An Airline’s Mobile Travel Guide Application
– Effects on Customer Loyalty –

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I. Abstract

Value adding services have become increasingly important in the aviation industry as executives thrive to expand their IT technologies on board as well as in the infrastructure needed to support an airline. This study proposes the introduction of a mobile travel guide application running on smartphones and tablets providing information about the airline’s destination coming from flight crews and other employees. The purpose of this study is to investigate how far in the innovation-decision process of mobile technology customers are, how consumer behaviour is affected, and ultimately whether such technology is a suitable tool for improving customer loyalty towards an airline. The results should help marketers in deciding whether a mobile travel guide application is an effective tool for increasing customer loyalty. A questionnaire using non-random sampling and qualitative as well as quantitative research has found that smartphone users are using mobile applications throughout the whole day and thus they are at the end of innovation decision process. Further, mainly personal and social factors influence attitude towards the proposed technology and the firm. The application itself enjoys spurious loyalty while contributing to building customer loyalty for the airline. A free to use mobile travel guide application filled with information provided for by flight crews helps in strengthening customer loyalty for the firm by appealing to personal and social factors. The results of this paper indicate that the extension of mobile services by a travel guide application is worthwhile for an airline as it can be considered as a possible tool to increase customer loyalty.
II. List of Figures

Figure 1: A Model of Five Stages in the Innovation-Decision Process (Rogers, 2003, p. 171) .................. 11
Figure 2: Three Types of Knowledge About an Innovation (Rogers, 2003, p. 172 ff.) ............................ 12
Figure 3: Relative Attitude Matrix (Dick & Basu, 1994, p. 101) .......................................................... 17
Figure 4: Relative Attitude-Behaviour Relationship (Dick & Basu, 1994, p. 101) ................................. 17
Figure 5: Theoretical Framework ........................................................................................................ 20
Figure 6: Change in Relative Attitude, originally from Dick & Basu (1994) ........................................... 20
Figure 7: Questionnaire - Gender and Age Demographic ................................................................. 36
Figure 8: Questionnaire - Origin Demographic ................................................................................... 36
Figure 9: Questionnaire - Occupation Demographic ........................................................................... 37
Figure 10: Questionnaire - Usage of Mobile Applications ............................................................... 37
Figure 11: Questionnaire - Mobile Application Categories in Use (%) ............................................. 38
Figure 12: Questionnaire - Airline Application * Category 'Travel & Local' Crosstabulation ................. 38
Figure 13: Questionnaire - Frequency Chart Customer Attitude towards Application ...................... 42
Figure 14: Questionnaire - Frequency Chart Customer Attitude towards Airline ............................. 44
Figure 15: Applied Relative Attitude (Appl.) (Dick & Basu, 1994, p. 101) ........................................... 44
Figure 16: Applied Relative Attitude-Behaviour Relationship (Appl.) (Dick & Basu, 1994, p. 101) ......... 45
Figure 17: Applied Change in Relative Attitude (Airline), originally from Dick & Basu (1994) .......... 46
Figure 18: Applied Relative Attitude-Behaviour Relationship (Airline) (Dick & Basu, 1994, p. 101) ....... 47
### III. List of Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Definition</th>
</tr>
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<tbody>
<tr>
<td>e.g.</td>
<td>Exempli gratia (for example)</td>
</tr>
<tr>
<td>etc.</td>
<td>Et cetera (and other things; and so forth)</td>
</tr>
<tr>
<td>et al.</td>
<td>Et alli (and others)</td>
</tr>
<tr>
<td>ff.</td>
<td>Folio folio (and the following pages)</td>
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<td>fig.</td>
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<tr>
<td>i.e.</td>
<td>Id est (that is)</td>
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<td>Question number X</td>
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<td>SQ</td>
<td>Sub question</td>
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<td>USD</td>
<td>United States Dollar</td>
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</tr>
</tbody>
</table>
IV. Table of Contents

1. INTRODUCTION ............................................................................................................................................. 7
   1.1 INTRODUCTION TO RESEARCH FIELD AND JUSTIFICATION OF RESEARCH ............................................ 7
   1.2 RESEARCH QUESTION ................................................................................................................................. 8
   1.3 CONCEPTS FOR ANALYSIS ........................................................................................................................ 9
   1.4 SCOPE AND DELIMITATION ......................................................................................................................... 10

2. LITERATURE REVIEW ...................................................................................................................................... 11
   2.1 INNOVATION-DECISION PROCESS ............................................................................................................. 11
      2.1.1 Summary: Innovation-Decision Process ................................................................................................. 14
   2.2 CONSUMER BEHAVIOUR ........................................................................................................................... 14
      2.2.1 Summary: Consumer Behaviour ............................................................................................................. 16
   2.3 CUSTOMER LOYALTY ..................................................................................................................................... 16
      2.3.1 Summary: Customer Loyalty .................................................................................................................... 19

3. THEORETICAL FRAMEWORK .......................................................................................................................... 20

4. METHODOLOGY .................................................................................................................................................. 22
   4.1 RESEARCH PHILOSOPHIES ........................................................................................................................... 22
      4.1.1 Positivism .............................................................................................................................................. 22
      4.1.2 Interpretivism ......................................................................................................................................... 22
      4.1.3 Realism .................................................................................................................................................. 23
      4.1.4 Summary: Research Philosophies ......................................................................................................... 23
   4.2 PRIMARY AND SECONDARY DATA ............................................................................................................. 23
      4.2.1 Primary Data ......................................................................................................................................... 23
      4.2.2 Secondary Data .................................................................................................................................... 23
   4.3 QUALITATIVE AND QUANTITATIVE RESEARCH ......................................................................................... 24
      4.3.1 Qualitative Research ............................................................................................................................ 24
      4.3.2 Quantitative Research .......................................................................................................................... 25
   4.4 SAMPLE .......................................................................................................................................................... 26
      4.4.1 Choosing a Sample ................................................................................................................................. 27
      4.4.2 Non-Probability Sampling ...................................................................................................................... 28
      4.4.3 Sample Size ......................................................................................................................................... 30
   4.5 SOUND MEASUREMENT .............................................................................................................................. 30
      4.5.1 Data Validity ......................................................................................................................................... 30
      4.5.2 Reliability .............................................................................................................................................. 31
   4.6 NON-RESPONSE ERROR ............................................................................................................................... 31
   4.7 QUESTIONNAIRE .......................................................................................................................................... 32
      4.7.1 Structure of the Questionnaire ................................................................................................................ 32
5. QUESTIONNAIRE ANALYSIS

5.1 GENERAL FINDINGS

5.1.1 Demographics

5.1.2 Smartphone/Tablet Usage

5.1.3 Air Travel Habits

5.1.4 Consumer Behaviour

5.1.5 Customer Perception of Mobile Travel Guide Application

5.1.6 Customer Loyalty towards Mobile Travel Guide Application

5.1.7 Change in Customer Loyalty towards Airline

5.2 ANALYSIS OF GENERAL FINDINGS

5.2.1 Customer Loyalty towards Mobile Travel Guide Application

5.2.2 Change in Customer Loyalty towards Airlines

5.3 OTHER CORRELATIONS

5.4 SUMMARY OF QUESTIONNAIRE ANALYSIS

6. CONCLUSION

6.1 RESEARCH OBJECTIVE

6.2 CONCLUSION

6.3 MANAGERIAL IMPLICATIONS

6.4 FURTHER RESEARCH

6.5 LIMITATIONS

7. BIBLIOGRAPHY

8. APPENDICES
1. Introduction

1.1 Introduction to Research Field and Justification of Research

SITA IT’s Trends Survey 2013 estimates that by 2016 90% of all airlines will offer tickets to be purchased via mobile telephone and that within the next three years all airlines will invest into new IT-systems. The major trend within these investments is personalisation which most airlines consider a competitive advantage. The reason being that they expect the direct bookings (passengers booking directly with the airline, instead of booking sites or travel agents) will increase from 54% today to 67%. In 2016, the survey predicts that revenue from flight tickets booked via mobile telephone will amount to 70 billion USD. This figure equals to 10% of all flight tickets’ revenue, up from less than 3% today. Although nearly half of all flight tickets are being sold by third parties, airlines generate 800% more revenue from ancillary services when selling their tickets directly to the customers (SITA, 2013 cited in airliners.de, 2013). Therefore airlines must be very much interested in selling their service themselves to the prospective customer and this interest can be achieved by using mobile technology to the fullest extent and add services third party providers cannot offer.

What can and is already done today via mobile applications can be taken from Rafik Boghdady, vice-president of sales at Jazeera Airways (quoted in Lydon, 2012, p. 46): “The apps enable customers to browse through flight schedules, book, choose their seats, pay and manage their bookings,” “[They] also give customers access to our office locations and numbers, to a list of services available for Business Class travellers and to more information about Jazeera Airways.” Vinit Doshi, vice-president for SabreSonic customer sales and service solutions says that “We should not be thinking about simple gate-change notifications; airlines can use rules-driven personalisation to really differentiate.” (quoted in Flightglobal, 2013).

For this reason, we want to look into a service, that does not directly bring revenue to the airlines, but might help in steering passenger towards them and strengthen the customer loyalty. This added value could be achieved by a mobile travel guide application that is inputted with information by airline crews about the destinations flown to by the specific airline. When searching for the term Travel Guide in Google’s Play Store, one can literally find hundreds of application, giving a broad array of information or focussing on a single destination (Google Inc., 2013a). This should also be the case for the Apple Store that provides application for iOS operated mobile phones. However, when specifically looking for travel guides we can already see that some airlines, such as SAS, South African Airways, Aegean and Air Asia already worked on such travel guides within their airlines’ applications (Google Inc., 2013b). And SAS even has this travel guide filled with personal recommendations by their own employees (Google Inc., 2013c).
1.2 Research Question
Based on the need to offer services that attract customers to using mobile applications and wanting to connect on a personal level with the passengers, there is a call for research into the possible effects on the customer relationship.

The research question therefore is:

*To what extent does the mobile travel guide application affect consumer behaviour and how does it contribute to the customer loyalty towards the airline?*

The research question can be split into three sub questions:

**SQ1 At what point in the innovation-process are the customers and do they use mobile applications for travel purposes already?**

**SQ2 How does the introduction of a mobile travel guide applications affect consumer behaviour?**

**SQ3 Is a mobile travel guide application a suitable tool to increase customer loyalty towards an airline?**

The first question (*SQ1*) is designed to estimate in what way people already are using mobile applications for travel purposes. Be it just research or also actual booking. This question is rather a qualitative one in terms of
looking at the innovation-decision process by Rogers (2003) as some customers might be new to the technology of smartphones.

The second question (SQ2) is then looking at the customers and how the possibility of such mobile travel guide applications has an effect on their behaviour. We will try to investigate in what way the attitude towards the mobile travel guide applications is steered by consumer characteristics.

The third question (SQ3) is then rounding it up to get insights into how people could actually have a higher loyalty to a certain airline by using such a travel guide application. In order to assess the change to loyalty, we will go through definitions of service loyalty and test interviewees for the change of perception of certain factors that contribute to the idea of loyalty.

1.3 Concepts for Analysis

Innovation-Decision Process

As this paper is based on a mobile application, we should investigate first, to what extent customers are familiar with the use of smartphones, mobile applications and in what way, if at all, they are already using this technology for travel purposes.

Rogers (2003) uses his innovation-decision process to help identify the way that people adopt new innovations, in our case mobile applications and their usage in travel related topics, and we will use his model to investigate to what extent customers are willing to use such technology.

Customer Behaviour

The goal of this paper is to assess how the offering of a mobile travel guide application written by flight crews actually affects the consumer behaviour of the airline’s clients; in what way is their behaviour affected, be it culturally, socially, personally, or psychologically (e.g. Pride & Ferrell, 2012; Kotler & Armstrong, 2010; Kotler, 2002; Folsom, 2004).

Airline Loyalty

As we will have the information of the mobile travel guide application being created by flight crews that frequently travel the destination of a specific airline, we could hope for some bond to be created between passenger and airline. This bond can be defined by the term loyalty: “Broadly speaking, customer loyalty is the feeling of attachment to or affection for a company’s people, products or services.” (Jones & Sasser Jr., 1995, p. 94).
1.4 Scope and Delimitation

The topic is framed around the effect a possible travel guide app developed by an airline and its flight crews has on customers in terms of their behaviour, loyalty and relationship with the airline in its international setting. The study consists of analysing the customers by means of a questionnaire. The population hereby consists of all possible passengers that have access to a smartphone and/or tablet and use mobile applications. The study does not cover IT implications and the firm’s view; therefore it is solely focused on the customers’ point of view. Added to this, this study is only interested in potential passengers for major, intercontinental airlines, rather than regional airlines. The study might be limited in terms of accessing potential flyers from different cultural backgrounds due to no company directly backing this research and thus having a monetary as well as an access limitation.
2. Literature Review

2.1 Innovation-Decision Process

As an innovation is considered not necessarily only a new product (or service, practice, etc) that just has been invented or marketed, but a new product in the eye of the individual, a smartphone, a mobile application and in particular a mobile travel guide application can be viewed as an innovation (Rogers, 2003). Rogers (2003) goes on about the time a society or an individual needs to adopt such an innovation; that will not be treated in this study however, as we only want to find out how many people are using mobile applications already and thus are able to benefit from the proposed travel guide.

Figure 1: A Model of Five Stages in the Innovation-Decision Process (Rogers, 2003, p. 171)

Rogers (2003) identified five different stages in the innovation-decision process, namely knowledge, persuasion, decision, implementation and finally confirmation. We will quickly talk about the different stages, define and explain them a bit better and then decide on which state we will base this paper.

Before one goes through the different stages, there are five prior conditions to be met. There usually is a previous practice of how people dealt with a certain need, for example in our case, travellers interested in a certain destination would either buy a travel guide as a book, check online for websites, and/or ask their peers. There also has to be the need for information about a certain destination. Hassinger (1959 cited in
Rogers, 2003, p. 171) “argued that individuals seldom expose themselves to messages about an innovation unless they first feel a need for the innovation [...]” and he goes on that the exposure to an idea “[...] will have little effect unless the innovation is perceived as relevant to the individual’s needs [...]” Added to the prerequisite of a need or problem, the solution, i.e. the innovation, also has to be in line with one’s norms of the social system.

Three Types of Knowledge about an Innovation (Rogers, 2003, p. 172 ff.)

<table>
<thead>
<tr>
<th>awareness-knowledge</th>
<th>how-to knowledge</th>
<th>principles-knowledge</th>
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<tr>
<td>• knowing about the existence of an innovation</td>
<td>• how to use the innovation</td>
<td>• how is the innovation working</td>
</tr>
<tr>
<td></td>
<td>• the amount depends on the complexity of the innovation</td>
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Using Rogers’ (2003) example of fertiliser, the awareness-knowledge deals with farmers knowing about the existence of fertilisers on the market. How-to knowledge then is the farmer knowing how much quantity of fertiliser he needs and how to put it on the fields. The principles-knowledge then deals with the farmer knowing about the biology of plants and how the fertilizer actually helps in growing better and more crops.

The Persuasion Stage (Rogers, 2003, p. 174 ff.)

When we were talking about the first stage, knowing, where people were thinking cognitive (or knowing), the persuasion stage is rather affective (or feeling), i.e. people are not only aware of an innovation but actually form an attitude towards it. “At the persuasion stage the individual becomes more psychologically involved with the innovation. He or she actively seeks information about the new idea, decides what messages he or she regards as credible, and decides how he or she interprets the information that is received.” (Rogers, 2003, p. 175).
It is important at this persuasion stage that the individual is able to look into his or her future and to decide whether this innovation could be a favourable idea; i.e. it requires the person to “[...] think hypothetically and counterfactually and to project into the future.” (Rogers, 2003, p. 175).

The information needed to “persuade” an individual to decide for or against using an innovation is usually gathered from peers that have had an experience with it and they are thus a more credible of an information source. Rogers (2003) claims that people are more likely to quit smoking after a close relative has died of its negative effects which is a so called cue-to-action, “an event occurring at a time that crystallizes a favorable attitude into overt behavioral change.” (Rogers, 2003, p. 176).

Things that an individual would check for during the persuasion stage are the relative advantage, is the innovation really better than the old way of doing things, compatibility, is the innovation compatible with my prerequisites, complexity, is it easily understandable and not too high-tech for the individual to comprehend, trialability, can the individual test the innovation before making a purchasing decision, and observability, can one observe the advantage of the innovation.

The Decision Stage (Rogers, 2003, p. 177 ff.)

At the decision stage the individual decides, after a possible trial, whether or not he or she adopts the innovation. A firm that is fully understanding the innovation-decision process and thus preparing its innovation following the process, does not mean that the idea is necessarily being adopted, it might as well be rejected. There are two different kinds of rejection:

1. Active rejection: considering an innovation and then deciding not to adopt it
2. Passive rejection: not even considering to adopt an innovation

However, an adoption can also lead to a rejection later one while a prior rejection might as well lead to a later adoption. Reasons for the former being that people in the long-term are dissatisfied with an innovation and for the latter, that individuals see their peers to adopt the innovation and thus feel some sort of group pressure.

The Implementation Stage (Rogers, 2003, p. 179 ff.)

Up to this point, the innovation-decision process has mostly been mentally without actions having been carried out (there might have been a trial of the innovation though). During this implementation stage one actively decides to adopt, to purchase an innovation. “It is one thing for an individual to decide to adopt a new idea, quite a different thing to put the innovation to use [...]” (Rogers, 2003, p. 179). We reach the end of this implementation stage when the new idea has found its way into a process or a way of doing things and it is not considered an innovation or a new thing anymore.
The Confirmation Stage (Rogers, 2003, p. 189 ff.)

The decision to adopt or reject an innovation is not only done during the decision stage but can also be made after an individual has decided to adopt the new idea. Going back to the farmer example, after he has decided to use the fertiliser that is new on the market and he actually has brought it out onto the fields, he re-assesses the benefit from it after harvesting. If the new fertiliser did not work as intended, he can reject the innovation at the confirmation stage, i.e. he discontinues the use. Rogers (2003) identified two types of discontinuance. After having decided to stop using the new fertiliser, the farmer might either try a different fertiliser that is considered an innovation, which is considered a replacement discontinuance, or he decided to leave out fertilisers at all, the disenchantment discontinuance. Reason for that is that adopters conclude that the innovation is inappropriate for their needs.

2.1.1 Summary: Innovation-Decision Process

Rogers (2003) gave us a good model after which a firm can plan the roll-out of its new product that is considered an innovation. The creation of a travel guide within a mobile application however, should not be considered an innovation but rather a tool to bind passengers to the airline. The adoption of smartphones/tablets and the usage of mobile applications are a pre-requisite for using this mobile application and these are innovations to some people though. Therefore we need to focus on people already having passed the confirmation stage positively because an airline is not the one to implement the whole mobile applications technology. The only people that are eligible to use such a mobile travel guide application and thus interesting for this study are the ones that have gone through the innovation-decision process and decided to use smartphone/tablet technology.

2.2 Consumer Behaviour

The ultimate goal of customers is to give up something (cost) and receive something in return (benefit) that is worth equally or more to them (e.g. East, Vanhuele, & Wright, 2008; Cooper, 2010). As mentioned before, there are four main factors that make up a customer’s behaviour, namely: the cultural, social, personal, and the psychological factors (e.g. Pride & Ferrell, 2012; Kotler & Armstrong, 2010; Kotler, 2002; Folsom, 2004). Examining which factors are more affected by the proposed mobile travel guide application, we first need to define each factor and test the interviewees for them respectively. The result will then help in predicting the effectiveness of the proposed mobile application.

The Cultural Factor

The cultural determinant can be very different for single regions of the world, countries or even regional communities. An example being that the American culture can be described as rather individualistic, achievement and success oriented, material comfort, etc. (Kotler, 2002); whereas the Chinese culture can
rather be described as communal, the group’s achievement and success, and it is in general more about the wellbeing of the society rather than the individual person. Within each culture, there can also be sub-cultures, such as different ethnicities within one country. Kotler (2002) gives the example of marketing experts in the United States having different strategies for the Caucasians, African Americans and Hispanics. Each group has different values and makes up a great proportion of spending power.

The Social Factor

The social determinant adds reference groups, family, social roles and statuses to the socio-cultural factor. Social classes have an internal hierarchy and usually members of it tend to share the same values, interests, fashion and behaviour (Kotler, 2002; Sunja, 2000; Krishnamacharyulu & Ramakrishnan, 2008). “From parents, a person acquires an orientation toward religion, politics, and economics as well as a sense of personal ambition, self-worth and love.” and thus the family has been identified as the “[...] most important consumer-buying organization in society [...]” (Kotler, 2002, p. 89). Added to this, not only the family shapes a person’s behaviour, but also its peers from interest groups, school, work, etc. Within these groups, each person has a role and a hierarchical status which has a direct effect on their consumption patterns (Kotler, 2002).

The Personal Factor

As the name suggests, the personal factor is about characteristics that are different for each individual person and are comprised of determinants such as age, lifestyle, personality, occupation and self-concept (Kotler, 2002). During their lifetime, people have different needs for the products they buy. At first, they need diapers and baby food, then quite a lot of clothing when they grow out of the old clothing; they eventually need a car and business clothing, followed by medical treatments at proceeded age. The lifestyle and occupation of a person can be linked very much to the product preferences of another person with the same lifestyle and occupation. Someone that travels a lot is more interested in mobile technology, flights, luggage and other items (Kotler, 2002). Thus marketers are able to aim at a certain lifestyle and occupation that can be connected to their products. Kotler (2002) has identified three types of self-concepts: the actual self-concept (how do I view myself), the ideal self-concept (how would I like to see myself), and the others self-concept (how I think others see me). These self-concepts can be used by marketers to try to develop marketing strategies that aim at different self-concepts, the results of which are rather mixed though (Kotler, 2002).

The Psychological Factor

This factor is influenced by motivation, perception, learning, beliefs and attitudes (Pride & Ferrell, 2012; Kotler, 2002). Motivation is described by Kotler (2002) as the trigger to consume something after a certain need has arose. These needs can be biogenic, which means they are of physiological nature such as hunger.
and thirst, or they can be psychogenic, i.e. they are psychological such as the need for recognition, esteem or belonging. The perception is very much an individual characteristic and steers how advertisements for example are seen. People looking for cars, are more likely to see billboards advertising a car. Added to this, consumers are more likely to remember the good attributes of a product that they like and forget about the same good attributes about a competing product they dislike (Kotler, 2002). Learning is very much determined by previous experiences. As an example, people having bought Apple products in the past when the company was an innovator in its market, still consider their products as new and ground breaking even when they are already overtaken by other manufacturers (Kotler, 2002). Beliefs and attitudes could be very important for airlines in our paper as a belief for example can be linked to a country of origin. Customers that do care about flying with a domestic airline, tend to be more loyal (Dolnicar, Grabler, Grün, & Kulnig, 2011).

2.2.1 Summary: Consumer Behaviour

With the help of the different factors we will be able to tell, whether people affected in their attitude towards a mobile travel guide application have certain characteristics in common. An example result could be that mostly younger people and customers with a travelling lifestyle from Europe are more likely to use such a travel guide. This would help in targeting the audience in a more focused way. Between the authors, there seem to be differences in which characteristic is part of which factor. Whereas Kotler (2002) considers the self-concept to be part of the personal factor, Pride & Ferrel (2012) consider it to belong to the psychological factor. Although Pride & Ferrel (2012), Kotler (2002) and Folsom (2004) all consider four factors, Kotler (2002) divides the socio-cultural factor into two factors and includes the economic factor as part of the personal factor, Pride & Ferrel (2012) and Folsom (2004) consider the economic factor itself as single entity. This difference, however, should not be a problem for this paper as all three authors still define the economic situation and the social and cultural background in the same way. For our purposes and our structure, we will stick to the characteristic division of Kotler (2002).

2.3 Customer Loyalty

“Customer loyalty is viewed as the strength of the relationship between an individual’s relative attitude and repeat patronage” – Dick & Basu (1994)

An airline needs customer loyalty to generate reoccurring bookings by its customers which evidently increases revenue, should reduce cost (due to less marketing activities needed) and thus improve profit. Customer loyalty thus should also help an airline to face tougher times without losing its frequent customers. Jacoby (1971), Jarvis & Wilcox (1976 cited in Nam, Ekinci, & Whyatt, 2011) and Dick & Basu (1994)
distinguish between three kinds of loyalties, the first being *behavioural loyalty*, the second *attitudinal loyalty* and lastly *spurious loyalty*. Whereas *behavioural loyalty* refers to a kind of loyalty where a customer repurchases a certain product from a certain brand multiple times and *attitudinal loyalty* refers to the “[...] psychological commitment […], such as intentions to purchase and intentions to recommend without necessarily taking the actual repeat purchase behaviour into account.” (Nam, Ekinci, & Whyatt, 2011, p. 1015). Dick & Basu (1994) however, do put a constraint on the meaning of *behavioural loyalty* in a way that repetitive purchase of a certain brand might only indicate that the retailer offers only that one brand. In our case, there might only be one travel guide application about a specific destination, thus a passenger going there frequently might not be very loyal at all. Dick & Basu (1994) call this kind of loyalty the *spurious loyalty*.

*Relative Attitude (Dick & Basu, 1994, p. 100 ff.)*

As attitude is defined as representing “*an association between an object and an evaluation.*” by Dick & Basu (1994, p. 100), a positive attitude does not necessarily positively correlate with *behavioural loyalty*. An example of this can be a person looking for a car having a very positive attitude towards one manufactured by BMW, still, he or she prefers to purchase a car manufactured by Mercedes as they have an even more positive attitude towards that firm. Therefore one must take into consideration someone’s attitude towards a brand and compare it with the same individual’s attitude towards a competitive brand, this then is called the *relative attitude*.

Looking at the two dimensional matrix proposed by Dick & Basu (1994), in our car example, BMW would enjoy a low *relative attitude*, as the attitude towards Mercedes is even stronger and thus the latter enjoys highest *relative attitude*. High *relative attitude* is a result of a weak attitude, yet a better attitude than other brands. An example is given by Dick & Basu (1994), where
someone dislikes all the garages in the neighbourhood, but as their car needs a check-up, they tend to go to the mechanic they least dislike. Thus that mechanic enjoys a weak attitude, but there is an attitudinal differentiation and therefore there exists a high relative attitude.

Dick & Basu (1994) brought together the concepts of repeat patronage and relative attitude in a two dimensional matrix. Once we know what level of relative attitude a brand enjoys with their customers, we can set it in relation with the repeat patronage and are able to determine what kind of loyalty a certain brand enjoys.

‘No loyalty’ can have many different sources. This case is true when there is a very low repeated patronage and a low relative attitude. This can be true for a new brand for example and marketing managers need either to try to move into the loyalty zone where customers repeatedly buy their brand and also market the advantages over other existing brands and thus achieve a higher relative attitude. If it is too hard to create a higher relative attitude, which might be due to the firm competing in perfect competition, the marketing manager should at least try to move into the spurious loyalty (defined above) zone by establishing business in a more favourable environment such as a shop in the city’s high street, increased shelf space, etc. (Dick & Basu, 1994).

As described above, spurious loyalty refers to a brand with a repeat patronage and a low relative attitude. Reasons for that can be situational, an easy example being that the brand in question is the only one on the shelf of a certain product category, or simply familiarity with a brand when none of the brands on offer enjoy a high relative loyalty. One way to tackle this and move the own brand towards the loyalty zone is for the marketing manager to change the product’s attributes and/or the product’s price so that consumer develop a better attitude towards it and thus being able to cope better with competition (Dick & Basu, 1994).

Latent loyalty is a zone which is hard to tackle for marketing executives. It means that their brand enjoys a high relative attitude, yet it is not being bought frequently (Dick & Basu, 1994). The brand being known but not on offer can be one reason for that, e.g. when Abercrombie & Fitch, an apparel brand and store, decided to move into Europe, they had only a few flagship stores around, and thus people valued their products highly, but could not purchase them due to location constraints. Another example being computer games that enjoy high attitudinal loyalty with young people, but they are either too expensive or parents do not allow their children to buy them. As these brands already enjoy a high relative attitude it can be costly to increase it to incentivise purchases, thus they should rather focus on solutions “[…] addressing the normative/situational constraints directly and removing these in an effective fashion.” (Dick & Basu, 1994, p. 102).

The first quadrant, the loyalty zone, is of course the most favourable one for a brand. It enjoys high relative attitude as well as high repetitive patronage. Dick & Basu (1994) have shown that even when a brand
experiences weak attitudinal strength it is still able to achieve loyalty through having a positive
differentiation from its competing brand. Once marketing managers have understood this concept, they can
now try to strengthen the attitude their brand has with consumers and thus improve their relative attitude.

Dick & Basu (1994) have further identified three ways how the relative attitude-repeat patronage
classification could be used by marketing managers to improve marketing activities and thus create better
loyalty among their customers:

1. Me-too strategy – Decrease the perceived differentiation between brands by claiming their brand is
equal
2. Superiority – Increase perceived differentiation by claiming their brand is superior
3. Spurious Loyalty – manipulate situational factors in a way that customer more or less have to buy
their product, even though it is not considered superior.

2.3.1 Summary: Customer Loyalty
Thanks to the kinds of loyalty defined by Jacoby (1971), Jarvis & Wilcox (1976 cited in Nam, Ekinci, &
Whyatt, 2011) and Dick & Basu (1994) we are now able to decide, on which loyalty we want to test the
interviewees for in this paper. As we are unable to check if respondents book another flight with a specific
airline after it has introduced the mobile travel guide application and also because of that application, we
cannot provide an answer for how this application results in behavioural loyalty. Therefore the only kind of
loyalty we can check for, and the only kind of loyalty that is actually of use in this case, is the attitudinal
loyalty, with spurious loyalty being a possible outcome, whether or not a passenger would have a more
positive attitude towards a certain airline after introducing this kind of travel guide and if there is a bond
created thanks to the inputted information by the flight crews.

Further we will be able to investigate if such a mobile application can actually make a difference in the
attitude customers have towards an airline and if it improves differentiation. The result of this should show
us how the relative attitude is affected. The result from that can then be compared to whether respondents are
more likely to book with that airline and help us in identifying the relative attitude-repeat patronage
classification we are in.
3. Theoretical Framework

We have composed the theoretical framework which can be seen in figure 5, which should guide us through the research, the data collection, the analysis and evidently to the conclusion. We will investigate the consumer behaviour made up of four elements, namely the cultural, social, personal, and the psychological factors (Pride & Ferrell, 2012; Kotler, 2002; Folsom, 2004) and try to link this to the usage of smartphones/tablets and mobile applications. At this point, we should be able to see correlations between the answers given and thus are able to see what groups of the population are even able and/or willing to use such a mobile travel agent application. The reason being, that an airline can then either specifically target these groups in their marketing activities, and/or evaluate, whether the introduction of such an application is of use for the airline to increase its market share.

After having introduced the idea of a mobile travel guide application with recommendations from flight crews, we want to investigate the attitude the interviewees have towards such a programme. Also, we will be investigating whether this application directly from an airline and its crews enjoys a differentiation from other existing mobile travel guide applications. Using then the two dimensional relative attitude framework of Dick & Basu (1994), depicted in figure 3, we can determine what kind of relative attitude, high or low, the interviewees have towards the proposed mobile application. Asking then for the likelihood of re-using (repeat patronage) that application and using it in Dick & Basu’s (1994) relative attitude-behaviour relationship framework, we can find out, what kind of loyalty (loyalty, latent loyalty, spurious loyalty, or no loyalty) it enjoys.

The same kind of test can then be done not directly for the mobile application itself, but how the factors change for an airline having introduced this kind of application. We first want to investigate, whether it has an effect on the attitude respondents have towards an airline introducing the proposed mobile application. Comparing it then to answers given to whether the existence of it would have a differentiating effect towards other airlines.
However, we need to alter the two dimensional *relative attitude* framework of Dick & Basu (1994) a little bit, in a way that on the Y-Axis we do not measure the strength of the attitude, but whether it is effected or not (figure 6). The result then tells us about the change in *relative attitude* the airline is enjoying after the introduction. Knowing this, we can put it, together with the likelihood of re-booking with the airline due to the application, into Dick & Basu’s (1994) *relative attitude-behaviour relationship* framework and investigate what effect this application has on the loyalty customers have towards the airline.

The values the respondents give for the initial attitude towards the mobile travel guide application, the differentiation existence and the likelihood of re-using it can then be compared to the characteristics of the interviewees. This might give us correlations between different types of customers and their attitude towards the proposed introduction. The same then can be done with how the initial attitude, differentiation existence and likelihood of re-booking with the airline due to the introduction of the mobile travel guide application in order to find out if there are differences among the four proposed factors effecting consumer behaviour.
4. Methodology

4.1 Research Philosophies

When observing certain events, one needs to discuss what philosophy of observation to use. How does the observation itself affect what is being observed, how to interpret the findings and how to conclude what one has identified? Blumberg, Cooper & Schindler (2011) have identified two main philosophies, positivism and interpretivism. When combining these two philosophies and taking certain characteristics from each, we get the realism (realistic) philosophy.

4.1.1 Positivism

Adopted from the natural sciences, Blumberg, Cooper & Schindler (2011) describe positivism as having three basic principles. “[...] knowledge develops by investigating the social reality through observing objective facts.” (Blumberg, Cooper, & Schindler, 2011, p. 17), i.e. the events being observed exist externally and the researcher is able to view these objectively. Furthermore, findings conducted from the research are considered value-free, i.e. the results coming from said research are not in any way skewed and/or influenced by the researchers mind, personally and background. This statement then leads to the third principle, that the “researcher is independent, taking the role of an objective analyst.” (Blumberg, Cooper, & Schindler, 2011, p. 17). Research using positivism starts with a hypothesis based on grounded theory and before it is even started, the researcher needs to establish what kind of observations lead to the hypothesis being supported or rejected. This step is then followed by forming causal interdependencies that make up fundamental laws which are then tested while carrying out the actual research process (Blumberg, Cooper, & Schindler, 2011).

4.1.2 Interpretivism

In contracts to positivism, Blumberg, Cooper & Schindler (2011) explain that interpretivists do not consider methods of the natural sciences to be applicable to social sciences; one major flaw being that they consider the researcher to have an influence on the object being researched. In general, Blumberg, Cooper & Schindler (2011) have identified three basic principles for interpretivism. The world, in which the researchers are working, is made up and given meaning by the people under research. The researcher himself is part of this world and he is driven by certain motivations, unlike in positivism where research is considered value-free.

Because of these three basic principles of interpretivism, independent research cannot be carried out and the event under observation can never be objectively understood “[...] as the social world has a meaning for human beings and is constructed by international behaviour and actions.” (Blumberg, Cooper, & Schindler, 2011, p. 17). Furthermore, as the researcher has his or her personal beliefs and motives, their findings from
observations are socially constructed and simply interpret their own social world (Blumberg, Cooper, & Schindler, 2011).

4.1.3 Realism

The *realism* approach tries to unite the two research philosophies of *positivism* and *interpretivism*. Researchers using *realism* believe that the natural sciences can very well be used for research in the social sciences and they also believe in “[...] a reality independent of human beliefs and behaviour.” (Blumberg, Cooper, & Schindler, 2011, p. 18). It denotes that although on a macro level the events are not controlled by individuals, on the micro level however, the *interpretivism* view is used in a way that the research findings are very much influenced by the individual’s interpretations. On the other hand, different researchers should come to similar conclusions due to the mind of them being influenced by the same environment on a macro level (Blumberg, Cooper, & Schindler, 2011). A more radical approach than *realism* is *critical realism* that “[...] recognizes the existence of a gap between the researcher’s concept of reality and the ‘true’ but unknown reality.” (Blumberg, Cooper, & Schindler, 2011, p. 18). Therefore research is not considered value-free and always steered by the researcher’s “[...] current knowledge and concept of reality.” (Blumberg, Cooper, & Schindler, 2011, p. 18).

4.1.4 Summary: Research Philosophies

For this paper we will use the philosophy of *realism* as it does consider the research to be value-free in a way that the data gathered and events observed are free of the researcher’s belief, behaviour and existence. However, when interpreting the results and deducting conclusions from it, they are certainly influenced by the researcher’s individuality, which however, should lead to the same results by a researcher that is influenced by the same environment.

4.2 Primary and Secondary Data

4.2.1 Primary Data

*Primary data* refers to data collected for the specific purpose the data collecting researcher needs it for. Examples of primary data creation are interviews, questionnaires, observations, and in general research done by the research him-/herself. The advantage of using *primary data* is that it is information gathered specifically for the research at stake and not taken from previous research with a different purpose (Driscoll & Brizee, n.d.).

4.2.2 Secondary Data

*Secondary data* on the other hand, are data used by a researcher that have not been gathered for his or her own research at hand, but by other researchers for their own work. One source of information frequently used is governments’ statistics such as the CIA World Factbook that provides information about all the
different countries on the planet (Central Intelligence Agency, n.d.). Other sources can be financial markets that provide for stock prices and trading volumes (Blumberg, Cooper, & Schindler, 2011). Secondary data can thus be used to supplement primary data. Examples include a company’s yearly report using their own figures (primary data) and then using publicly available market information (secondary data) about the business sector in which they are working in (Blumberg, Cooper, & Schindler, 2011).

In general, secondary data help saving time and money as the data do not have to be gathered for the research purpose and simply can be looked up in usually publicly available sources. However, the identification of suiting secondary data can be time consuming as the researcher needs to guarantee a fit of the secondary data to the research question he or she tries to answer. Also, the data needed might not be freely and publicly available and either has to be bought in or is not available at all, if for example generated by a competing firm (Blumberg, Cooper, & Schindler, 2011).

Blumberg, Cooper & Schindler (2011, p. 237) identified the following check-list one needs to go through when using secondary data:

- “Is the information provided in the secondary data sufficient to answer your research problem?
  - Do the secondary data cover all the information you need?
  - Is the information available detailed enough?
  - Do the data follow the definitions you apply in your research problem?
  - Are the data accurate enough?

- Do the secondary data address the same population you want to investigate?
  - Do the secondary data refer to the unit of analysis you want to investigate?
  - Is the sample on which the secondary data are based a good representation of the population you wish to address?

- Were the secondary data collected in the relevant time period?”

4.3 Qualitative and Quantitative Research

Qualitative and quantitative researches are two ways of gathering primary data needed to answer a research question. The difference being in the nature the information is collected to analyse a certain problem or situation.

4.3.1 Qualitative Research

As the name suggests, qualitative research is build upon qualitative data that investigate the why and how of the subject under investigation (Woods, 2006). Qualitative research is usually concerned with words and feelings that cannot be counted in any way (Blumberg, Cooper, & Schindler, 2011). As these studies provide a great insight and understanding of the problem, in general, a smaller sample is needed to help to understand
the population. These \textit{qualitative} techniques are used for exploring a question in greater depth than a \textit{quantitative} study, and are more process oriented (Ghauri & Grønhaug, 2005). Ghauri & Grønhaug (2005) state that the \textit{qualitative research} is eligible for gaining insights into an individual’s experience and behaviour and they point out that it is especially useful for investigating perceptions and attitudes towards personal service process experiences, buying behaviour and brands. As analysing unstructured data can be very money consuming (Blumberg, Cooper, & Schindler, 2011), we are avoiding personal interviews and try to convert the people’s attitude towards the airline and the proposed mobile travel guide application from \textit{qualitative research} into \textit{quantitative} data by asking the respondents to rate their attitude.

4.3.2 Quantitative Research

\textit{Quantitative research} on the other hand helps understanding certain events that can be put into number formats, such as figures, statistics, counts, etc. (Blumberg, Cooper, & Schindler, 2011). As the analysis of such data is relying on mathematical and statistical analysis, a bigger sample than in \textit{qualitative research} is needed to form a reliable conclusion. The focus is more on facts and figures and it can be carried out using interviews, observations, surveys and experiments which are structured (Ghauri & Grønhaug, 2005).

Due to easy accessibility, we decided to carry out self-administered web-based surveys that are cost effective, as it is set up once, time efficient, multiple respondents can answer at the same time and whenever they want.

\textit{Web-Based Surveys}

Within the European Union, in 2009, 340.000.000 people, who amount to around 68\% of the population, used the internet (Central Intelligence Agency, n.d.). This figure, however, varies from country to country with Scandinavian countries having a higher penetration rate compared to nations at the Mediterranean Sea (Blumberg, Cooper, & Schindler, 2011).

Blumberg, Cooper & Schindler (2011) argue that a web-based survey is a special form of self-administered surveys and their characteristics are similar to those of mail surveys. As stated above, they are cost effective, as they can be carried out by one person (Hollensen, 2007; Blumberg, Cooper, & Schindler, 2011). Also, the sample is more easily accessible, as with a face-to-face interview, the researcher needs to be able to meet a respondent (Blumberg, Cooper, & Schindler, 2011). However, surveys that are mailed might not reach the participant; for example the secretary of a manager puts it in the trash bin (Blumberg, Cooper, & Schindler, 2011; Hester, 1996). Another plus is the response time; whereas with a personal interview both parties need to be available at the same time, a respondent to a mail survey can decide themselves when to answer the questionnaire. The downside of it is when a person postpones the reply too much so that it becomes a non-response or the questionnaire is answered only partially. A lot of people prefer the anonymity of self-administered questionnaire as they might consider their answers socially non-desirable and thus do not want
it to be linked to their person (Blumberg, Cooper, & Schindler, 2011). A drawback however is the topic coverage; while in a personal interview, the interviewer might be able to come up with follow-up questions that go deeper into the question at hand; this is not possible in a self-administered web survey (Blumberg, Cooper, & Schindler, 2011; Hester, 1996). “Participants will generally refuse to cooperate with a long and/or complex mail, computer-delivered or intercept questionnaire unless they perceive a personal benefit.” (Blumberg, Cooper, & Schindler, 2011, p. 222).

It would of course be nice to also be able to hand-out and/or e-mail the questionnaires to actual clients of airlines; however, as no company is backing up this research paper, this is not possible.

### 4.4 Sample

A sample is considered a part of the population under investigation that shares the same characteristics as such. When a population is too large for every member to be included, researchers try to achieve a sample that represents the whole population and is not biased towards a specific attribute. Therefore “A sample is a smaller, manageable version of a larger group.” (Investopedia US, n.d.). A sample helps us, by testing the few, to tell us about the whole and therefore drawing conclusions about the population (Blumberg, Cooper, & Schindler, 2011).

Carrying out a census is feasible when the population is small and necessary when there is a high variation among the elements of the population (Blumberg, Cooper, & Schindler, 2011).

However, Blumberg, Cooper & Schindler (2011) see three main advantages with taking a sample. The first reason being lower cost. It should be very clear to the reader that it is always less costly asking only a few compared to asking everyone within the population (Blumberg, Cooper, & Schindler, 2011). This cost advantage is especially justified when the sample represents the whole population without being skewed. The second reason for using a sample is the greater accuracy of results. Sampling is considered to provide for “[...] the possibility of better interviewing [testing], more thorough investigation of missing, wrong or suspicious information, better supervision, and better processing than is possible with complete coverage.” (Deming, 1960, p. 26, quoted in Blumberg, Cooper, & Schindler, 2011, p.168). The last advantage stated by Blumberg, Cooper & Schindler (2011), is the time saving advantage. Not only is it faster to collect data from a few compared to gathering information from everyone, but also certain research is very time critical. The example stated by the three authors is the one of election polls. If the researchers would ask every person eligible to vote, by the time they are done, the first person asked might have changed their mind already. Thus samples are being used.
Determining the Population

The population in our case could be considered as the every human being on the planet earth as everyone should be able to board a plane and this number is estimated at just above 7 billion in July 2013 (Central Intelligence Agency, n.d.). However, it would be more useful to reduce the population to actual people flying as they are more likely to say how their attitude towards the airline and their behaviour would change after the introduction of a mobile travel guide application. In 2011, some 2.8 billion passengers were carried worldwide, on domestic as well as international flights (IATA-International Air Transport Association, 2012a). In order to find out how many individuals went on an airplane we need to take an estimate as data is not easily available. We only found data on American air travellers for the year 2002 which states that the average American took 3.8 trips per year which equals to 7.2 flights per year (TIA/BTS Air Travel Survey Results, 2002 cited in Sevens, 2007). Of course the typical American is not a typical world citizen and also the figures are not up to date. However, it gives us an idea of how many individuals flew in 2011, namely round about 389 million people (number of flights divided by the number of flights per person). This figure would then be the first part of our population.

As stated in the literature review when talking about the innovation adoption, we established that only people having already adopted the smartphone/tablet and mobile application technology are able to use the proposed mobile travel guide application. Although non-adopters of said technology might answer the questionnaire, an airline should not plan on persuading them to acquire smartphones, tablets and/or use mobile applications just to use their travel guide application as this would be outside their core business and thus probably very costly. Therefore they should not be considered part of the population that we want to analyse, but should still be considered within the managerial implications. Whitfield (2013) estimates the worldwide number of mobile application users to be close to 1.2 billion and growing to 4.4 billion users in 2017. This figure of 1.2 billion represents today around 17% of the worldwide population (Central Intelligence Agency, n.d.). Although combining these figures of mobile application usage and amount of passengers is only a very poor estimate, as it would expect some kind of correlation between taking a flight and using the smartphone and tablet technology, it should be alright as an estimate of the population. However, theoretically it could be that all the people boarding airplanes do not use mobile phones. The then estimated population seize would be the percentage of mobile application users worldwide (17%) multiplied with the population of individual flight passengers (389 million) and that amounts to a population for our investigation of 66.13 million people.

4.4.1 Choosing a Sample

The goal a researcher seeks to fulfil when creating a sample is to make it as accurate as possible in reflecting the characteristics of the population, i.e. it must be valid. When taking a sample, two major factors are of importance, namely accuracy and precision (Blumberg, Cooper, & Schindler, 2011).
Accuracy

When a sample manages to mirror the population perfectly, we consider this sample to be accurate. Although some elements of the sample will overestimate the values that a census would have given, other elements will underestimate these values. This then will lead to both, over- and underestimating elements to cancel each other out. Of course, in order for them to do so, the sample needs to be large enough and taken in a way that it is not biased in either way (Blumberg, Cooper, & Schindler, 2011). A sample can be considered non-biased when there is no possibility for systematic variance to occur with systematic variance being the results being skewed in a certain way by known and/or unknown reasons that influence the research in a way that it renders the results biased (Kerlinger, 1986, cited in Blumberg, Cooper, & Schindler, 2011). Blumberg, Cooper & Schindler (2011) also acknowledge systematic non-response to be part of the accuracy of a sample and define it to occur when respondents and non-respondents differ from each other, e.g. in our example, it could be that only people that use mobile applications are more familiar with such and thus more likely to respond to the questionnaire than people that do not use mobile applications (although the latter are not even part of the population).

Precision

The degree of precision of estimate of a sample is linked to the sampling error. As no sample is likely to completely mirror the characteristics of its population, a researcher expects a type of standard deviation, the standard error of estimate. The sampling error is the error that is left after all systematic variance has been accounted for. Surely, some systematic variance that is unknown might still be within the sample (Blumberg, Cooper, & Schindler, 2011).

4.4.2 Non-Probability Sampling

There exist basically three main types of sampling, namely probability sampling, complex probability sampling and non-probability sampling; each with their own advantages and disadvantages. The first two either require a population list, which we do not have and/or are very costly, and money which we do not have either (Blumberg, Cooper, & Schindler, 2011). In our case, we decided for the latter, the non-probability sampling.

The three authors argue that with probability sampling, elimination or at least reduction of sampling bias can be achieved as we use a random selection of elements. Furthermore, a probability sample design helps in determining in what part of the population the research is carried out and therefore help in estimating the range of probable sampling errors. With the non-probability sampling method however, the probability that any element is chosen is unknown and a greater opportunity for bias occurs which could make results from the research less accurate (Hollensen, 2007; Blumberg, Cooper, & Schindler, 2011).
Blumberg, Cooper & Schindler (2011) state that some researchers suggest that this bias can be counteracted by carrying out post-stratification and propensity scoring. The primer takes certain values from the sample and checks them against data that is actually available from the population and then weights the sample values accordingly. As we do not have any such data as age, gender, etc. about the population, post-stratification is not an option to reduce systematic variances in our research. The same is true for the latter, propensity scoring which compares the sample values with a previously taken sample, as we do not have a previous sample taken.

**Advantages of Non-Probability Sampling**

Probability samples are very good in acquiring exact results; in our case for example how many more people would fly with a certain airline after having introduced successfully a mobile travel guide application, i.e. when you are looking for the accurate size of an effect. But the behaviour and loyalty that we are looking into in this paper does not know a common scale and therefore is not measured on such (Blumberg, Cooper, & Schindler, 2011).

Blumberg, Cooper & Schindler (2011) give the example of cigarettes. While a probability sampling method would help in determining the change in demand of cigarettes due to an increase in tobacco taxes, which can be used to inform the ministries and politics, the information gathered through a non-probability sampling method is more useful for an anti-smoking campaign as it could for example investigate the factors that would make people quit smoking. Therefore probability and non-probability sampling each have their purpose. And when wanting to find out whether a proposed change (introduction of such application) is seen as positive, negative or having no effect, a non-probability sample design is the one to go for (Blumberg, Cooper, & Schindler, 2011).

Other reasons to use non-probability sampling are of practical nature. “Probability sampling clearly calls for more planning and repeated call-backs to ensure that each selected sample member is contacted.” (Blumberg, Cooper, & Schindler, 2011, p. 194) which can be rather expensive and also very time confusing, both are resources which we do not have. As seen above, it is not that easy to define the exact population and it seems unfeasible to plan such a probability sample with the resources present and furthermore the total population is not available in our case (Blumberg, Cooper, & Schindler, 2011).

In our case where the research is not backed-up by a company, access to respondents is rather poor and we need to limit it to fellow students, friends and family. Therefore in this paper a subtype of non-probability sampling is used, the convenience sampling method which is the cheapest and easiest to conduct. However, it does not come without its advantages. It is a good indicator at early stages of research and might qualify the topic of this paper worthwhile for a company to investigate further with more resources. Also, the result of it
might be so overwhelmingly positive, as well as negative, that no deeper and more accurate analysis is needed (Blumberg, Cooper, & Schindler, 2011).

**Internet Non-Probability Sampling**

The internet sampling in itself is a special case as the internet population might not be the same as the population targeted. People not part of the population, in our case non-flyers, might take part in the questionnaire. We try to control this by asking how many flights the respondents are taking on average per year. The other problem with the internet population is that it might leave out elements from the population under investigation, e.g. older people that take flights. In our case this is somewhat a smaller problem as people not using the internet are not likely to use mobile applications on smartphones and tablets (Hollensen, 2007; Blumberg, Cooper, & Schindler, 2011). However, there are also advantages to internet sampling which we talked about previously under web-based surveys.

### 4.4.3 Sample Size

In general, bigger samples tend to include less sampling errors, but they cost more money and take more time in carrying out (Hollensen, 2007). Hollensen (2007, p. 168) suggests four main determining factors influencing sample size:

- Traditional statistical techniques,
- Budget available,
- Rules of thumb, and
- Number of subgroups to be analysed

As the budget is the defining resource of this research paper, we will need to get as many respondents from the web-based questionnaire as possible and build on the strength of convenience sampling.

### 4.5 Sound Measurement

Sound measurement involves three tools that help in deciding whether a research study’s results are of good quality. It includes two scientific requirements, validity and reliability, as well as the operational requirement practicality (Hollensen, 2007; Blumberg, Cooper, & Schindler, 2011). “In general, ‘how’ you measure refers to reliability and ‘what’ you measure refers to validity.” (Hollensen, 2007, p. 171).

#### 4.5.1 Data Validity

The ‘what’ you measure is referred to as validity, i.e. do we really investigate what we want to investigate? It refers to the difference in values we get and the values that are really present in the population. However, as we do not really know how to measure the true values in the population, scholars divided validity into three classifications which we will explain below (Blumberg, Cooper, & Schindler, 2011).
Content Validity

The content validity measures to what degree the items under question represent all possible items under study (Blumberg, Cooper, & Schindler, 2011). In our case a high content validity would mean that we look at all different items making up brand loyalty.

Criterion-Related Validity

The criterion-related validity is either concerned with the predictive quality of a survey (in case of forecasting a vote) or with the ability to measure the current state with high quality (in case of customer behaviour or current conditions) (Blumberg, Cooper, & Schindler, 2011). An example from our case: is ‘owning a smartphone/tablet’ enough of a measurement to evaluate the usage of mobile applications, i.e. does every smartphone and tablet owner use mobile applications? Or should we also ask for the mobile application usage?

Construct Validity

The construct validity focuses on the variance in the measurements and what the sources of it are. This is usually used when one wants to measure abstract items that cannot be validated with other data (Blumberg, Cooper, & Schindler, 2011).

4.5.2 Reliability

The ‘how’ you measure is referred to as reliability, i.e. how consistent are the results? Reliability is a necessary condition for validity, however not vice versa. While the bathroom scale can always show your weight plus 6kg, it is reliable, but not valid. However, if the weight shown is jumping up and down for no reason, the scale is neither reliable nor valid (Blumberg, Cooper, & Schindler, 2011). If one measures the same event with the same measuring device over and over again and the results are alike, the measuring device is considered reliable (Hollensen, 2007).

4.6 Non-Response Error

Non-responses occur when a respondent does not manage or does not want to answer a questionnaire. Especially when using probability sampling, non-responses can be very troublesome and need to be accounted for. Reasons for that can be a lack of time, not being interested, never answering questionnaires, etc. (Blumberg, Cooper, & Schindler, 2011).

In order to reduce the non-response rate we will try to have the mails as personalised as possible, assure the respondent that his or her answers will be fully anonymous and send follow-up reminders (Blumberg, Cooper, & Schindler, 2011).
4.7 Questionnaire

4.7.1 Structure of the Questionnaire

The questionnaire is structured in the way suggested by Blumberg, Cooper & Schindler (2011). Although the three authors suggest three different types of questions, namely administrative questions, classification questions and target questions, we are only using the two latter types. The reason for that is that administrative questions deal with the place and time of the questionnaire, the respondent, interviewer and other conditions (Blumberg, Cooper, & Schindler, 2011). As the questionnaire is carried out online, the respondents are guaranteed anonymity and the interviewer being non-existent, administrative questions are of no purpose in this report.

Classification questions deal with segmenting the respondents by providing sociological-demographic variables and are usually of nominal, ordinal and interval types of data (Blumberg, Cooper, & Schindler, 2011). In our questionnaire questions one (1) to six (6) are designed to provide classification and thus allow segmentation. Questions one (1) to four (4) however, are more concerned with segmenting respondents by their background while questions five (5) and six (6) are also classification questions but already start introducing the topic at stake. Furthermore, these questions should help us in determining in what way the behaviour of respondents are steered by the four factors proposed by Pride & Ferrell (2012) Kotler & Armstrong (2010), Kotler (2002) and Folsom, (2004) and described under consumer behaviour.

Target questions are actually concerned with what is under investigation, i.e. in answering the theoretical framework and address the investigative questions (Blumberg, Cooper, & Schindler, 2011). Within our questionnaire questions seven (7) to fourteen (14), including its sub questions are dealing with answering especially topics arising from the innovation-decision process theory and customer loyalty theory.

4.7.2 Types of Data

There exist four types of data according to Blumberg, Cooper & Schindler (2011) which are nominal, ordinal, interval and ratio. Each of them carries more information in the order listed. In this paper we decided to use all four data types and following we will briefly define them and where we have used them.

Nominal Data

Nominal data carries the least amount of information as it only helps us in classifying a respondent’s answers and determines equality. It does not allow ranking answers by any sort and in general only allows counting the answers while at the same time they “[...] can be grouped into two or more categories that are mutually exclusive and collectively exhaustive.” (Blumberg, Cooper, & Schindler, 2011, p. 340). It is however still a
very helpful type of data as it allows classifying groups such as age, gender and occupation and thus might give us insights into customer behaviour. This type of data is used in questions one (1), three (3), four (4), six (6), seven (7), nine (9) and ten (10) to thirteen (13).

**Ordinal Data**

*Ordinal data* is of higher rank than *nominal data* as it allows not only classifying responses but also ordering them, i.e. we can determine answers being of greater or lesser value and it can be used as long as the transitivity postulate is true (Blumberg, Cooper, & Schindler, 2011); meaning that if A > B and B > C, then A > C (Simmons, 2012). The only statistical operation possible with this type of data is the median to express central tendency (Blumberg, Cooper, & Schindler, 2011). This type of data however, is only used in questions two (2) and eight (8). Question two (2) concerning the age of respondents does not allow for exact dates to be answered but only intervals that at the bottom and top are not the same distance as in between. Otherwise it could be treated as *ratio data*. The reason for that downgrading of data is that some respondents might be reluctant to tell the exact age, although the questionnaire is guaranteed to be anonymous.

**Interval Data**

*Interval data* takes one step further from *ordinal data* in allowing not only classifying and ordering data but also the intervals between answers being of the same magnitude “[…] (the distance between 1 and 2 equals the distance between 2 and 3).” (Blumberg, Cooper, & Schindler, 2011, p. 342). It does however not possess a base point, i.e. one cannot say that 03:00 o’clock is half the time as 06:00 o’clock. *Interval data* allows us to check for arithmetic means and standard deviations to check for dispersion of data as well as other statistical measures (Blumberg, Cooper, & Schindler, 2011). This type of data is used in question fourteen (14) with its sub questions when a *Likert scale* is used to evaluate agreement towards a statement.

**Ratio Data**

*Ratio data* is of the highest order of all four proposed data types by Blumberg, Cooper & Schindler (2011). It combines all the attributes of the previous three data types and further includes a base point that allows for determining the equality of ratios, i.e. 20 flights are twice as many flights as 10 flights. Also, *ratio data* allows for all statistical measures to be carried out. The advantage of *ratio data* is that while *nominal data* cannot be scaled up to ratio level, the other way round is possible. This is needed as some statistical operations require both data types to be the same (Blumberg, Cooper, & Schindler, 2011). Question five (5) in our questionnaire is the ratio type and asks about the amount of flights in the past 12 months.

4.7.3 Rating Scales
Blumberg, Cooper & Schindler (2011) talk about ten different rating scales that help judging “[…] properties of objects without reference to other similar objects.” (Blumberg, Cooper, & Schindler, 2011, p. 360). These are:

- simple category scale (dichotomous scale),
- multiple-choice, single-response scale,
- multiple-choice, multiple-response scale (checklist),
- Likert Scale,
- semantic differential scale,
- numerical scale,
- multiple rating list scales,
- fixed sum scale,
- staple scale, and
- graphic rating scale.

Of these ten different scales, we use four different rating scales which we will explain now.

*Simple Category Scale*

This type of rating scale “[…] (also called a dichotomous scale) offers two mutually exclusive response choices.” (Blumberg, Cooper, & Schindler, 2011, p. 362) such as ‘yes’ and ‘no’, or ‘male’ and ‘female’ but they can easily be of different nature (Blumberg, Cooper, & Schindler, 2011). The simple category scale is used in both classification and target questions one (1), five (5), six (6), seven (7), nine (9), ten (10) and thirteen (13) with the above mentioned answer possibilities.

*Multiple-Choice, Single-Response Scale*

As the name suggests, the question stated offers multiple answer possibilities of which only one can be chosen (Blumberg, Cooper, & Schindler, 2011) and it is used for classification and target questions two (2) to four (4), eight (8) and twelve (12).

*Multiple Choice, Multiple-Response Scale*

It is also sometimes called a ‘checklist’ and as before offers multiple answer possibilities with the difference that in this case the respondents can choose one or more alternatives (Blumberg, Cooper, & Schindler, 2011). This scale is only used question eleven (11) where we want to find out what kind of applications the respondents use on their smartphones and/or tablets and the different categories are the official categories of the Google Play store (Google Inc., 2013d).
Likert Scale

The Likert Scale is considered a summated rating scale and respondents can “[...] express either a favourable or unfavourable attitude towards the object of interest.” (Blumberg, Cooper, & Schindler, 2011, p. 362) and they do so in either agreeing or disagreeing with a certain statement on a five point scale (Blumberg, Cooper, & Schindler, 2011). The Likert scale is used in the targeting question number fourteen (14) and its sub question to understand the attitude towards the mobile travel guide application as well as the change in attitude towards the airline. Therefore we changed the Likert scale partially in a way that it does not only measure the attitude, but also changes in attitude so that it fits our customer loyalty theory and our theoretical framework.
5. Questionnaire Analysis

5.1 General Findings

5.1.1 Demographics

A total of 74 surveys were collected of which 58 were completed with all questions answered. We said before that the population from which we are taking our sample is comprised of all the people that take flights and that use mobile application on smartphones and/or tablets. 5 (8.6%) respondents said they did not fly at all. Added to this 6 (10.3%) stated that they never use mobile applications on their smartphones and/or tablets. Of these people 2 (3.4%) neither flew in the past 12 months nor use mobile applications. Therefore we need to eliminate 9 (15.5%) respondents from our sample and end up with 49 surveys that we consider in the following analysis.

Of these 49 respondents, 18 (36.7%) were female and 31 (63.3%) male (Q1). The mode and therefore the dominating age group (Q2) was 21-30 years old with 36 (73.5%) of respondents in that category (fig. 7).

The regional origin (Q3) of respondents is very much skewed towards nationalities that are part of the European Union with 43 (87.8%) events (fig. 8).
The question for the occupation status of respondents (Q4) resulted in the two biggest groups being students with 27 (55.1%) events and employees with 17 (34.7%) occurrences (fig. 9). Two respondents that stated ‘other’ as their occupation provided for explanation and could be assigned to two of the actual multiple choices. One respondent state that his occupational status is ‘semi-employed’ which should belong to ‘employed’ while another one wrote that she is a ‘student’ as well as an ‘intern’. As ‘student’ is the main occupation, we consider her to be part of that group. The one ‘other’ that is left did not provide for an alternative description.

5.1.2 Smartphone/Tablet Usage

As stated in the demographics section before, due to our population definition, we had to eliminate six people that do not use mobile applications. All 49 respondents stated that they own a smartphone and/or a tablet that can go online and install mobile applications (Q7). Of these, the majority (33; 67.3%) use mobile applications every day, all day long, followed by 10 (20.4%) respondents using mobile applications once a day (Q8; fig. 10). Therefore 43 (87.8%) members of the sample use their mobile applications at least once a day.

Having asked the respondents which of Google’s official mobile application categories they use (Q11; fig. 11), the following categories have been selected by more than 65% of participants: ‘weather’ (36; 75%), ‘communication’ (35; 72.9%), ‘social’ (33; 68.8%) and ‘music & audio’ (32; 66.7%). ‘Travel & Local’ applications are already installed and in use by 43.8% of respondents, which is worth noting as the proposed mobile travel guide application would fall into this category.
Some 23 (46.9%) of respondents already have a mobile application of an airline installed (Q13). As the mobile travel guide application is a mix between existing mobile airline applications and programmes falling in the ‘travel & local’ category, we want to have a look at how many people use both already (fig. 12).

13 (26.5%) respondents use both an airline as well as a ‘travel & local’ mobile application. Therefore, the proposed travel guide application, if accepted successfully by the market, has the potential of being the two in one solution for more than a quarter of people surveyed.

5.1.3 Air Travel Habits
In Question 5 we wanted to know from participants on how many flights they have been in the past 12 months. In order to avoid confusion whether a flight from A to B and back is considered one flight, we stated clearly that such round trips are to be counted as two flights. As mentioned above, we excluded 5 cases as the respondents did not board a plane once in the past year, the reason being, that we defined the population to be all people that go on planes. The lowest amount of flights in the past 12 months of all respondents was
2, which was mentioned by 8 (16.3%) individuals. The highest amount of flights was 150 flights. This might seem as much and it could have been a misspelling. However, 150 flights a year are feasible for someone working on an airplane and taking into account the age of said respondent which lies in the interval of 41-50 years old, there is no reason that this might not be true. Added to this, the survey was also posted in airplane enthusiast groups where there should be a higher chance of getting a pilot to take the survey. The arithmetic mean of the results is that on average every respondent has been boarding a flight 14.67 times in the past year. The standard deviation is calculated to be 23.059. If however we decide to take out the outlier of 150 flights, the mean is reduced to 11.85 with a standard deviation of 12.053.

14 (28.6%) of respondents take the airplane mainly for business reasons while 35 (71.4%) fly more private (Q6). Direct online bookings on the airlines’ website make up for 67.3% (33) of all flights taken, while at the same time none of the respondents goes to an airline ticket desk to book their flights (Q12). Overall 48 (98%) of respondents prefer to get their tickets online, with indirect online (through a booking website) making up for 30.6% (15) of flights booked, and only one (2.0%) person buys his or her own ticket offline at a travel agency. Compared to the 33 (67.3%) of respondents booking their tickets online directly with the carrier, only 9 (18.4%) use an airline’s application to purchase tickets (Q9).

5.1.4 Consumer Behaviour

The first six questions are our classification questions that are supported by the four factors of consumer behaviour, cultural, social, personal and psychological (Pride & Ferrell, 2012; Kotler, 2002; Folsom, 2004). The origin (Q3) of respondents is aimed at helping us identifying the cultural factor. Although occupation is part of the personal factor, we treat the occupational status (Q4) to be part of the social factor as it can tell a bit about the respondents’ hierarchical place in their micro and macro society. Gender (Q1) and age (Q2) are classical elements of the personal factor. The amount of flights in the past 12 months (Q5) as well as the main reason for flying (Q6) are also added to that factor as they are to do with lifestyle and occupational background. We are now interested in how these factors influence respondents in what way certain questions are related to them.

Consumer Behaviour in Innovation Adoption

As we stated in the theoretical framework, we want to find out how the following five questions are related to the classification questions (Q1-6): the use of smartphones and/or tablets (Q7), usage of mobile applications (Q8), flight booking through a mobile application (Q9), the usage of existing travel guide applications (Q10), flight booking (Q12) and the usage of an airline’s applications (Q13).

As all of the respondents stated that they own a smartphone, we cannot give any correlation for the consumer behaviour factors and the usage of smartphones and/or tablets (Q7).
There could not be found any significant correlation between the classification questions and how often respondents use mobile applications (Q8).

There is a correlation (significant at the 0.05 level) of -0.355 to be found between the number of flights a respondent took within the past 12 months (Q5) and booking flights using a mobile application (Q9). The result suggests that the more people fly, the more likely they are to book a flight using a mobile application. Thus the usage of mobile applications for actual flight booking is influenced by the personal factor. Added to this, question 9 also seems to be influenced by the occupations status (Q4) of respondents. While only 7.4% of students book flights using mobile applications, 26.3% of people working do so as well. There could thus be a basis for saying that the hierarchical status within society and thus the social factor have an influence on the usage of applications for booking flights.

The usage of mobile travel guide applications (Q10) seems to be more common with people working (63.1%) compared to students (33.3%) and thus it would be part of the social factor. As there is no significant correlation to be found between question 10 and the age (Q2) of respondents, we can exclude the possibility of age influencing the occupation and thus having an influence on the use of mobile travel guide applications.

After having checked cross tables for significant differences of flight booking behaviour (Q12) within the classifications questions, we were not able to find any evidence that would support a meaningful linkage between the place of booking and any of the four factors of consumer behaviour.

When looking for factors that could explain whether or not a respondent is using an airline’s mobile application (Q13) we did find that most respondents from the European Union (58.1%) do not use such an application. In the rest of the world (except the Australian continent) 100% of respondents do use an airline’s application. However, we do not believe to have proof that origin, and thus the cultural factor determine the usage of an airline’s application, as the number of respondents from outside Europe is too small.

Consumer Behaviour in Attitude towards Mobile Travel Guide Application

In this paper we are very interested in knowing how the four factors of consumer behaviour could influence customers in their attitude towards the proposed mobile travel guide. In order to investigate that question, we will try to find linkages between the six classification questions (Q1-6) and the questions concerning attitude and loyalty towards the mobile application (Q14.1-14.6). In order to do so we used cross tables and correlation analyses, however, we were not able to find any of the 6 application attitude variables to be linked to the classification questions.

Consumer Behaviour in Change in Attitude towards Airline
The goal of this paper is not only to investigate how customer perceive a mobile travel guide application, but more importantly how such a service introduction affects the attitude and loyalty towards the airline. In order to investigate that question, we will try to find linkages between the six classification questions (Q1-6) and the questions concerning changes in attitude and loyalty towards the airline (Q14.7-14.9).

There seems to be a strong correlation (significant at the 0.01 level) of -.392 between the respondents agreeing that a positive impression of the application would improve the attitude towards the airline (Q14.7) and the number of flights taken in the past 12 months (Q5). As the correlation is negative, we can state respondents travelling more often are less agreeable to the statement that a positive impression of the application would improve the attitude towards the airline and therefore question 14.7 is influenced by lifestyle of participants and thus the personal factor.

The other two variables however do not seem to be linked to any of the classification variables, neither by checking for correlations nor for cross tabulation.

5.1.5 Customer Perception of Mobile Travel Guide Application

Looking at the targeting questions for the mobile travel guide application (Q14.1-14.6), we used positive to very positive statements and participants had to indicate to what extent they agree or disagree with said statements. The scale went from 1 Strongly Disagree to 5 Strongly Agree, therefore arithmetic means with values above 3 can be seen as positive and favourable towards the proposed mobile application.

The question about the likelihood of using the application (Q14.1) is a general question that has nothing to do with the consumer loyalty theory yet. Most people 19 (38.8%) said that they agree that they are very likely to use the proposed application (fig. 13). The arithmetic mean of this question is at 3.27 with a standard deviation of 1.036 and thus it can be considered that respondents are willing to use such an application, however, only 23 (47%) answered positively to this question and 15 (30.6%) neither agreed or disagreed, i.e. the positive outcome of this question is only weak in terms of the arithmetic mean, although less than a quarter (11; 22.4%) stated that the did not want to use the application.

In question 14.2 we were interested in the importance of having the travel guide filled with information by the flight crews and we asked to what extent the respondents agreed with the statement ‘I very much like that the information is coming from the airline’s employees’. Most interviewees (28; 57.2%) replied positively that they either agree (26; 53.1%) or strongly agree (2; 4.1%) to the statement and thus they value the information being collected by the airline’s employees (fig. 13). Just above a quarter (13; 26.5%) of answers given were neither agree or disagree while 8 (16.3%) can be interpreted as not caring whether the information is coming from flight crews or not. Although the arithmetic mean accumulates to only 3.39 with a standard deviation of 0.953, more than half of respondents had a positive attitude towards it, or better say, only 16.3% did not seem to value this feature of the proposed mobile application.
Whether or not respondents agreed with a higher credibility of information due to it coming from employees was asked in the next question (Q14.3). Most interviewees seem to not agree (27; 55.1%) which includes people that neither agree or disagree (14; 28.6%) (fig. 13). However, from the arithmetic mean of 3.16 with standard deviation 1.067 as well as from the frequency table we can conclude that still more people either agree (19; 38.8%) or strongly agree (3; 6.1%) compared to respondents disagreeing (9; 18.4%) and strongly disagreeing (4; 8.2%).

5.1.6 Customer Loyalty towards Mobile Travel Guide Application

In order to estimate attitudinal strength we asked interviewees if they have a positive attitude towards the suggested application (Q14.4). For this question, nearly half (24; 49.0%) either agreed (22; 44.9%) or strongly agreed (2; 4.1%) with having a positive attitude towards the application while only 8 (16.3%) stated that the either disagree (7; 14.3%) or strongly disagree (1; 2.0%) with that statement (fig. 13). The arithmetic mean then is at 3.35 with a standard deviation 0.855 which can be explained by nearly a quarter (12; 24.5%) of respondents neither agreeing or disagreeing.

For us to evaluate the attitudinal differentiation we asked participants whether they would prefer such a travel guide application by an airline over third party providers (Q14.5). 40.8% (20) of answers given were strongly disagree (2; 4.1%) and disagree (18; 36.7%). Towards the other end of the scale, only 34.7% (17) of respondents either agreed (13; 26.5%) or strongly agreed (4; 8.2%). Although the extreme endpoints were twice as strong on the agreement side as on the disagreement one, even putting weights of 2 onto the values 1 and 5, more events would still be on the left hand side of the scale. The arithmetic mean of 2.98 with standard deviation 1.070 supports the result that the attitudinal differentiation is not present.
The variable missing so far to identify the kind of loyalty such mobile travel guide application would enjoy is repeat patronage. We asked participants to what extent they agree with the statement that if they are satisfied with such application, they would re-use it (Q14.6). This seems to be the strongest one of all attitude variables concerning the mobile application with the highest of all arithmetic mean of 4.18 and lowest of all standard deviation of 0.727. No participant answered to strongly disagree with the statement and only 2 (4.1%) of them seem to disagree. 44 (89.8%) are positive towards this statement with 28 (57.1%) of respondents agreeing while 16 (32.7%) strongly agree with being likely to re-use the application if they find it satisfactory (fig.13). Although this variable seems to be very much in favour of the mobile application and also it is the most positive variable within this set of variables, one has to expect this kind of result. It seems only logical that when someone is satisfied by something, he or she will be likely to re-use it.

5.1.7 Change in Customer Loyalty towards Airline

In the first question that is phrased towards the attitude towards the airline (Q14.7) we tried to investigate the effect the proposed mobile travel guide application has on the attitude the respondents have towards the airline introducing such application. We asked respondents whether or not they agree with the statement ‘A positive impression of the application would improve my attitude towards the airline’. Only 10.2% (5) of respondents do not agree with this statement while 40 (81.6%) say their attitude towards would improve with 32 (65.3%) participants agreeing and 8 (16.3%) strongly agreeing (fig. 14). The arithmetic mean of this variable is at 3.84 with a standard deviation of 0.0921 which support the first impression of a positive effect onto attitude towards the airline.

‘All things being equal, I would have a better attitude towards an airline with such an application compared to an airline without the application’ (Q14.8) is aiming at the attitudinal differentiation effect the proposed application might have. The biggest group of results in this case is for neither agree or disagree with 24 events (49%), supporting the statement having we have 16 (32.6%) participants of which 10 (20.4%) agree and 6 (12.2%) strongly agree with the statement (fig. 14). Therefore 18.4% (9) do not agree with the statement. Also the arithmetic mean is close to the middle point at 3.22 with standard deviation 0.985.

The last variable we are looking at is concerned with repeat patronage (Q14.9) and whether or not a positive impression of the proposed mobile travel guide application would have an effect on the re-booking behaviour with the publishing airline. 28 (57.2%) of respondents stated that it does have an effect on the re-booking behaviour with 21 (42.9%) agreeing and 7 (14.3%) strongly agreeing with the statement (fig. 14). Of all respondents 6 (12.2%) do not support the statement of which 2 (4.1%) disagree and 4 (8.2%) strongly disagree. The arithmetic mean of this variable equals 3.51 with a standard deviation of 1.063.
5.2 Analysis of General Findings

5.2.1 Customer Loyalty towards Mobile Travel Guide Application

As we wanted to look at customer loyalty in this paper, we are trying to estimate the *attitudinal strength* of the proposed mobile travel guide application and compare it with the *attitudinal differentiation* which gives us the *relative attitude*. From there we then want to go towards estimating the *repeat patronage* which, combined with *relative attitude* tells us about the kind of loyalty the application is likely to enjoy.

Concerning *attitudinal strength* (*Q14.4*), three times as many participants (24 compared to 8) were on the right hand side of the scale compared to the left hand side, we can conclude that the *attitudinal strength* of this application is strong which is also being supported by the arithmetic mean of 3.35 with a standard deviation of 0.855. Therefore, within the *relative attitude matrix* of Dick & Basu (1994) we are so far in the upper half (fig. 15, black box).
When having asked about attitudinal differentiation (Q14.5) we saw that more people disagreed than agreed (arithmetic mean of 2.98 with standard deviation 1.070) to preferring the proposed application over a third party provider of a travel guide and therefore we have to conclude that the attitudinal differentiation is not present (fig. 15, gray box).

As the attitude strength (Q14.4) is considered strong and the attitudinal differentiation (Q14.5) not present, we are currently in the upper left quadrant of Dick & Basu’s (1994) relative attitude matrix (fig. 15, gray field) which concludes that the mobile travel guide application is enjoying low relative attitude which puts us into the lower half of the relative attitude – behaviour relationship matrix (Dick & Basu, 1994) (fig 16, black box).

In question 14.6 we tried to investigate the repeat patronage and the results were much in favour of the application enjoying a high score in this variable. From this result we can derive that the proposed mobile application would enjoy a high repeat patronage which is represented by the gray box in the relative attitude – behaviour relationship matrix (Dick & Basu, 1994) (fig 16).

From having discovered a strong attitudinal strength and no attitudinal differentiation we derived a low relative attitude. Using this finding and combining it with the investigated high repeat patronage we can conclude that the proposed mobile travel guide application would enjoy spurious loyalty (fig 16, gray field).

5.2.2 Change in Customer Loyalty towards Airlines

As this is not a paper on airline loyalty in general, but rather the possible effect of a mobile travel guide application on an airline’s loyalty, we had to alter the relative-attitude matrix of Dick & Basu (1994) in a way that it does not measure attitude strength towards the airline, but rather how it is affected by the application. Therefore we are looking for the change in attitude and combine it with the attitudinal differentiation to establish what sort of change in relative attitude the airline could experience after introduction. The result then is compared to repeat patronage, i.e. whether a positive experience with the travel guide application could lead to re-booking with the airline. After that comparison within the relative attitude – behaviour relationship matrix (Dick & Basu, 1994) we are able to tell what effect the successful introduction of a mobile travel guide application could have on an airline’s customer loyalty.
Concerning the change in *attitudinal strength* (**Q14.7**) a strong 81.6% (40) majority supports the view that their attitude towards the airline would improve with a positive impression by the mobile application. Therefore we can deduct that the introduction of such application will increase the attitude towards the airline and thus change it. Within the altered *relative-attitude* matrix originally of Dick & Basu (1994) we will thus be in the top half (**fig. 17, black box**).

The next question (**Q14.8**) was concerned whether this kind of travel guide application could be a competitive advantage over another airline while all other things are staying constant. The variable we are looking for is the so called *attitudinal differentiation*. Most (24; 49%) people answered this question with *neither agree or disagree* and 16 (32.6%) participants either *agreed* or *strongly agreed* with the statement. Although the neutral responses are in the majority, still more people agreed with the statement than there were respondents that disagreed which can also be seen in the arithmetic mean of 3.22. However, one needs to bear in mind that the *attitudinal differentiation* is present, but not with good strength (**fig. 17, gray box**).

When looking at the matrix of changed *relative attitude* (originally by Dick & Basu, 1994) (**fig. 17**) the cross section of the change in *attitudinal strength* (yes, black box) and *attitudinal differentiation* (yes, gray box) we see that an airline introducing such travel guide application is likely to experience highest change in *relative attitude* (gray field) which in turn puts us into the upper half of the *relative attitude – behaviour relationship matrix* (Dick & Basu, 1994) (**fig. 18, black box**).

The only variable left to determine what kind of loyalty a travel guide application might add to an airline is *repeat patronage*. The last question (**Q14.9**) of the questionnaire asks respondents to agree or not agree with the statement that their re-booking behaviour would be affected if they have a positive impression of proposed mobile application. As 57.2% (28) of respondents agree (*agree or strongly agree*) with the statement and only 12.2% (6) disagree (*disagree or strongly disagree*), it seems that a positive impression of the travel guide application on the respondents would change their booking behaviour. Although it is not stated whether participants would book more or less flights with the airline, it can safely be assumed that it
would be more flights as we see no reason why a positive experience would lead to less revenue. Therefore a high repeat patronage (fig. 18, gray box) is resulting from the application.

High repeat patronage and a high relative attitude cross in the upper left corner of the relative attitude – behaviour relationship matrix (Dick & Basu, 1994) and therefore such application can lead to improvements in loyalty.

5.3 Other Correlations

After having inputted and defined the raw data into the statistical programme SPSS, we produced a table with all bivariate correlation constellations possible. In doing so we identified significant correlations (at levels 0.05 and 0.01) and decided to not keep the interesting ones from the reader. Surely there are correlations that do not support anything and have no statistical meaning, such as gender (Q1) and origin (Q3) with a correlation of .418. Whenever we found these kinds of events we ignored them and now we want to share only the interesting occurrences. Reasons for these correlations are purely speculative and therefore are not provided for.

Respondents using communication applications (Q11) seem be more likely to agree with the increased credibility of the application due crew members inputting the information (Q14.3) with a correlation of .354 (significance at the 0.05 level). Also they seem more likely to agree with the statement that they have a positive attitude towards the application (Q14.4) with a correlation of .473 (significance at the 0.01 level) and are more likely to re-use the application if they are satisfied (Q14.6) with a correlation of .287 (significance at the 0.05 level). Interesting enough, the users of communication applications are also relatively likely to already use an application by an airline (Q13) with a correlation of .310 (significance at the 0.05 level). However, these respondents do not have a significant correlation (.208) with agreeing to be very likely to use the proposed travel guide application (Q14.1).

Respondents using financial applications (Q11) seem not to like the idea of the proposed mobile travel guide applications. Their correlation with agreeing to a high likelihood of using the application (Q14.1) is correlated negatively at -.332 (significance at the 0.05 level). Even ‘worse’ is correlation with agreeing to have a positive attitude towards the application (Q14.4) is correlated negatively at -.402 (significance at the 0.01 level).
Respondents using lifestyle applications (Q11) and respondents using shopping applications (Q11) on the other hand seem to be more likely to favour an airline for introducing a travel guide application. They are more likely to agree to the statement that all other things staying equal, an airline offering such an application enjoys a higher attitude with said respondents compared to another airline that does not offer the application (Q14.8). The correlations for these events are at .320 (significance at the 0.05 level) for lifestyle application users and at .420 (significance at the 0.01 level) for shopping application users. Added to this, these respondents are also more likely to agree to the statement that a positive impression of the application would affect their re-booking behaviour with the airline (Q14.9) with correlations of .347 (significance at the 0.05 level) and .366 (significance at the 0.01 level) for lifestyle and shopping application users respectively.

Respondents already using travel & local applications (Q11) are in general more favourable towards an airline’s travel guide applications as well as towards the airline itself. Their correlations for agreeing to the statements of preferring an airline’s travel guide application to third party providers and having a better attitude towards said airline compared to other airlines (all else staying equal) are at .328 (significance at the 0.05 level) and .393 (significance at the 0.01 level) respectively.

5.4 Summary of Questionnaire Analysis

The research in this paper has shown that most people already use smartphone and/or tablets and therefore are able to surf the mobile internet as well as use mobile applications. Of all the people having responded to the questionnaire and being part of the population, 67% use mobile application over the whole day with communication, music, weather and social purposes.

We have shown that most people are driven by social and personal factors in their customer behaviour towards smartphones, tablets and mobile applications. Within these factors the number of yearly flights, i.e. lifestyle and their occupational status are of relevance.

The attitude that the respondents have towards the proposed mobile travel guide application should also be able to be explained by consumer behaviour. However, none of the four factors have shown significant correlations that can be used to explain the reasons behind the attitude.

There has been one factor spotted as having an influence on the change in attitude that the respondents have toward an airline introducing the suggested mobile application. The personal factor, more precisely again the number of flights per year and thus the lifestyle are of importance in determining the change in attitude an airline enjoys when introducing the travel guide. These two events are in fact negatively correlated, i.e. the more people fly, the less likely they are to improve their attitude towards the airline only because of the introduction of a mobile application. The other variables playing a part in the attitude and thus in the loyalty towards an airline could however not be correlated to any of the factors making up consumer behaviour.
By evaluating attitudinal strength and attitudinal differentiation of the proposed travel guide we managed to establish that it enjoys low relative attitude. Linking that result high repeat patronage we could deduct that the application would enjoy spurious loyalty. The meaning being that although people do not feel loyal or attached to it, they are still likely to repeatedly use the application for their travel purposes.

As our major goal in this research paper is to evaluate in what way the introduction of the mobile travel guide application can affect the loyalty an airline enjoys, if at all, we had to modify the attitude – behaviour relationship matrix proposed by Dick & Basu (1994) in a way that it no longer measures attitude strength but change in attitude strength. From the surveys we know that the attitude towards the airline would improve and there is also an attitudinal differentiation compared to airlines without the application but otherwise being equal. Therefore the airline would enjoy a highest change in relative attitude. Also, the majority of respondents agree that their re-booking behaviour would be affected, thus a high repeat patronage is present. Finally we were able to say that the introduction of a mobile travel guide application would lead to an increase in customer loyalty towards the airline.
6. Conclusion

6.1 Research Objective

This paper focuses on three theoretical areas of research: the innovation-decision process, consumer behaviour and customer loyalty. The purpose of this study was to evaluate the effects on the customer side that the introduction of a possible innovation, a mobile travel guide application brings with it. It is not only a study on a mobile application standing alone, but as an extension of service by an airline. Airlines are looking for bringing more IT into the industry and the customer side to give added value to their clients (Kelly, 2013; Baker, 2012; Mahatanankoon, et al., 2005, cited in Lubbe & Louw, 2010)

6.2 Conclusion

This paper is based on a questionnaire carried out with a non-probability sample using qualitative and quantitative research. It looks at to what extent mobile applications are used by customers in everyday life in general and in travelling and the aviation industry in particular. The research question states that we wanted to explore the effect the proposed mobile travel guide application has on the customer loyalty that an airline introducing the technology experiences. In doing so, we also had a look at the loyalty the application itself generates. To better understand the driving motives of respondents in giving their answers, we also looked into the four factors of consumer behaviour and how they affect smartphone/tablet and mobile application usage as well the attitude towards the application and the firm.

To help answering the research question:

To what extent does the mobile travel guide application affect consumer behaviour and how does it contribute to the customer loyalty towards the airline?

we phrased three sub-questions which we are going to answer hereafter.

SQ1 At what point in the innovation-process are the customers and do they use mobile applications for travel purposes already?
The surveys have shown that respondents that have already adopted the smartphone and/or tablet technology are using mobile applications multiple times during the day and thus laying a healthy basis for rolling out a mobile travel guide application. Furthermore, experienced frequent flyers are already familiar with the technology and book tickets directly via airlines’ mobile applications. By 2017, 50% of online direct bookings are expected to be carried out via mobile application (Harteveldt, n.d., cited in IATA-International Air Transport Association, 2012b).

SQ2 How does the introduction of a mobile travel guide applications affect consumer behaviour?

Results show that the most important factors driving the customer behaviour in terms of usage of smartphones, tablets and mobile applications of personal and social nature. Lifestyle and occupation as indicator for number of flights heavily influence the usage of mobile technology in air travelling in a way that frequent travellers are more familiar with using mobile airline applications, more likely to purchase tickets via these applications and their attitude towards an airline is more affected by the introduction of said technology. The social hierarchy is important as it determines the usage of mobile travel guide applications. People in a higher stage of the hierarchy are more likely to have experience with said technology, although reasons for that correlation are unknown and subject to further investigation.

SQ3 Is a mobile travel guide application a suitable tool to increase customer loyalty towards an airline?

The questionnaire has revealed that a mobile travel agent application, filled with information by flight crews, enjoys a low relative attitude as respondents do not differentiate between an application coming from the air carrier and one from a third party provider. Though, as long as customers are happy with it, they are willing to use the technology repeatedly which leads to spurious loyalty.

The effect that the mobile travel agent application has on an airline’s customer loyalty can be strong nonetheless. It improves the attitudinal strength towards the airline while at the same time a differentiating
factor and thus a competitive advantage. That in turn translates into a higher relative attitude which, together with the discovered repeat patronage, translated into a move towards enjoying customer loyalty. We can conclude that such proposed mobile travel guide application, filled with information and knowledge by flight crews is a suitable tool increase customer loyalty.

6.3 Managerial Implications

The results of this paper indicate that the extension of mobile services by a travel guide application is worthwhile for an airline as it can be considered as a possible tool to increase customer loyalty. Airlines already know that they do not only sell the journey from A to B but that they are actually selling an experience which already starts at home when planning the trip. By having a travel guide specifically for the destinations flown to by a certain airline, potential customers can look for a holiday destinations with the implication that the publishing carrier is getting them there.

The study further has shown that potential clients value very much that the information depicted within the travel guide is coming from the flight crews. Not only do respondents take the information more credible as it is coming from people that are likely to have been at the destination multiple times, but it also brings the airline closer to the customer. The mobile application itself is already generating customer loyalty itself. However, the study has also shown that this loyalty is of spurious nature, i.e. customers do not have the highest relative attitude towards it, as third party travel guides are not seen as inferior, the airline’s travel guide will still be re-used if satisfactory. Dick & Basu (1994) suggest further improving the application so that it differentiates itself from third party providers.

Although the mobile travel guide application itself might only score spurious loyalty, our study has shown that it does have the potential to give the airline a high relative attitude change and therefore strengthen its loyalty; which evidently should result in more frequent customers (not to be mistaken with frequent flyers). Results suggest that especially frequent fliers are already using mobile airline applications and that they are more likely to increase their relative attitude towards an airline and thus become more loyal after the introduction of the proposed technology.

This study provides empirical support that a mobile travel guide application benefits customer loyalty towards an airline while at the same time proving that the population is already strongly affiliated with mobile applications so that there is no innovation-adoption process to be gone through.

6.4 Further Research

As stated in the case delimitation, this paper is only investigating the customer point of view. Thus it would be recommendable that the feasibility for specific airlines is to be tested. There might be technical pitfalls that this study was not able to look at. Further research should be done within human resources, to what
extent employees are willing to share their knowledge about destinations, how the information sharing could be used for a bonus compensation scheme.

While analysing the data generated in the questionnaire, many interesting correlations came up of which some were written down in the section ‘other correlations’. It would be very interesting to not only investigate what variables are somehow correlated but also why they are correlated and furthermore if the correlations are statistically valid.

The proposal for the mobile travel guide application in this paper stated that the information about destination should be coming from the airline’s employees to foster a relationship building with its passengers. Ford & Dickinson (2012, p. 179) suggest that companies should use their clients’ “[...] willingness to contribute their knowledge, skills, and abilities to co-produce the service experiences they want and expect.” Thus further research could investigate the effect on consumer behaviour and customer loyalty with the mobile travel guide application giving the possibility for the public to suggest places to visit in the airline’s application and thus co-create information.

6.5 Limitations

There might be limitations in data collection and analysis. The first limitation being that no variables have been included to serve the psychological factor of consumer behaviour. The shortcomings in the analysis, not having found more correlations with the classification questions, are to do with the sample.

First of all, the sample was relatively small while at the same time being a non-probability sample. Also convenience sampling was used which meant that the sample had a majority of young people, going to university and originating from a country within the European Union. Thus not much use could be made of the variables age, origin and occupation. Also, a small sample can lead to over-generalisation and we cannot assume that what we observe actually exists. Because of this skew, accuracy and precision are almost certain to have suffered.

Respondents were not able to touch and use the proposed mobile travel guide application and therefore the technology was only hypothetical without participants being able to try it out.
7. Bibliography


http://www.edu.plymouth.ac.uk/resined/qualitative%20methods%202/qualrshm.htm#Questionnaires
8. Appendices

Questionnaire

Thank you very much for coming to this questionnaire. I am a master level student at Copenhagen Business School in Denmark and I am currently writing my master thesis.

By filling out this very short questionnaire which will take only a few minutes to finish, you will help me substantially with my research. Of course all the responses are collected anonymously and you do not need to worry about your data confidentiality. Under no circumstance will and can your answers be traced back to your person.

Thank you very much in advance for participating.

Firstly, only some classification questions.

Q1: What is your gender?

(1) ☐ Female
(2) ☐ Male

Q2: What is your age?

(1) ☐ Younger than 21 years
(2) ☐ 21-30 years old
(3) ☐ 31-40 years old
(4) ☐ 41-50 years old
(5) ☐ 51-60 years old
(6) ☐ Older than 60 years
Q3: What region are you from?

(8) ☐ European Union
(1) ☐ Rest of Europe
(2) ☐ Asia
(3) ☐ North America
(4) ☐ South America
(5) ☐ Africa
(6) ☐ Australian Continent
(7) ☐ Oceania

Q4: What is your occupation?

(1) ☐ Student
(2) ☐ Employed
(3) ☐ Self-Employed
(4) ☐ Unemployed
(5) ☐ Retired
(6) ☐ Other __________

As this survey is based around air travelling and the usage of mobile applications on smartphones, I will now ask you about your flying and mobile technology habits.

Q5: How many flights did you take in the past 12 months (return trips = 2 flights)?

___
Q6: What is your main reason to take a flight?

(1)  ❑ Business (includes trips home from university)
(2)  ❑ Private

Q7: Do you own a smartphone and/or tablet (mobile telephone/tablet that allows surfing the internet and installation of mobile applications)?

(1)  ❑ Yes
(2)  ❑ No

Q8: How often do you use mobile applications on your smartphone/tablet?

(1)  ❑ Never
(2)  ❑ Once a week
(3)  ❑ Some days
(4)  ❑ Once a day
(5)  ❑ All day long

Q9: Do you book flights via mobile application?

(1)  ❑ Yes
(2)  ❑ No

Q10: Do you use a mobile travel guide application?

(1)  ❑ Yes
Q11: What kind of mobile applications do you use (multiple answers possible)?

(1) Comics
(2) Communications
(3) Finance
(4) Health & Fitness
(5) Medical
(6) Lifestyle
(7) Media & Video
(8) Music & Audio
(9) Photography
(10) News & Magazines
(11) Weather
(12) Productivity
(13) Business
(14) Books & References
(15) Education
(16) Shopping
(17) Social
(18) Sports
(19) Personalization
(20) Travel & Local
(21) Libraries & Demo
(22) Games
(23) I do not use any mobile applications

☐ No
Q12: Where do you mostly book your flights?
(1) ❑ Online direct (on the airline's website/mobile application)
(2) ❑ Online indirect (through booking websites/mobile application)
(3) ❑ Offline direct (with the ticket office of the airline)
(4) ❑ Offline indirect (e.g. through a booking agency)
(5) ❑ I do not take flights

Q13: Do you have a mobile application of an airline on your smartphone/tablet?
(1) ❑ Yes
(2) ❑ No

What I am investigating in this survey is the possibility of a mobile travel guide application for smartphones and tablets.

Imagine a mobile application published by an airline that offers a travel guide to all the destinations of said airline. It tells you about sights, restaurants, hotels, etc. Furthermore, the information about the destinations is collected by the airline's flight crews that have been to the destinations themselves and want to share their favourite spots with you. Therefore it is a personal recommendation by an employee of the airline.

Q14: To what extent do you agree with the following statements?

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neither Agree or Disagree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am very likely to use such</td>
<td>(1) ❑</td>
<td>(2) ❑</td>
<td>(3) ❑</td>
<td>(4) ❑</td>
</tr>
</tbody>
</table>
Strongly Disagree Disagree Neither Agree or Disagree Agree Strongly Agree

I very much like that the
information is coming from
the airline's employees

I take the information to be
more credible because it is
coming from the airline's
employees

I have a positive attitude
towards the application

I would prefer such an
application by the airline over
third party travel guide
applications

I am very likely to re-use the
application if I am satisfied by
it

A positive impression of the
application would improve my
attitude towards the airline

All things being equal, I would
have a better attitude towards
an airline with such an
A positive impression of the application would affect my re-booking behaviour with that airline.

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neither Agree or Disagree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
<td>(5)</td>
</tr>
</tbody>
</table>

Thank you very much for having participated in this survey and have a great day!