. Based on a practical use in a local travel agency, the enterprise turnover might stabilize or increase in this high competitive environment with online travel websites.

Nevertheless, there are some limitations to discuss. Our research based on a small sample of German young people. There might be differences to other countries and bigger samples with a broader construction of different socio-demographic factors (e.g. age, income, etc.). Furthermore, the persons interviewed have not tested all of the functionalities of augmented reality in the travel industry.

Therefore, future research can enlarge the sample as well as the explored countries and factors. New data analysis approaches like Big Data (Schmidt et al., 2014) can be explored to use more personalized views for holiday booking. Core business processes for holiday booking should be observed by future research (e.g. process improvement by using different context data (cf. Möhring, Schmidt, Härting, Bär, & Zimmermann, 2014) from AR technology's). Furthermore, a quantitative study to test our model with quantitative data (e.g. via web based survey) could be a good opportunity for future research.

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