The Smart Tourism Experience: Is this concept visible in theory and in practice

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Colophon

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Abstract

ICT has an increasing influence on the tourism field. This smart tourism is accompanied by new concepts that are fuzzy and not clearly defined to be used collectively. This paper tries to conceptualize the Smart Tourism Experience and also examine its application in practice. It aims for a better understanding of the concept and beside that it looks further into the technology behind this experience. The role of internet usage through the smartphone will be discussed, combined with its sharing and searching potential. Finally the paper will provide an answer to the question whether tourists in Amsterdam encounter a Smart Tourism Experience or not.

Keywords: Smart Tourism Experience, Tourist Experience, Smart tourism, ICT

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1. Introduction

1.1. Background

Tourism is one of the fastest growing industries worldwide (UNWTO, 2017). Tourism is not only an economic and cultural aspect, but has also a clear link with planning (Nasser, 2003; Shoval, 2018). In several European cities the relation between urban planning and tourism can be seen (Shoval, 2018). Tourism is integrated into the planning process where it is part of the larger agenda of urban revitalization (Judd, 2015). For a planner, it is very important to understand tourism, as it is a growing challenge for urban planning.

One of the main opportunities in tourism is the increasing use of ICT, however it creates a challenge of how to implement this technology in tourism (UNWTO, 2017). The global tourism system has gone through a significant change over the last decades, due to the accessibility of information technologies (IT) (Gössling, 2017). Firstly, the role of search engines had a strong influence on the travellers' accessibility to tourism products (Xiang, Magnini & Fesenmaier, 2015). Second, the increasing use of social media changed the way of communicating (Xiang, Magnini & Fesenmaier, 2015). Third, the recent developments of mobile devices as the smartphone created a new way of travelling with decisions based on the availability of this technology (Xiang, Magnini & Fesenmaier, 2015). The smartphone has the potential to support travellers by providing access to information anytime and almost anywhere (Wang, Park & Fesenmaier, 2012). For tourism in general, this means a major change in the experience of travelling. The research will therefore focus one of the main subjects in the tourism research field, Smart Tourism. This concept incorporates the technologies of open data initiatives and the development of mobile applications

Research in Smart Tourism is limited but has been developing over the last years (Gretzel et al., 2015). Smart Tourism has become a common term to describe the use of different technologies for travel (Huang et al., 2017). Not only technology is often used in conjunction with smart tourism, but also the Tourist Experience is mentioned. In fact, smart experience can be seen as the output of Smart Tourism (Vecchio, 2017). The topic of the tourist experience is receiving increasing attention in the literature and has been extensively discussed since the 1960's (Volo, 2009). The Smart Tourism Experience concept focuses on technology mediated tourism experiences, where tourist are active participants in the creation of these experiences (Boes, Buhalis & Inversini, 2016). According to Cohen et al. (2014) the reliance of tourists on online sources is likely to grow.

Gretzel et al. (2015) argue that one of the key components of Smart Tourism is the Smart Tourism Experience. Gretzel et al. (2015) acknowledge that the Smart Tourism Experience is rich and meaningful. The Smart Tourism Experience is one of the foundations of smart tourism according to Gretzel et al. (2015). Buhalis and Amaranggana (2015) describe that the Smart Tourism Experience focuses on the technology-mediated tourism experiences and their improvement through personalization. However, the Smart Tourism Concept has been discussed little in recent studies. Therefore, it is important to examine what the concept exactly means and is the concept only theoretical or can it also be found in practice? In addition, what are the underlying foundations of the

Smart Tourism Experience?

To contribute to the academic field of Tourism, and specifically Smart Tourism, further research into the meaning of the concept of the Smart Tourism Experience is necessary. Not only is the definition of interest, this research also aims to provide examples of the Smart Tourism Experience in the realm of practice. The research into the concept in practice will take place in the city centre of Amsterdam (Figure 1). Ultimately, the knowledge generated by this research makes it possible to better understand the impact of ICT on the tourist experience.

Figure 1: The urban districts of the municipality of Amsterdam on regional and national scale (Self-made, 2018)

1.2. Research Problem

The Smart Tourism Experience is related to the wider concepts of Smart Tourism and the Tourist Experience. The concepts of Smart Tourism and the Tourist Experience are widely discussed topics among researchers in the Tourist field (Vecchio, 2017; Tussyadiah and Fesenmaier, 2009). The research in the Smart Tourism field as well as the research of the Tourist Experience contain difficulties and this research aims to contribute to the academic field to look further into one of these difficulties. The main research problem is the use of the term Smart Tourism Experience in the literature and the lack of a clear definition of this term.

In addition to this will the research focus on the Smart Tourism Experience in practice. It is not known whether the Smart Tourism Experience can be recognized in practice. Therefore, will this be examined through the collecting and analysis of data about tourist. To do this, several questions have been formulated to outline the problem and set boundaries for the research.

The central question that motivates this thesis is: "**Do tourists in Amsterdam encounter a Smart Tourism Experience?"**
To answer the research question, the following sub-questions should be answered:

- What is the meaning of the concept of the Smart Tourism Experience?
- Does the use of a smartphone contribute to the Smart Tourist Experience?

1.3. Hypotheses

In order to complete the research the following hypotheses have been formulated:

H0a: The Smart Tourism Experience is a technology-based concept
H0b: The Smart Tourist Experience is an experience-based concept

H1: Most people share and search information on their smartphone during the trip
H2: More people are using their smartphone for searching information in comparison to sharing experiences on social media.

These hypotheses will be tested in the data analysis. The hypotheses will be accepted or rejected in the conclusion of chapter 5.

1.4. Structure

The research structure will now be described. Firstly, the theoretical framework will provide the theoretical foundation for the research. The theoretical framework will be used to guide us through several concepts that are related to the main research problem. This will contribute to gaining an understanding of the concept of the Smart Tourist Experience and the relation with Smart Tourism and the Tourist Experience.

Secondly, the methods will provide insight into the data collection process. This section will also explain which data-analysing tool has been used. Thirdly, the results will answer the sub questions that were used to identify the problem. The results are based on the literature research and the data analysis. These results will give answers on the research questions proposed in the introduction of this research.

The final chapter of this research will draw the conclusion based upon the results. This will be done by answering the main question. In addition to this, in the last chapter the results will be discussed and recommendations for further research will be made.

2. Theoretical Framework

2.1. Smart Tourism

As described in the introduction, Information Communication Technologies (ICT) affect the tourism system in a complex way and it represents one of the most significant changes in the global tourism system over the past decades (Gössling, 2017). The smart concepts are increasing in number as well as the research about the increasing use of ICT in tourism. According to Gretzel et al. (2015) the term smart, when it is added to technologies (e.g. Smart TV, Smart Phone), represents connectivity. In the context of economies it refers to technologies supporting new forms of collaboration and value creation. In the context of tourism, smart is used to describe a complex amalgam of everything stated above.

Smart Tourism is a fuzzy concept. For example, Li et al. (2017) have found seven different types of Smart Tourism. In order to make the term useful in the context of this study, the definitions of two authors have been used. Hunter et al. (2015: 105) defines Smart Tourism as follows: "Smart Tourism is a social phenomenon arising from the convergence of information technology with the tourist experience". This means Smart Tourism cannot be seen only as a technical approach of tourism. The implemented technologies have a significant role in defining how people relate and react to each other (Hunter et al. 2015). Therefore, Smart Tourism can also be seen as a social concern. The technologies used in smart tourism are generative and transient and the impact of information technology on tourism is profound (Hunter et al., 2015). ICT is the key of conceptualisation as well as the development of smart tourism (Gretzel et al., 2015). The definition of Smart Tourism is according to Gretzel et al. (2015: 181): *"*tourism supported by integrated efforts at a destination to collect and aggregate/harness data derived from physical infrastructure, social connections, government/organizational sources and human bodies/minds in combination with the use of advanced technologies to transform that data into on-site experiences and business value-propositions with a clear focus on efficiency, sustainability and experience enrichment*."*. The authors look deeper into the appliance of this concept and the different stakeholders such as the government, the market and the consumers.

To summarize, the topic of this thesis continues in the Smart Tourism research and specifically on the experience enrichment in combination with the use of advanced technologies. This experience enrichment has, according to Gretzel et al. (2015) and Hunter et al. (2015), a similarity with the Tourist Experience.

2.2. Tourist Experience

The description of smart tourism in the previous section has made it clear that Smart Tourism is not only a technology-based concept. The social concern of Smart Tourism can been seen in the Tourist Experience. The Tourist Experience is not directly linked to Smart Tourism, however this concept is important in the process of defining the Smart Tourism Experience. The Tourist Experience has been a topic in research since the 1960's and it is especially about the tourists' valuations of their personal experiences (Uriely, 2005). The Tourist Experience is also a topic for social scientists because of the psychological behavioural layers it entails. Travel is psychologically rewarding because experiences can for example be turned into social capital through social media (Gössling, 2017).

The Tourist experience is a topic where researchers in the tourism field face major challenges

because of the conceptual and theoretical complexity and the undone research (Ritchie and Hudson, 2009). According to Ritchie and Hudson (2009) can documentation about Tourist Experience be divided into six streams and each of these streams represents a defined set challenges. These six streams are described in Table 1 together with the scale of difficulty of each stream. The table demonstrates the largest issues in the Tourist Experience research and this is important for further research about this topic. Because Ritchie and Hudson (2009) identify these issues, understanding the research in Tourist Experience has become less difficult. The authors' research deals with the choice and behaviour of the Tourist Experience and the understanding of specific kinds of tourist experience. As Table 1 indicates the undone research in the choice and behaviour of Tourist Experience is high (8).

	Stream 1	Stream 2	Stream 3	Stream 4	Stream 5	Stream 6
	The essence of the experience	Choice and behaviour	Methodologies for experience research	Understanding specific kinds of tourism experience	Research related to managerial concerns	Evolutionary focus of experience research
Conceptual/ theoretical complexity	9	7	8	5	6	2
'Undone' research	5	8	9	6	7	4
'Average' difficulty	7.0	7.5	8.5	5.5	6.5	3.0
Overall difficulty ranking	(3)	(2)	(1)	(5)	(4)	(6)

[a]Note: Scale rating based on a 10-point scale, where: 1 = no level of difficulty; and 10 = very high level of difficulty.

Table 1: identifying the relative level of difficulty of challenges facing consumer/Tourist Experience research: a subjective assessment (Ritchie and Hudson, 2009).

The problems of the research into the Tourist Experience can be found in Table 1. In order to understand the problems it is necessary to look further into the meaning of the concept. The definition of the Tourist Experience is according to Tung and Ritchie (2011: 1369): "An individual's subjective evaluation and undergoing (i.e., affective, cognitive, and behavioural) of events related to his/her tourist activities which begins before (i.e., planning and preparation), during (i.e., at the destination), and after the trip (i.e., recollection)". The Tourist Experience can be defined as "any occurrence that happens to a person outside the "usual environment" and the "contracted time" for which a sequence of the following events happens: energy reflecting the state of the environment impinges" (Volo, 2009: 119). Both of these definitions agree with the fact that the Tourist Experience is an occurrence which happens to the tourist. However, in the opinion of Volo (2009) the experience is not just related to the activities, but also a cognitive action of the brain (see Figure 2). Larsen (2007) agrees with this idea adding that an experience will stay in the memory and therefore is an act of the brain.

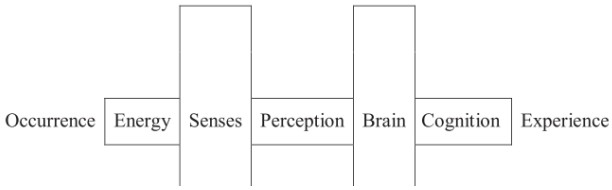

Figure 2: The experience sequence (Volo, 2009)

The exact brain process is not relevant for this research. However, the knowledge that the experience can be determined as a personal action, is. When a Tourist Experience is personal it contributes to the statement that tourists are able to add value to the tourist experience. Volo (2009) agrees with this statement because he described the importance of personalizing the experience which will allow tourists to co-create the context of the experience and develop the essence of it.

To link the concepts of the Tourist Experience and the Smart Tourist Experience there is one keyword: smart. Smart stands in this context for the use of technology in the Tourist Experience. In the literature there has been written more about the role of technologies in the Tourist Experience. Internet and information technologies have played a critical role in the tourism experience **(**Huang et al., 2017). Recent studies have uncovered how technology, and specifically the smartphone, have changed the Tourist Experience (Cohen et al., 2014).

2.3. Smart Tourism Experience

Hunter et al. (2015) describe the social impact of Smart Tourism. Smart Tourism and the Tourist Experience are concepts which are linked to each other. The knowledge that was gain about Smart Tourism and the Tourist Experience is the basis for the conceptualization of the Smart Tourism Experience below.

Key component of the concept of smart tourism is the Smart Tourism Experience (Gretzel et al., 2015). This component focuses on mediated tourist experiences like uploading photos to Instagram or Flickr (Gretzel et al., 2015). ICT has an increasing role in the tourist experience (Boes, Buhalis and Inversini, 2016) and tourists may collaborate to the creation of their own experiences through tourism service providers.

The definition of Smart Tourism can be decomposed in three underlying components. According to Gretzel et al. (2015) the Smart Tourism Experience is one of these three ICT based components that explains Smart Tourism (see Figure 3). The Smart Tourism experience is based on the tourist and specifically the creation of value to their trip with the use of ICT. An example is using online apps or uploading photos during a trip. This will add value to the travellers' experience and therefore they have a Smart Tourism Experience. It is essential to participate actively as a Tourist in the creating of a Smart Tourism Experience (Gretzel et al., 2015). Neuhofer et al. (2015) mention, like Gretzel et al., (2015) the role of technologies for personalized experience creation but do not use the term Smart Experience. From this perspective the goal of smart technologies is to enhance the experience in a useful, smart and more efficient way. However, the tourist is according to Neuhofer et al. (2015) more a consumer of the smart experience than a creator. This means that the tourist is partially creating the Smart Tourism Experience.

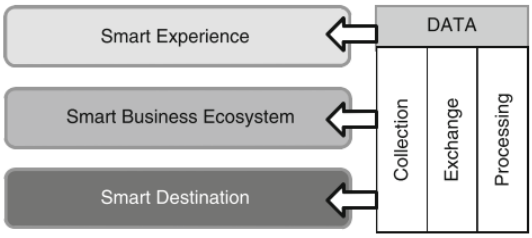

Figure 3: Components and layers Smart Tourism (Gretzel, 2015)

According to these authors is the tourist able to (co)-create their Smart Tourism Experience. But what are the technical implementations of this Smart Tourism Experience? According to Huang et al. (2017) the role of technology in the Tourist Experience is increasig and the smartphone is one of the causes for this. Tussyadiah and Fesenmaier (2009) and Wang, Park and Fesenmaier (2011) concluded that smartphones enrich the Tourist Experience by facilitating information accessibility and the possibility to share social activities during the trip. Before that, Watson et al. (2004) already mentioned the future abilities of the smartphone, and in particular the search and sharing phases of a tourist during and after the trip.

Smartphones and their apps have the potential to provide information anytime and nearly anywhere (Wang & Xiang, 2012). The information search by the smartphone can be categorized with apps through the type of information these apps are giving (Wang and Xiang, 2012). For example the category Food Finder in which apps are categorized with goals as finding restaurants and bars (Wang and Xiang, 2012). Another example of the use of smartphones in order to enrich the Tourist Experience is the use of simple tags as Quick Response (QR) codes (Dickinson et al., 2014). Neuhofer et al. (2015) generalize the use of QR codes as an instrumental tool with specific functionalities that adds value to it. To summarize, the use of (QR) codes is an example of using information providing apps to add value to the Tourist Experience.

Information services of apps are one type of enriching the Tourist Experience but sharing is also an important factor in the Tourist Experience (Wang and Xiang, 2012). According to Munar and Jacobsen (2014), is sharing a tourism experience through social media a trend in contemporary traveling. Social media platforms enable tourist to share online knowledge, emotions and experiential moments far more than in the past (Munar and Jacobsen, 2014). According to Chung and Koo (2015) is the perception of the value of social media linked to the use of social media. So the people who use social media enjoy the use.

According to Gretzel (2015) is the Smart Tourism Experience about how tourist are able to add value to their experience through the use information infrastructures at the destination via their smartphone. To measure the smartness of the Tourist Experience of tourists in Amsterdam indicators of the Smart Tourism Experience are essential. According to the literature is the usage of a smartphone with access to the Internet one of the main indicators of the use and grow of technology in the Tourist Experience. To confirm the concept of Smart Tourism Experience data has to be collected that can answer the question whether the Smart Tourism Experience is measurable amongst tourist in Amsterdam, and specifically the use of smartphones in order to add value to the Tourist Experience. To create a distinction in the different kinds of value contribution, the two variables sharing and searching information were distinguished.

2.4. Conceptual Model

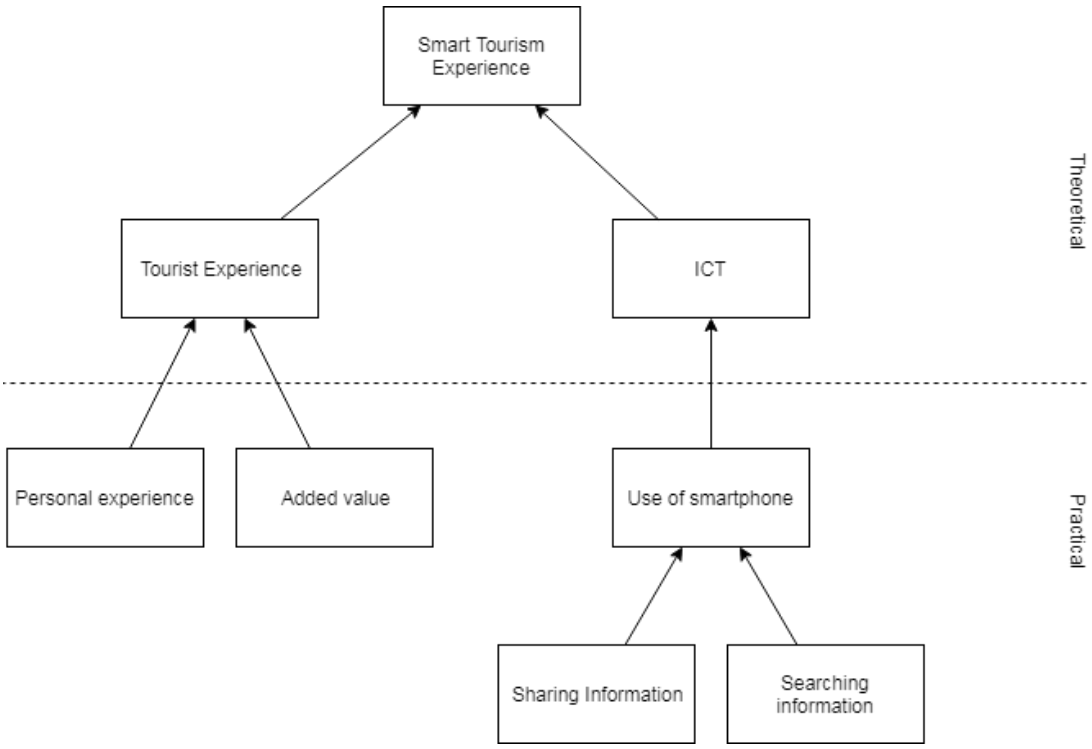

Figure 4: Conceptual Model of the Smart Tourism Experience

The conceptual model describes the research structure and the conceptual framework. This research contains a literature review combined with a statistical analysis. It is focussed on the connection between the concepts of Tourist Experience and the technology used in this Smart Tourism Experience. The Tourist Experience and the technology used in the Smart Tourism Experience are both based on a conceptual perspective. This means that these concepts are only theoretical. The part of the model below the line is the practical part of the conceptual model. These terms are measurable and related to the data which has been be collected with the q.

The links which will be researched through data analysis are between the added value and the sharing information and the searching of information.

3. Methodology

This chapter describes the methods used in this research. In the research, both a qualitative and a quantitative research method have been used. This was chosen because the research has a theoretical and a practical part. The qualitative method is a literature review which is connected to the theoretical part. The literature analysis will answer the sub-questions provided in this methodology. The quantitative method is a survey design which connects to the practical part of the research subject. This data-analysis will provide answers about the use of the smartphone, in specific the sharing and searching functions of it, amongst tourist on a trip.

3.1 Case selection

The sample which is used in the research are tourists in Amsterdam. There are a few exclusion criteria composed to select the sample. The first exclusion criterion for the sample was the Dutch nationality. The Dutch tourists are excluded from this survey to collect heterogeneous data. The second exclusion criterion is the inability to communicate in English. Speaking the English language was a requisite.

Sampling is an important issue because the respondents have a significant impact on the results (Clifford et al., 2010). The population size is at least 7,270,000. This number was chosen because it was the number of international arrivals of international tourists in 2016/2017 (Gemeente Amsterdam, 2018). There are 68 respondents needed to conduct a reliable analysis with a confidence level of 90%. The margin of error is 10%. The population was questioned at a central spot in Amsterdam, the Dam square in the city centre. This place was chosen because of the availability of tourists and to prevent to sample one type of tourists. The Dam is a central location and is crossed by many different types of tourists. Every international tourist that was on the dam square between 10 pm and 6 am on the days that the survey was carried out, could have theoretically participated in the research.

3.2 Literature analysis

The aim of this research is to look into the concept of the Smart Tourism Experience and if the collected data through a survey-questionnaire match with the written literature. This literature will contribute to define the concepts. In order to answer the first question a literature research has been executed. In the research field of tourism are these concepts well known and frequently described and discussed. The sub-questions: ‘What is written in the literature about the definition of Smart Tourism Experience?’ and ‘what is the relation between Smart Tourism Experience, technology and Tourist Experience?’ are answered based on this literature analysis.

3.3 Survey-questionnaire

To answer the second research question, a questionnaire, see appendix A, has been conducted to collect primary data. This questionnaire is anonymous. The descriptive factors, like age, gender and country of origin have been asked to use as control variables. With these variables the sample can be examined on iniquities. The questions are further distinguished in questions about the specific use of the smartphone. The survey contains different sort of questions. There are multiple-choice questions and open questions.

To heighten the internal validity, the questionnaire has been carried out face to face. By conducting the questionnaire in person, the interpersonal range in interpreting the questions is more controlled. The researcher was also capable of examining the exclusion criteria by conducting the questions during the survey. The external validity is influenced by the exclusion of Dutch tourists. The Dutch tourist are excluded because Kim and Prideaux (2005) defined a difference in the behaviour of a national tourist compared to an international tourist. By collecting data from a Dutch tourist this influence would be too high. Also, the lack of the input from the non-responders, the people who refused to take part in this research, is a possible cause for a distorted image.

3.4 Data analysis

In order to answer the second research question and to examine the proposed hypotheses, a specific test has been used. To investigate the data, the descriptive statistics have been studied. These descriptive statistics give some indicators about the population. Because of the absence of secondary data in recent studies, it's not possible to compare the collected data to other data.

Besides the descriptive statistics, the Pearson Chi-square test is executed to study the relation between searching and sharing on the one side, and on the other side the characteristics of the sample. The Pearson Chi-square test is chosen because this test looks further into the relation between two nominal variables (Lammers et al., 2007). The nominal and also the dependent variables that are analysed are gender, age, travel companion and country of origin in or outside Europe. This test aims at finding a correlation between these nominal variables and the variable sharing or searching on the internet.

In addition to the Pearson Chi-square test an ordinal regression test was executed. With this test the added value of sharing on social media and the added value of searching on the internet will be compared. It is possible to see whether there is a predictive correlation between this ordinal variable and the nominal variables as the factor.

3.5 Ethics

It is important to heighten the ethical awareness in a research to ensure the researcher takes this into account (Clifford et al., 2010). The respondents that contributed to the data collection participated in the questionnaire voluntary. The researcher first told the purpose of the questionnaire. After this short introduction he asked if they were willing to participate. To ensure the

confidentiality of the research the questionnaire was anonymous. Age, country of origin and gender were asked but this information cannot identify the participant.

3.6 Reflection

The collection and analysis of data caused some difficulties in the research. Because the respondents were chosen by the researcher it was not possible to execute a complete a-select research. Another aspect which may have had an impact is the fact that one of the days of data collecting was the May 4th memorial holiday. As a result, there were differences in the circumstances of the data collection. Besides that, some people refused to cooperate in the research or could not understand the questions because of the language barrier. This non-response is also something to reflect on.

Some of the difficulties of the data collection had consequences for the data analysis. For example, there were almost no people who did not use a smartphone, which meant that the smartphone users could not be compared to the non-smartphone users. In addition to this, some of the questions were follow-up by questions which created a distortionary view of some results. This meant that tests that had been devised beforehand could not be executed.

4. Results

The results of the data analysing will consist of the results of the questionnaire and the results of the literature review. These results together will conduct to a discussion and conclusion in the next chapter.

4.1 Questionnaire results

The results of the data analysing will be split in descriptive statistics and the data analysis. The descriptive statistics will summarize the general facts of the sample. The data analysis will look further into the declaring power of the variables.

Key characteristics of the sample (percentages) N=70	
Gender	
Male	59
Female	41
Age, years	
Up to 25	25,7
26 to 39	45,7
40 to 49	12,9
50 or older	15,7
Country of Residence	
Europe	61,4
Outside Europe	34,3
Transcontinental	4,3
Traveling companion	
Partner	45,7
Friends	37,1
Family	10
Alone	7,1
Days of traveling	
1	10
2	14.3
3	21.4
4	30
5 or more	24.3
Use of smartphone	
Yes	98.6
No	1,4
Use of internet during trip	
Yes	92.9
No	7.1
Sharing on social media	
Yes	52.9
No	47.1
Searching through online apps	
Yes	78.6
No	21.4

Table 2. Key characteristics of the collected data of the sample

4.1.1. Descriptive Statistics

Table 2 provides the key characteristics of the sample. These key characteristics do not have an explaining factor but they will expose facts about the sample. This table is based on the key characteristics table of Munar and Jacobsen (2014) who conducted a similar research.

The median age of the tourist was 31.5 years and the mean 34.5 years. The oldest respondent had the age of 68 while the youngest respondent was 15.
Most of the tourist were on a 3 or 4 day trip. The respondents had 32 different countries of origin and by 61.4 percent of the respondents their country of origin was within Europe.

Almost 100 percent of all respondents used a smartphone and 93 percent of these tourists also used internet during the trip. 52.9 percent of the respondents shared information during the trip on social media and 78.6 percent of the respondents did use online apps to search information during the trip.

4.1.2. Analysed statistics

In order to see whether the sample reveals different relations between the key characteristics and use of the sharing and searching components of the smartphones, eight chi-square tests were executed. Below are the results of the characteristics gender, age, country of residence and traveling partners, in combination with the questions *Did you share experiences of this trip on social media during this trip*?' and *Did you use online apps on your smartphone during this trip to gain information*?'. Below the different characteristics, coupled with the questions, are the results revealed of the executed tests between the possible relations.

		Gender		
		Male	Female	Total
Share on social media	Yes	24	13	37
	No	17	16	33
Total		41	29	70

Table 3. Characteristics of sharing on social media combined with gender

		Age			
		Up to 27	28-35	36 and older	Total
Share on social media	Yes	15	11	11	37
	No	5	14	14	33
Total		20	25	25	70

Note: The groups were classified as above to create nearly similar sized groups. It wasn't possible to create three similar size groups because of the distribution of ages in the sample.

Table 4. Characteristics of sharing on social media combined with age

		Country of origin inside or outside EU		
		Inside EU	Outside EU	
Share on social media	Yes	17	18	35
	No	26	6	32
Total		43	24	67

Note: There are 3 missing cases because this respondents came from a transcontinental country

Table 5. Characteristics of sharing on social media combined with country of origin inside or outside EU

		Traveling companions			
		Partner	Friend(s)	Family	Total
Share on social media	Yes	14	19	0	33
	No	18	7	7	32
Total		32	26	7	65

Note: To be able to execute a chi-square test five cases are missing because of the no more as 20% of the cells have to be more as 5 rule.

Table 6. Characteristics of sharing on social media combined with traveling companions

Four Chi-square test were executed in order to find out whether there is a relation between the characteristics gender, age and country of origin and sharing on social media. Below are the results mentioned in the table 7. The Pearson Chi-Square tests provided two significant relations. Those significant relations are between the country of origin and social media use and the traveling companions and social media use. Living inside or outside Europe has influence on sharing on social media and the same applies for traveling companions and sharing on social media.

Test	Title	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	Gender x Share on social media	1.2181	1	.258
Pearson Chi-Square	Age x Share on social media	5.509	1	.064
Pearson Chi-Square	Country of origin inside or outside EU x Share on social media	7.765	1	.005*
Pearson Chi-Square	Traveling companions x Share on social media	13.026	1	.001*

Table 7. The significance of the relation of social media use with characteristics gender, age, country of origin and travel companions.

Below are the results of the characteristics gender, age, country of residence and traveling partners, coupled with the question *Did you use online apps on your smartphone during this trip to gain information?*'

		Gender		
		Male	Female	Total
Search through apps	Yes	35	20	55
	No	6	9	15
Total		41	29	70

Table 8. Characteristics of searching through apps combined with gender.

		Age			
		Up to 27	28-35	36 and older	Total
Search through apps	Yes	15	24	16	55
	No	5	1	9	15
Total		20	25	25	70

Note: The groups were classified as above to create nearly similar sized groups. It wasn't possible to create three similar size groups because of the distribution of ages in the sample.

Table 9. Characteristics of searching through apps combined with age.

Country of origin inside or outside EU

		EU	Outside EU	
Search through apps	Yes	32	21	53
	No	11	3	14
Total		43	24	67

Note: There are 3 missing cases because of the transcontinental country they were from.

Table 10. Characteristics of searching through apps combined with country of origin.

		Traveling companions				
		Partner	Friend(s)	Family	Alone	Total
Search through apps	Yes	25	21	4	5	55
	No	7	5	3	0	15
Total		32	26	7	5	70

Note: To be able to execute a chi-square test five cases are missing because of the no more as 20% of the cells have to be more as 5 rule.

Table 11. Characteristics of searching through apps combined with traveling companions.

Three chi-square test were executed on this characteristics gender, age and country origin and the relationship to the search of information through apps. One Fischer's Exact Test was executed on the characteristic country of origin and the search of information through apps. The results can be found in the table 12. The Pearson Chi-Square test provided one significant relation. This significant relation is between age and the search through apps. This means age has an influence on whether tourists make use of apps to search information during their trip.

Test	**Title**	**Value**	**Df.**	**Asymptotic Significance (2-sided)**
Pearson Chi-Square	Gender x Search through apps	2.714	1	.100
Pearson Chi-Square	Age x Search through apps	7.815	1	.020*
Fisher's Exact Test	Country of origin inside or outside EU x Search through apps			.347
Pearson Chi-Square	Traveling companions x Search through apps	1.786	1	.410

Table 12. The significance of the relation of searching through apps with the characteristics gender, age, country of origin and travel companions

When the results of sharing and searching for information are compared, a few things stand out. First, the significance relations for both questions do not correlate which each other. On the one hand does age influence the use of apps to search information and on the other hand the country of origin and travel companions influence the use of social media.

In order to look further into the relation of the adding value of sharing and searching information an ordinal regression test was executed. Two ordinal regression analyses were executed. The rated added value of sharing on social media and the rated added value of searching through the use of apps, were chosen as dependable variables. The independent variables were gender, age, traveling

companions. Because this test didn't show significant results the results are not incorporated in this research.

4.2. Literature Results

The literature results will answer the sub-questions that were described in the methods. The sub-questions are: 'what is written in the literature about the definition of Smart Tourism Experience?' and 'what is the relation between Smart Tourism Experience, technology and Tourist Experience?.

4.2.1. Definition Smart Tourism Experience

The origin of the term Smart Tourism Experience can be found in the Smart Tourism research. The Smart Tourism Experience is one of the three ICT based components which explains Smart Tourism (Gretzel et al., 2015). The Smart Tourism Experience is based on the use of ICT in order to create value to travellers' trip experiences. The definition of Smart Tourism Experience is the creation of value to their trip through the use of ICT.

The Smart Experience is further mentioned by Buhalis and Amaranggana (2015) as technology mediated tourism experiences in which enrichment arises through for example personalization. The technology and the tourist experience are further discussed by Huang et al. (2017) and Cohen et al (2014). Both emphasize the role of technology and see respectively internet and the use of smartphones as the foundation of this technology in the Tourist Experience. Neuhofer et al. (2015) describe the role of technology for the Tourist Experience as personal experience creating with the goal to enhance the experience in a useful, smart, and more efficient way.

The personal aspects of the tourist experience are also emphasized by Volo (2009) and Larsen (2007) and they found cognitive actions in the Tourist Experience. In order words, the brain is responsible for the experience and this means that this is a personal action because every person has their own brain.

4.2.2. Relation Smart Tourism Experience, ICT and Tourist Experience

The relation found in the literature between the concepts above, demonstrates similarities in the search for a definition. The foundation of the relation between Smart Tourism Experience, technology and Tourist Experience is the Smart Tourism concept. The definition of Smart Tourism is according to Hunter et al. (2015) a social phenomenon which is an amalgamation of the Tourist Experience and the information technologies. This means that Smart Tourism is not only considered a technology-based perspective but also a social concern. This social approach can be found in the literature about the Tourist Experience.

The technical implementations in the tourist experience are mainly two aspect which together create the Smart Tourism Experience. These two aspects are the use of internet and a smartphone. This recent technical development in the Tourist Experience is caused by the increasing use of internet

and consequently the smartphone (Huang et al, 2017 and Cohen, 2014). An example of this is sharing on social media what can been seen as an experience transformed into social capital (Gössling, 2017).

The relation of the Tourist Experience, the Smart Tourism Experience and ICT has already been recognized in the literature review. The definition of Smart Tourism Experience exists, as described above, of a social and technical part. The social part is the Tourist Experience with the added value and the personal experience. The technical part indicates the use of ICT in order to create this personal experience.

The Smart Tourism Experience can be split in two parts and the word smart covers the technical influence and the tourist experience the social influence. The technology used during a trip is mostly by smartphone and internet (Wang and Xiang, 2012). This smartphone use can, through sharing information (Munar and Jacobsen, 2014) and searching (Wang and Xiang, 2012), add value to the trip and this can be labelled as a Smart Tourism Experience. The Smart Tourism Experience is a conceptual merging of the Tourist Experience and the technologies used.

4.3. Research questions combined with analysis

The purpose of the data analysis was to examine the contribution of the smartphone to the Smart Tourism Experience. The literature research went further into the concept of Smart Tourism Experience and its origin. The smartphone is used by almost every respondent, which indicates the importance of the smartphone during a contemporary trip. But using the smartphone is not equate of having a Smart Tourism Experience. Key is the use of internet and similar to this the use of online apps and social media.

In the descriptive statistics can it be seen that many tourists search and share on the internet. According to the literature, tourists have a Smart Tourism Experience when they do this. The Smart Tourism Experience is in short the use of internet via a smartphone, in order to add value to their trip experience. The added value of sharing and searching on the internet is difficult to compare. That is because only respondents who did use social media or online apps answered the question about the valuation of this.

The significant results in the data-analysis provide information about the tourist profile. Some variables have influenced on the fact whether tourists share or search for information on the internet. For this specific research question is this information not decisive but for the public interest is it important to mention these. These results also partly answer the main question because it has been established that tourists with a specific age, travelling companion or country of origin do encounter a difference in their Smart Tourism Experience.

5. Conclusion and discussion

The tourism field has changed a lot over the past century led by the Smart Tourism trend. The Smart concepts in the smart tourism field were conceived increasingly but are these all equally relevant? This research has shown that the Smart Tourism Experience is a subject in the Smart Tourism debate, but it is not a highlighted topic and the concept is not that clear either. The possibility to recognize the Smart Tourism Experience in practice is not entirely possible as well.

5.1. Conclusion

In this thesis the concept of Smart Tourism Experience and its foundations were first researched. In order to answer the question what the Smart Tourism Experience concept means, different hypothesis were composed. The hypotheses were: H0a: *The Smart Tourism Experience is a technology-based concept* and H0b: *The Smart Tourism Experience is an experience-based concept.* These hypothesis show cohesion and both of the hypotheses can be confirmed by this research. The technology, which can be translated into the internet and smartphone use among tourist during the trip, is the key factor of the Smart Tourism Experience. However, the literature also shows the importance of the personal contribution to the tourist experience. The Smart Tourism Experience is about the value adding of this experience as well and that is why the concept is also experience-based.

Hypothesis H1 and H2 were formulated in order to test the concept of Smart Tourism Experience in practice. These hypotheses contribute to answering the question to which extent the smartphone contributes to the Smart Tourism Experience. The smartphone use amongst tourists (H1) indicates the Smart Tourism Experience and almost 100 percent of the respondents did use a smartphone. H2 cannot be rejected but that does not mean it is accepted. Searching information through apps occurred more often than social media use but the difference was not significant. Nearly anyone rated the added value created by searching or sharing through internet as negative. These results are in line with the opinion about this object of Chung and Koo (2017) who conclude that the travellers' perception of the value of social media is based on the use of it.

Finally the central research question has to be answered. The central research question was: *Do tourists in Amsterdam encounter a Smart Tourism Experience?* The definition of the Smart Tourism Experience considered as well as the results it make it possible to answer research question positively. However, the results show that not all tourists do equally experience a Smart Tourism Experience. Age, travel companion and country of origin influence the tourist behaviour in terms of sharing and searching on internet. And searching and sharing on the internet can be seen as a Smart Tourism Experience according to the literature research. Further can be concluded that, the use of a smartphone is an indispensable factor of the Smart Tourism Experience during the trip of tourists.

5.2. Discussion and Reflection

5.2.1 Discussion

This research not only generated clear results, but also brought additional discussion points. The concept of the Smart Tourism Experience in tourism literature is not clear. In addition to this, has the subject not been widely discussed in the recent literature. Also the usefulness of this research for the spatial planning could be discussed.

The results of this research could be useful for spatial planning in general. As stated in the introduction, tourism has influence on city planning and these results could be useful for that. This study also shows a widely accepted use of the smartphone amongst tourists during their trip. This information is not only for useful for spatial planners but also for tourist marketing bureaus and other businesses in the tourist industry. Most of the Tourist do search information on internet about their trip on their phone and they also share information of their trip.

Finally, this research has like all research its limitations. First of all the concept of the Smart Tourism Experience is not well defined in recent studies. To contribute to the academic field the researcher has defined the Smart Tourism Experience as: '*a personal experience with the added value towards the trip by the use of ICT, and specifically the smartphone, in order to enhance the experience in a useful and efficient way'.* This definition can be further discussed by other researchers in the Smart Tourism research field.

The Smart Tourism Experience is not that clear as the conclusion suggests. It is important to realize different components have to be further researched to get a wider view of the Smart Tourism Experience. It is important how to interpret the results and the application in which they could be used for. The concept of the Smart Tourism Experience has to be further analysed and described to use it as key concept of the Smart Tourism. The concept is not as clear as Gretzel (2015) mentions and about the foundations of the term can be discussed. The research exposed the lack of use of the concept in recent studies. The concept can be put in perspective however, because it shows different similarities with findings in the recent literature. The internet and smartphone use (Wang and Xiang, 2014), the social media use (Munar and Jacobsen, 2014; Chung and Koo, 2014), the Tourist Experience (Ritchie and Hudson, 2009; Neuhofer et al, 2015), these all show similarities and a relations with each other that can be seen as the Smart Tourism Experience.

5.2.2. Reflection

The purpose of this research was first focused on the value of the Smart Tourism Experience. During the literature research and the data collection it became clear that the value of this concept was too difficult to establish in this study. The focus has therefore shifted to the definition of the concept and the presence of the concept in practice. This made several questions of the questionnaire unusable and therefore the data analysis became more difficult.

In order to improve to the data analysis further, the number of respondents has to raise to increase the reliability. Besides this, more and different statistical tests can be executed which can produce

more results. With a higher sample group it is also more realistic to get data from the non-smartphone users which can be useful also. Besides that. also the margin of error could be reduced to less than 10% and the external validity increased. Of course the variables chosen for the data-analysis can be extended to look for more relations in the sharing and searching on internet among tourist. Using a cultural dependable variable could possibly give new insights.

Recommendations for further research are an important aspect of the discussion. Further research could focus more on the interlinkage between smart tourism and spatial planning. Suggestions of what could be done with these results are given, but these results can also be a start for an in-depth study. A different approach in terms of data collecting could also be an option to give a different view of the subject. Interviews with the stakeholders of Smart Tourism would be an example of a different approach. This research is a small start in clarifying a concept that has much to offer for the future.

6. References

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Appendix A: Survey-questionnaire

1. What's your gender?

☐ Male
☐ Female
☐ Other

2. What's your age?

_____

3. Which country are you from?

_____

4. With who are you traveling?

☐ Partner
☐ Friend(s)
☐ Family
☐ Alone
☐ Other _____

5. How long is your stay in Amsterdam?

☐ Days _____

6. Did you use a smartphone during this trip?

☐ Yes
☐ No

7. Did you use internet on your smartphone during this trip?

☐ Yes
☐ No

8. Did you share experiences of this trip on social media during this trip? If it's no go to question 11.

☐ Yes
☐ No

9. Sharing an experience of this trip online did enrich my trip... I

☐ Strongly agree
☐ Agree
☐ Undecided
☐ Disagree
☐ Strongly disagree

10. What is your motivation to share your experience?

	Disagree	Neither nor	Agree
I want to help others	☐	☐	☐
I want to prevent people from using bad products	☐	☐	☐
I want to contribute to websites that are useful to me	☐	☐	☐
I want to maintain social connections and friendship	☐	☐	☐
I like to share my impressions through the internet	☐	☐	☐
I want to be more recognized for my experiences	☐	☐	☐

11. Did you use online apps on your smartphone during this trip to gain information?

☐ Yes

☐ No

12. These specific information providing apps did enrich my trip: I

☐ Strongly agree

☐ Agree

☐ Undecided

☐ Disagree

☐ Strongly disagree