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THE CURRENT USE AND FUTURE EXPECTATIONS OF BUSINESS TRAVELLERS REGARDING MOBILE TRAVEL APPLICATIONS

by

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ABSTRACT

Mobile travel applications provide a wide range of services to support any stage of the travel process and have therefore become indispensable to travel distributors and travellers alike. While the use of mobile applications in the context of leisure travel has been the topic of several studies, their use by business travellers has enjoyed relatively little academic attention and it has become evident that a need exists for more substantial scientific research in this area.

The overall aim of this study was to investigate the current use of mobile applications by business travellers before, during and after their business trips, and to determine their needs regarding the development of applications for future use by taking into consideration the different profiles of business travellers and the different characteristics of the trips they undertake.

The findings of this study contribute to the available literature relating to business travel by extending our knowledge of business travellers and their use and future expectations of mobile travel applications. The data for this study was collected by means of an internet-based questionnaire distributed to approximately 13 098 business travellers who had booked domestic and/or international trips with Carlson Wagonlit Travel South Africa during the period from 1 August 2013 to 31 July 2014. Due to the overwhelming amount of data received, a cluster analysis was done. The results showed that female business travellers typically earn slightly less than their male counterparts, that fewer have degrees and that they find mobile travel applications more useful during the booking stage, whereas males find them more useful during the travelling stage. The results also give an indication of the profile of the average business traveller and provide information on the expectations of business travellers with regard to the further development of travel applications for future use.

OPSOMMING

Mobiele reistoepassings bied gedurende enige stadium tydens die verloop van ’n reis ’n wye reeks ondersteuningsdienste en het gevolglik onontbeerlik geword vir sowel reisagentskappe as reisigers. Alhoewel verskeie studies reeds onderneem is oor die gebruik van mobiele toepassings wanneer mense vir plesier reis, is betreklik min aandag tot dusver op akademiese gebied aan die gebruik van hierdie toepassings deur sakereisigers geskenk en het dit duidelik geword dat daar ’n behoefte bestaan aan meer deeglike wetenskaplike navorsing op dié gebied. Die algehele doel van hierdie navorsing was om ondersoek in te stel na die huidige gebruik van mobiele reistoepassings deur Suid-Afrikaanse sakereisigers, en om te bepaal hoe belangrik die beskikbaarheid van daardie toepassings vir hulle is terwyl hulle reis. Die bevindinge van hierdie studie dra by tot die beskikbare literatuur oor sakereise deur ons kennis van sakereisigers en hul gebruik van en verwagtinge ten opsigte van mobile reistoepassings uit te brei. Die data vir hierdie studie is ingesamel deur middel van ’n internetgebaseerde vraelys. Dié vraelys is aan ongeveer 13 098 sakereisigers gestuur wat gedurende die tydperk 1 Augustus 2013 tot 31 Julie 2014 sitplekke op binnelandse en/of internasionale vlugte deur Carlson Wagonlit Travel Suid-Afrika bespreek het. Die resultaat bied ’n aanduiding van die profiel van die gemiddelde sakereisiger, asook inligting oor die funksies van mobiele reistoepassings wat in die verskillende stadiums tydens die verloop van ’n reis as belangrik beskou word.

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CHAPTER 1: INTRODUCTION

1.1 INTRODUCTION AND BACKGROUND

Technology has played a major role in the development of the travel and tourism industry. Typical technological developments used in this field include increased usage of online booking tools (e.g. Travelstart.co.za), social networking (e.g. VirtualTourist.com) and travel advisory services (e.g. Tripadvisor) (South African Department of Tourism, 2012:2). Many of these developments have been adapted for easy use on smartphones in the form of mobile applications. In fact, these applications, which supply a wide range of services to support both leisure and business travellers at any stage of the travel process, have become indispensable to travel distributors and travellers alike (Langelund, 2007; Morosan, 2014; Wang, Park & Fesenmaier, 2012:372; Wang, Zheng & Fesenmaier, 2014a:1).

A number of studies have been conducted on the use of mobile applications in the context of leisure travel (Latia, Magliocchetti, De Vigili, Conti, De Amicis, Arentze, Zhang, Cali & Alexa, 2012; Morosan, 2014; Posland, 2001; Anuar, Mushaireen & Khalid, 2014; Sita & Airline Business, 2012; Budd & Vorley, 2013), but very little is known about the use of mobile applications by business travellers. Although industry publications provide valuable information on topics such as the use of mobile applications by airlines and loyalty programmes to differentiate themselves in the market (Amadeus, 2011), how travel managers are attempting to incorporate mobile travel applications within the travel programme (Airplus, 2012), the impact of mobile applications on travel management companies (Boucher, 2013:15; CWT Travel Management Institute, 2013) and the readiness of travel suppliers to use mobile travel applications to their advantage (Cowen, 2008), they are often perceived as somewhat biased, since they are conducted by role players with a vested interest in the business-travel industry. There is thus a need for more objective and scientific research to determine why business travellers use mobile applications, how they are using them, and how these applications should further develop in the future to improve their usefulness for travellers, travel managers and suppliers.

1.2 PROBLEM STATEMENT

Very little focus has so far been placed on mobile applications in the business travel environment, particularly from an academic perspective. One study that did examine this type of relationship is that conducted by Budd and Vorley (2013). They investigated how the evolution of mobile applications is affecting and is likely to affect the airline industry and its relationship with international business travellers. They concluded that business travellers use mobile applications for convenience, from booking to boarding, and that these applications are making the travel environment truly electronic and paperless by superseding home/office-printed e-tickets. Even though little scientific research has been done to investigate the influence, motivation and use of mobile applications by business travellers, a number of industry publications have been published on the topic. The use of travel applications and the fact that they have to be endorsed by the traveller's employer to assure the correctness of the application and to allow the employer access to the traveller/trip-specific data generated has been investigated by numerous industry publications (Airplus, 2012; Amadeus, 2011; BCD Travel, 2014; CWT Travel Management Institute, 2014a; May & Quinn, 2012; Offutt, 2013:25-27; Travelport & ACTE, 2013; West, Magliaro, Reid & McDonough, 2011a). Other publications looked at how mobile travel applications enhance the business travel experience (Amadeus, 2011; CWT Travel Management Institute, 2014a; KDS & EPSA, 2012; May & Quinn, 2012; Offutt, 2013:12-14; SITA. 2012) and improve employee productivity (Balarin, 2013; Concur, 2013; CWT Travel Management Institute, 2014; Hilton, 2014; Hutt, 2013; KDS & EPSA, 2012; May & Quinn, 2012; Offutt, 2013:12-14). Various industry publications confirmed the increasing use of these applications for every purpose (be it for booking, itinerary management or expense reporting) (Airplus, 2012; Amadeus, 2011; Balarin, 2013; BCD Travel, 2014; Concur, 2013; CWT Travel Management Institute, 2014a; Hilton, 2014; Hutt, 2013; KDS & EPSA, 2012; May & Quinn, 2012; Offutt, 2013:2; SITA. 2012; Travelport & ACTE, 2013; West *et al.,* 2011a).

From the above it is clear that research focusing on the use of mobile applications by business travellers is lacking in terms of the following:

- What are the demographic profiles of business travellers who use mobile applications?
- During which parts of their trips do business travellers use mobile applications and for what purposes are they used?
- How often do business travellers use the applicable functions on their mobile applications, and what level of importance do they attach to the different functions?

- How would mobile applications have to be developed to accommodate the needs of business travellers in the future?

This research study aims to answer these questions and, by doing so, to fill the gap in the available business travel literature by extending the knowledge base on the business traveller and his/her mobile travel application expectations.

1.3 RESEARCH OBJECTIVES

The overall aim of this research is to investigate the current use and future expectations of business travellers regarding mobile applications before, during and after their business trips.

More specifically, the research aims to investigate:

- whether there is a difference between business travellers' current use of mobile applications and what they expect to be able use them for in the future, and the profiles of the travellers; and
- whether differences between different business travellers' current use and future expectations of mobile applications can be linked to their trip characteristics (such as frequency of travel, purpose of trip, destination and information requirements of the traveller).

1.4 HYPOTHESES

This study will test the following hypotheses:

- H_1: Differences between the profiles of business travellers (gender, age, level of education, level of employment and type of occupation) are reflected differences in their current use of mobile applications.
- H_2: Difference between business travellers' trip characteristics (frequency, purpose, destination travelled to, information requirements) are reflected differences in their current use of mobile applications.
- H_3: Difference between the profiles of business travellers (gender, age, level of education, level of employment, and type of occupation) are reflected in differences in their future expectations of mobile applications.

- H_4: Differences between business travellers' trip characteristics (frequency, purpose, destination travelled to, information requirements) are reflected in differences in their future expectations of mobile applications.

1.5 DESCRIPTION OF RESEARCH DESIGN AND METHODOLOGY

The purpose of this study is to examine business travellers' current use of mobile travel applications before, during and after business trips, and their expectations regarding the development of applications for use in the future. Since business travellers are the units of analysis, a quantitative study was chosen as the most appropriate way to test the stated hypotheses. This type of study requires minimal researcher involvement in order to avoid the occurrence of any form of bias, such as e.g. 'failure to record answers accurately and completely' (Cooper & Schindler, 2008:218). Furthermore, a large sample size was used to allow for a more precise analysis (Cooper & Schindler, 2008:165).

The target population for this study was South African business travellers who, during the period 1 August 2013 to 31 July 2014 (12 months), travelled domestically or internationally for employment-related activities including (but not limited to) meetings, events, conferencing, sales, trading and training, to name a few. The sample was drawn from the database of a large travel management corporation in South Africa with whom the travellers had made travel bookings during the above-mentioned one-year period. Non-probability convenience sampling was used to identify the sample of frequent South African business travellers to whom the survey would be sent from the available data set. Different data-analysis techniques were employed to ensure that the objectives of the study would be adequately met. Descriptive methods assist in describing the nature of the data, i.e. gender representation, age groups, level of education, income and so forth, whereas inferential methods allow the researcher to draw certain conclusion about the larger population based on the information provided by the sample (Leedy & Ormond, 2013:277). In this study, the Mann-Whitney U-test and the Kruskal-Wallis test were utilised to test the hypotheses. The Mann-Whitney U-test allows for a comparison between the interval data of two groups while the Kruskal-Wallis test is used to compare the interval data of three or more groups (Leedy & Ormond, 2013:301).

1.5.1 Delineation

The unit of analysis for this study is the South African business traveller. Leisure travellers were not considered for this study as their needs and expectations differ from those of business travellers (Posland, 2001:28). Posland (2001:28) also suggests that business travellers do not see themselves as 'classical tourists' as they spend little time pre-planning and their schedules do not allow them to know in advance whether they will have time to enjoy other activities or to mix such activities with their business purpose. They appreciate being able to react timely to unplanned situations.

Attention has also been drawn to the different ways in which business travellers and leisure travellers use and adopt mobile applications. First, the adoption of mobile applications by business travellers is on average approximately 21% higher than that of leisure travellers and shows a steady annual increase, as confirmed by the European Travel Commission (2013) in support of statistics released by Google and Ipsos MediaCT (2012). Second, whereas leisure travellers value a safe and secure travel booking application that can be customised for their own journey to provide information on general tourist attractions, events and popular activities, business travellers value a travel application that provides them with an infinite amount of information (Travelport, 2012b:6-7) that can be customised according to their business itineraries (Travelport, 2012a:6), such as maps (important business locations close to their destinations), health and safety information, and continuous updates regarding their trips, such as flight cancellations and gate changes (Travelport, 2013b:8).

The focus of this study is on business travellers, which is a category that includes traders and business tourists, even though the travel industry distinguishes between the terms business traveller and business tourist. Davidson and Cope (in Kellerman, 2010:165) point out the following:

- Business travel refers to individual business travel involving, in principle, mainly office meetings.
- Business tourism refers to business persons travelling to attend meetings and exhibitions or incentive travel, each of which contains an element of leisure travel.

The South African National Department of Tourism (2012:xiii) delves even deeper and divides the business travel industry into three subcategories:

- Business tourism: defined as 'a trip which is undertaken with the purpose of attending a conference, meeting, exhibition or [sic] event, or as part of an incentive'

- Business travel: defined as ‘a trip which is undertaken with the purpose being to conduct commercial or formal transactions or activities that are related to your job, e.g. visiting a client, signing deals, negotiating contracts, partaking in professional sports activities …’
- Trading: defined as ‘a trip undertaken to shop for goods that will be resold, i.e. wholesale’, (South African Department of Tourism, 2012:xiii) while visiting another town or country for a period of less than 12 consecutive months (Tlhagale, 2003:51-55).

South African business travellers were targeted for this study owing to the significant increase in their use of mobile applications. World Wide Worx (2013) reported that the use of mobile applications by South Africans has increased by 19 percent in less than a year and is expected to continue increasing significantly in the years ahead. Kai (2013) states that the continued growth in the use of smartphones can be expected to dominate the handset market at a rate of 75-80% by the end of 2014. According to the International Data Corporation (2015) the smartphone market has grown by more than 13% year over year in the second quarter of 2015.

1.5.2 Limitations

The following limitations apply to the study:

- Reluctance to participate: Although the survey was distributed to the entire database of 13 098 business travellers and a reminder was sent to them one week later, only 232 responded. Unfortunately, additional reminders could not be sent as many business travellers and corporate companies indicated that they did not want to receive the emails relating to this study. As a result of this unwillingness to participate, the findings of this study may not be representative of the entire business travel population.
- Lack of prior research on the topic: As highlighted in the problem statement and the literature review, little focus has been placed on this topic within the South Africa academic arena, which has made it difficult to draw conclusions or make assumptions about the industry and the impact of mobile technology.
- Corporate companies were oblivious to the study taking place and could therefore not offer their support: It is believed that employees’ failure to respond to the request to participate in the research was a direct result of the fact that no effort had been made to get buy-in from the corporate companies. Had corporate companies been advised of the study and given an opportunity to show that they would be interested in the results, more employees might have responded.

- The complexity and length of the survey: The survey contained too many questions and took too long to complete, which could have been another reason why so few responses were received.
- Too many variables that needed to be tested: Due to the large number of variables, it was challenging to compare and test them.

1.6 DEFINITION OF KEY TERMS

The key terms used throughout this document, are defined below:

- **Business travel:** Defined by Doyle and Nathan (2001) and Swarbrooke and Horner (in Gustafson, 2012b:203) as travel to participate in internal and external meetings, visit customers, suppliers or other partners, attend conferences, trade fairs and other such events.
- **Business traveller:** Gustafson (2012a:276) states that business people require 'portfolios of mobility' so as to meet one another 'in order to buy, sell and negotiate other agreements; cooperate, coordinate and exercise managerial control; create productive settings for teamwork, brainstorming and innovations and develop professional networks and inter person trust'. For the purposes of this study, a business traveller is defined as a person travelling domestically and/or internationally for the purpose of conducting business-related activities and will include business travellers, business tourists and traders.
- **Current use of mobile travel applications:** For the purpose of this study, current use of mobile travel applications is defined by taking into consideration both the importance of a mobile travel application to a business traveller and the frequency with which it is used.
- **Mobile applications:** Mobile applications can be described as the software systems designed to run on smartphones or tablets. The software is custom-made for these devices to improve the users' product / service-delivery experience (Zhang & Adipat, 2005:296; Dickinson, Ghali, Cherrett, Speed, Davies & Norgate, 2012:5)
- **Smartphone:** A smartphone is a mobile telephone such as the iPhone, BlackBerry or Android-based mobile phones that offer advanced functionality beyond making phone calls and sending text messages (TechTerms, 2010). According to Budd and Vorley (2013:42), 'they can run advanced application programmes that allow users to install and run native and third-party software applications on their handsets over a wireless or cellular network without recourse to a PC'.

- **Tablet:** A tablet is a portable computer that uses touch screen (human touch) as its primary input process, thereby doing away with the keyboard and a computer mouse, which may be taken along in case they are needed, but are typically not required (TechTerms, 2011).
- **Travel management companies (TMCs):** The main technical function of a TMC is to make travel reservations on behalf of business travellers. Additional services typically provided by such companies include 'management information systems on travel patterns and expenditure, travel policy adherence, negotiating client focussed preferred supplier agreements, cost containment and budgeting' (Douglas & Lubbe, 2006:1131).
- **Travel supplier:** Gustafson (2012a: 277) states that travel suppliers are airlines, train companies, hotel chains, etc. For the purpose of this study, any business trading in travel-related services was regarded as a travel supplier, e.g. an airline trading in flights and hotels and guest houses offering accommodation.

1.7 LAYOUT OF THIS STUDY

The study is structured as follows:

- Chapter 1 – INTRODUCTION: Here the necessary background is given to provide the context for the purpose of this study. The problem statement identifies the gaps in the current research and highlights how those gaps will be addressed. It also contains a statement of the research purpose from which the objectives and hypotheses were derived. An overview of the methodology is given and key definitions are presented.
- Chapter 2 – THE BUSINESS TRAVEL INDUSTRY AND MOBILE TECHNOLOGY: This chapter provides the background to the business travel industry and describes the characteristics and expectations of business travellers, highlighting key trends relating to the topic of business travel and mobile technology. It then moves on to a discussion of the growth and development of mobile technology and the relationship between mobile technology and m-commerce within the travel and tourism environment.
- Chapter 3 - THE BUSINESS TRAVEL INDUSTRY AND ITS USE OF MOBILE APPLICATIONS: This chapter offers a discussion of the use of mobile applications by the three key role players within the industry, namely corporate companies, travel suppliers and business travellers.
- Chapter 4 – RESEARCH DESIGN AND METHODS: The research process that was followed is discussed and the reasoning behind it is explained.

- Chapter 5 – RESEARCH RESULTS: In the final chapter, the results of the research are analysed, followed by the pragmatic and academic conclusion of this study
- Chapter 6 - DISCUSSION AND CONCLUSION: This chapter contains a discussion of the findings and the conclusions drawn, and also identifies possible areas for further research.

1.8 CONCLUSION

Chapter 1 provided a background to the study and highlighted the knowledge gaps that currently exist in the areas where mobile technology, mobile applications and business travel overlap. The methodology was briefly discussed, the research purpose and key terms were identified the delineations were explained. The chapter concluded with an overview of the structure of the rest of the study.

The next chapter explains the concept of business travel and the business travel industry. The growth of and trends in business travel, and the characteristics of business travellers are also discussed.

CHAPTER 2: THE BUSINESS TRAVEL INDUSTRY AND MOBILE TECHNOLOGY

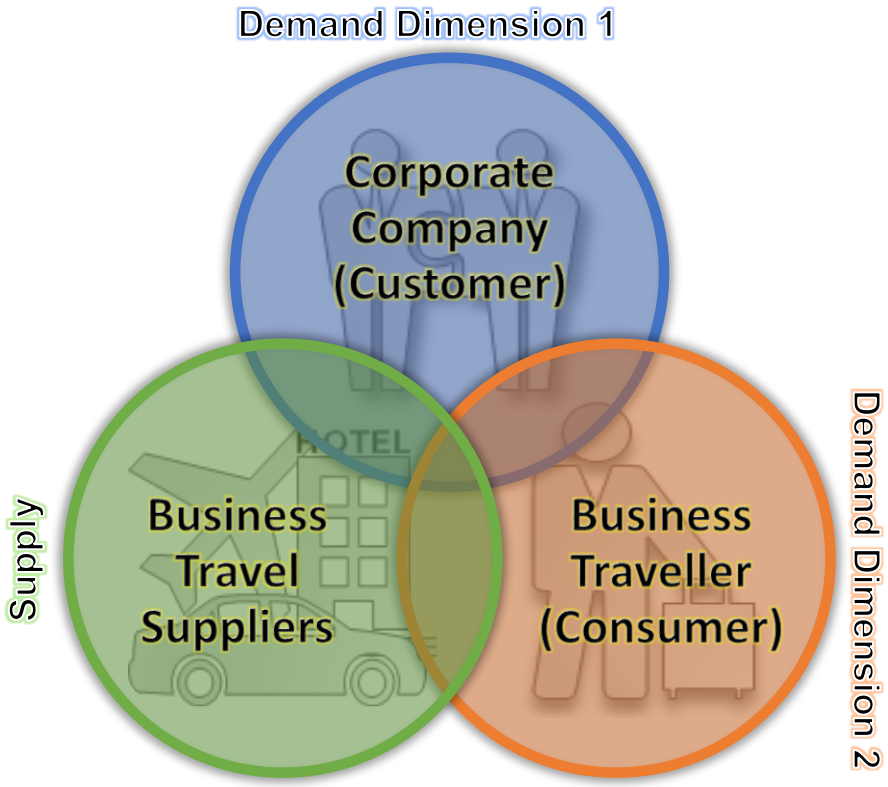
2.1 INTRODUCTION

Chapter 1 provided details on the background to the study and a discussion of the overall aim and objectives of the research. This chapter introduces the triadic relationship between the corporate company, business travel suppliers and business travellers. A distinction is also made between customers and consumers, and the characteristics of business travellers are highlighted. This is followed by a brief discussion of the growth of, and trends in business travel. The discussion moves on to the development of mobile technology and mobile applications and expands on the benefits they offer to the travel industry. An explanation is given of how areas of m-commerce research could be applied to the mobile application field since, to some extent, m-commerce forms part of the mobile application offering. This leads to discussions on how mobile applications form part of, and influence the travel life cycle. The chapter concludes with a section on how the needs of business travellers are being satisfied by the applications currently available in the market.

2.2 BUSINESS TRAVEL AND CHARACTERISTICS OF BUSINESS TRAVELLERS

The triadic relationship within the business travel industry has been the focus of a few recent studies. Gustafson (2012a) and Holma (2012) both researched the relationship between the supplier (airline, hotel chain, etc.), the corporate company and the intermediary (travel agency). Since this study focuses on the business traveller, the triadic relationship perspective is shifted to the relationship between the **corporate company, the business traveller** and **the supplier** (which includes the travel agency), as depicted in Figure 2.1. In addition to the triadic relationship depicted here, Figure 2.1 also depicts two dimensions, namely the demand and supply sides of business travel.

Figure 2.1: The interdependent relationship between key players in the business travel industry



Source: Researcher's own design

Swarbrooke and Horner (2001:7) provide the best description of the structure of business travel by explaining that the supply side consists of 'destination, venues, and transport, accommodation and ancillary services' (Swarbrooke & Horner, 2001:49). These **travel suppliers** offer essential travel and accommodation services, as well as a wide assortment of amenities that benefit the **business traveller** and **corporate company** (referred to on the demand side), such as frequent-user programmes, preferred check-ins, corporate pricing, rebates and discounts, and upgrades (Cook, Hsu & Marqua, 2014:51). Intermediaries, such as 'online travel services, travel management companies or business travel agents and in-company travel departments, are included on the supply side (Swarbrooke & Horner, 2001:37).

Travel management companies (or business travel agencies) are typically centrally located within industrial areas and can 'also "in-plant" themselves within large companies to provide an exclusive service' to **corporate companies** (Cooper, 2012:204). Travel management companies (TMCs) have evolved from travel agencies that typically served (and still serve) leisure travellers to companies that also serve business travellers and provide a broad range of services, such as management information on travel patterns and expenditure, travel policy applications and supplier negotiations (Holma, 2012:106). TMCs play a particularly important role in facilitating the control of

business travel by applying the travel policy, and over the past few years major business travel agencies have developed powerful tools – many of which are technologically driven – to assist with this (Gustafson, 2013:27)

An important observation made with regard to the demand side of business travel indicates that **travel suppliers** make a very clear distinction between customers and consumers. An explanation of which group of travellers the suppliers, such as airlines or hotels, would regard as customers (corporate clients) and which group they regard as consumers (business travellers) is provided by Table 2.1 below. This difference is important as a mobile application should allow for the consideration of the company's travel policy specifications (the customer) while at the same time satisfying the expectation of the **business traveller** (the consumer).

Table 2.1: The distinction between customers and consumers in business travel and tourism

Customers	Consumers
Employers or sponsoring organisations that decide that employees have to travel, or give permission for employees to travel	The employees who actually travel and consume business travel and tourism services
Employers or sponsoring organisations that usually pay the bills for travels undertaken by employees or representatives	Employees and representatives who travel, but do not usually pay the bills themselves

Source: Swarbrooke and Horner, 2001:22

The customers would therefore typically be the **corporate companies** (unless the travellers are self-employed). This distinction is important as it shows that the price sensitivity is driven by the **corporate company,** and not by the traveller. Typically, **corporate companies** would set limits with regard to what they are willing to pay for, and at what rate, in the form of a travel policy to which travellers are expected to adhere. The travel policy would also refer to common standards such as means of transportation, suppliers to be used and degree of comfort. They may also differentiate between different levels of employees and cater for their different needs (Gustafson, 2013:24). Therefore a company executive may have more flexibility than a technician employed by the same company. The travel policy may also include regulations for security and environmental purposes. The **corporate company** would control travel by requesting travellers to seek approval prior to a trip (Gustafson, 2012a:276-277), which is another way of reducing travel and curbing

travel costs (Gustafson, 2013:24), and by analysing data of past trips to identify areas of missed savings or areas of potential savings (Gustafson, 2012a:276-277).

The consumer, i.e. the **business traveller**, is the person who makes use of the end product, i.e. the airline ticket, the hotel room and the rental car. **Business travellers** have certain characteristics and expectations based on to the work, family and social pressures experienced when travelling for business purposes (Gustafson, 2012a:279; Gustafson, 2013:26). **Business travellers** possess the following characteristics:

- They are time sensitive (Mill & Morrison, 2006; Lubbe, 2000:177; Syratt, 2003:18).
- The quality of the service they receive is more important than the price (Mill & Morrison, 2006; Lubbe, 2000:177).
- They are experienced travellers and are therefore more demanding (Mill & Morrison, 2006; Lubbe, 2000:177; Cook *et al.*, 2014:51).
- They travel to areas that may not be considered tourist destinations (Lubbe, 2000:176; Syratt, 2003:18).
- They are less affected by the weather (Lubbe, 2000:176), although the effects of weather may influence their travel decisions, e.g. a decision to avoiding travelling to an area where severe snowstorms are being experienced.
- Travel decisions are made at short notice and travels are usually of short duration (Lubbe, 2000:176; Syratt, 2003:18).
- Due to the amount of business that the company provides to the supplier, the traveller expects preferential treatment from that supplier (Lubbe, 2000:177).

Business travel is at times associated with status and self-identity, which is further supported by the loyalty programmes offered by **travel suppliers** such as major airlines and hotel chains. These programmes create benefits for individual travellers and affect the behaviour of **business travellers** to the benefit of the **travel suppliers** – and sometimes to the detriment of the **corporate company** (Gustafson, 2013:26).

This interdependent relationship between **the business traveller, the corporate company** and **the travel supplier** would typically be described as the micro-environment of the industry as these sectors frequently interact with one another and influence each other's actions (Evans, Campell & Stonehouse, 2003:171). Within the micro-environment, various trends develop as the industry grows. These will be discussed in following section.

2.3 THE GROWTH OF AND TRENDS WITHIN THE BUSINESS TRAVEL INDUSTRY

Business travel is vital to the success and growth of any business in any country. In fact, the World Travel and Tourism Council (WTTC) (2011:58) found that an overwhelming percentage of global executives agree that face-to-face business meetings are essential to an organisation's success. Their figures revealed that international business travel is responsible for more than one third of the growth in global trade, and that the global gross domestic product (GDP) would be 5% lower over a five-year period if business travel was cut by 25% over two consecutive years. This would mean a loss of 30 million jobs (approximately 1%) in global employment over the same period. Furthermore, the WTTC (2011:7) found that countries benefit from a higher export market and faster trade growth if there is a larger outbound business travel market. Globally, international travel is increasing, especially from emerging markets such as Russia and China. As a sector, business travel alone increased by 16% in 2013 (IPK International, 2013:7). Due to economic growth there has been an increase in outbound travel from Africa – mainly from Nigeria, South Africa and Egypt (IPK International, 2013:28). Even though the overall increase of 4% for Africa remains small, the year-on-year increase remains positive when compared to that for other continents that have not experienced the same growth (IPK International, 2013:27).

In the South African context, the travel and tourism industry directly supported 619 500 jobs (4.6% of total employment) and made a direct contribution of ZAR 102.0 billion (3.2 %t) to the total South African GDP in 2012, of which business travel contributed 32,8% (ZAR72.8 billion) (World Travel and Tourism Council, 2013:5).

As a result of the above-mentioned growth, certain trends have developed within the industry. The significance and impact of these trends vary as the economic situation changes in relation to business or industry.

Some of the main trends that have been identified in the industry are:

- **Cost savings**

As business travel is typically the second or third largest controllable cost in a corporate company (Holma, 2012:101), supervising the costs and savings of business travel has required careful management, especially due to its direct association with the 'staff wellbeing, working time regulation and reputation of the company' (Gustafson, 2012a:282; Roby, 2014:27). Cost-saving

measures have a significant impact on the manner in which business travel reservations are made and on decisions about which travel suppliers to use. Typically, cost savings are generated by 'reducing the class of travel, replacing one or more meetings with video conferencing and/or re-negotiating the contract with the Travel Management Company' (Roby, 2014:26). A recent study by Travelport (2012a:3) acknowledged the negative effect of rising air fares and hotel rates, combined with the reduced travel budgets for travel programmes. Business travellers are required to still meet business requirements despite these constraints. Travellers, corporate companies and suppliers are set on identifying innovative ways to generate savings, thus enabling the industry to grow. According to CWT Travel Management Institute (2014b:12), savings opportunities can only be successfully identified if access can be gained to meaningful and relevant data. Herein perhaps lies the opportunity for mobile applications to consolidate traveller data and provide travel managers with meaningful information on traveller behaviour and missed saving opportunities, such as travellers purchasing tickets at the last minute when fares are typically higher, or opting to stay at hotels where they can obtain loyalty points as opposed to making use of the services of a competitor who offers the same value at a lower cost. An appropriate mobile application could automate the process, thus eliminating the need for a time-consuming manual consolidation of data obtained from various suppliers.

- **Travel policy changes to incorporate mobile technology**

Travel policies are not only being changed to accommodate the shifting economic climate, but also to monitor and manage the ever-changing impact of technology. Mobile technology, in particular its inclusion in travel policy, has aroused the interest of researchers (Davis, 2013:3; Jonas, 2012; Zook & Mullaney, 2012:62-63). The main concern expressed by travel managers regarding the inclusion of mobile technology in the travel policy, is that it moves the buying power from travel managers, who drive the travel programmes and related cost savings, into the hands of the travellers. Many applications cannot be tailored by a corporate company according to its travel policy. This means that the company has to trust the traveller and travel approver to abide by the predetermined guidelines as set out in the travel policy, which has to be done with extreme caution in order to control costs (Travelport, 2013b:3). However, the benefits that the mobile revolution offers to companies and their travellers, such as more efficient and convenient access to information, are very valuable and justify the attention given to mobile technology (Travelport, 2013a:4). Globally, 37% of travel managers have indicated that they intend to adopt a mobile strategy during 2014 (CWT Travel Management Institute, 2014a:36). A study by Travelport (2013b:3) revealed that only 16% of the companies that made no mention of mobile technology are from the EMEA region

(Europe, Middle East and Africa). Coincidentally, the majority of companies that prohibit the use of travel applications are also from this region. This points to a need for a better understanding of the impact of mobile technology on the business travel industry and why businesses are opposed to its use (Travelport, 2013b:7).

- **Mobile technology and its use in the business travel market**

According to Budd and Vorley (2013:48), business travellers need mobile technology to provide them with an enhanced level of automation and efficiency that would reduce the time they spend on time-consuming yet necessary check-in, transfer and boarding procedures. A recent study that involved business travellers and was conducted by the CWT Travel Management Institute (2014a:12), revealed that 62% of the participating business travellers indicated that they owned a smartphone, and although they were fully capable of using their smartphones to make bookings, they lacked the necessary resources to do so (such as company-approved mobile applications). Companies are becoming more aware of the value of real-time information delivery (Travelport. 2012a:6) in reducing travel stress and increasing productivity. Therefore, business travellers should value a travel application that provides them with an infinite amount of information (Travelport, 2012b:6-7), can be customised according to their business itineraries (Travelport, 2012a:6) by providing maps (important business locations close to their destinations), health and safety information and continuous updates about their trips, e.g. information on flight cancellations and gate changes (Travelport, 2013b:8).

Mobile technology has been identified as one of the main trends in the business travel industry. Combining this trend with the growth of the industry further validates the need to better understand how the business travel industry, and business travellers in particular, are using mobile technology, specifically mobile travel applications.

2.4 THE DEVELOPMENT OF MOBILE TECHNOLOGY

In the past the use of information technology systems and products was restricted to places where the hardware was situated as the hardware was unwieldy due to its weight and required connections (Goggin, 2006; Budd & Vorley, 2013:41). This meant that when travelling, business travellers were restricted in terms of the information to which they had access and had to make sure that they had physical documents with them at all times while travelling so as to remain

informed. It also meant that travellers could only react to changes in the business environment and travel environment once they arrived at their destinations.

Over time, technology developed into a lighter, wireless format and by the late 1970s a standard mobile device in the form of a pager became available. This later developed into the public mobile radiotelephone, which in turn made way for the first on-call portable hand-held mobile phone in the 1990s (Goggin, 2006). This already resulted in a significant improvement in business travellers' responses to changes in their travel plans and their business environments as it gave them instant access to more up-to-date information sources.

Mobile phones slowly developed from being able to only send text messages and save contact details in a digital phone book, to allowing the user to immediately share photos, images, documents and more with their friends and colleagues (Goggin, 2006). This development ultimately led to what is today known as the smartphone. Smartphones are accurately described by Enck, n.d.: 1) as '… an ultra-portable interface to the Internet and the computational abilities to make it meaningful'. Using environment sensors such as GPS, cameras and accelerometers, they enhance everyday tasks by allowing users instant access to the wealth of information available on the internet.

The mobility of a smartphone adds recognised value to a person's everyday living. Mahatanankoon *et al.* (2005:349) categorise the value into a number of dimensions:

- Always on: The design and purpose of a smartphone allows for its portability and for it to always be on, enabling users to conduct transactions with their device while engaging in social activities such as meetings and travelling.
- Location-centric: The GPS (global positioning system) that most of the latest mobile devices are equipped with makes it possible to locate the phone, and therefore also the user, which means that searches can be personalised to the available services/products in the user's surroundings.
- Convenience/Improved quality of life: Due to their mobility, the devices are not constrained by time and place, thereby allowing users to continue everyday activities that would otherwise be restrained by such factors. Using the device during time that would normally be considered wasted, for example when stuck in traffic or a bank queue, translates to an improved quality of life for users as they are able to use their time optimally.

- Customisation: Suppliers are better enabled to target specific markets as the locations of the users are more easily harvested. Certain lifestyle-enhancing applications/notices can be delivered only to users in the surrounding area who could actually benefit from them.
- Ability to identify users: On average mobile devices are individually owned and used, creating the ideal environment for individual-based marketing. This enables suppliers to personalise messages based on the time, place and basic demographics of users.

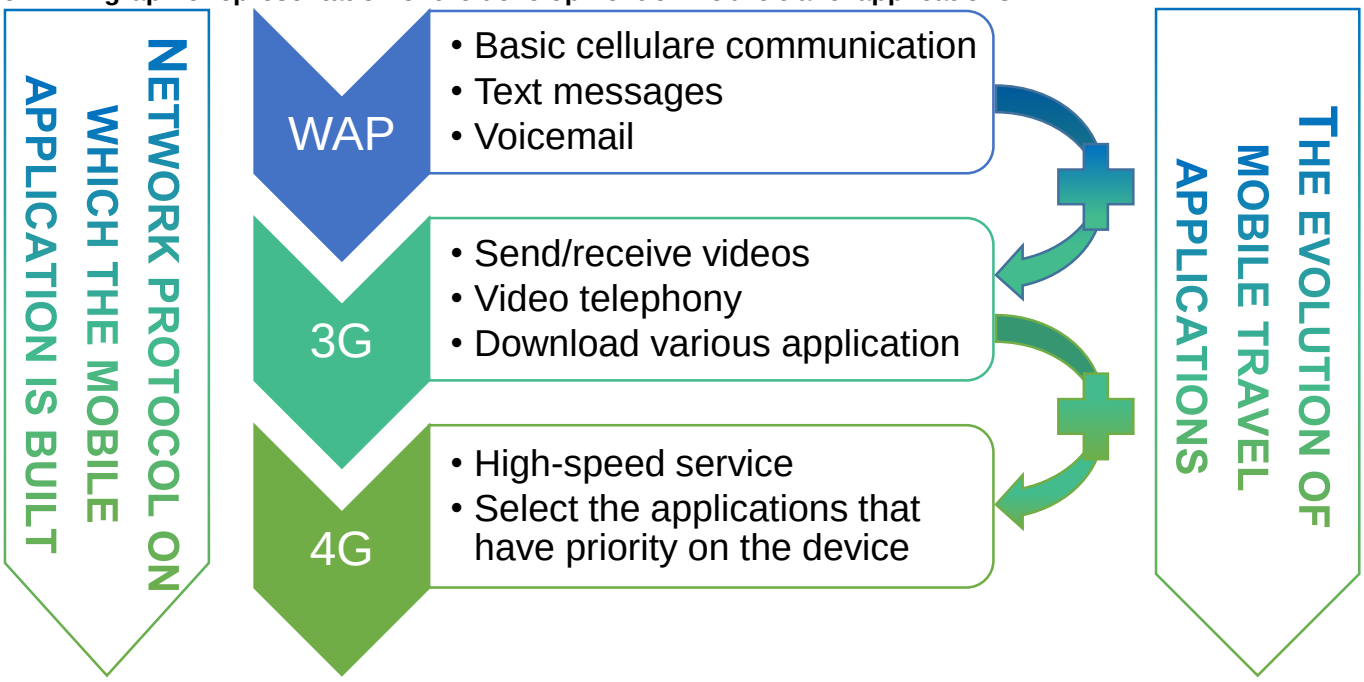
Many of the benefits offered by mobile technology are transferred to the users in the form of applications. Mobile applications, which constitute a form of mobile technology that business travellers would utilise, are the main focus of this study.

2.5 GROWTH AND DEVELOPMENT OF MOBILE APPLICATIONS

Mobile applications have developed from WAP (Wireless Applications Protocol) to 3G to 4G. Initially mobile application development was founded on WAP standards, which allowed for basic cellular communications and the sharing of data such as text messages and voicemail. The inflexibility and the difficulty posed by applications based on these standards resulted in poor user experiences (Buchanan *et al.,* in Gebauer, 2008:104).

Nubarron (2011) refers to the 3G revolution. The objective of 3G development was to standardise a single global network protocol, thus enabling the development of applications for several mobile devices across the globe. 3G enabled users to send and receive videos, engage in video telephony and download various mobile applications for use on their mobile devices. Nubarron (2011) also highlights the next generation of mobile telephone as 4G. 4G networks have been developed for high-speed service and to provide for quality-of-service (QoS) features, enabling users to determine which application's data feed is a priority on their devices. This development is depicted in Figure 2.2 below.

Figure 2.2: A graphic representation of the development of mobile travel applications



Source: Researcher's own design

Applications, informally referred to as apps, are fundamental to smartphones (Enck, n.d.:1). Mobile applications were developed because users wanted their mobile phones to be more functional. Mobile phone providers want to provide this value-added content in order to secure their markets in a manageable way, and are doing so by continuously developing more powerful applications with fewer restrictions (Clark, n.d.:5). This development has also meant that business travellers have continuous access to real-time information, which empowers them to deal proactively with changes in business- and travel-related events. Some changes may require additional transactions, such as changing a flight to a later time due to a business meeting running late, and may involve additional costs. Therefore it is important to also look at the area where m-commerce and mobile applications overlap.

2.6 M-commerce and mobile applications

M-commerce research and mobile technology research often overlap. M-commerce is described as providing web users with a mobile platform for processing transactions and gathering information that would typically be performed on an internet-based product. The results and findings of certain research papers based on m-commerce can be related to the field of mobile applications, for example the two operation modes highlighted by Mahatanankoon *et al.,* (2005:349):

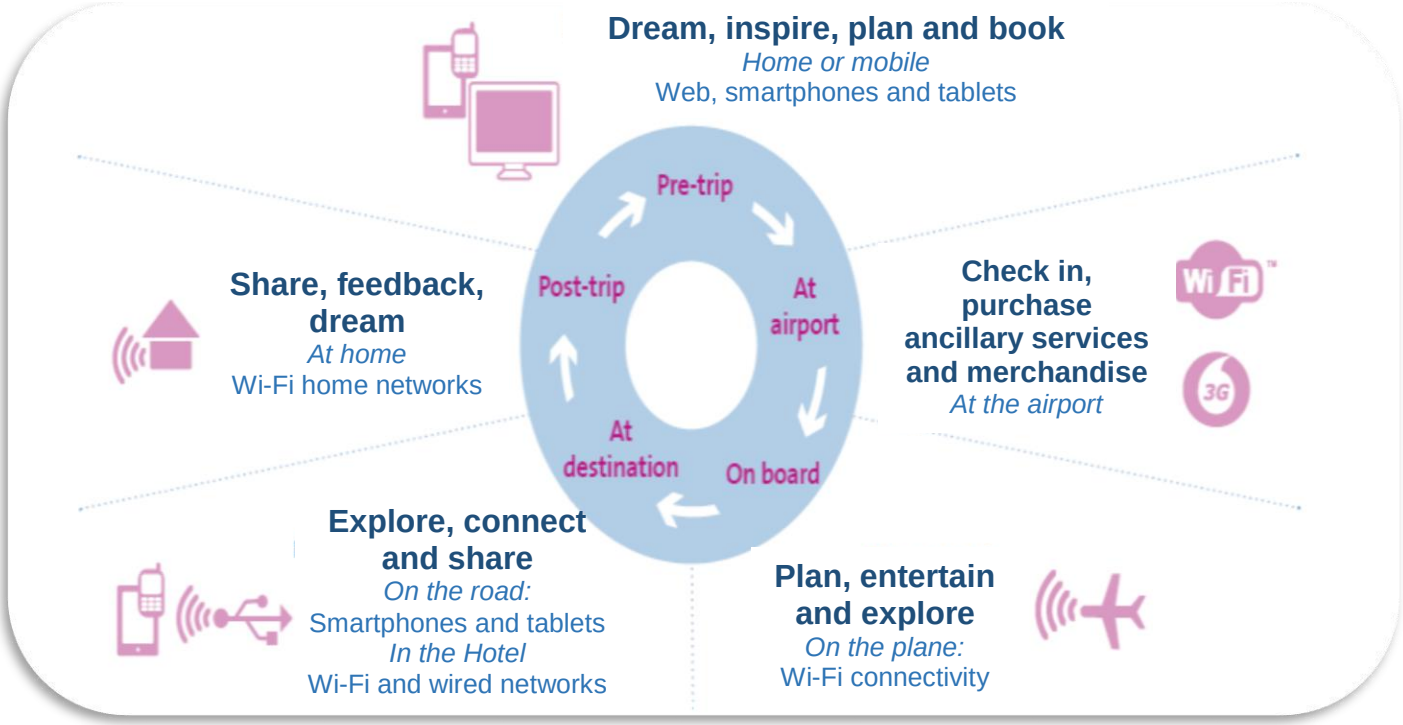
- Content-delivery mode: Notification and reporting requirements, for example a traveller requesting more information on the visa requirements of a country that he/she intends to visit
- Transaction mode: Purchasing and data entry, for example a traveller purchasing a rail ticket to travel from point A to point B

Knoblock (2002:63) suggests that in the dynamic world of travel, both these modes are needed, and mostly at the same time. For instance, travellers should be made aware of any public-sector strikes affecting rail transport (content-delivery mode) before purchasing their rail tickets with the mobile application (transaction mode).

2.7 MOBILE TECHNOLOGY AND APPLICATIONS AND THEIR USE DURING THE TRAVEL LIFE CYCLE

The mobile solution has gone from being 'an amenity to a necessity of the travel process' (Langelund, 2007:284) and the functionality it provides is useful throughout the entire travel life cycle (Langelund, 2007:284; Wang *et al.,* 2012:372). This was further substantiated by the business travel industry when both Amadeus (2011) and CWT Travel Management Institute (2014a) conducted studies on how they envisaged mobile technology/applications transforming the industry. Figure 2.3, taken from Amadeus' (2011) study, illustrates the influence of mobile technology during the travel life cycle from the traveller's point of view. In the **pre-trip** phase travellers typically use the web, smartphones and tablets to plan and book their travels; **at the airport** they use this technology to check in and purchase ancillary services; and once they are **on board** of the aeroplane they could use Wi-Fi technology (offered by Mango and Virgin Atlantic) to further plan their journey or for entertainment purposes. After arriving **at their destinations** they use their smartphones or tablets to connect with friends and family, share their experiences or further explore their destinations with the assistance of the device. **Post trip**, travellers use the devices to share their experiences with, or give feedback to suppliers.

Figure 2.3: The influence of mobile technology on the travel life cycle

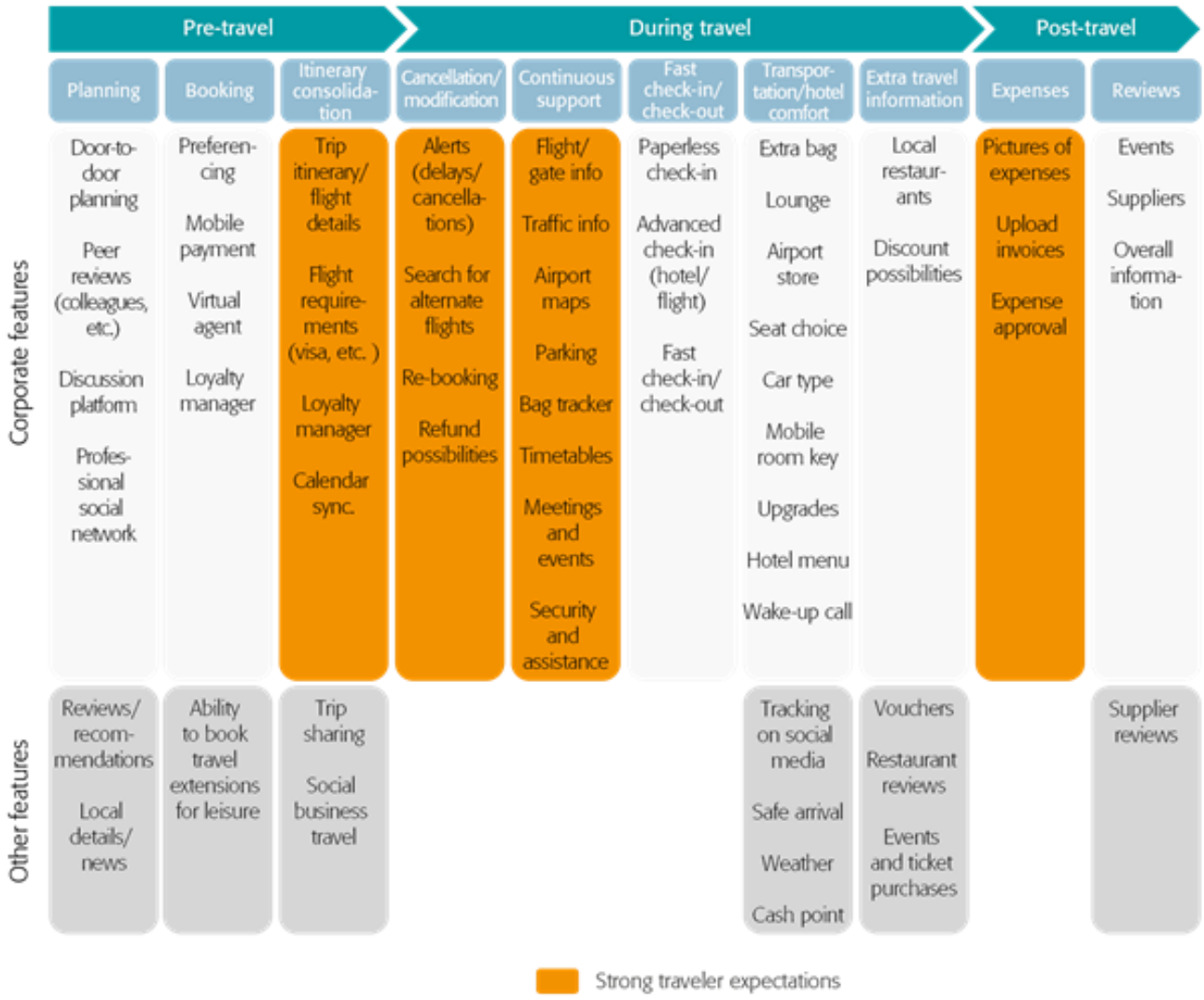


Source: Amadeus, 2011:8

This is further complemented by the recent CWT Travel Management Institute (2014a) study, which contained a visual representation of the value of mobile applications for business travellers during the entire travel life cycle (see Figure 2.4). Areas in which travellers found travel applications to be particularly useful are highlighted. CWT further noted that several activities need to be conducted during each stage of the business travel life cycle. In the pre-travel phase, the following three activities were identified: planning, booking and itinerary consolidation. The features of mobile travel applications that are typically used by business travellers during these activities were highlighted and the features for which business travellers had strong expectations were identified (highlighted in orange).

By analysing this figure one can deduct that travellers require mobile travel applications to be able to consolidate their itineraries, provide them with ways to cancel or modify their trips, provide them with continuous support during their trips (such as notification of flight changes) and make it possible to manage the expense process while travelling. The purpose of this study is to ascertain whether these expectations are still true, and to establish what business travellers might expect from mobile applications in the future.

Figure 2.4: Examples of possible mobile features at different stages of travel



Source: CWT Travel Management Institute, 2014a

2.8 CONCLUSION

This chapter dealt with the current use and future expectations of business travellers regarding mobile travel applications by discussing the background of, and trends in the business travel industry. This was accomplished by looking at the characteristics of business travellers and highlighting key trends that are visible within the business travel industry and how they relate to the purpose of this study. An overview was also provided of the growth and development of mobile technology within the business travel industry and the importance of mobile technology to various stakeholders within the industry throughout the entire travel process was highlighted. The following chapter discusses the benefits of mobile applications to corporate companies, suppliers and users

– more specifically to business travellers as the key stakeholders within the business travel industry.

CHAPTER 3: THE BUSINESS TRAVEL INDUSTRY AND ITS USE OF MOBILE APPLICATIONS

3.1 INTRODUCTION

Chapter 2 introduces the notion of the triadic relationship between the business travel industry's three key role players, namely the business traveller, corporate companies and travel suppliers. In this chapter, these three key players and their use of mobile travel applications will be discussed. The use of mobile travel applications is a new area within the business travel arena and requires some form of control, and if managed correctly it could offer various benefits to corporate companies. Travel suppliers note that mobile travel applications have several functionalities, such as an additional distribution channel. This is further elaborated on in this chapter and some existing examples of how it is used in the industry are also provided. The discussion further develops to include the use of deliberate mobile travel applications from the view of the business traveller. The benefits these applications offer to the average traveller are noted and then narrowed down to business travellers specifically. This chapter concludes with a diagram of the triadic relationship and a discussion of the role of mobile travel applications in this relationship.

3.2 MOBILE APPLICATIONS AND CORPORATE COMPANIES

In an interview conducted with Mr J. Benthin, Senior Director Traveller Services: Carlson Wagonlit Travel on 25 July 2013, he stated that mobile technology should be integrated into the overall strategy of a company and is often an element associated with the online strategy. To relate this to the responsibility of corporate companies with regard to travel, a study completed by Airplus (2012:2) with the assistance of 92 corporate travel buyers, found that 52% of US companies have not implemented policies to take responsibility for mobile travel tools and applications. Of the companies that do manage mobile travel tools and applications, 24% stated that they were planning to implement and manage the use of sanctioned mobile tools. The increased use of mobile tools means that more travellers are able to use these tools to make travel decisions or purchases (CWT Travel Management Institute, 2013:12). The main reason for companies wanting to sanction tools is their duty to take care of travellers and to guard against having weaker negotiating power due to the inability to meet targets of suppliers if travel purchases are not tracked (CWT Travel Management Institute, 2013:33). Companies are open to the use of these tools by travellers, provided that they can be tracked and reported on as they want to ensure that travellers are safe

and are getting the best value for their money, and that future combined expenditure could be used as leverage when dealing with suppliers (CWT Travel Management Institute, 2013:72).

3.3 MOBILE APPLICATIONS AND THE BUSINESS TRAVEL SUPPLIERS

According to Amadeus South Africa, smart mobile devices transform the travel experience on a global level (Dicey, 2012:25). Travel suppliers are aware of the advantages that mobile applications offer to their business. By 2009, 29.7% of UK businesses looked to invest in their mobile offering, realising that as mobile applications grow, their business offering should also develop (Cowen, 2008). Bicknell (2007) identified the following advantaged offered to suppliers by the use of mobile travel applications:

- A new distribution channel that complements the existing distribution channels through which suppliers can contact and interact with customers. For example, a traveller will not be able to book a car only by visiting a website or a travel agency, but also by using a mobile application. Car rental agencies will therefore have a better chance of selling their products by using this additional channel of distribution, which will give them a competitive advantage.
- Unsold inventory can be distributed at the last minute. An airline company could, for example, launch a last-minute sale of domestic flights for seats that have not been sold through the usual channels.
- Higher walk-in business in response to advertisements and promotions as customers are able to immediately respond by using their smartphone applications. For example, if a hotel offers a special package for conferences held on their premises, they could launch it on the application with an immediate ‘click-and-book’ option, thereby eliminating several steps in the usual booking process, which would require the client to take down the details, contact the property, mention the special and finally make the booking.

Travel suppliers use mobile applications to improve and streamline the customer experience (Budd & Vorley, 2013:42-43) as the applications were developed to complement the suppliers’ current offerings. This can be explained by the following practical examples from the industry:

- Marriott launched a mobile application that allows guests to check in prior to arrival and pick up a pre-programmed key card on their arrival at the hotel, and when checking out travellers may advise the e-mail address for invoice delivery. This allows them to bypass the front desk, thus streamlining the entire process (Malherbe, 2014).

- The Eden Blue, a hotel in Seychelles, created a mobile concierge to provide guests with all the hotel services and area information they may need (Travel Buyer, 2014a).
- Meeting and event organisers use mobile applications as a platform to communicate with attendees, and for attendees to communicate with one another. They use the mobile applications as a central platform to support the event/meeting webpage, to distribute documents, and generally as a central source of information (Travel Buyer, 2014b; Travel Buyer, 2014c).
- National Car Rental's mobile application not only provides a booking platform, but also allows travellers to manage their own bookings (select a specific car/extend their rental period) and loyalty programmes (Konrad, 2013).

From the examples above it is evident that both content delivery and transaction modes are currently being used by suppliers. This is further confirmed by research conducted by SITA and Airplus on how mobile travel tools are managed within these modes. The current market trends in this regard are shown in Table 3.1 below.

Table 3.1: Operation modes of mobile applications and associated trends

Mode	Trend/Statement	Reference
Content delivery	Flight status updates are requested as this limits the levels of stress experienced while travelling. The belief that travellers use their applications for this purpose was expressed by 84% of travel managers.	SITA, 2012:12 Airplus, 2012:1
	Mobile applications were identified as one of the two most used channels for customer service communication by 72% of general travellers.	Airline business and SITA, 2012:5
	It was found that 79% of airlines intended to have personalised content available to travellers on their smartphones by 2015.	SITA, 2012:16
	Eighty-one percent of travel managers indicated that travellers use applications to check weather conditions, directions or restaurants in the area.	Airplus, 2012:1
Transaction processing	Sixty percent of airports and 74% of airlines plan to offer automatic bag-drop by 2015.	SITA, 2012:9

	Check-ins via mobile phones increased by 8%, compared to figures for 2011, and it is suggested that this growth will continue. More than 40% of airports and airlines have already implemented this function and 90% of the remaining airports were planning to have implemented it by 2015.	SITA, 2012:12 SITA, 2013:9
	Mobile ticket sales are expected to have increased by 5% by 2015.	SITA, 2012:14
	Forty-six percent of travel managers stated that travellers used their smartphones to change existing travel plans.	Airplus, 2012:1

Louis van Zyl (CIO of Tourvest Travel Services), advised that mobile applications are also used to support to online booking tools, which is specifically helpful in the case of low-complexity trips and areas where travellers make reservations after hours (Boucher, 2013:15). In this instance mobile travel applications are thus used in both transaction processing and content delivery modes.

From the information discussed in this section it can be concluded that, with regard to mobile applications, business travellers require both content delivery and transaction modes during every trip or travel experience. It is up to the supplier to determine how this need can best be satisfied. One can see how mobile technology and applications are changing the business travel environment, but since business travellers are the end users of these mobile applications it is also important to understand their expectations of mobile applications so as to encourage use of the tool.

3.4 MOBILE APPLICATIONS AND THE TRAVELLER

Suppliers and customers derive different value and benefits from the use of mobile applications. According to Siau, Nah and Sheng (2003), the value of mobile applications from the end-users' (in this case the travellers') perspective is the convenience and efficiency they offer. They value the anywhere, any-time, any-place accessibility that applications offer. The development and growth of the infrastructure of mobile applications have fuelled the expectations and perceptions of travellers, who have expect that at the very least applications should enable the following three functions (Werthner, 2003:5):

- Provide accessible information whenever and wherever the user requires it
- Assist with steering the decision making process
- Enable the user to save 'product bundles'

Goh, Lee, Ang and Lee (2009:38) state that it is vital for the creators of applications and other stakeholders to understand the needs of travellers using mobile applications. They found that travellers would typically need mobile applications for the following purposes:

- Travel essentials: Providing travellers with information relating to various parts of the trip, from fare searches across search engines to exchange rate information; assisting them with the booking process; and enabling them to improve their experiences
- Sightseeing: Providing information on tourist attractions in the vicinity and access to street maps
- Electronic services: Allowing the business/tourist attraction to push information to users based of their preferences; providing access to translation services to help with communication at the destination; and granting digital access to souvenirs.
- Emergency and medical services: Providing users with health and safety information about the destination or tourist attraction; giving travellers access to a directory of medical service providers
- Trip planning: Allowing travellers to design travel packages according to their preferences and needs, taking into account factors such as budget and time constraints and 24/7 access to the travel plan

Anckar and D'Incau (2002:1446) suggest that mobile applications should be developed to enhance the online offering of a service or product, thereby extending the benefits offered by the online product and allowing for the growth of unique services within the mobile environment. These authors also pointed out the following five situations during which mobile applications are needed:

- Time-critical arrangements: External events are often beyond the average traveller's control. In these circumstances, users need an application that can accommodate an on-demand information push to the mobile device regarding topics identified as time critical by the traveller. For example, travellers may opt to have any flight delays/cancellation notices pushed to their mobile devices to enable them to take corrective action prior to suffering any negative consequences that delays/cancellations might have.
- Spontaneous decisions and needs: The motivation for such needs, which are internally driven, are characterised by a straightforward instant purchasing decision. Travellers do not give much

thought to the decision, but require instant information on the topic to make an informed decision. When business travellers find that they have free time that allows them to visit tourist attractions, this would enable them to quickly search, book and visit the tourist attraction of their choice with minimal planning and disruption.

- Entertainment needs: Spontaneous entertainment needs arise when travellers realise that they have free time and would like to fill it with an enjoyable activity, for instance when a business dinner is cancelled and the traveller decides to attend a Broadway show.
- Efficiency ambitions: Nah *et al.* (2005:87) also highlight the high value of a mobile application that increases a traveller's efficiency and effectiveness by creating opportunities for time-pressured travellers to fully utilise valuable time that might be wasted if they do not have access to the necessary mobile tools. For example, a traveller who has access to the necessary application will be able to book his next business trip on his smartphone while waiting at the airport for the return leg of his current trip.
- Mobile situations: This constitutes a service or product that can be proven valuable only in a mobile setting, for example an application that can advise travellers on how to get from point A to point B on foot if most areas of interest at their destination are within walking distance.

Anuar *et al.* (2014: 552) state that hotels annually invest large sums in maintaining smartphone applications for travellers and identify several benefits that smartphone applications offer to travellers. These include the following:

- 'convenient access';
- the ability to 'reserve, modify or cancel a booking with real-time reservations';
- 'designed specifically for popular smartphones such as Apple, iPhone, BlackBerry, Android and Nokia N-Series';
- 'simple navigation system for easier and faster hotel searches';
- 'customer support centre';
- 'comprehensive property details'; and
- 'enhanced photography presentation with high-resolution images' and 'tempting offers'.

The need for mobile applications is further substantiated by industry research conducted by SITA (a company that specialises in air transport IT and communications), who presented similar findings in their research conducted over the past two years. Table 3.2 contains travellers' or users' comments regarding mobile applications as concluded from their research.

Table 3.2: Travellers'/users' comments regarding the usefulness of travel applications

Trend/Statement	Reference
According to SITA (2013:5), travellers associate mobile applications with positive experiences. Airlines know this and by 2015, 89% of **airlines will sell tickets via mobile applications**.	SITA, 2013:5
Functions of applications that attracted particular interest are: • Applications allowing consumers to avoid queues • Flight status updates • Self-boarding booths for transfers • Mobile flight search • Mobile airport navigation • Mobile boarding passes • Mobile itinerary • Self bag drop	SITA, 2012:7
Travellers highlighted their desire to be informed. They wished to have access to the **correct information at all times** and indicated not being in control as one of the main stress factors.	SITA, 2012:12
Although travellers indicated that they would be more open to receiving marketing material from suppliers if they could personalise the content of the offers and regulate the frequency of the messages, receiving **mobile promotions** was voted the least useful mobile application.	SITA, 2012:16 SITA, 2012:20

Anckar and D'Incau (2003:55) found that applications that satisfy more than one need appeared to be more captivating and appealing, which suggested that there was a greater possibility that travellers would download and use application such as itinerary management applications. It is possible that some of these mobile applications are valued more by typical business travellers than by other travellers.

The travel and tourism environment is aware of the importance of mobile applications and their role in information distribution, travel planning and transaction processing. The European Union (EU)-funded project CRUMPET (Creation of User-friendly Mobile Services Personalised for Tourism) is a prime example of this. The EU observed that travellers do not travel for only one reason, but combine different purposes on trips (e.g. business, leisure, entertainment and education) in order to ensure the optimal utilisation of their time at a particular destination (Posland, 2001:28). The

project CRUMPET was an attempt to integrate the technology domains used by travellers, which are the following:

- Location-aware services: Travellers want to know where a certain conference venue is in relation to their current locations.
- Personalised user interaction: Supply only information that has been predefined as relevant by users. If a user has, for instance, indicated that he/she is interested only in eating halaal meals, the application should provide only information on Indian restaurants in the vicinity of the conference venue.
- Multimedia mobile communication: Users want to share their experiences with their colleagues/friends and family in various formats, such as video uploads, video calls, photo sharing or blogging.

Business travellers may use all of the above domains during a single business trip:

- They may want to know where the hotel is in relation to their client - Location-aware services.
- They may have specific dietary requirements and need information restaurants within walking distance from the hotel that could cater for their needs – both location-aware services and personalised user interaction.
- Traveller might share experiences with a supplier's office with colleagues who are based at the office – multimedia mobile communication.

Koumelis (2012) refers to another study undertaken by ComScore.com and commissioned by Expedia, which found that 44% of users used their smartphone or tablet applications to plan their next trip. Of those who owned smartphones/tablets, 51% had made a purchase on a smartphone and 61% on a tablet. A total of 80% of those who had used smartphones and 90% of the tablet users said that they would do it again.

3.5 MOBILE APPLICATIONS AND THE BUSINESS TRAVELLER

Whilst beneficial to a company, business travel does rob the business traveller of valuable time during which he/she could have been productive (Gustafson, 2012b:204). Mobile technology, specifically mobile applications, nowadays allow business travellers to effectively use time spent in transit with the capability to complete job-related functions to keep up with business requirements. Due to the mobility of mobile technology, travellers can complete certain objectives and

transactions without having to carry around heavy equipment or documents (Gebauer, 2008:104), thus it essentially supports stationary office technology (Gebauer, 2008:116). Gebauer (2008:105) states that the ability of mobile technology to keep employees up to date while they are away from the office and during office and non-office hours, has contributed to the high value attached to it. Business travellers appreciate being able to react timeously to unplanned situations. An itinerary is now referred to as an 'actionable' document and travellers are able to share travel plans on social networks, and to synchronise with other booking systems. If the document is fully integrated with the online booking tool or the travel management company's systems, it is possible to push real-time changes (regardless of whether they are due to flight delays or a traveller's request) directly to the traveller's smartphone/tablet. Even with partial integration, travellers can do the updates themselves to ensure that they remain informed on all aspects of their trips (Campbell, 2013).

The average business traveller carries three mobile devices with him/her during travel. The most commonly used are smartphones, owned by 95% of business travellers, followed by tablets and laptops (PC Housing, 2012). These items make it possible to avoid the work overload that would otherwise be accumulating due to the employee's absence and consequent inability to action certain items whilst travelling. It also enables business travellers to conclude travel-related transactions (e.g. booking or changing fights) and/or keep up to date with trip arrangements (e.g. boarding gate changes, flight cancellations) (Mahatanankoon, Wen & Lim, 2005:348; Travelport, 2013b:8). This was further elaborated on by Lubbe and Louw (2009:14-15), who found that travellers appreciated being able to receive information, but were less interested in conducting transactions on their cell phones, and that business travellers in particular were more ready to use mobile technology than their leisure counterparts. This confirmed Posland's (2001:28) earlier finding that people travelling for business do not identify themselves as 'classical tourists'. These advanced tourists, as Posland calls them, have the following expectations:

- Logical and practical information should be easily accessible.
- Location-aware information at the destination: They want instant information on any historical/sporting/entertainment/cultural/economic/artistic activities and establishments in the vicinity.
- Individualised information: The information provided should take the travellers' own interests and pastimes into account.

The typical business traveller places high value on attributes such as the flexibility, punctuality, convenience, frequency, reliability and ubiquity provided by mobile applications (Lubbe & Louw, 2009:14-15; Martinez-Garcia, Ferrer-Rosell & Coenders, 2012:12).

Wang *et al.* (2012:385) found that mobile applications enable travellers to effectively and efficiently complete their travel activities and cope with the dynamic and ever-changing travel environment. Business travellers who participated in a study conducted by Mahatanankoon *et al. (*2005:352) indicated that the ability to send and receive emails was their number one reason for using mobile technology. The ability to work on a mobile device while delayed by traffic congestion, or at an airport or conference, was ranked fifth, and the possibility it offered to manage personal appointments and meetings through the intranet/internet was ranked ninth. However, since this research was conducted almost a decade ago, the situation might meanwhile have changed significantly, which will make the results of the current study all the more valuable.

Figure 3.1 depicts how the use of mobile technology – in particular mobile travel applications – has resulted in a mutually beneficial relationship between the three key role players, as inferred in the discussions in this chapter.

It is important to note that business travellers are the end users of the mobile travel application; therefore the mobile travel applications should be developed in a way that will encourage usage. In order to ensure that this is done successfully, the expectations of business travellers in this regard should be carefully considered.

The expectations of business travellers will depend on their age. Since so-called Generation Y business travellers will make up approximately 75% of the work force by 2025, it is important for application developers to be aware of the characteristics of this group in order to ensure that the offerings will suit their needs. Typically, Generation Y business travellers require the following:

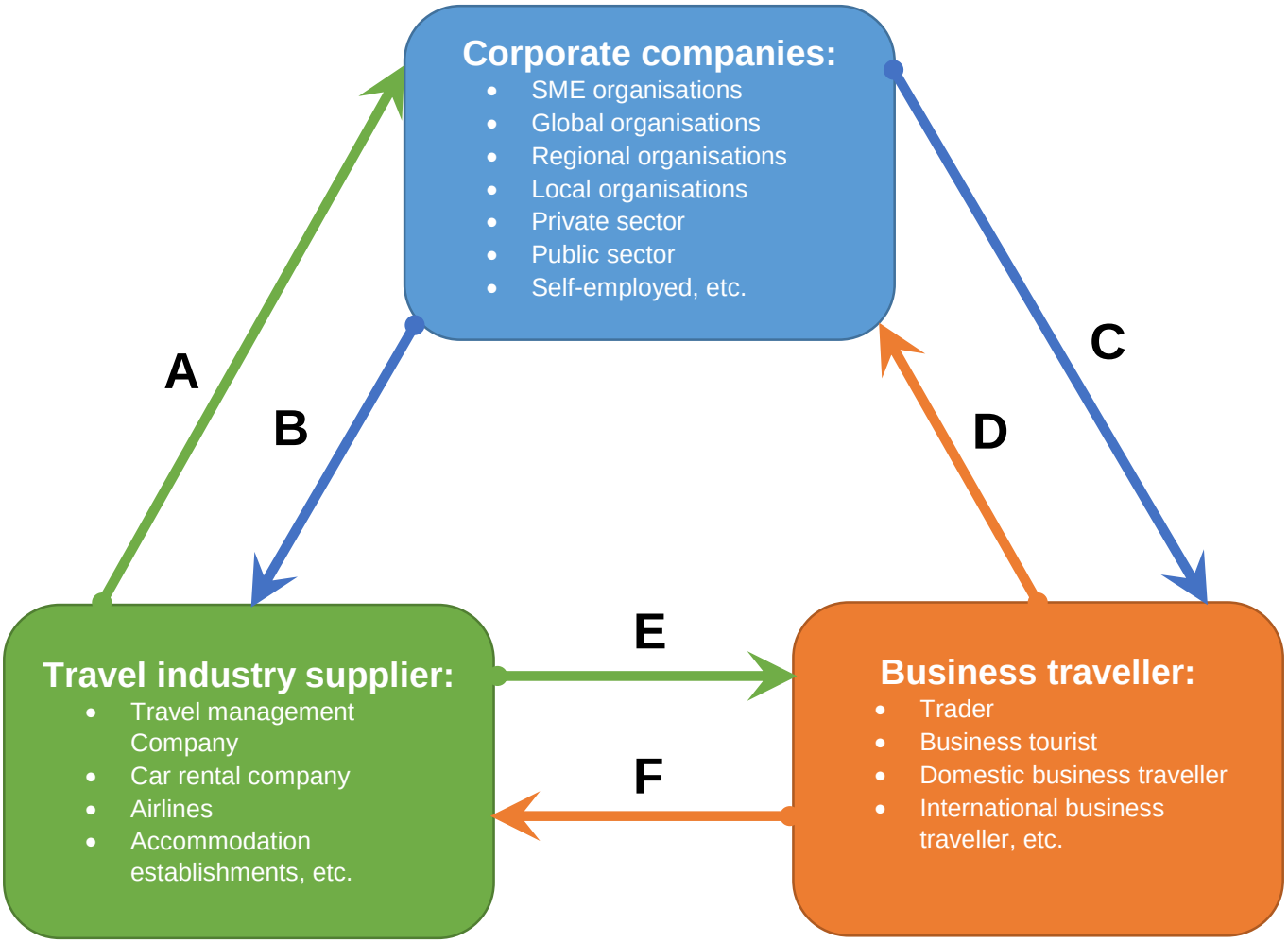
- A tailor-made service: Generation Y is all about personalisation. These travellers are not brand loyal and are opposed to bundled offers as they believe that every experience should be unique. Therefore, enabling the user to personalise the application, be it with a personal background or traveller specifics (e.g. aeroplane seat preference), this will be important to this new generation of traveller.
- Open to technology: Generation Y is quick to adopt and use new technology. They adapt effortlessly to using mobile and online tools for travel-related transactions. Mobile applications will have to keep tread with the latest developments and trends as Generation Y users will not hesitate to replace one application with another that is more up to date.

- Social opinion matters: Social media play a very prominent role in the lives of Generation Y and they value peer input when making decisions. Mobile applications need to allow linkage to popular social media sites (e.g. Facebook) and allow travellers to either share or rate the service used (Campbell, 2013; CWT Travel Management Institute, 2013:70).

Gender is another important factor that could affect the expectations of business travellers. ComScore (2012) found a significant difference between male and female smartphone users using travel category applications, with females being 14% more likely than men to use a smartphone application. Furthermore, in analysing specific applications for airlines and hotel brands, they found that adoption varied between the genders. Although Anckar and D'Incau (2002:1452) concluded that the gender and age of users did not have a significant influence on their adoption and expectations of mobile technology, this notion may not apply to the average business traveller.

This research aims to investigate the current use and future expectations of business travellers regarding mobile applications before, during and after their business trips. Table 3.3 on page 37 summarises the literature survey and highlights what needs to be tested in the empirical study. The business trip is broken down into three phases, as highlighted in the literature survey and shown in the first column. The constructs related to this study are then split according to the trip phases, and their variables are stated in columns two and three. Column four highlights sources that include discussions of varying depth of the variable, and the last column contains the question that will be used in the empirical part of this study to measure the variable.

Figure 3.1: Typical role of mobile travel applications with regard to the key role players in business travel



Descriptions of relationship:

A: Supplier provides corporate company with usage information; traveller behaviour can be deduced.

B: Company provides supplier with access to travellers via the approved applications; could lead to increase in revenue, typical client base can be deduced.

C: Company provides traveller with list of approved mobile applications; traveller has access to more information and the travel policy and preferred supplier usage is driven.

D: Traveller can submit various types of documentation and information (e.g. reimbursement documents, supplier reviews, etc.) while on the go, streamlining the process.

E: Supplier provides traveller with up to date information (e.g. cancellation policies, flight changes, etc.), loyalty programmes are driven. Mobile travel applications may make using the suppliers' services more streamlined, e.g. checking in on the smartphone and then using it as a boarding pass. Supplier provides traveller with an additional communication and reservations channel.

F: Traveller supplies the supplier with traveller-specific detail from which the client database is built, supplier reviews are submitted, etc.

Source: Researcher's own design

Table 3.3: Variables relating to the constructs of this study

Trip phase	Construct	Variables	Literature source	Question in Survey
Pre-travel	Planning	Door-to-door planning	CWT Travel Management Institute (2014a)	Q.9
		Peer reviews	CWT Travel Management Institute (2014a); Dicey (2012); Gavalas *et al.* (2012); Goh *et al.,* (2009); Hutt (2013); KDS and EPSA (2012); Morosan (2014)	
		Discussion platforms	Gavalas *et al.* (2012); Goh *et al.,* (2009); KDS and EPSA (2012); Morosan (2014); Travel Buyer (2014b); Travel Buyer (2014c)	
		Repeat booking option	Airline Business & SITA, 2012; CWT Travel Management Institute (2014a)	
		Destination information	Airplus (2012); Anckar & D'Incau (2002); CWT Travel Management Institute (2014a); Dicey (2012); Gavalas *et al.* (2012); Goh *et al.* (2009); Morosan (2014); Travelport (2012b); Wang *et al.* (2012); Wang *et al.* (2014a); Wang *et al.* (2014b); Werthner (2003)	
		Supplier information	Amadeus (2011); Anuar, *et al.* (2014); Bicknell (2007); CWT Travel Management Institute (2014a); Dicey (2012); Gavalas *et al.* (2012) Goh *et al.* (2009); Morosan (2014); SITA (2012); Travelport (2012b); Wang *et al.* (2012); Wang *et al.* (2014a); Wang *et al.* (2014b); Werthner (2003)	
		Personal information management	Anuar, *et al*. (2014); CWT Travel Management Institute (2014a); Dicey (2012)	
		Travel approval	CWT Travel Management Institute (2014a)	
		Refund possibilities	Anuar, *et al*. (2014); CWT Travel Management Institute (2014a)	
		Travel policy information	CWT Travel Management Institute (2013); CWT Travel Management Institute (2014a); Davis (2013); Jonas (2012); West *et al.* (2011a); West *et al.* (2011b)	
	Booking	Preferencing	Airline Business & SITA, 2012; Anuar, et.al. (2014); CWT Travel Management Institute (2014a); Dicey	Q.9

Trip phase	Construct	Variables	Literature source	Question in Survey
			(2012); Gavalas *et al.* (2012); Goh *et al.* (2009); Lubbe & Louw (2009); May & Quinn (2012)	
		Mobile payment	Airline Business & SITA, 2012; Airplus (2012); Amadeus (2011); Anckar & D'Incau (2002); CWT Travel Management Institute (2014a); Dicey (2012); Goh *et al.* (2009); Langelund (2007); Mahatanankoon *et al.* (2005); May & Quinn (2012); Morosan (2014); SITA (2012); SITA (2013); Wang *et al.* (2014a); Wang *et al.* (2014b); West *et al.* (2011b)	
		Making reservations	Airline Business & SITA, 2012; Airplus (2012); Amadeus (2011); Anckar & D'Incau (2002); Anuar, et.al. (2014); Bicknell (2007); Boucher, (2013); Budd, & Vorley, (2013); Campbell (2013); CWT Travel Management Institute (2014a); Dicey (2012); Goh *et al.* (2009); Hilton (2014); Hutt (2013); KDS and EPSA (2012); Koumelis (2012); Langelund (2007); Lubbe & Louw (2009); Konrad (2013); Mahatanankoon *et al.* (2005); May & Quinn (2012); Morosan (2014); SITA (2012); SITA (2013); Travelport (2012b); Travelport (2013b); Wang *et al.* (2012); Wang *et al.* (2014a); Wang *et al.* (2014b); West *et al.* (2011b)	
		Loyalty programme management	Amadeus (2011); Anuar, *et al.* (2014); Budd & Vorley, (2013); CWT Travel Management Institute (2014a); Dicey (2012); Konrad (2013); May & Quinn (2012); SITA (2013)	
	Itinerary consolidation	Consolidated itinerary information	Amadeus (2011); BCD Travel (2014); Campbell (2013); CWT Travel Management Institute (2013); CWT Travel Management Institute (2014a); Dicey (2012); Hutt (2013); SITA (2012); Wang *et al.* (2014b); West *et al.* (2011b)	Q.9
		Trip sharing	Amadeus (2011); Balarin (2013); BCD Travel, 2014; CWT Travel Management Institute (2014a); Dicey	

Trip phase	Construct	Variables	Literature source	Question in Survey
			(2012); Goggin (2006); Hutt (2013); Mahatanankoon *et al.* (2005); Travel Buyer (2014b); Travel Buyer (2014c)	
During Travel	Cancellation/ Modification	Reservation cancellations	Airplus (2012); Anuar, *et al*. (2014); Boucher, (2013); CWT Travel Management Institute (2014a); Langelund (2007); May & Quinn (2012)	Q.10
		Reservations modification	Airline Business & SITA, 2012; Airplus (2012); Anuar, *et al.* (2014); Boucher, (2013); CWT Travel Management Institute (2014a); Langelund (2007); Lubbe & Louw (2009); May & Quinn (2012)	
		Travel alerts (e.g. flight updates)	Airline Business & SITA, 2012; Airplus (2012); Amadeus (2011); Anckar & D'Incau (2002); Balarin (2013); BCD Travel (2014); Budd & Vorley, (2013); Campbell (2013); CWT Travel Management Institute (2014a); Dicey (2012); Goh *et al.* (2009); Langelund (2007); Lubbe & Louw (2009); Mahatanankoon *et al.* (2005); Morosan (2014); SITA (2012); SITA (2013); Travelport (2012b); Wang *et al.* (2014b); West *et al.* (2011b)	
		Refund possibilities	Anuar, *et al*. (2014); CWT Travel Management Institute (2014a)	
		Consolidated itinerary information	Amadeus (2011); BCD Travel (2014); Campbell (2013); CWT Travel Management Institute (2013); CWT Travel Management Institute (2014a); Dicey (2012); Lubbe & Louw (2009); SITA (2012); Travelport (2012b)	
	Continuous support	Transportation information	Anckar & D'Incau (2002); CWT Travel Management Institute (2014a); Dicey (2012); Gavalas *et al.* (2012); Goh *et al.* (2009); Morosan (2014); Travelport (2012b); Wang *et al.* (2012); Wang *et al.* (2014a); Wang *et al.* (2014b); Werthner (2003)	Q.10
		Mobile payment	Airline Business & SITA, 2012; Amadeus (2011); Anckar & D'Incau (2002); CWT Travel Management Institute (2014a); Dicey (2012); Goh *et al.* (2009); Langelund	

Trip phase	Construct	Variables	Literature source	Question in Survey
			(2007); Mahatanankoon *et al.* (2005); May & Quinn (2012); Morosan (2014); SITA (2012); SITA (2013); Wang *et al.* (2014a); Wang *et al.* (2014b); West *et al.* (2011b)	
		Loyalty programme management	Amadeus (2011); Anuar, *et al.* (2014); CWT Travel Management Institute (2014a); Dicey (2012); Konrad (2013); May & Quinn (2012); SITA (2013)	
		Making reservations	Airline Business & SITA, 2012; Amadeus (2011); Anckar & D'Incau (2002); Anuar, *et al*. (2014); Bicknell (2007); Boucher (2013); Budd & Vorley (2013); CWT Travel Management Institute (2014a); Dicey (2012); Goh *et al.* (2009); Hilton (2014); Hutt (2013); KDS and EPSA (2012); Koumelis (2012); Langelund (2007); Lubbe & Louw (2009); Konrad (2013); Mahatanankoon *et al.* (2005); May & Quinn (2012); Morosan (2014); SITA (2012); SITA (2013); Travelport (2012b); Travelport (2013b); Wang *et al.* (2012); Wang *et al.* (2014a); Wang *et al.* (2014b); West *et al.* (2011b)	
		Maps/GPS	Airline Business & SITA, 2012; Anuar, *et al*. (2014); Bicknell (2007); Budd & Vorley, (2013:44); Campbell (2013); Curran & Smith (2006); CWT Travel Management Institute (2014a); Dicey (2012); Gavalas *et al.* (2012); Goh *et al.* (2009); Hutt (2013); KDS and EPSA (2012); Morosan (2014); SITA (2013); Wang *et al.* (2014a); Wang *et al.* (2014b); West *et al.* (2011b)	
		Destination information (e.g. weather and currency converters)	Airplus (2012); Anckar & D'Incau (2002); Campbell (2013); CWT Travel Management Institute (2014a); Dicey (2012); Gavalas *et al.* (2012); Goh *et al.* (2009); Morosan (2014); Travelport (2012b); Wang *et al.* (2012); Wang *et al.* (2014a); Wang *et al.* (2014b); Werthner (2003)	

Trip phase	Construct	Variables	Literature source	Question in Survey
		Supplier information	Amadeus (2011); Anckar & D'Incau (2002); Bicknell (2007); Campbell (2013); CWT Travel Management Institute (2014a); Dicey (2012); Gavalas *et al.* (2012); Goh *et al.* (2009); Morosan (2014); SITA (2012); Travelport (2012b); Wang *et al.* (2012); Wang *et al.* (2014a); Wang *et al.* (2014b); Werthner (2003)	
		Personal information management	Anuar, *et al*. (2014); CWT Travel Management Institute (2014a); Dicey (2012)	
		Travel approval	CWT Travel Management Institute (2014a); Dicey (2012)	
		Travel policy information	CWT Travel Management Institute (2014a); Davis (2013); Jonas (2012); West *et al.,* (2011b); West *et al.,* (2011a); West *et al.,* (2011b)	
		Security and assistance	Budd & Vorley (2013); CWT Travel Management Institute (2014a); Dicey (2012); Goh *et al.* (2009); SITA (2012)	
		Self-tagging of luggage	Airline Business & SITA, 2012; Amadeus (2011); May & Quinn (2012); Offutt (2013); SITA (2012)	
	Check-in/Check-out	Paperless check-in/check-out	Airline Business & SITA, 2012; Airplus (2012); Balarin (2013); Budd & Vorley (2013); CWT Travel Management Institute (2014a); Dicey (2012); Hutt (2013); Mahatanankoon *et al.* (2005); Malherbe (2014); SITA (2012); SITA (2013); Travelport (2012b); Wang *et al.* (2014a); West *et al.* (2011b)	Q.10
		Advanced check-in	Airline Business & SITA, 2012; Amadeus (2011); Balarin (2013); CWT Travel Management Institute (2014a); Dicey (2012); Hutt (2013); Malherbe (2014); SITA (2012); SITA (2013); Travelport (2012b); Wang *et al.* (2014a); West *et al.* (2011b)	
		Fast check-in	Airline Business & SITA, 2012; Amadeus (2011); Balarin (2013); CWT Travel Management Institute (2014a); Dicey (2012); Hutt (2013); Lubbe & Louw (2009);	

Trip phase	Construct	Variables	Literature source	Question in Survey
			Malherbe (2014); SITA (2012); SITA (2013); Travelport (2012b); Wang *et al.* (2014a); West *et al.* (2011b)	
		Mobile boarding pass	Budd & Vorley (2013); CWT Travel Management Institute (2014a); Hutt (2013); SITA (2012); SITA (2013); Travelport (2012b); West *et al.* (2011b)	
	Transportation	Transportation information	Anckar & D'Incau (2002); CWT Travel Management Institute (2014a); Dicey (2012); Gavalas, Kenteris, Konstantopoulos & Pantziou, (2012); Goh *et al.* (2009); Morosan (2014); Wang *et al.* (2014a); Wang *et al.* (2014b); Werthner (2003)	Q.10
		Transportation reservation	Anckar & D'Incau (2002); CWT Travel Management Institute (2014a); Dicey (2012); Goh *et al.* (2009); Koumelis (2012); Langelund (2007); Mahatanankoon *et al.* (2005); Wang *et al.* (2014a); Wang *et al.* (2014b)	
		Preferencing (Airline seat choice/ Car type selection)	Airline Business & SITA, 2012; CWT Travel Management Institute (2014a); Dicey (2012); Gavalas, Kenteris, Konstantopoulos & Pantziou, (2012); Goh *et al.* (2009)	
		Trip sharing	Amadeus (2011); Balarin (2013); BCD Travel, 2014; CWT Travel Management Institute (2014a); Dicey (2012:25); Goggin (2006); Goh *et al.* (2009); Hutt (2013); Mahatanankoon *et al.* (2005); Travel Buyer (2014b); Travel Buyer (2014c)	
		Purchase of ancillary services (e.g. additional bag booking, premium seating purchase, purchase of meals – any service added to the core transportation service)	Airline Business & SITA, 2012; Amadeus (2011:4); Anckar & D'Incau (2002); CWT Travel Management Institute (2014a); Langelund (2007); Mahatanankoon *et al.* (2005); Morosan (2014); SITA (2012); Wang *et al.* (2012)	
		Airport store	Amadeus (2011); Anckar & D'Incau (2002); Anuar *et al.* (2014); CWT Travel Management Institute (2014a);	

Trip phase	Construct	Variables	Literature source	Question in Survey
			Langelund (2007); May & Quinn (2012); Morosan (2014); SITA (2012)	
		Safe arrival	CWT Travel Management Institute (2014a); Mahatanankoon *et al.* (2005)	
	Hotel comfort	Lounge access	Airline Business & SITA, 2012; CWT Travel Management Institute (2014a)	Q.10
		Preferencing	CWT Travel Management Institute (2014a); Dicey (2012); Gavalas *et al.* (2012); Goh *et al.* (2009)	
		Mobile room key		
		Upgrades	Travel Buyer (2014a)	
		Hotel menu	Anuar *et al*. (2014); Travel Buyer (2014a)	
		Wake-up call	Travel Buyer (2014a)	
		Cash point	Anckar & D'Incau (2002); Anuar *et al*. (2014); CWT Travel Management Institute (2014a); Mahatanankoon *et al.* (2005)	
		Trip sharing	Amadeus (2011:15); Balarin (2013); BCD Travel, 2014; CWT Travel Management Institute (2014a); Dicey (2012); Goggin (2006); Goh *et al.* (2009); Hutt (2013); Mahatanankoon *et al.* (2005); Travel Buyer (2014b); Travel Buyer (2014c)	
	Additional travel information	Destination information	Anckar & D'Incau (2002); CWT Travel Management Institute (2014a); Amadeus (2011); Balarin (2013); BCD Travel, 2014; CWT Travel Management Institute (2014a); Dicey (2012); Gavalas, Kenteris, Konstantopoulos & Pantziou (2012); Goh *et al.* (2009); Morosan (2014); Travelport (2012b); Wang *et al.* (2014a); Wang *et al.* (2014b); Werthner (2003)	Q.10
		Discount possibilities	Anuar *et al*. (2014); CWT Travel Management Institute (2014a); Gavalas *et al.* (2012)	
		Restaurant reviews	CWT Travel Management Institute (2014a); Gavalas *et al.* (2012); Goh *et al.* (2009); KDS and EPSA (2012);	

Trip phase	Construct	Variables	Literature source	Question in Survey
			Morosan (2014); Wang *et al.* (2012); Wang *et al.* (2014b)	
		Event and ticket prices	Anckar & D'Incau (2002); CWT Travel Management Institute (2014a); Gavalas *et al.* (2012); Goh *et al.* (2009); Mahatanankoon *et al.* (2005); Wang *et al.* (2014b)	
		Travel policy compliance	CWT Travel Management Institute (2014a); West *et al.* (2011a); West *et al.* (2011b)	
		Productivity	CWT Travel Management Institute (2014a); Dicey (2012); Gebauer (2008); Mahatanankoon *et al.* (2005)	
		Mobile email	Anckar & D'Incau (2002); Dicey (2012); Gebauer (2008); Mahatanankoon *et al.* (2005)	
		Mobile instant messaging	Dicey (2012); Gebauer (2008); Mahatanankoon *et al.* (2005)	
		File sharing	Gebauer (2008); Goggin (2006); Mahatanankoon *et al.* (2005); Travel Buyer (2014b); Travel Buyer (2014c)	
	Work related support	Integrated expense management	Campbell (2013); Dicey (2012); Gebauer (2008); West *et al.* (2011a);West *et al.* (2011b)	Q.10
Post-Travel	Expenses	Uploading of expenses	Campbell (2013); CWT Travel Management Institute (2014a); Dicey (2012); Gebauer (2008); Hutt (2013); KDS and EPSA (2012) West *et al.* (2011a); West *et al.* (2011b)	Q.11
		Expense approval/reimbursement	Airplus (2012); Campbell (2013); CWT Travel Management Institute (2014a); Dicey (2012); Gebauer (2008)	
	Reviews	Supplier reviews	CWT Travel Management Institute (2014a); Gavalas *et al.* (2012); Goh *et al.* (2009); KDS and EPSA (2012); Morosan (2014)	Q.11
		Discussion platform	CWT Travel Management Institute (2014a); Goh *et al.* (2009); KDS and EPSA (2012); Morosan (2014); Travel Buyer (2014b); Travel Buyer (2014c)	

Trip phase	Construct	Variables	Literature source	Question in Survey
		Trip sharing	Amadeus (2011); Balarin (2013); BCD Travel, 2014; CWT Travel Management Institute (2014a); Dicey (2012); Goggin (2006); Goh *et al.* (2009); Hutt (2013); Mahatanankoon *et al.* (2005); Travel Buyer (2014b); Travel Buyer (2014c)	
	Personal experience	Preferencing	Airline Business & SITA, 2012; CWT Travel Management Institute (2014a); Gavalas *et al.* (2012); Goh *et al.* (2009); Lubbe & Louw (2009); May & Quinn (2012)	Q.11
		Loyalty programme manager	Amadeus (2011); Budd & Vorley (2013); CWT Travel Management Institute (2014a); Dicey (2012); Konrad (2013); May & Quinn (2012); SITA (2013)	
		Personal information management	Anuar *et al*. (2014); CWT Travel Management Institute (2014a); Dicey (2012)	
		Trip sharing	Amadeus (2011); Balarin (2013); BCD Travel, 2014; CWT Travel Management Institute (2014a); Dicey (2012); Goggin (2006); Goh *et al.* (2009); Hutt (2013); Mahatanankoon *et al.* (2005); Travel Buyer (2014b); Travel Buyer (2014c)	
Constructs applicable throughout the travel life cycle	Profile of the business traveller	Gender	Anckar & D'Incau (2002); ComScore (2012); CWT Travel Management Institute (2014a)	Q.22
		Age	Anckar & D'Incau (2002); Campbell (2013); CWT Travel Management Institute (2013); CWT Travel Management Institute (2014a)	Q.21
		Level of education		Q.24
		Level of employment		Q.26
		Occupation	CWT Travel Management Institute (2014a)	Q.25
	Trip characteristics	Frequency of travel	CWT Travel Management Institute (2014a)	Q.7 & Q.8
		Purpose of travel	Posland (2001)	Q.15
		Destination travelled to		Q.8

Trip phase	Construct	Variables	Literature source	Question in Survey
		Information requirements	Anckar & D'Incau (2002); ComScore (2012); CWT Travel Management Institute (2014a)	Q.9.1; Q.9.2; Q.10.1; Q.10.2; Q.11.1; Q.11.2

3.6 CONCLUSION

This chapter has placed the current research in the context of related past academic an industry research. This section concludes the literature review of this study. The use of mobile technology, more specifically mobile travel applications, was discussed and academic and industry insights and limitations were identified. The next chapter will deal with the research design and the methods used to determine the current use of mobile applications by business travellers before, during and after their business trips, as well as their expectations regarding new applications to cater for future needs. The hypotheses will be stated and elaborated on and the sampling method, data and data analysis will be explained.

CHAPTER 4: RESEARCH DESIGN AND METHODS

4.1 INTRODUCTION

The purpose of this study was to investigate business travellers' current use of mobile travel applications during business trips and to determine how these applications should be developed to better meet future expectations. This chapter discusses the overall approach that was used to test the listed hypotheses and supports the reasoning for using an online survey for this quantitative study. This is followed by an explanation of how the data was analysed and interpreted, and finally by a discussion of the limitations of this study and ethical considerations.

4.2 RESEARCH DESIGN

Cooper and Schindler (2008:142) discuss the use of eight different descriptors to classify the research design of a study. This study is a formal, communicative, ex post -facto, descriptive, cross-sectional, statistical study based in the field setting of the participants' actual routine. These descriptors are applied to the study and are elaborated on in Table 4.1.

Table 4.1: Category of descriptors of this study (adapted from Cooper & Schindler, 2008:42)

Category	Options	Application to this study
Degree of research question crystallisation:	• Exploratory study • Formal study	As this is a structured study with precise procedures which will test several hypotheses (as mentioned in Chapter 1, section 4 of this document), it will be classified as a formal study, which differs from an exploratory study with looser structures and predictions about the future of the field.
Method of data collection:	• Monitoring study • Communication study	This is a communication study as the researcher will obtain responses from the database using an online survey. It differs from a monitoring study in which the researcher is more likely to observe the subject or phenomena with actual interaction.
The power of the researcher to produce effects in the variables being studied:	• Experimental • Ex post facto	In an experimental study, the researcher aims to manipulate or control certain variables in the hope that it will lead to a specific cause, which is not the case in this study. This study will have an ex post facto design and will gather data within the business travel environment as it naturally stands with no manipulation of the variables.

The purpose of the study:	• Reporting
	• Descriptive
	• Causal
	  ○ Explanatory
	  ○ Predictive
		This research is descriptive in nature as variables will not be manipulated in any way (as in the case with causal explanatory/causal predictive research) and will not be compared to other studies (in the instance of reporting research).

The time dimension:	• Cross-sectional • Longitudinal	This is a cross-sectional study carried out only once. It represents the situation as it was at a specific time. It differs from a longitudinal study which is repeated over a period of time.

The topical scope of the study:	• Case • Statistical	This study is about the quantity of responses that will be gathered. It will capture the business travellers' characteristics and will enable the researcher to make comparisons. It is therefore a statistical study.
The research environment:	• Field • Laboratory research • Simulation	As the data will be gathered in the environment under actual conditions it is set in field conditions and differs from simulation, where a process is replicated or laboratory conditions are staged.
The participants' perception of the research activity:	• Actual routine • Modified routine	This study is based on the travellers' actual daily routine and no attempt will be made to manipulate any part of the research process/environment.

4.3 SAMPLING

4.3.1 Population

Saunders, Lewis and Thornhill (2012:678) refer to a population as a 'complete set of cases or group members' from which the sample can be produced. The target population for this study was South African business travellers who have travelled domestically, internationally or within Africa. A database of business travellers who met this requirement was provided by Carlson Wagonlit Travel South Africa (CWT ZA) and consisted of the email addresses of 13 098 travellers and travel bookers who had made use of CWT ZA's services between 1 August 2013 and 31 July 2014.

4.3.2 Sampling method

Convenience sampling is a non-probability sampling method and was chosen for this study as the dataset provided by CWT ZA was readily available. An additional benefit of this sampling method is that it is the most inexpensive and easiest method to apply (Saunders *et al*., 2012:397). One of the disadvantages associated with this method is that there may be an over-/under-representation of one particular group within a sample, which means that the results may not be representative of the entire population.

The questionnaire URL and the letter to obtain the respondents' informed consent were sent via email to the entire dataset consisting of 13 098 travellers who had travelled domestically or internationally and had booked with Carlson Wagonlit Travel South Africa during the period from 1 August 2013 to 31 July 2014. A match was made between CWT ZA's booking and traveller profile databases in order to establish which travellers had travelled during the specified period and whether they had travelled domestically or internationally. In some instances the travel bookers' email addresses pulled through to the database, and in this event the mail was sent to them too with a request to forward it to the travellers in the hope of reaching more travellers and avoiding the further dilution of the targeted potential respondents. It should be noted that since the number of travel bookers that had forwarded the survey cannot be reported on, the impact of this cannot be accurately measured. The above process

was used as it proved to be the most efficient way to contact travellers and allowed them to complete the survey at a time that was convenient for them.

4.4 DATA COLLECTION

4.4.1 Survey method

The strength of survey research is the flexibility it offers when it comes to data interpretation. If questions are well composed, a wealth of information can be gathered, which can be analysed and compared in various ways in order to successfully test a hypothesis. Saunders, Lewis and Thornhill (2012:419) identify several types of questionnaires and categorise them according to where the responsibility of completion lies, and whether they are interviewer- or self-completed surveys. The following factors were considered during this research study to select an appropriate survey method (Cooper & Schindler, 2008:226-227):

- Costs: A computer survey is considered less costly as one person can set up and disseminate the survey, opposed to telephone surveys where more people may be needed to contact the potential respondents included in the database.
- Sample accessibility: Contacting individuals personally is not only a costly exercise, but can also pose a real problem in terms of setting up the actual meeting due to the individuals being geographically dispersed or having strict 'gate-keepers' (secretaries) who might prevent the researcher from contacting them. A computer survey mailed to the individuals may improve the chances of making contact with these hard-to-reach individuals.
- Time constraints: While mail surveys may give participants more time to investigate and research answers to questions, a computer survey cannot be put on hold for completion at a later stage, which means that the researcher will get a true reflection of the participant's immediate response to the question.

In the case surveys completed by an interviewer, one could host a structured/semi-structured interview or attempt telephone surveys. For the purpose of this study, these two techniques were considered to be too time consuming and expensive for both the business traveller and the researcher. Both these techniques have been found to produce low response rates, probably because the targeted travellers are often travelling and are therefore not able to answer their phones.

Saunders *et al.* (2012:420) suggest three possible techniques for self-completed surveys:

- A delivery and collection questionnaire
- A postal (mail) questionnaire
- An internet (web-based) and intranet-mediated questionnaire

Self-completed internet survey research has been selected as the least costly and most time-efficient method for collecting a large amount of data. Another benefit of self-completed internet surveys is that there is less room for finger error at the data-capturing phase as data is captured at the point where the traveller inputs/selects the most appropriate answer. Delivery and collection questionnaires and postal questionnaires are considered to be too costly in terms of both money and time. They were also considered to be too outdated for the purposes of this study, which deals with travellers using technological tools. It should be noted that self-completed internet surveys generally have a low response rate, in addition to other disadvantages, such as limited/no interaction with the respondents, which means that no observations can be made and the space for answering open-ended questions is limited. A reminder email was sent to travellers one week after the initial email in an attempt to improve the low response rate and only two open-ended questions were asked in order to limit the need for physical observation of the respondents.

An internet-based questionnaire was used to gather data. The questionnaire was hosted on Qualtrics – an online global provider of data-collection and analysis products. The survey was distributed via email to the population of business travellers who had booked travels with CWT ZA. General operating guidelines, as provided by Saunders *et al.* (2012:454), were used during the process and included the following:

- The email was sent with a cover letter to introduce the researcher and explain the purpose of the research to the participants.
- The survey was sent as a hyperlink to the participants to ensure that no viruses could be attached.
- The questions were preceded by an explicit request for permission to use the data obtained by means of the survey.

- A follow-up email was sent one week after initial contact.

4.4.2 Measurement

The aim of the survey was to measure the current use of mobile travel applications by business travellers and to determine what their future needs might be. The sample populations consisted of business travellers who had made use of CWT ZA to book business travels during the period from 1 August 2013 to 31 July 2014. Since the results of this study did not replicate previous studies and were not compared to other studies, a new survey was developed on the basis of the literature review. Some measurement scales used in previous industry surveys (such as CWT Travel Management Institute, 2014:52; SITA, 2012a) and academic surveys (such as Goh *et al*., 2009:37; Kim *et al*., 2008:399; Wang *et al*., 2014a:7; Wang *et al*., 2014b:17) were adapted for use in this study.

The first section of the questionnaire established the respondents' personal use of mobile applications in general and their companies' views on the use of those applications. Next, details of the respondents' frequency of travel and destinations travelled to were gathered, followed by an in-depth section about the use of mobile travel applications in the various stages of the travel life cycle. Starting with the pre-travel stage, the questions in this section first focused on the respondents' use of specific mobile travel application functions during specific activities in this phase before moving on to their use of applications the during the travel, and post-travel phases. In total, eleven activities were mentioned and respondents were asked to rate one hundred and six (106) mobile travel application functions in terms of their importance, current frequency of use and potential future use. Next, the two open-ended questions were posed to determine whether any mobile travel applications were had been omitted and the respondents were requested to indicate the overall importance of mobile travel applications during the three stages of travel. This was followed by a question about the purpose of the trip and a section to establish the traveller's demographic profile.

An example of the online questionnaire is included as Appendix B. An email containing a URL link was distributed to the target population, making it possible to cover

substantial ground. This was beneficial as it made it possible to reach business travellers who were based at locations all over South Africa and also allowed the respondents with limited time available to them to complete the survey at their convenience.

In order to achieve the objectives listed in Chapter 1, section 5, hypothesis testing was deemed appropriate. The use of hypotheses assists with identifying the relevant facts associated with a study, suggests the form of research design that would best suit the study and provides a structure for organising the results (Cooper & Schindler, 2008:66). Tables 4.2 – 4.5 below elaborate on each objective with regard to its associated hypothesis and provide an in-depth analysis of each hypothesis and the questions and scales used to measure it.

Table 4.2: Analysis of Hypothesis 1

Objective	To determine whether different business travellers' current use of mobile applications can be related to differences in their profiles.
Wording	$H_{1\ (null)}$: There are no differences between business travellers' current use of mobile applications that can be related to their different profiles (gender, age, level of education, level of employment and type of occupation).
	$H_{1(alt)}$: There are differences between business traveller's current use of mobile applications that can be related to their different profiles (gender, age, level of education, level of employment, type of occupation).
Type of hypothesis	Hypothesis investigating the relationship between variables
	Non-directional (exploratory) hypothesis investigating the relationship between variables.
Sub-hypotheses	
H_{1A} wording	$H_{1A\ (null)}$: Business travellers' current use of mobile applications is not influenced by gender.
	$H_{1A\ (alt)}$: Gender does influence business travellers' current use of mobile applications.
H_{1A} type of hypothesis	Hypothesis investigating the relationship between variables
	Non-directional (exploratory) hypothesis investigating the relationship between variables

H_{1B} Wording	$H_{1B\ (null)}$: There are no differences between business travellers' use of mobile applications that can be related to their age.		
	$H_{1B\ (alt)}$: Business travellers' current use of mobile applications does differ according to their age.		
H_{1B} type of hypothesis	Hypothesis investigating the relationship between variables		
	Directional (one-tailed) hypothesis investigating the relationship between variables		
H_{1C} wording	$H_{1C\ (null)}$: Business travellers' different levels of education do not play a role in their current use of mobile applications.		
	$H_{1C\ (alt)}$: Business travellers' different levels of education do play a role in their current use of mobile applications.		
H_{1C} type of hypothesis	Hypothesis investigating the relationship between variables		
	Non-directional (exploratory) hypothesis investigating the relationship between variables		
H_{1D} Wording	$H_{1D\ (null)}$: With regard to their current use of mobile applications, there is no difference between business travellers employed at different levels .		
	$H_{1D\ (alt)}$: With regard to their current use of mobile applications, there is a difference between business travellers employed at different levels.		
H_{1D} type of hypothesis	Hypothesis investigating the relationship between variables		
	Non-directional (exploratory) hypothesis investigating the relationship between variables		
H_{1E} wording	$H_{1E\ (null)}$: There are no differences between business travellers' current use of mobile applications that can be ascribed to their different occupations.		
	$H_{1E\ (alt)}$: There are differences between business travellers' current use of mobile applications that can be ascribed to their different occupations.		
H_{1E} type of hypothesis	Hypothesis investigating the relationship between variables		
	Non-directional (exploratory) hypothesis investigating the relationship between variables		
Key constructs	**Measurement**	**Source of scales**	**Level of measurement**
Gender	Question 28	Own design; Goh *et al*. (2009:37); Kim *et al*. (2008:399)	Nominal
Age	Question 27	Own design; Goh *et al*. (2009:37); Kim *et al*. (2008:399)	Ratio

Level of education	Question 30	Own design; Kim *et al*. (2008:399)	Ordinal
Level of employment	Question 32	Own design	Ordinal
Occupation	Question 31	Own design	Nominal
Use of mobile applications	Question 8.2 Question 9.2 Question 10.2 Question 11.2, Question 12.2 Question 13.2 Question 14.2 Question 15.2 Question 16.2 Question 17.2 Question 18.2 Question 8.1 Question 9.1 Question 10.1 Question 11.1 Question 12.1 Question 13.1 Question 14.1 Question 15.1 Question 16.1 Question 17.1 Question 18.1 Question 19 Question 21	Own design, Wang *et al.* (2014a:7); Wang *et al.* (2014b:17); CWT Travel Management Institute (2014:52)	Nominal Ratio Ratio Ratio

Table 4.3: Analysis of Hypothesis 1

Objective	To determine whether different trip characteristics (such as frequency of travel, purpose of trip and destination of traveller) result in differences regarding business travellers' use of mobile applications.
Wording	$H_{2\ (null)}$: Business travellers' use of mobile applications does not change when trip characteristics (frequency, purpose and destination) change.
	$H_{2\ (alt)}$: Business travellers' use of mobile applications changes when their trip characteristics (frequency, purpose, destination travelled to) change.
Type of hypothesis	Hypothesis investigating the relationship between variables
	Non-directional (exploratory) hypothesis investigating the relationship between variables
Sub-hypotheses	

H_{2A} wording	$H_{2A\ (null)}$: The frequency with which business travels are undertaken makes no difference with regard to the business travellers' use of mobile applications.		
	$H_{2A\ (alt)}$: The frequency with which business travels are undertaken does make a difference with regard to business travellers' use of mobile applications.		
H_{2A} type of hypothesis	Hypothesis investigating the relationship between variables		
	Non-directional (exploratory) hypothesis investigating the relationship between variables		
H_{2B} wording	$H_{2B\ (null)}$: The purpose of travel does not make any difference with regard to business travellers' current use of mobile applications.		
	$H_{2B\ (alt)}$: There is a relationship between the purpose of travel and the business travellers' current use of mobile applications.		
H_{2B} type of hypothesis	Hypothesis investigating the relationship between variables		
	Non-directional (exploratory) hypothesis investigating the relationship between variables		
H_{2C} wording	$H_{2C\ (null)}$: The destination travelled to does not have any effect on the business travellers' current use of mobile applications.		
	$H_{2C\ (alt)}$: The destination travelled to does have an effect on the business travellers' current use of mobile applications.		
H_{2C} type of hypothesis	Hypothesis investigating the relationship between variables		
	Non-directional (exploratory) hypothesis investigating the relationship between variables		
Key constructs	**Measurement**	**Source of scales**	**Level of measurement**
Frequency of business travel	Question 5, Question 7	Own design	Ratio Nominal Ratio
Purpose of business travel / Type of business traveller	Question 22.	Own design.	Nominal
Destination travelled to	Question 6	Own design; United Nations (2013)	Nominal
Use of mobile applications	Question 2 Question 3 Question 4 Question 8.2 Question 9.2 Question 10.2 Question 11.2 Question 12.2 Question 13.2	Own design; Wang *et al.* (2014a:7); Wang *et al.* (2014b:17); CWT Travel Management Institute (2014:52)	Nominal Ratio Ratio Ratio

	Question 14.2 Question 15.2 Question 16.2 Question 17.2 Question 18.2 Question 8.1 Question 9.1 Question 10.1 Question 11.1 Question 12.1 Question 13.1 Question 14.1 Question 15.1 Question 16.1 Question 17.1 Question 18.1 Question 19 Question 21		

Table 4.4: Analysis of Hypothesis 3

Objective	To determine whether business travellers whose profiles differ have different future expectations of mobile applications.
Wording	$H_{3\ (null)}$: Business travellers with different profiles (e.g. gender, age, level of education, level of employment, and type of occupation) do not have different future expectation of mobile applications.
	$H_{3(alt)}$: Business travellers with different profiles (e.g. gender, age, level of education, level of employment, and type of occupation) do have different future expectation of mobile applications.
Type of hypothesis	Hypothesis investigating the relationship between variables
	Non-directional (exploratory) hypothesis investigating the relationship between variables
Sub-hypotheses	
H_{3A} wording	$H_{3A\ (null)}$: Business travellers' future expectations of mobile applications are not influenced by their gender.
	$H_{3A\ (alt)}$: Business travellers' future expectations of mobile applications are influenced by their gender.
H_{3A} type of hypothesis	Hypothesis investigating the relationship between variables
	Non-directional (exploratory) hypothesis investigating the relationship between variables
H_{3B} wording	$H_{3B\ (null)}$: Differences between business travellers' future expectations of mobile applications are not affected by their different ages.

	$H_{3B\ (alt)}$: Differences between business travellers' future expectations of mobile applications are affected by their different ages.
H_{3B} type of hypothesis	Hypothesis investigating the relationship between variables
	Non-directional (exploratory) hypothesis investigating the relationship between variables
H_{3C} wording	$H_{3C\ (null)}$: Differences in business travellers' levels of education are not reflected in differences regarding to their future expectation of mobile applications.
	$H_{3C\ (alt)}$: Differences in business travellers' levels of education are reflected in differences regarding to their future expectation of mobile applications.
H_{3C} type of hypothesis	Hypothesis investigating the relationship between variables
	Non-directional (exploratory) hypothesis investigating the relationship between variables
H_{3D} wording	$H_{3D\ (null)}$: Business travellers' different levels of employment do not result in differences with regard to their future expectations of mobile applications.
	$H_{3D\ (alt)}$: Business travellers' different levels of employment do result in differences with regard to their future expectation of mobile applications.
H_{3D} type of hypothesis	Hypothesis investigating the relationship between variables
	Non-directional (exploratory) hypothesis investigating the relationship between variables
H_{3E} wording	$H_{3E\ (null)}$: Business travellers with different occupations indicated no differences with regard to their future expectations of mobile applications.
	$H_{3E\ (alt)}$: Business travellers with different occupations did indicate differences with regard to their future expectations of mobile applications.
H_{3E} type of hypothesis	Hypothesis investigating the relationship between variables
	Non-directional (exploratory) hypothesis investigating the relationship between variables

Key constructs	**Measurement**	**Source of scales**	**Level of measurement**
Gender	Question 28	Own design; Goh *et al*. 2009:37); Kim *et al*. (2008:399).	Nominal
Age	Question 27	Own design; Goh *et al.* (2009:37); Kim *et al*. (2008:399).	Ratio
Level of education	Question 30	Own design; Kim *et al*. (2008:399).	Ordinal
Level of employment	Question 32	Own design	Ordinal
Occupation	Question 31	Own design	Nominal
Future expectations regarding	Question 8.3 Question 9.3 Question 10.3 Question 11.3	Own design; Wang *et al.* (2014a:7); Wang *et al.* (2014b:17); CWT Travel	Interval Interval Interval

mobile travel applications	Question 12.3 Question 13.3 Question 14.3 Question 15.3 Question 16.3 Question 17.3 Question 18.3 Question 20	Management Institute (2014:52)	

Table 4. 5: Analysis of Hypothesis 4

Objective	To determine whether differences in trip characteristics (such as frequency of travel, purpose of trip and destination of traveller) affect business travellers' future expectations of mobile applications.
Wording	$H_{4\ (null)}$: Differences in their trip characteristics (frequency, purpose, destination travelled to) do not result in different business travellers having different expectations of mobile applications.
	$H_{4\ (alt)}$: Differences in their trip characteristics (frequency, purpose, destination travelled to) do result in different business travellers having different future expectations of mobile applications.
Type of hypothesis	Hypothesis investigating the relationship between variables
	Non-directional (exploratory) hypothesis investigating the relationship between variables
Sub-hypotheses	
H_{4A} Wording	$H_{4A\ (null)}$: Business travellers' future expectations of mobile applications are not affected by the frequency with which they have to travel,.
	$H_{4A\ (alt)}$: Business travellers' future expectations of mobile applications are affected by the frequency with which they have to travel.
H_{4A} type of hypothesis	Hypothesis investigating the relationship between variables
	Non-directional (exploratory) hypothesis investigating the relationship between variables
H_{4B} wording	$H_{4B\ (null)}$: The purpose of travel does not affect business travellers' future expectations of mobile applications.
	$H_{4B\ (alt)}$: The purpose of travel does affect business travellers' future expectations of mobile applications.
H_{4B} type of hypothesis	Hypothesis investigating the relationship between variables
	Non-directional (exploratory) hypothesis investigating the relationship between variables
H_{4C} wording	$H_{4C\ (null)}$: The destinations travelled to have no effect on the business travellers' future expectations of mobile applications.

	$H_{4C\ (alt)}$: The destinations travelled to do affect the business travellers' future expectations of mobile applications.		
H_{4C} type of hypothesis	Hypothesis investigating the relationship between variables		
	Non-directional (exploratory) hypothesis investigating the relationship between variables		
Key constructs	**Measurement**	**Source of scales**	**Level of measurement**
Frequency of business travel	Question 5 Question 7	Own design	Ratio Nominal Ratio
Purpose of business travel / Type of traveller	Question 22	Own design	Nominal
Destination travelled to	Question 6	Own design; United Nations (2013)	Nominal
Future expectations of mobile travel applications	Question 8.3 Question 9.3 Question 10.3 Question 11.3 Question 12.3 Question 13.3 Question 14.3 Question 15.3 Question 16.3 Question 17.3 Question 18.3 Question 20	Own design; Wang *et al.* (2014a:7): Wang *et al.* (2014b:17); CWT Travel Management Institute (2014:52)	Interval Interval Interval

Nominal, ordinal and interval scales are used in this study. Variables tested on nominal scales (e.g. Question 28 (gender) and Question 31 (occupation) created the possibility to compare the different expectations of different types of travellers, for example Corporate and Independent Business Travellers, as well as Domestic and International Travellers, to determine whether there were any differences between their expectations. It is possible to establish the relationships of demographics on travellers' current use and future expectations.

The ordinal scale questions (e.g. Question 30 (level of education) and Question 32 (level of employment)), used in combination with the nominal scales questions, made it possible to prioritise the expectations of the travellers and also compare the key

expectations of international as opposed to domestic travellers, or corporate as opposed to independent travellers.

Interval (e.g. Question 8.2 (current expectations of business travellers) and Question 8.3 (future expectations of business travellers)) and ratio (e.g. Question 28 (age) and Question 7 (frequency of business travel)) scales are ideal for measuring the difference between how important business travellers think a mobile travel application is to them, versus how frequently they actually use the application. It also highlights the purposes for which they currently use the mobile travel applications and how they would ideally like to use them. This could be further elaborated on by the respondents through the limited number of open-ended questions in order to provide further clarity to the researcher.

Various data-analysis techniques were used in order to satisfactorily test the hypotheses. These techniques used the different data scales (nominal, ordinal, interval or ratio) to identify any possible differences between the variables (Cooper & Schindler, 2008:510). The techniques used in this study were the Mann-Whitney U-test and the Kruskal Wallis test.

4.4.3 Pre-testing

In order to eliminate any errors, the survey was pre-tested. First, the validity of the questionnaire was examined by a panel of experts, in this case the Directors of Carlson Wagonlit Travel South Africa. They were requested to complete the questionnaire and provide informed opinions on the measuring instrument. This presented the researcher with an opportunity to review the reliability of the questionnaire. In instances where more than one expert expressed concern about the same question/terminology it was reviewed and corrected. In the case of a self-completed survey such as this, the respondents' answers and identities remain anonymous, which could motivate them to answer more truthfully, which would essentially increase the reliability of the answers. Second, several business travellers were also requested to complete the questionnaire so as to be sure that the survey questions were easily understandable and included all the options that were deemed necessary. They commented that the survey was very long and time consuming, and in some instances seemed to be

repetitive. Where possible the survey was shortened and questions were posed in a different way in order to ensure clarity. However, the questionnaire remained long as all the questions were essential to enable the measuring of all the constructs identified in the literature review.

4.5 DATA ANALYSIS

4.5.1 Recording and storing of data

Individual responses were captured on Qualtrics and the complete dataset was stored online. When all the data had been gathered from the respondents, the data- output file was exported from Qualtrics to Microsoft Excel. All the survey items had been pre-coded by the Qualtrics software in the design phase, which meant that the data could be easily sorted for statistical analysis.

4.5.2 Analysis of data

The data-analysis process began with an explorative establishment of frequencies and measures of central tendency in order to identify variables with very skew distributions. Thereafter, inferential statistical analyses, such as the Mann Whitney U test and the Kruskal Wallis test were used – depending on the type of data generated and the type of samples or groups – in order to meet the objectives of the study. Due to the type of responses generated by the survey and the limited number of respondents only non-parametric tests were performed. These tests included:

- The Kruskal Wallis test
- The Mann Whitney U test

The way in which each objective was met is explained next. These measures were important to the study as they assisted in identifying the relative importance of certain variables to respondents, for instance the importance of mobile travel applications in the pre-travel phase.

- **The Mann Whitney U test**

  This test assesses the likelihood of differences between two or more ordinal data-independent groups (Saunders *et.al*, 2012:674). This is important for the identification of relationships, differences and similarities between subgroups of the

study. For example, it might be found that male and female business travellers have different requirements with regard to mobile travel applications.

- **The Kruskal Wallis test**

This test is a more generalised version of the Mann Whitney U test and assesses the likelihood of difference between three or more ordinal data-independent groups (Cooper & Schindler, 2008:662).

The Mann Whitney U test and the Kruskal Wallis test both calculate the mean rank among items, where the variable of interest is ranked from the lowest to the highest value, which is seen as the average rank of the observations by respondents belonging to a specific group. This is therefore not a mean (with a 1-5 output). The difference between the two tests is the number of groups that can be compared. The Mann Whitney U test allows for two groups to be tested while the Kruskal Wallis test can be used to compare three or more groups (Leedy & Ormond, 2013:301).

Lastly, a cluster analysis was done. A cluster analysis involves a process whereby a set of variables are identified and objects with similar descriptions are mathematically gathered into several clusters (however many are identified in the process) in order to identify those objects in a set that are similar (Romesburg, 2004:2).

4.6 ASSESSING AND DEMONSTRATING THE QUALITY AND RIGOUR OF THE RESEARCH DESIGN

4.6.1 Errors and bias

According to Cooper and Schindler (2008:216-222), the following sources of error need to be cautioned against when surveys are used to collect data:

- Interviewer error: Where the interviewer himself has an effect on the data quality, such as failure to accurately record the responses or inappropriately influencing the respondent.

- Participant error: Participants' willingness to respond, or how they respond, may influence the data capture. If they are not willing, they may not pay adequate attention to their responses and the possible consequence thereof.
- Instrument error: The survey may contain questions that are confusing or ambiguous in nature.

In order to minimise possible errors during the data-recording process, no personal interviews were conducted. Instead, respondents could complete the survey by themselves at a time that was convenient for them, thereby eliminating possible interviewer error. Furthermore, the survey was pre-tested so that a refined survey could be sent to business travellers, thus ensuring that the instructions were clear and questions make sense.

4.6.2 Internal validity and generalisability

Cooper and Schindler (2008:289) state that internal validity measures the ability of a research instrument to measure that which it is supposed to measure. Internal validity takes three different forms:

- Content validity: The degree to which the content of the items provides adequate coverage of the relevant items being studied
- Criterion-related validity: The degree to which the measures of prediction are successful
- Construct validity: The degree to which the literature review matches the operational definition in terms of consistency (Cooper & Schindler, 2008: 290-292)

The following methods were used in this study to establish validity of the measurement scale:

Table 4.6: Content validity, criterion-related validity and construct validity

Type	Method	Description/Application to this study
Content validity	Panel of experts	The directors of CWT where requested to review the survey and make suggestions to improve the survey.

	Judgemental	The first form of judgement was made by the researcher through careful definition of the topic, variables to be measured and measurement tools. The second form of judgement was involvement of the panel of experts.
	Based on previous studies	Some questions were adapted from previous studies, as mentioned in 5.4.2. As these questions had been used in previous research their validity had already been established.
Criterion-related validity	Correlation	For a criterion to be valid it needs to comply with four requirements, namely relevance, freedom from bias, reliability and availability. This is achieved by properly defining the variable and giving all the respondents an equal opportunity.
Construct validity	Judgemental	The definitions and discussion of the variables used in this study are based on both academic and industry research, thereby ensuring that the empirical and practical meanings correspond.

Source: Cooper and Schindler (2008: 290-292)

4.6.3 Reliability

Reliability implies consistency in the results; therefore it measures the degree to which the measurement tool is free from random error. The reliability of the measurement tool is of particular importance for measurements taken under different conditions and at different times. 'This distinction of time and condition is the basis for frequently used perspectives on reliability – stability and equivalence …' (Cooper & Schindler, 2008: 292-293).

- Stability refers to obtaining consistent results with subsequent measurements of the same respondent using the same measurement tool.

- Equivalence refers to variations between observers and samples of items at a given point in time (Cooper & Schindler, 2008:293).

4.7 RESEARCH ETHICS

Since several disciplines require the use of human beings when conducting research, it is important to consider certain ethical implications that may be imposed on humans when research is conducted (Leedy & Ormond, 2013:104). Cooper and Schindler (2008:703) and Saunders *et al.* (2012:680) define research ethics as the norms or standards of behaviour of the researcher in relation to those who become the subjects of the research topic or are affected by it. It is therefore important to adopt a code of ethics as a guideline to drive the research (Saunders *et al.*, 2012:230). Table 5.7 below contains a summarised list of ethical principles as highlighted by Saunders *et al.* (2012:231) and an explanation of how they were applied to this study.

Table 4.7: Ethical principles and how they were applied for the purpose of this study

Ethical principle	Application to this study
Integrity and objectivity of the researcher	The researcher ensured objectivity throughout the research process by avoiding dishonesty and misrepresentation of data and findings. There was no conflict of interest or commercial association that could be an ethical concern.
Respect for others	The rights of all the respondents and persons who were part of the research were recognised and their dignity respected throughout the research process.
Avoidance of harm	The research design ensured that there were no risks to the emotional wellbeing or mental or physical health of the participants. The researcher used no method that could be deemed by the

	respondents to be intrusive or could cause anxiety or stress.
Privacy of those taking part	The privacy of all participants was ensured in this study and their anonymity was maintained throughout the entire research process, as well as in the reporting of data.
Voluntary nature of participation and right to withdraw	All the respondents agreed to voluntarily take part in the research and indicated that they understood the implications of participation. Respondents were informed that they were free to withdraw their consent at any time during the research process.
Informed consent of those taking part	All the respondents had to give their informed consent before they could complete the questionnaire and the rights of respondents were protected at all stages.
Ensuring confidentiality of data and maintenance of anonymity of those taking part	As the reliability of data is enhanced when confidentiality and anonymity is assured, all responses were treated as confidential and all respondents completed the survey anonymously.
Responsibility in the analysis of data and reporting of findings	No primary data collected from the sample was fabricated or altered and no results were falsified. The findings of this study were presented as accurately and fully as possible irrespective of the expected outcomes.
Compliance in the management of data	No personal data was collected from respondents.

Ensuring the safety of the researcher	Since the research design incorporated the possibility of risk to the researcher, these risks were minimised by excluding the researcher from any social interaction with participants.

Source: Adapted from Saunders *et al.* 2012:232)

In order to abide by the codes of ethics as required by the University of Pretoria, consent for the study was needed from CWT ZA to enable the distribution of the questionnaire to its database. The letter of permission received from CWT ZA in support of the application for ethical clearance from the Research Ethics Committee of the Faculty of Economic and Management Sciences at University of Pretoria is attached as Appendix C. Furthermore, the research proposal, together with the letter of permission from CWT ZA was submitted for evaluation to the Research Ethics Committee of the Faculty of Economic and Management Sciences at the University of Pretoria and permission was granted for the research to continue. The letter from the Research Ethics Committee of the Faculty of Economic and Management Sciences that granted the ethical clearance for this study is attached as Appendix D. Respondents were furthermore required to indicate their voluntary participation in the study by agreeing to the informed consent letter before they could complete the questionnaire online. This informed consent letter guaranteed respondents' anonymity and stated that all data recorded would be treated as strictly confidential. A copy of the informed consent letter, which had been sent to participants by email, is attached as Appendix A.

4.8 CONCLUSION

In this chapter the methodology that was followed to gather the empirical data required to test the hypotheses determined by this descriptive study was discussed. For this quantitative study convenience sampling was used on the dataset provided by CWT ZA. The empirical data was collected from this sample through a survey distributed via the internet, which allowed participants to complete it at their leisure and at any time and place. This was important as there was a strong possibility that many business travellers would be travelling at the time of completing the survey. The collected data

was reported on and analysed by using several techniques, as discussed in this chapter. The findings will be reported on in the following chapter.

CHAPTER 5: RESEARCH RESULTS

5.1 INTRODUCTION

The previous chapter contained a discussion of the research methodology that was used to gather the empirical data required to test the hypotheses in order to meet the objectives of this study, which were:

- To determine business travellers' current use and future expectations of mobile applications for travel
- To determine whether differences between the profiles of business travellers resulted in differences in respect of their current use and future expectations of mobile applications
- To investigate whether differences between the trip characteristics of business travellers (such as frequency of travel, purpose of trip, destination and information requirements of traveller) led to differences in respect of their current use and future expectations of mobile applications.

This chapter presents the findings of the empirical research and starts with a discussion of the descriptive statistics, after which the demographic profiles of respondents and their trip characteristics will be explained. The use of smartphone/tablet applications in general is then briefly discussed, followed by a description of the use and importance of mobile travel application functions during the various stages of travel. An industry profile of the respondents is described and the two open-ended questions, which were included in the survey to obtain the respondents' views of the current and future fulfilment functions of mobile travel applications, are given. This chapter concludes with a discussion of the testing of the hypotheses and the results of the cluster analysis.

5.2 DESCRIPTIVE STATISTICS

The questionnaire was distributed by email to 13 098 business travellers who had travelled domestically, regionally (within Africa) and internationally during the period 1 August 2013 to 31 July 2014, and had booked travel arrangements with CWT ZA. Of the 13 098 emails, 937 were not delivered for reasons that are not known and

12 965 were successfully delivered. The 232 responses that were received represented a response rate of 1.7%. An attempt to improve this response rate by sending a reminder email to potential respondents to motivate them to complete the survey was unsuccessful and no further reminders could be sent due to time constraints and because some travellers indicated that they found the reminder annoying. Since CWT ZA had provided the database it was decided to not upset these travellers any further with more reminders. Even though a percentage of 1.7 is very low, the total of 232 respondents who participated in the research was considered to be sufficient for testing the various hypotheses.

5.2.1 Demographic profile

As shown in Table 5.1, the majority (68.3%) of the respondents were male and 31.7% were female. The respondents were requested to state their age and the following four age groups were then created based on the responses:

- Generation Y (19-38 years)
- 39 – 48 years
- 49 – 58 years
- 59+ years

As can be seen in Table 5.1, the largest group of respondents (33.3%) was between the ages of 39 and 48 years. The second largest age group (30.6%) was made up of the so-called Generation Y travellers (aged between 19 and 38 years).The majority (43.2%) of respondents were in possession of a postgraduate degree. Most of the respondents (96.8%) classified themselves as paid employees and the balance was made up of students (0.5%) and self-employed (2.7%) persons. The job function profile of the respondents was made up mostly of General Managers (18%), followed by Sales and Account Management (12%). The 'Other' option was chosen by 4.5% of the respondents, who stated that they were in roles such as 'Sourcing and supply chain', 'Head of Audit', 'Safety, Health, Environment, Quality', 'Administration', 'Consulting', 'Risk Management' and 'Human Resources'. The nett monthly incomes of 27.9% of the respondents were either between R20 001 and R40 000, or more than R60 001, and 24.8% indicated nett monthly incomes of between R40 001 and R60 000. The respondents who did not want to disclose their monthly nett salaries represented 12.2% of the total. From the data one can gather that the average South

African business traveller is male, 44.4 years old, has a postgraduate degree and earns between R20 001 and R 40 000 or more than R 60 001 per month. He most likely works within the information and communications or manufacturing industries and identifies himself as being involved in general management.

Table 5.1: Demographic profile of respondents

Variable		Percentage
Gender (n=221)	Male	68.3
	Female	31.7
Age (n=219)	Generation Y (19-38 years old)	30.6
	39-48 years old	33.3
	49-58 years old	27.9
	59 years old +	8.2
Level of education (n=222)	Grade 10 or Equivalent	0.5
	Grade 12 (Matric) or Equivalent	10.8
	Post Matric Certificate/Diploma	25.7
	Graduate	19.8
	Post Graduate	43.2
Level of employment (n=222)	Not Working : Student	0.5
	Not Working: Unemployed/Housewife/Retired	0
	Self-employed	2.7
	Paid Family Worker	0
	Paid Employee	96.8
Job Function (n=223)	Sales and Account Management	12.1
	Engineering	9
	Production	1.8
	Technical Support	8.5
	General Management	17.9
	Research and Development	6.3
	Accounting and Finance	9
	Distribution and Logistics	4.9
	IT	9.4
	Marketing/Communications	3.6
	Legal	0.9
	Procurement/Purchasing and Supply Chain	2.7
	Consulting	2.2
	Human Resources	2.2
	Project Management	2.2
	Risk and Security Management	2.7
	Other	4.5
Monthly Nett Income (n=222)	Less than R6000	0.5
	R6001 to R10 000	0
	R10 000 to R 15 000	1.8

Variable		Percentage
	R15 001 to R20 000	5
	R20 001 to R40 000	27.9
	R40 001 to R 60 000	24.8
	More than R60 001	27.9
	I would rather not say	12.2
Traveller Industry (n=223)	Agriculture, Forestry and Fishing	4.5%
	Mining and Quarrying	5.4%
	Manufacturing	18.8%
	Electricity, Gas, Steam and Air-Conditioning Supply	3.1%
	Water Supply and Waste Management	0.0%
	Construction	0.4%
	Wholesale and Retail Trade	8.5%
	Transportation and Storage	4.5%
	Accommodation and Food Services	0.0%
	Information and Communication	18.8%
	Financial and Insurance Activities	4.5%
	Real Estate Activities	0.9%
	Professional Scientific and Technical Activities	2.7%
	Administrative and Support Service Activities	1.8%
	Public Administration and Defense	0.4%
	Education	0.4%
	Human Health and Social Work Activities	4.9%
	Arts, Entertainment and Recreation	0.4%
	Consulting	1.8%
	Oil, Gas and Petrochemicals	9.9%
	Pharmaceutical	1.3%
	Telecommunications	1.8%
	Other	4.9%

5.2.2 Trip characteristics

Respondents were requested to indicate how frequently they had travelled domestically, within Africa and internationally within the past 12 months. The majority had travelled domestically (n=173), followed by those who had travelled internationally (n=133) and then by those who had travelled within Africa (n=77), as presented in Table 5.2 below. Table 5.3 indicates that the 467 domestic trips undertaken annually far outnumbered trips to any other destinations. The 138 trips to the United Kingdom annually were second and Zambia as a business travel destination was third with 85

trips. Respondents were also requested to indicate the purpose of their business trips. As can be seen in Figure 5.1, travellers indicated that they travelled mostly to attend internal meetings (32.5%) and meetings and meetings with customers (24.5%). They were least likely to travel for interviews or relocation (0.5%) purposes. The option 'Other' was selected as the purpose of trips by 15.5% of the respondents. It was decided that these respondents should be retained in the study as the reasons they specified could still be classified as business travel. The reasons provided included 'technical support', 'audits and visits to branches and suppliers', 'maintenance', 'service delivery', 'recruitment and events', project work' and 'plant visits'.

Table 5.2: Number of trips taken by respondents domestically, within Africa and internationally

	Domestic	Within Africa	International
Between 1-4 trips	77	56	105
4-10 trips	54	14	20
More than 11 trips	42	7	8
TOTAL	**173**	**77**	**133**

Table 5.3: Number of trips taken to specific countries[1]

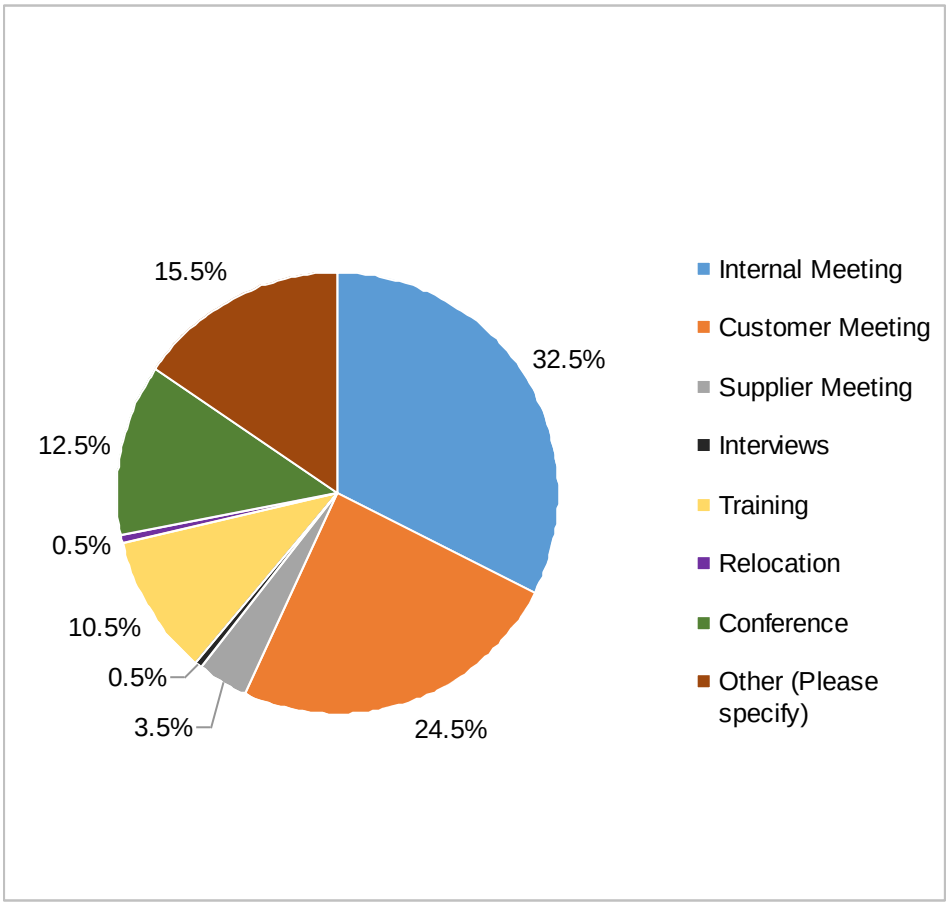
Country	(n)	Total number of trips to specific destinations undertaken by respondents
Algeria	2	10
Angola	11	30
Argentina	1	1
Armenia	1	4
Australia	7	11
Azerbaijan	1	1
Bahrain	2	3
Belgium	7	12
Benin	2	3
Botswana	29	69
Brazil	6	10
Burkina Faso	1	1
Cameroon	1	2
Canada	3	3
Central African Republic	1	2
Chad	1	3
Chile	4	5
China	6	9
Colombia	1	1
Congo, Democratic Republic of the	12	30
Congo, Republic of the	1	1

[1] Only countries that were actually visited are included in this table. Countries that were not visited by respondents were excluded.

Cote d'Ivoire	4	4
Croatia	1	1
Czech Republic	5	5
Denmark	6	9
Djibouti	1	1
Equatorial Guinea	1	2
Estonia	3	3
Ethiopia	4	6
Finland	3	4
France	23	45
Germany	32	46
Ghana	9	17
Greece	3	3
Haiti	1	1
Hong Kong	6	2
India	9	8
Indonesia	1	4
Iran	1	4
Ireland	5	5
Israel	4	6
Italy	11	12
Kazakhstan	3	3
Kenya	18	42
Korea, South	1	1
Kuwait	1	1
Latvia	1	2
Lesotho	7	9
Luxembourg	3	4
Madagascar	2	2
Malawi	3	3
Malaysia	2	3
Mali	2	2
Malta	1	3
Mauritius	11	17
Mexico	2	2
Monaco	1	1
Montenegro	1	1
Morocco	2	4
Mozambique	24	49
Namibia	18	23
The Netherlands	17	21
Netherlands Antilles	1	2
Nigeria	7	13
Norway	3	3
Oman	2	2
Pakistan	1	1
Philippines	6	7
Poland	4	4

Portugal	3	8
Qatar	3	3
Romania	3	3
Russia	1	1
Rwanda	4	4
Sao Tome and Principe	1	2
Saudi Arabia	4	10
Senegal	2	3
Seychelles	3	3
Singapore	7	17
Slovenia	1	1
South Africa	53	467
Spain	13	18
Swaziland	3	3
Sweden	3	3
Switzerland	14	17
Tanzania	15	20
Thailand	3	6
Togo	1	1
Turkey	9	11
Uganda	5	11
United Arab Emirates	36	54
United Kingdom	52	138
Venezuela	1	1
Zambia	22	85
Zimbabwe	20	42

Figure 5.1: Reasons for respondents' trips (n=200).



5.2.3 Smartphone and/or Tablet applications

As indicated in Table 5.4, the majority (59.6%) of respondents were in possession of both a smartphone and a tablet, while 29.6% possessed only a smartphone. Most of the respondents (68.5%) stated that they used their smartphones and/or tablet devices daily, whereas 9% used them only two to three times a week. Most of the respondents' companies (52.3%) recommended the use of specific applications. Other companies (22.1%) did not enforce, recommend or prohibited the use of mobile travel applications. With regard to the importance of mobile travel applications during the travel life cycle, respondents indicated that mobile travel applications were 'important' to 'very important' during the entire travel life cycle, except during the post-travel stage, during which time it was indicated as 'not important' by 49%, as shown in Table 5.5.

Table 5.4: Ownership of smartphones/tablets and use of mobile applications

Variable		Percentage
Smartphone/Tablet ownership (n=223)	I own neither a smartphone nor a tablet	10.3
	I own a smartphone and a tablet	59.6
	I own a tablet	0.4
	I own a smartphone	29.6
Frequency of smartphone and tablet use (n=200)	Daily	68.5
	Two to three times a week	9
	Once a week	4.5
	Two to three times a month	5
	Once a month	3
	Less than once a month	3.5
	Never	6.5
Corporate companies' views regarding the use of mobile travel applications (n=199)	Enforced	7
	Recommended	51
	Prohibited	4
	I don't know	16
	None of the above	22

Table 5.5: The importance of the use of mobile travel applications during the travel life cycle

Variable		Percentage			
		Very important	**Important**	**Not important**	**Futile**
The importance of the use of mobile travel applications during the travel life cycle	**Searching (n=197)**	32.5	46.2	18.3	3
	Booking (n=197)	39.1	45.2	13.2	2.5
	While travelling (n=199)	40.7	48.2	9	2
	Post-travel (n=198)	10.6	31.3	49	9.1

5.2.4 Mobile travel applications

In this section, business travellers were first requested to rank – in their order of importance – their top five (or three, depending on the number of options available) mobile travel application functions per activity. They were then asked to indicate how frequently they used all the mobile travel application functions on a five-point Likert-type response format in which 1 indicated 'never' and 5 'very frequently'. The third question in this set requested travellers to indicate how likely they were to use all the given options in the future. For this another five-point Likert-type response format was used in which 1 indicated 'very unlikely' and 5 'very likely'.

To analyse the descriptive results, the five-point Likert-type response format responses were consolidated to three categories. For frequency of use, the responses for 'seldom' and 'sometimes' were combined, as were those for 'often' and 'very frequently'. With regard to the likelihood of future use, the responses for 'very unlikely' and 'unlikely' were combined and those for 'likely' and 'very likely' were consolidated. This was done to streamline the analysis process due to the large number of variables (activities) that had been listed.

5.2.4.1 Mobile travel applications in the pre-travel phase

5.2.4.1.1 Activity: Planning

Table 5.6 presents the 13 mobile travel application function options that travellers could choose from during the pre-travel planning phase. Table 5.6 indicates that the majority of respondents ranked travel requirements (n=45), door-to-door planning (n=37) and travel approval (n=33) as the top three mobile travel application functions used for planning during the pre-travel phase. According to Table 5.7, they most frequently used destination functions (60%), travel approval (59%) and travel requirements (51%) during this phase and indicated that they would most likely use destination application functions (74%), travel requirements (71%) and travel approval (64%) mobile travel application functions in the future.

Table 5.6: Mobile travel applications used during the pre-travel planning phase ranked as the most important by respondents (Question 8.1)[2]

Pre-travel: Planning		
Rank	**Type of mobile travel application**	**Most important (=n)**
1	Travel requirements (e.g. visa, vaccinations, etc.)	45
2	Door-to-door planning (applications supporting address-to-address travel using various modes of transport as opposed to point-to-point travel where only hubs (such as airports and train stations) are considered)	37
3	Travel approval (approval of travel requests by designated person within the company)	33
4	Traveller profile management (management of personal information, such as passport or ID number required for travel reservation purposes)	31
5	Peer reviews and recommendations of accommodation establishments and other travel-related service providers	21
6	Destination applications (e.g. weather and exchange rate applications, general destination information)	20
7	Health, safety and security alerts	17
8	Repeat booking option for simple recurring trips	16
8	Refunding possibilities for cancelled flights	16
9	Travel policy information (access to company's travel policy)	13
10	Exhaustive information on authorised travel suppliers, such as approved accommodation service providers	11
11	Discussion platform for travel-related service providers and travel experiences	7
12	Professional social network / Social business travel (e.g. using a professional social network application [LinkedIn] to determine whether individuals from your network are travelling/attending a conference with you)	4

[2] Respondents were requested to rank their top five mobile travel applications. This table ranks the mobile travel applications ranked as most important. The rankings of mobile travel applications as second, third, fourth and fifth most important are not shown.

Table 5.7: The frequency of current use and likelihood of future use of mobile for applications for travel planning during the pre-travel phase (Questions 8.2 and 8.3)

Pre- Travel stage Activity: Planning	Frequency of use				Likelihood of future use			
	n=	Never	Seldom and Sometimes	Often and Very Frequently	n=	Very Unlikely and Unlikely	Possibly	Likely and Very Likely
Door-to-door planning (applications that support address-to-address travel using various modes of transport, as opposed to point-to-point travel where only hubs (such as airports and train stations) are considered)	172	42%	27%	31%	178	29%	24%	47%
Peer reviews and recommendations regarding accommodation establishments and other travel- related service providers	168	23%	33%	44%	177	24%	27%	49%
Discussion platform for travel related service providers and travel experiences	146	45%	42%	14%	167	49%	26%	26%
Professional social network/ Social business travel (e.g. using a professional social network application [LinkedIn] to determine whether individuals from your network are travelling//attending a conference with you)	141	53%	34%	13%	167	52%	26%	22%
Travel requirements (e.g. visa, vaccinations, etc.)	182	19%	30%	51%	181	11%	18%	71%
Repeat booking option for simple recurring trips	154	35%	34%	31%	168	22%	30%	48%
Destination applications (e.g. weather, exchange rate applications, general destination information)	168	15%	26%	60%	174	9%	18%	74%
Exhaustive information on authorised travel suppliers, such as approved accommodation service providers	159	28%	32%	40%	171	24%	25%	52%
Traveller profile management (management of personal information, such as passport or ID number required for travel reservation purposes)	169	27%	28%	45%	177	15%	28%	57%
Travel policy information (access to company's travel policy)	147	27%	31%	42%	166	22%	33%	46%

Pre- Travel stage Activity: Planning	Frequency of use				Likelihood of future use			
	n=	Never	Seldom and Sometimes	Often and Very Frequently	n=	Very Unlikely and Unlikely	Possibly	Likely and Very Likely
Travel approval (approval of travel requests by designated person within the company)	162	24%	17%	59%	173	15%	21%	64%
Refund possibilities of cancelled flights	150	36%	39%	25%	169	26%	33%	41%
Health, safety and security alerts	158	20%	35%	45%	172	12%	31%	57%

5.2.4.1.2 Activity: Booking

Of the 14 options presented, respondents ranked making flight bookings (n=75), preferencing (n=38) and making accommodation bookings (n=21) as the top three mobile travel application functions for booking during the pre-travel phase, as shown in Table 5.8. They most frequently used mobile travel application functions to make airline bookings (51%) and accommodation bookings (47%), and to manage loyalty programmes (47%) and indicated that in the future they would most likely use mobile travel application functions to make airline (65%) and accommodation (65%) bookings, and to manage loyalty programmes (63%), as can be seen in Table 5.9

Table 5.8: Mobile travel applications used in the pre-travel booking phase ranked as most important by respondents (Question 9.1)[3]

Pre-travel: Booking		
Rank	**Type of mobile travel application**	**Most important**
1	Making flight bookings	75
2	Preferencing (the ability to select preferences, e.g. preferred mode of transport or preferred hotel group)	38
3	Making accommodation bookings	21
4	Loyalty programme manager (viewing points/status)	19
5	Mobile payments	17
6	Changing flight bookings	16
6	Ability to book travel extensions for leisure	16
7	Changing accommodation bookings	12
8	Cancelling flight bookings	11
8	Peer reviews and recommendations regarding accommodation establishments and other travel-related service providers	11
9	Cancelling accommodation bookings	9
9	Making car rental bookings	9
10	Changing car rental bookings	8
11	Cancelling car rental bookings	7

[3] Respondents were requested to rank their top five most used mobile travel applications. This table shows the mobile travel applications ranked as the most important. The ranking of mobile travel applications as second, third, fourth and fifth most important is not shown.

Table 5.9: The frequency of current use and likelihood of future use of mobile travel applications for booking during the pre-travel phase (Questions 9.2 and 9.3)

Pre- travel stage Activity: Booking	Frequency of use				Likelihood of future use			
	n=	Never	Seldom and Sometimes	Often and Very frequently	n=	Very unlikely and Unlikely	Possibly	Likely and Very likely
Preferencing (The ability to select preferences (e.g. preferred mode of transport or preferred hotel group)	154	25%	32%	43%	161	17%	24%	59%
Mobile payments	148	49%	24%	28%	167	31%	25%	44%
Making flight bookings	186	26%	23%	51%	181	15%	20%	65%
Cancelling flight bookings	139	40%	40%	20%	164	26%	31%	43%
Changing flight bookings	162	30%	46%	23%	173	17%	29%	54%
Making accommodation bookings	182	24%	29%	47%	181	14%	20%	65%
Cancelling accommodation bookings	136	32%	47%	21%	163	24%	33%	43%
Changing accommodation bookings	154	29%	42%	29%	168	18%	30%	52%
Making car rental bookings	166	31%	32%	37%	173	21%	27%	52%
Cancelling car rental bookings	127	40%	46%	14%	158	32%	34%	34%
Changing car rental bookings	129	37%	44%	19%	157	27%	37%	36%
Loyalty programme manager (viewpoints/status)	155	22%	31%	47%	166	20%	18%	63%
Ability to book travel extensions for leisure	146	38%	40%	22%	166	25%	29%	46%
Peer reviews and recommendations regarding accommodation establishments and other travel- related service providers	148	27%	39%	34%	169	28%	27%	45%

5.2.4.1.3 Activity: Itinerary consolidation

Of the four options given, respondents ranked flight details (n=95), consolidated itinerary (n=76) and alert on gaps in itinerary (n=28) as the top three mobile travel application functions for itinerary consolidation during the pre-travel phase, as can be seen in Table 5.10. They most frequently used functions to obtain flight details (59%), consolidate itinerary information (41%) and alert them on gaps in their itineraries (27%). As shown in Table 5.11, respondents indicated that in the future they would most likely use mobile travel application functions for flight details (82%), to consolidate itinerary information (73%) and to alert them on gaps in their itineraries (60%).

Table 5.10: Mobile travel applications in the pre-travel itinerary consolidation phase ranked as most important by respondents (Question 10.1)[4]

Pre-travel: Itinerary consolidation		
Rank	**Type of mobile travel application**	**Most important**
1	Flight details (e.g. boarding gate changes)	95
2	Consolidated itinerary information/Automated itinerary synchronisation (where the travel schedule is synchronised with the traveller's business diary)	76
3	Alerts on gaps in traveller's itinerary, e.g. when flights are booked to a specific destination, but no accommodation has been booked	28
4	Trip sharing with colleagues, friends, family, etc.	20

Table 5.11: The frequency of current use and likelihood of future use of itinerary-consolidation mobile travel applications during the pre-travel phase (Questions 10.2 and 10.3).

Pre-travel stage Activity: Itinerary consolidation	Frequency of use				Likelihood of future use			
	n=	Never	Seldom and Sometimes	Often and Very frequently	n=	Very unlikely and Unlikely	Possibly	Likely and Very likely
Consolidated itinerary information/Automated itinerary synchronisation (where the travel schedule is synchronised with the business diary)	200	31%	29%	41%	200	8%	19%	73%

[4] Respondents were requested to rank their top five mobile travel applications. This table shows the mobile travel applications ranked as the most important The second-, third-, fourth- and fifth-ranked applications are not shown.

Alerts on gaps in traveller's itinerary, e.g. when flights are booked to a specific destination, but no accommodation has been booked	200	39%	35%	27%	200	12%	28%	60%
Flight details (e.g. boarding gate changes)	200	24%	17%	59%	200	5%	14%	82%
Trip sharing with colleagues, friends, family, etc.	200	42%	39%	20%	200	32%	26%	43%

5.2.4.2 Mobile travel applications used in the during-travel phase

5.2.4.2.1 Activity: Cancellation/Modification

Of the 13 options presented, respondents ranked making flight bookings (n=67), alerts on delays/cancellations (n=55) and changing flight bookings (n=36) as the top three mobile travel application functions used for cancellation or modification during the during-travel phase, as per Table 5.12. During this phase, they most frequently used functions for alerts on delays/cancellations (37%), to search for alternative flights (29%) and to make flight bookings (28%). As can be seen in Table 5.13, the respondents indicated that in the future they would most likely use mobile travel application functions for alerts on delays/cancellations (71%), to search for alternative flights (63%) and to make air bookings (52%).

Table 5.12: Mobile travel applications in the during-travel cancellation/modification phase ranked as most important by respondents (Question 11.1).[5]

During-travel cancellation/modification		
Rank	**Type of mobile travel application**	**Most Important**
1	Making flight bookings	67
2	Alerts on delays/cancellations	55
3	Changing flight bookings	36
4	Searching for alternative flights	24
5	Alerts on gaps in travellers itinerary	20
6	Cancelling air bookings	16
6	Changing accommodation bookings	16
7	Booking accommodation	15
7	Changing car rental bookings	15
8	Cancelling accommodation bookings	14
9	Making car rental bookings	13
9	Refunding possibilities	13
10	Cancelling car rental bookings	11

[5] Respondents were requested to rank their top five mobile travel applications. This table ranks the mobile travel applications ranked as the most important, but the rankings for the second, third, fourth and fifth most important applications are not shown.

Table 5.13: The frequency of current use and likelihood of future use of mobile travel applications for cancellation/modification of bookings in the during-travel phase (Questions 11.2 and 11.3)

During-travel stage Activity: Travel cancellation/ modification	Frequency of use				Likelihood of future use			
	n=	Never	Seldom and Sometimes	Often and Very frequently	n=	Very unlikely and Unlikely	Possibly	Likely and Very likely
Making flight bookings	151	33%	39%	28%	172	23%	24%	52%
Cancelling flight bookings	123	44%	45%	11%	155	29%	34%	37%
Changing flight bookings	162	35%	49%	15%	174	19%	31%	51%
Booking accommodation	147	31%	42%	27%	170	19%	30%	51%
Cancelling accommodation bookings	121	43%	47%	10%	153	29%	33%	38%
Changing accommodation bookings	152	34%	49%	17%	166	21%	31%	48%
Making car rental bookings	148	39%	37%	24%	169	26%	31%	43%
Cancelling car rental bookings	118	48%	42%	10%	150	35%	33%	33%
Changing car rental bookings	132	44%	44%	12%	156	27%	33%	40%
Alerts on gaps in travellers itinerary	142	44%	42%	15%	164	22%	31%	48%
Alerts on delays/cancellations	170	29%	34%	37%	174	7%	21%	71%
Searching for alternative flights	160	25%	46%	29%	169	11%	26%	63%
Refunding possibilities	139	40%	47%	13%	161	27%	32%	40%

5.2.4.2.2 Activity: Continuous support

As shown in Table 5.14, respondents ranked flight details (n=109), flight status notification (n=28) and travel approval (n=23) as the top three of the 20 options presented as mobile travel application functions for continuous support during the during-travel phase. During this phase they most frequently used functions for confirming flight details (52%), destination applications (50%) and flight status notifications (46%). Table 5.15 indicates that they would most likely use functions for flight details (80%), flight status notification (78%) and destination functions (66%) in the future.

Table 5.14: Mobile travel applications in the during-travel continuous support phase ranked as most important by respondents (Question 12.1)[6]

During travel: Continuous support		
Rank	**Type of mobile travel application**	**Most important**
1	Flight details (e.g. boarding gate changes)	109
2	Flight status notification	28
3	Travel approval	23
4	GPS/Maps/Directions	22
4	Timetables of flights or trains	22
5	Consolidated itinerary information/Automated itinerary synchronisation	21
6	Loyalty programme manager (to viewpoints/status)	18
7	Road traffic information	17
7	Bag tracker	17
7	Health, safety and security alerts	17
8	Airport maps	16
9	Mobile payment	15
9	Travel policy information	15
10	Meetings and events alerts	14
11	Booking travel extensions for leisure	13
11	Self-tagging of luggage	13
11	Currency conversion	13
12	Destination applications (e.g. weather, health, exchange rate applications)	12
13	Traveller profile management	11
14	Exhaustive information on authorised travel suppliers	10

[6] Respondents were requested to rank their top five mobile travel applications. This table ranks the mobile travel applications ranked as most important, but the rankings of mobile travel applications as second, third, fourth and fifth most important are not shown.

Table 5.15: The frequency of current use and likelihood of future use of continuous support mobile travel applications during the during-travel phase (Questions 12.2 and 12.3)

During-travel stage Activity: Continuous support	Frequency of use				Likelihood of future use			
	n=	Never	Seldom and Sometimes	Often and Very Frequently	n=	Very unlikely and Unlikely	Possibly	Likely and Very likely
Flight details (e.g. boarding gate changes)	n=187	20%	27%	52%	n=193	3%	17%	80%
Road traffic information	n=127	29%	46%	24%	n=158	17%	36%	48%
Mobile payment	n=127	49%	28%	24%	n=159	30%	31%	38%
Loyalty programme manager (view points/status)	n=132	30%	39%	31%	n=160	21%	33%	47%
Book travel extensions for leisure	n=122	42%	46%	12%	n=156	26%	40%	35%
Consolidated itinerary information/Automated synchronisation of the itinerary	n=149	28%	35%	37%	n=174	11%	26%	63%
Airport maps	n=128	34%	47%	20%	n=157	26%	27%	48%
GPS/Maps/Directions	n=156	22%	34%	44%	n=170	11%	25%	64%
Destination applications (e.g. weather, health, exchange-rate applications)	n=151	21%	29%	50%	n=172	9%	25%	66%
Exhaustive information on authorised travel suppliers	n=121	46%	39%	15%	n=155	39%	29%	32%
Traveller profile management	n=130	34%	43%	23%	n=164	26%	32%	42%
Travel policy information	n=121	40%	42%	18%	n=159	34%	37%	29%
Travel approval	n=121	38%	31%	31%	n=157	23%	28%	49%
Bag tracker	n=134	47%	34%	19%	n=159	16%	29%	55%
Timetables for flights or trains	n=147	27%	36%	37%	n=169	9%	27%	64%
Meeting and event alerts	n=127	32%	35%	34%	n=156	19%	29%	53%
Health, safety and security alerts	n=130	32%	36%	32%	n=162	13%	28%	59%

During-travel stage Activity: Continuous support	Frequency of use				Likelihood of future use			
	n=	Never	Seldom and Sometimes	Often and Very Frequently	n=	Very unlikely and Unlikely	Possibly	Likely and Very likely
Self-tagging of luggage	n=121	42%	39%	19%	n=154	22%	34%	44%
Flight status notification	n=155	23%	31%	46%	n=174	7%	15%	78%
Currency conversion	n=133	26%	38%	37%	n=158	15%	28%	58%

5.2.4.2.3 Activity: Check-in/Check-out

Of the three options presented, respondents ranked advanced check-in (n=114), fast check-in/check-out (n=59) and mobile boarding (n=51) as the top three mobile travel application functions for checking in or checking out during the during-travel phase, as shown in Table 5.16. During this phase, they most frequently used functions for advanced check-in (60%) and fast check-in/check-out (59%), and as a mobile boarding pass (54%). Respondents indicated that they would most likely use mobile travel application functions for advanced check-in (84%), fast check-in/check-out (84%) and as a mobile boarding pass (82%) in the future, as indicated in Table 5.17.

Table 5.16: Mobile travel applications in the during-travel check-in/check-out phase ranked by the respondents as being the most important (Question 13.1)[7]

During travel: Check-in/Check-out		
Rank	**Type of mobile travel application**	**Most Important**
1	Advanced check-in (flight/hotel)	114
2	Fast check-in/check-out	59
3	Mobile boarding pass	51

Table 5.17: The frequency of current use and likelihood of future use of check-in/check-out mobile travel applications in the during-travel phase (Questions 13.2 and 13.3)

During-travel stage Activity: Check-in/Check-out	Frequency of use				Likelihood of future use			
	n=	Never	Seldom and Sometimes	Often and Very frequently	n=	Very unlikely and Unlikely	Possibly	Likely and Very likely
Advanced check-in (flight/hotel)	200	19%	22%	60%	200	3%	14%	84%
Fast check-in/check-out	200	20%	22%	59%	200	5%	12%	84%
Mobile boarding pass	200	25%	22%	54%	200	5%	14%	82%

5.2.4.2.4 Activity: Transportation and hotel comfort

As can be seen in Table 5.18, respondents ranked seat choice (n=106), lounge access (n=48) and upgrades (n=25) as the top three of the 14 mobile travel application

[7] Respondents were requested to rank their top five mobile travel applications. This table ranks the mobile travel applications ranked as most important, but the mobile travel applications ranked as the second, third, fourth and fifth most important are not shown.

functions for transportation and hotel comfort options available to them in the during-travel phase. The most frequently used functions used during this stage are seat choice (69%), lounge access (48%) and car type (29%). Respondents indicated that they would most likely use functions for seat choice (86%), lounge access (79%) and upgrades (62%) in the future, as indicated in Table 5.19.

Table 5.18: Mobile travel applications used in the during-travel transportation/hotel comfort phase ranked as the most important by respondents (Question 14.1)[8]

During travel: Transportation/Hotel comfort		
Rank	**Type of mobile travel application**	**Most Important**
1	Seat choice	106
2	Lounge access	48
3	Upgrades	25
4	Extra bag booking	17
4	Mobile room key	17
5	Safe arrival notification	16
6	Wake-up call	14
7	Hotel menu	12
8	Car type	11
8	Cash point advisory	11
9	Trip sharing with colleagues, friends, family etc.	9
10	Professional social network/ Social business travel	7
11	Airport store	6
11	Promotions and specials	6

Table 5.19: The frequency of current use and likelihood of future use of transportation/hotel comfort mobile travel applications in the during-travel phase (Question 14.2 & 14.3)

During- travel stage Activity: Transportation/Hotel comfort	Frequency of use				Likelihood of future use			
	n=	Never	Seldom and Sometimes	Often and Very Frequently	n=	Very Unlikely and Unlikely	Possibly	Likely and Very Likely
Extra bag booking	n=142	39%	45%	16%	n=165	29%	32%	40%
Lounge access	n=183	25%	28%	48%	n=183	6%	15%	79%
Airport store	n=126	43%	40%	17%	n=152	35%	38%	28%
Seat choice	n=191	15%	17%	69%	n=193	4%	10%	86%
Promotions and specials	n=145	31%	44%	25%	n=164	22%	35%	43%
Car type	n=149	30%	42%	29%	n=168	21%	32%	46%

[8] Respondents were requested to rank their top five mobile travel applications. This table ranks the mobile travel applications ranked as most important, but the mobile travel applications ranked as the second, third, fourth and fifth most important are not shown.

During- travel stage Activity: Transportation/Hotel comfort	Frequency of use				Likelihood of future use			
	n=	Never	Seldom and Sometimes	Often and Very Frequently	n=	Very Unlikely and Unlikely	Possibly	Likely and Very Likely
Mobile room key	n=140	54%	31%	16%	n=167	20%	35%	44%
Upgrades	n=169	30%	46%	24%	n=181	14%	24%	62%
Hotel Menu	n=143	34%	43%	23%	n=162	27%	33%	40%
Wake-up call	n=133	52%	29%	19%	n=156	39%	29%	32%
Safe arrival notification (n	n=144	51%	29%	20%	n=162	30%	31%	39%
Cash point advisory	n=129	54%	34%	12%	n=158	33%	37%	30%
Trip sharing with colleagues, friends, family etc.	n=132	45%	42%	14%	n=159	38%	33%	30%
Professional social network/ Social business travel	n=123	54%	37%	9%	n=156	51%	26%	23%

5.2.4.2.5 Activity: Additional travel information

Of the four options presented, respondents ranked local restaurants (n=122), advice on discount possibilities (n=35) and events notifications and ticket purchase (n=33) as the top three mobile travel application functions used for to obtain additional travel information in the during-travel phase, as depicted in Table 5.20. They most frequently used functions to locate local restaurants (39%), to gain access to restaurant reviews (28%) and for events notifications and ticket purchases (18%). Respondents indicated that in the future they would most likely use mobile travel application functions to locate local restaurants (66%) and to access restaurant reviews (51%), and were equally likely to use mobile travel application functions for event notification (45%) and for ticket purchases and advice on discount possibilities (also 45%), as indicated in Table 5.21.

Table 5.20: Mobile travel applications for additional travel information in the during-travel phase ranked as most important by respondents (Question 15.1)[9]

During travel: Additional travel information		
Rank	Type of mobile travel application	Most important
1	Local restaurants	122

[9] Respondents were requested to rank their top five mobile travel applications. This table ranks the mobile travel applications ranked as most important, but the mobile travel applications ranked as the second, third, fourth and fifth most important are not shown.

During travel: Additional travel information		
Rank	Type of mobile travel application	Most important
2	Advice on discount possibilities	35
3	Events notifications and ticket purchases	33
4	Restaurant reviews	27

Table 5.21: The current frequency of use and the likelihood of the future use of mobile travel applications to obtain additional travel information in the during-travel phase (Questions 15.2 and 15.3)

During-travel phase Activity: Additional travel information	Frequency of use				Likelihood of future use			
	n=	Never	Seldom and Sometimes	Often and Very frequently	n=	Very unlikely and Unlikely	Possibly	Likely and Very likely
Local restaurants	200	20%	42%	39%	200	13%	22%	66%
Advice on discount possibilities	200	35%	49%	17%	200	23%	33%	45%
Restaurant reviews	200	24%	49%	28%	200	17%	33%	51%
Events notification and ticket purchase	200	30%	53%	18%	200	24%	32%	45%

5.2.4.2.6 Activity: Work-related supporting applications

As indicated in Table 5.22, of the 11 options presented, respondents ranked mobile e-mail (n=85), integrated expense management (n=53) and mobile instant messaging (n=42) as the top three mobile travel application functions for work- related support functions during the during-travel phase. They most frequently used mobile email (75%), mobile instant messaging (72%) and as a gateway to the office when I am away from my desk (49%) during this phase. Respondents indicated that they would most likely use mobile email (86%), mobile instant messaging (83%) and as a gateway to the office when I am away from my desk (67%) during this phase in the future, as shown in Table 5.23.

Table 5.22: Mobile travel applications used in the during-travel work-related support phase ranked as the most important by respondents (Question 16.1)[10]

During travel: Work-related support phase		
Rank	**Type of mobile travel application**	**Most important**
1	Mobile email	85
2	Integrated expense management (which allows for the submission and/or approval of expenses via a mobile phone)	53
3	Mobile instant messaging (e.g. WhatsApp, Facebook Messenger)	42
4	It is a gateway to the office when I am away from my desk (it allows me to complete business-related tasks even when I am away from my desk, e.g. responding to critical emails)	33
5	Productivity applications (applications that assist you in fulfilling work-related duties while away from your desk)	24
6	Streamlines/simplifies everyday business practices, such as consolidating my diary with my travel schedule	22
7	Assists me in planning my day	17
8	File share/collaboration (applications that allow you to share documents with others)	16
8	Keeps track of certain tasks/duties I need to do for the day/week in the form a project plan or to-do list	16
9	En-route policy compliance push (advises on travel policy compliance during the trip)	15
10	Provides me with access to pertinent information for decision-making purposes	14

[10] Respondents were requested to rank their top five mobile travel applications. This table ranks the mobile travel applications ranked as most important, but the mobile travel applications ranked as the second, third, fourth and fifth most important are not shown.

Table 5.23: The frequency of current use and the likelihood of future use of work-related supporting mobile travel applications in the during-travel phase (Questions 16.2 and 16.3)

During-travel stage Activity: Work-related supporting applications	Frequency of use				Likelihood of future use			
	n=	Never	Seldom and Sometimes	Often and Very Frequently	n=	Very unlikely and Unlikely	Possibly	Likely and Very likely
Integrated expense management (Which allows travellers to submit and/or approve expenses via their mobile phones)	n=157	50%	22%	27%	n=175	21%	22%	57%
En-route policy compliance push (Advises travellers of travel policy compliance during the trip)	n=139	56%	34%	10%	n=162	39%	32%	30%
Productivity applications (applications that assists travellers in fulfilling work-related duties while away from their desks)	n=153	34%	33%	33%	n=170	17%	27%	56%
Mobile e-mail	n=187	11%	13%	75%	n=190	5%	9%	86%
Mobile instant messaging (e.g. WhatsApp, Facebook Messenger)	n=178	13%	15%	72%	n=180	6%	12%	83%
File share/collaboration (applications that allow users to share documents with others	n=149	30%	40%	31%	n=162	16%	30%	54%
Streamlines/simplifies everyday business practices, such as consolidating diaries with travel schedules	n=152	30%	36%	34%	n=170	17%	28%	55%
Keeps track of certain tasks/duties that need to be done for the day/week in the form project plans or to-do lists	n=150	27%	37%	35%	n=170	14%	28%	58%
Assists in daily planning	n=140	26%	44%	30%	n=162	17%	29%	54%
Provides access to pertinent information for decision-making purposes	n=145	30%	42%	28%	n=166	14%	36%	50%
It is a gateway to the office (it makes it possible to complete business-related tasks, such as responding to urgent emails, even when I am away from my desk.	n=156	50%	22%	27%	n=169	9%	24%	67%

5.2.4.3 Mobile travel applications in the post-travel phase

5.2.4.3.1 Activity: Reviews and personal experience

As indicated in Table 5.24, seven options were presented and respondents ranked preferencing (n=64), loyalty programme manager (n=43) and traveller profile management (n=36) as the top three mobile travel application functions for reviews and personal experiences during the post-travel phase, and most frequently used functions for loyalty programme management (35%), traveller profile management (29%) and preferencing (28%) during this phase. They indicated that they would most likely use mobile travel application functions for loyalty programme management (55%), preferencing (53%) and traveller profile management (49%) in the future, as can be seen in Table 5.25.

Table 5.24: Mobile travel applications used in the post-travel review and personal experience phase ranked as the most important by respondents (Question 17.1)[11]

Post travel: Reviews and personal experience		
Rank	**Type of mobile travel application**	**Most important**
1	Preferencing (the ability to select preferences, e.g. preferred mode of transport or preferred hotel group)	64
2	Loyalty programme manager (viewing points/status)	43
3	Traveller profile management	36
4	Supplier reviews and recommendations	33
5	Professional social network/Social business travel	14
5	Trip sharing with colleagues, friends, family, etc.	14
6	Discussion platform	10

[11] Respondents were requested to rank their top five mobile travel applications. This table ranks the mobile travel applications ranked as most important, but the mobile travel applications ranked as the second, third, fourth and fifth most important are not shown.

Table 5.25: The frequency of current use and the likelihood of the future use of reviews and personal experience mobile travel applications during the post-travel phase (Questions 17.2 and 17.3).

Post-travel stage Activity: Reviews and personal experience	Frequency of use				Likelihood of future use			
	n=	Never	Seldom and Sometimes	Often and Very frequently	n=	Very unlikely and Unlikely	Possibly	Likely and Very likely
Supplier reviews and recommendations	n=187	35%	47%	18%	n=192	28%	37%	36%
Discussion platform	n=150	53%	37%	9%	n=169	48%	27%	25%
Professional social network/ Social business travel	n=154	51%	40%	8%	n=175	46%	34%	21%
Preferencing (the ability to select preferences, e.g. preferred mode of transport or preferred hotel group)	n=189	34%	39%	28%	n=190	17%	31%	53%
Loyalty programme manager (view points/status)	n=187	28%	37%	35%	n=190	16%	30%	55%
Trip sharing with colleagues, friends, family, etc.	n=175	39%	46%	15%	n=184	31%	36%	33%
Traveller profile management	n=182	35%	37%	29%	n=191	21%	30%	49%

5.2.4.3.2 Activity: Expense management

Of the three options presented, respondents ranked picture upload of expenses (n=76), expense approval (n=76) and upload of invoices (n=62) as the top three mobile travel application functions for expense management during the post-travel phase, as seen in Table 5.26. During this phase they most frequently used functions for expense approval (35%), uploading invoices (30%) and picture upload of expenses (24%). As shown in Table 5.27, the respondents indicated that in the future they would most likely use mobile travel application functions to upload invoices (70%), for expense approval (68%) and for picture upload of expenses (63%).

Table 5.26: Mobile travel applications used in the post-travel expenses phase ranked as the most important by the respondents (Question 18.1)[12]

Post travel: Expenses		
Rank	Type of mobile travel application	Most important
1	Picture upload of expenses	76
2	Expense approval	76

[12] Respondents were requested to rank their top five mobile travel applications. This table ranks the mobile travel applications ranked as most important, but the mobile travel applications ranked as the second, third, fourth and fifth most important are not shown.

Post travel: Expenses		
Rank	Type of mobile travel application	Most important
3	Upload of invoices	62

Table 5.27The frequency of current use and likelihood of future use of expense mobile travel applications during the post-travel phase (Question 18.2 & 18.3).

Post-travel stage Activity: Expenses	Frequency of use				Likelihood of future use			
	n=	Never	Seldom and Sometimes	Often and Very frequently	n=	Very unlikely and Unlikely	Possibly	Likely and Very likely
Picture upload of expenses	200	46%	31%	24%	200	16%	21%	63%
Upload of invoices	200	40%	30%	30%	200	14%	17%	70%
Expense approval	200	37%	29%	35%	200	15%	18%	68%

5.2.5 Industry profile

As seen in Table 5.28, most of the respondents (82.1%) were employed by companies in the private sector. The information and communication (18.8%) and manufacturing (18.8%) industries were represented equally, followed by the oil, gas and petrochemical industry (9.9%). The respondents who classified their industries as 'Other' accounted for 4.9% of the total and stated that they worked in industries such as 'Animal health', 'Finance shared service', 'Management consulting and professional services', 'Tobacco' and 'Across multiple industries'. A high 75.6% of the respondents listed their organisations as global and 91.1% indicated that they did not consider their companies to be small or medium enterprises with fewer than 500 employees.

Table 5.28: The industry profile

Variable		%
Types of organisations (n=223)	Public sector	9.4%
	Private sector	82.1%
	Non-profit organisation	1.8%
	I am self-employed	2.2%
	Parastatal (e.g. Eskom)	0.9%
	Other (please specify)	3.6%

Industry profile **(n=223)**	Agriculture, forestry and fishing	4.5%
	Mining and quarrying	5.4%
	Manufacturing	18.8%
	Electricity, gas, steam and air-conditioning supply	3.1%
	Water supply and waste management	0.0%
	Construction	0.4%
	Wholesale and retail trade	8.5%
	Transportation and storage	4.5%
	Accommodation and food services	0.0%
	Information and communication	18.8%
	Financial and insurance activities	4.5%
	Real-estate activities	0.9%
	Professional, scientific and technical activities	2.7%
	Administrative and support service activities	1.8%
	Public administration and defence	0.4%
	Education	0.4%
	Human health and social work Activities	4.9%
	Arts, entertainment and recreation	0.4%
	Consulting	1.8%
	Oil, gas and petrochemicals	9.9%
	Pharmaceutical	1.3%
	Telecommunications	1.8%
	Other	4.9%
Type of organisation **(n=221)**	Global organisation (a company with representation across the most of the continents)	75.6%
	Multinational organisation (a company with representation across several countries)	17.2%
	Local organisation (a company with representation in South Africa only)	6.3%
	None of the above (please specify)	0.9%
	Other (please specify)	0.0%

Classification as small/medium enterprise (n=221)	Yes	8.1%
	No	91.9%

5.2.6 The current and future function fulfilment of mobile travel applications according to respondents

Two open-ended questions (Q19 and Q20) were posed in the survey to obtain qualitative data. The responses to both these questions were analysed by using the content analysis method. Content analysis is defined by Leedy and Ormond (2013:148) as 'a detailed and systematic examination of the contents of a particular body of material for the purpose of identifying patterns, themes and biases'. Respondents were requested to further elaborate on the current and future function fulfilment they hoped to experience with regard to mobile travel applications. Their responses were categorised according to underlying similarities in order to quantify corresponding statements. For example, when analysing the responses it came to light that many respondents expressed a need for an application that would consolidate or synchronise their travel details with comments such as: Ability 'to sync itinerary with calendar', 'synchronise booking changes to match involuntary delays' and 'to consolidate between air, hotel and car bookings to manage together and adapt to any supplier, then provide planned route coordinated with calendar'. All such responses were added to the *Consolidation and synchronisation* category. Blank responses were excluded from the analysis in both cases.

5.2.6.1 Current function fulfilment

By studying the underlying similarities of the respondents' statements with regard to their current views on the function fulfilment of mobile travel applications, 12 categories could be identified, as presented in Table 5.29. While 13 respondents stated that they were satisfied with the mobile travel applications available on the market, 21 indicated that they would like to send and receive notifications. Respondents mentioned that they would like to be notified of flight delays and how any delays would impact the

remainder of their itineraries. Some wanted to be informed about the free Wi-Fi options in the area and others said that they would like an application that could automatically advise selected friends and family members of their safe arrival at their destinations. Eleven respondents stated that they required an application that would consolidate and/or synchronise their travel arrangements and expenses. Respondents indicated that they would appreciate an application that can synchronise their travel arrangements with their calendars and email, and would like flight delays to be synchronised with their current itineraries so that they can see the impact. They also expressed a need for their different travel arrangements to be consolidated into a single travel itinerary.

Table 5.29: Classification of responses with regard to current additional mobile travel application requirements

Category	Number of responses	Examples of verbatim comments
Other	26	'Manage upgrades' 'to be able to see client information and sales on my mobile device'
Send and receive notifications	21	'Send notifications of information (weather, currency, safety alerts, etc.) on destination location right before travel date' 'alert me on visa requirements'
Satisfied as is	13	'Currently I find that the application fulfils my needs and cannot think of another function I would add.' 'Cannot think of anything other than what was already stated.' (sic)
Consolidation and synchronisation	11	'to consolidate between air, hotel and car bookings to manage together and adapt to any supplier, then provide planned route coordinated with calendar' 'synchronise booking changes to match involuntary delays'
Expense management and upload	10	'expenses management as we go' 'Online expense submition' (sic)
Booking and consultant interaction	9	'Instant messaging with online consultant' 'Book flights, accommodation and car rental'
GPS and location functionality	7	'GPS locator' 'gps maps' (sic)
Automation	5	'intuition, i.e. it should know where I am and complete certain checklists automatically and provide starting info based on location'

		'AN AUTOMATIC AFTER HOURS NUMBER THAT POPS UP TO PREVENT HAVING TO SEARCH FOR THE RIGHT NUMBER' (sic)
Network alignment and accessibility	5	'Overview on Mobile Operator signal availability, Type of signal available, i.e. GPRS, EDGE, HSDPE or LTE(4G)' (sic)
		'RELIABLE ACCESS TO NETWORKS'
Check-in options	4	'Combined itinerary/check-in across airlines'
		'Pulling in all key information for checkin' (sic)
Offline workability	3	'Offline access to information to avoid roaming charges'
		'To save mobile boarding pass locally on app and access it without internet connection'
Visa requirements and processing	3	'Visa requirements and visa processing time'
		'Visa process'

5.2.6.2 Future function fulfilment

During an examination of the underlying similarities of the respondents' statements relating to their requirements with regard mobile travel applications that would provide in their future needs, the 10 categories shown in Table 5.30 were identified. Many respondents (20) again stated that they would like to be able to send and receive notifications. They also mentioned that they would appreciate receiving continuous feedback on the flight status and road traffic alerts at their destinations. One respondent also expressed a desire to be notified of cheaper routes to allow for cross-airline reservations. Once again, respondents wanted an application that would automatically notify selected friends and family of their safe arrival at their destinations. Nine respondents stated that they needed an application that would enable them to make bookings, cancel bookings and make changes to their reservations. The bookings they referred to included flight bookings, car rental, arrangements for accommodation and restaurant reservations.

Table 5.30: Classification of responses with regard to future additional mobile travel application requirements

Category	Number of responses	Examples of verbatim comments
All-in-one travel management function	7	'One stop for all travel related services, including management of all the loyalty programs'
		'One stop travel manager'

Bookings and modifications	9	'ability to change/amend bookings real time' 'Flight and accommodation bookings, changes, cancellations'
Comparative pricing	2	'Offer comparative pricing and availability on all airlines flying to chosen destination once traveller dates and numbers have been supplied' 'Compare prices between different flights'
Digital/electronic visa and passport	7	'Digital passport' 'Utilising the App as the boarding pass and e Passport'
Expense integration and management	8	'Ability to record car journey, including distance travelled and automatically integrate to expense recording for mileage' 'Business travel expense approval'
Office away from the office	4	'be an office environment away from office, i.e. there should be no real need to be in a real office' (sic)
Other/General	35	'to be able to see client information and sales on my mobile device' 'Reports of bad service as it happens – person's name, time of bad service, etc.'
Sending and receiving notifications	20	'Some way to expedite moving or make it easier to get through immigration at borders' 'Geolocation of areas of interest during traveling' (sic)
Synchronisation and modification	8	'Flight status' 'Synchronise changes in bookings with delays in traffic or other connecting flights'
Wi-Fi identification and linkage	5	'Integration of itinerary with all travel plans and bookings including conference details' 'open on free WiFi not going through password procedures' 'roaming partner selection'

5.3 TESTING OF THE HYPOTHESES

For the purposes of this study, the travel life cycle was tested based on the following 10 activities:

- 8 – Pre-travel planning

- 9 – Pre-travel booking
- 10 – Pre-travel itinerary consolidation
- 11 – During-travel cancelation/modification
- 12 – During-travel continuous support
- 13 – During-travel check-in/check-out
- 14 – During-travel transportation/hotel comfort
- 15 – During-travel additional travel information
- 16 – During-travel work-related supporting applications
- 17 – Post-travel reviews and personal experience
- 18 – Post-travel expenses

The hypotheses were tested on all the activities listed above and the results can be viewed in Appendix E. Due to the high number of variables that tested as significant, it was decided that only the top three most important variables (functions) per activity, as rated by respondents in Questions 8.1 to 18.1 and represented in the descriptive statics, would be described below. It should be noted that when testing the current use of mobile applications the responses to both the ranking of the variables in their order of importance and the question regarding the frequency of current use were represented in the tables.

To facilitate a review of the results, an interpretation of the question numbers is provided. The first digit of the question number, **8**.1.1, refers to the travel life cycle activity (in this example: Pre-travel planning). The second digit, 8.**1**.1, refers to either the importance (1), current use (2) or future use (3) of the variable in the activity, and the last digit, 8.1.**1,** refers to the variable in the stated activity (in this example: Door-to-door planning).

For reasons specified below, hypothesis testing could not be completed for the following variables:

- Level of employment (Question 32): Due to the uneven distribution of responses this variable could not be included in the hypothesis testing as the analysis was negated by the insufficient representation of respondents with

different levels of employment: a high 96% of respondents were classified as paid employees, 2.7% were self-employed and 0,5% were students.

- Type of occupation (Question 31): Owing to the wide variety of responses and an inability to effectively combine some of the categories, this variable could not be included in the hypothesis test. The respondents who identified themselves as general management represented 17.9% of the total, 12.1% were employed in sales and account management, and 9.4% in IT. Some categories were as small as 0.9% (legal) and 1.8% (production).
- Type of industry (Question 24): The wide variety of responses made it impossible to effectively combine some of the categories, with the result that this variable could not be included in the hypothesis test. The respondents who stated that they were employed in the information and communication or manufacturing industries accounted for 18.8% of the total. A further 9,9% represented the oil, gas and petrochemical industry, and 8.5% worked in the wholesale and retail trade. Some industries had much smaller representation, such as 1.3% for the pharmaceutical industry and 5.4% for mining and quarrying.
- Frequency of trips (Question 5): Due to the manner in which the question was stated, the analysis of the responses to the questions were too elaborate and could therefore not benefit the study. Since a respondent could have answered (and most likely did) in all three categories and these responses could not be separated from one another, it was impossible to test to determine whether certain mobile travel applications were more important, more frequently used or more likely to be used in the future than others, depending on the number of trips undertaken.
- Destination travelled to (Questions 6 and 7): As in the case of the previous variable, these two questions could not be further included for hypothesis testing. Due to the large number of countries mentioned in the responses, even the consolidation of the information to continents could not make it more practical to successfully test all the mobile travel applications against them.

For the reasons listed above, the hypotheses were reworded and tested as follows:

- H_1: Differences between the profiles of business travellers *(gender, age and level of education)* result in differences in the ways in which they currently use of mobile applications.
- H_2: Difference between business travellers' trip characteristics (*purpose*) result in differences in the ways in which they currently use of mobile applications.
- H_3: Differences in the profiles of the business travellers (*gender, age, level of education*) have an influence on their future expectations of mobile applications.
- H_4: Business travellers whose trip characteristics (*purpose*) differ, also differ with regard to their future expectations of mobile applications.

Each of the hypothesis tests will be discussed below.

- H_1: Differences between the profiles of business travellers *(gender, age and level of education)* result in differences in the ways in which they currently use of mobile applications.

For the purposes of this hypothesis test, the current use of mobile applications was measured by enquiring about the importance that business travellers attached to having access to mobile applications and the frequency with which they were used.

$H_{1A\ (null)}$: There is no difference between male and female business travellers with regard to the importance attached to mobile travel applications and the frequency with which they are used during the travel life cycle.
$H_{1A\ (alt)}$: There is a difference between male and female business travellers with regard to the importance attached to mobile travel applications and the frequency with which they are used during travel life cycle

Results of the Mann Whitney U-test where a statistically significant difference exists at a 5% level of significance are stipulated in Table 5.31.

Table 5.31: The importance and current use of mobile travel applications where significant gender-based statistical variance can be seen

Question	13.2.4	15.2.4	18.1.2

Breakdown of question description	The frequency of use of the **mobile boarding pass** mobile travel application in the **during-travel** phase for the **check-in/check-out** activity	The frequency of use of the **events notification and ticket purchase** mobile travel application in the **during-travel** phase for the **additional travel information** activity	The importance of **expenses** mobile travel application in the **post-travel** phase for the **upload invoices** activity
Z	-2.173	-1.977	-2.197
Asymp. Sig. (two-tailed)	.030	.048	.028

The mean rank indicates that:

- Female business travellers (mean rank: 112.67) tend to use **mobile boarding pass** mobile travel application functions in the **during-travel** phase for the **check-in/check-out** activity more frequently than male business travellers (mean rank: 93.91).
- Female business travellers (mean rank: 111.42) tend to use **event notification and ticket purchase** mobile travel application functions in the **during-travel** phase for the **extra travel information** activity more frequently than male business travellers (mean rank: 94.44).
- Female business travellers (mean rank: 112.30) tend to rank the use of **invoice upload** mobile travel application functions in the **post-travel** phase for the **expenses** activity as more important than male business travellers do (mean rank: 94.07).

$H_{1A(null)}$ is therefore accepted as only three out of a possible thirty variables tests significant, the conclusion if that there is no significant difference on the overall mobile travel application use based on gender.

$H_{1B\ (null)}$: There is no difference between business travellers in the different age groups with regard to the importance they attach to mobile travel applications and the frequency with which they are used during the travel life cycle.

$H_{1B\ (alt)}$: There is a difference between business travellers in the different age groups with regard to the importance attached to mobile travel applications and frequency with which they are used during the travel life cycle.

The results of the Kruskal Wallis test where a statistically significant difference exists at a five percent (5%) level of significance are presented in Table 5.32 below.

Table 5.32: The importance and current use of mobile travel applications where age shows significant statistical variance

Question	11.2.1	11.2.11	16.1.5	18.1.1
Breakdown of question description	The frequency of use of **air-booking** mobile travel applications in the **during-travel** phase for the **cancelation/ modification** activity	The frequency of use of **alerts on delays and cancellations** mobile travel applications in the **during-travel** phase for the **cancelation/ modification** activity	The importance of **instant messaging** mobile travel applications in the **during-travel** phase for the **work-related support** activity	The importance of **picture upload of expenses** mobile travel applications in the **post-travel** phase for the **expense** activity
Kruskal Wallis	8.778	7.866	13.124	7.960
Asymp. Sig.	.032	.049	.004	.047

The mean ranks indicate that:

- Business travellers aged 59 years and older (mean rank: 94.50) tend to use **air booking** mobile travel application functions in the **during-travel** phase for the **cancelation/modification** activity more frequently than business travellers between the ages of 49 and 58 years (mean rank: 84.82) .
- Business travellers aged 59 years and older (mean rank: 96.86) tend to use **alerts on delays and cancelation** mobile travel application functions in the **during-travel** phase for the **cancelation/modification** activity more frequently than do business travellers between the ages of 19 and 38 years (Generation Y) (mean rank: 96.03).
- Business travellers aged between 49 and 58 years (mean rank: 92.78) tend to rank **instant messaging** mobile travel application functions in the **during-travel** phase for the **work related supporting** activity as more important than do business travellers between the ages of 39 and 48 years (mean rank: 68.52).
- Business travellers between the ages of 49 and 58 years (mean rank: 113.66) tend to rank **picture upload of expenses** mobile travel application functions in the **post-travel** phase for the **expense** activity as more important than do business travellers between the ages of 39-48 (mean rank: 97.80).

$H_{1B(null)}$ is accepted as only four out of a possible thirty variables tests significant the conclusion if that there is no significant difference on the overall mobile travel application use based on age.

$H_{1C\ (null)}$: Business travellers' different levels of education do not play a role in how important they consider mobile travel applications to be and how frequently they use them during the travel life cycle.

$H_{1C\ (alt)}$: Business travellers' different levels of education do play a role in how important they consider mobile travel applications to be and how frequently they use them during the travel life cycle.

Since only 0.5% of respondents indicated Grade 10 or equivalent as their highest level of education, it was decided to rather add these responses to the Grade 12 (Matric) or equivalent group and rename it 'a high school qualification' for the purpose of analysis for this hypothesis.

The results of the Kruskal Wallis-test where a statistical significant difference exist at a five percent (5%) level of significance can be seen in Table 5.33.

Table 5.33: The importance and current use of mobile travel applications where level of education shows significant statistical variance

Ques-tion	8.2.5	11.2.1	12.2.1	13.2.2	13.2.4	15.2.1	15.2.2	16.2.4
Breakdown of question description	The frequency of use of **travel requirements** mobile travel applications in the **pre-travel** phase for the **planning** activity	The frequency of use of **air-booking** mobile travel applications in the **during-travel** phase for the **cancellation/ modification** activity	The frequency of use of **flight details** mobile travel applications in the **during-travel** phase for the **continuous support** activity	The frequency of use of **advanced check-in** mobile travel applications in the **during-travel** phase for the **check-in/check-out** activity	The frequency of use of **mobile boarding pass** mobile travel applications in the **during-travel** phase for the **continuous support** activity	The frequency of use of **local restaurant** mobile travel applications in the **during-travel** phase for the **extra travel information** activity	The frequency of use of **advice on discount possibilities** mobile travel applications in the **during-travel** phase for the **additional travel information** activity	The frequency of use of **mobile email** travel applications in the **during-travel** phase for the **work-related supporting** activity
Kruskal Wallis	8.300	13.466	11.181	9.591	9.404	10.765	9.011	11.444
Asymp. Sig.	.040	.004	.011	.022	.024	.013	.029	.010

The mean rank indicates that:

- Business travellers with a postgraduate qualification (mean rank: 98.49) tend to use **travel requirement** mobile travel application functions in the **pre-travel** phase for the **planning** activity more frequently than business travellers with a graduate qualification (mean rank: 92.19).
- Business travellers with a graduate qualification (mean rank: 80.46) tend to use **air booking** mobile travel application functions in the **during-travel** phase for the **cancelation/modification** activity more frequently than business travellers with a post-matric qualification (mean rank: 76.48).
- Business travellers with a graduate qualification (mean rank: 109.63) tend to use **flight detail** mobile travel application functions in the **during-travel** phase for the **continuous support** activity more frequently than business travellers with a postgraduate qualification (mean rank: 98.84).
- Business travellers with a graduate qualification (mean rank: 118.83) tend to use **advanced check-in** mobile travel application functions in the **during-travel** phase for the **check-in/check-out** activity more frequently than business travellers with a post graduate qualification (mean rank: 100.51).
- Business travellers with a graduate qualification (mean rank: 120.36) tend to use **mobile boarding pass** mobile travel application functions in the **during-travel** phase for the **check-in/check-out** activity more frequently than business travellers with a post graduate qualification (mean rank: 100.55).
- Business travellers with a graduate qualification (mean rank: 124.41) tend to use **local restaurant** mobile travel application functions in the **during-travel** phase for the **extra travel information** activity more frequently than business travellers with a postgraduate qualification (mean rank: 97.24).
- Business travellers with a graduate qualification (mean rank: 111.91) tend to use **advice on discount possibilities** mobile travel application functions in the **during-travel** phase for the **extra travel information** activity more frequently than business travellers with a postgraduate qualification (mean rank: 103.33).
- Business travellers with a graduate qualification (mean rank: 110.32) tend to use **mobile email** travel application functions in the **during-travel** phase for the **work related supporting application** activity more frequently than business travellers with a high school qualification (mean rank: 97.24).

$H_{1C(null)}$ is accepted as only eight out of a total of thirty variables tests significant the conclusion if that there is no significant difference on the overall mobile travel application use based on level of education. Thus, overall $H_{1(null)}$ is accepted for this study.

H_2: There is a relationship between the business travellers' trip characteristics (*trip purpose*) and their current use of mobile applications.

$H_{2B\ (null)}$: Differences between the purposes of the trips undertaken by business travellers do not affect the importance and the frequency of use of mobile travel applications within the travel life cycle.

$H_{2B\ (alt)}$: Differences between the purposes of trips undertaken by business travellers do have an effect on the importance and the frequency of use of mobile travel applications within the travel life cycle.

Results of the Kruskal Wallis-test where a statistical significant difference exists at a five percent (5%) level of significance are stipulated in 5.34.

Table 5.34: The importance and current use of mobile travel applications where trip purpose shows significant statistical variance

Question	8.1.1	10.2.3	17.1.4	17.1.7
Breakdown of question description	The importance of **door to door** mobile travel applications in the **pre-travel** phase for the **planning** activity	The frequency of use of **flight details** mobile travel applications in the **pre-travel** phase for the **itinerary consolidation** activity	The importance of **preferencing** mobile travel applications in the **post-travel** phase for the **review and personal experience** activity	The importance of **traveller profile management** mobile travel applications in the **post-travel** phase for the **review and personal experience** activity
Kruskal Wallis	8.024	8.221	8.481	7.972
Asymp. Sig. (two-tailed)	.046	.042	.037	.047

The mean rank indicates that:

- During the **pre-travel** phase, business travellers travelling for internal meeting proposes (mean rank: 49.51) tend to rank **door-to-door** mobile travel application functions for the **planning** activity as more important than do those travelling to attend conferences (mean rank: 43.55).

- During the **pre-travel** phase, business travellers travelling for customer meeting proposes (mean rank: 94.77) tend to use **flight detail** mobile travel application functions for the **itinerary consolidation** activity more frequently than do those travelling for internal meeting purposes (mean rank: 76.57).
- During the **post-travel** phase, business travellers travelling for customer meeting proposes (mean rank: 84.87) tend to rank **preferencing** mobile travel application functions for the **reviews and personal experience** activity as more important than do those travelling to attend conferences (mean rank: 66.71).
- During the **post-travel** phase, business travellers travelling to attend conferences (mean rank: 85.50) tend to rank **traveller profile management** mobile travel application functions for the **reviews and personal experience** activity as more important than do those travelling for customer meeting proposes (mean rank: 65.76).

$H_{2B(null)}$ is accepted as only four out of a possible thirty variables tests significant the conclusion if that there is no significant difference on the overall mobile travel application use based on trip purpose. Thus, overall $H_{2(null)}$ is accepted for this study.

H_3: There is a relationship between the profiles of business travellers (*gender, age, level of education*) and their future expectations of mobile applications.

$H_{3A\ (null)}$: There is no difference between male and female business travellers with regard to the likelihood that they will use mobile travel applications during the travel life cycle.

$H_{3A\ (alt)}$: There is a difference between male and female business travellers with regard to the likelihood that they will use mobile travel applications during the travel life cycle.

The results of the Mann-Whitney U-test that indicated a statistically significant difference at a 5% level of significance are shown in Table 5.35.

Table 5.35: The future expectations of mobile travel applications where gender shows significant statistical variance

Question	8.3.1
Breakdown of question description	The likelihood of future use of **door-to-door** mobile travel applications during the **pre-travel** phase for the **planning** activity
Z	-1.999
Asymp. Sig. (two-tailed)	.046

The mean rank indicates that:

- Female business travellers (mean rank: 100.81) indicated that they would be more likely than their male counterparts to use **door-to-door** mobile travel application functions in the **pre-travel** phase for the **planning** activity in the future (mean rank: 84.22).

$H_{3A(null)}$ is accepted as only one out of a total of thirty variables tests significant the conclusion if that there is no significant difference on the overall future likelihood to use mobile travel applications based on gender.

> $H_{3B\ (null)}$: There is no difference between business travellers in the different age groups with regard to the likelihood that they will make use of mobile travel applications in the travel life cycle.
>
> $H_{3B\ (alt)}$: There is a difference between business travellers in the different age groups with regard to the likelihood that they will make use of mobile travel applications in the travel life cycle.

Table 5.36 below shows the results of the Kruskal Wallis test that indicate a statistically significant difference at a 5% level.

Table 5.36: The future expectations of mobile travel applications where age shows significant statistical variance

Question	17.3.4	17.3.7	18.3.1
Breakdown of question description	The likelihood of using **preferencing** mobile travel applications during the **post-travel** phase for the **reviews and personal experience** activity	The likelihood of using **travel profile management** mobile travel applications during the **post-travel** phase for the **reviews and personal experience** activity	The likelihood of using **picture upload of expenses** mobile travel applications during the **post-travel** phase for the **expense** activity
Kruskal Wallis	8.996	8.109	8.619

Asymp. Sig.	.029	.044	.035

The mean rank indicates that:

- Business travellers between the ages of 19 and 38 years (Generation Y) (mean rank: 106.76) indicated that they were more likely than those between the ages of 49 and 58 years (mean rank: 94.11) to use **preferencing** mobile travel application functions for the **reviews and personal experience** activity during the **post-travel** phase in the future.
- Business travellers between the ages of 19-38 (Generation Y) (mean rank: 104.96) indicated that they were more likely than those between the ages of 49-58 (mean rank: 95.87) to use **travel profile management** mobile travel application functions during the **post-travel** phase for the **reviews and personal experience** activity in the future.
- Business travellers between the ages of 19-38 (Generation Y) (mean rank: 106.42) indicated that they were more likely than those between the ages of 39 and 48 years (mean rank: 104.37) to use **picture upload of expenses** mobile travel application functions during the **post-travel** phase for the **expense** activity in the future.

$H_{3B(null)}$ is accepted as only three out of a total of thirty variables tests significant the conclusion if that there is no significant difference on the overall future likelihood to use mobile travel applications based on age.

$H_{3C\ (null)}$: Differences between the levels of education of business travellers do not influence their likely use of mobile travel applications during the travel life cycle.

$H_{3C\ (alt)}$: Differences between the levels of education of business travellers do influence their likely use of mobile travel applications during the travel life cycle.

The results of the Kruskal Wallis-test that indicated the existence of a statistically significant difference at a five 5% level of significance are shown in Table 5.37.

Table 5.37: The future expectations of mobile travel applications where level of education shows significant statistical variance

Question	8.3.5	10.3.3	13.3.2	14.3.2	14.3.4
Breakdown of question description	The likelihood of using **travel requirements** mobile travel applications for the **planning** activity during the **pre-travel** phase	The likelihood of using **flight details** mobile travel applications for the **itinerary consolidation** activity during the **pre-travel** phase	The likelihood of using **advanced check-in** mobile travel applications for the **check-in/check-out** activity during the **during-travel** phase	The likelihood of using **lounge access** mobile travel applications for the **transportation /hotel comfort** activity during the **during-travel** phase	The likelihood of using **seat choice** mobile travel applications for the **transportation /hotel comfort** activity during the **during-travel** phase
Kruskal Wallis	9.407	10.866	9.637	14.999	16.328
Asymp. Sig.	.024	.012	.022	.002	.001

The mean rank indicates that:

- Business travellers with a postgraduate qualification (mean rank: 102.39) tend to be more likely than business travellers with a graduate qualification (mean rank: 86.94) to use **travel requirement** mobile travel application functions in the **pre-travel** phase for the **planning** activity in future.
- Business travellers with a postgraduate qualification (mean rank: 110.65) tend to be more likely than business travellers with a graduate qualification (mean rank: 101.14) to use **flight details** mobile travel application functions during the **pre-travel** phase for the **itinerary consolidation** activity in future.
- Business travellers with a graduate qualification (mean rank: 112.19) tend to be more likely than business travellers with a postgraduate qualification (mean rank: 105.51) to use **advanced check-in** mobile travel application functions during the **during-travel** phase for the **check-in/check-out** activity in future.
- Business travellers with a postgraduate qualification (mean rank: 104.73) tend to be more likely than business travellers with a graduate qualification (mean rank: 85.03) to use **lounge access** mobile travel application functions during the **during-travel** phase for the **transportation/hotel comfort** activity in the future.
- Business travellers with a graduate qualification (mean rank: 107.55) tend to be more likely than business travellers with a post graduate qualification (mean rank:

104.93) to use **seat choice** mobile travel application functions during the **during-travel** phase for the **transportation/hotel comfort** activity in the future.

$H_{3C(null)}$ is accepted as only five out of a total of thirty variables tests significant the conclusion if that there is no significant difference on the overall future likelihood to use mobile travel applications based on level of education. Thus, overall $H_{3(null)}$ is accepted for this study.

H4: There is a relationship between the business travellers' trip characteristics (*trip purpose)* and their future expectations of mobile applications.

$H_{4B\ (null)}$: The likelihood that business travellers will make use of mobile travel applications during the travel life cycle is not influenced by the purpose of a trip.
$H_{4B\ (alt)}$: The likelihood that business travellers will make use of mobile travel applications during the travel life cycle is influenced by the purpose of a trip.

Table 5.38 below shows the results of the Kruskal Wallis test that indicated that a statistically significant difference exists at a 5% level of significance.

Table 5.38: The future expectations of mobile travel applications where trip purpose shows significant statistical variance

Question	10.3.1	10.3.2	10.3.3	13.3.2	13.3.3	13.3.4	16.3.1
Breakdown of question description	The likelihood of future use of **consolidate itinerary information / automated itinerary sync** mobile travel applications for the **itinerary consolidation** activity during the **pre-travel** phase	The likelihood of the future use of **alerts in gaps in traveller itinerary** mobile travel applications for the **itinerary consolidation** activity during the **pre-travel** phase	The likelihood of future use of **flight details** mobile travel applications for the **itinerary consolidation** activity during the **pre-travel** phase	The likelihood of future use of **advanced check-in** mobile travel applications for the **check-in/check-out** activity during the **during-travel** phase	The likelihood of future use of **fast check-in/check-out** mobile travel applications for the **check-in/check-out** activity during the **during-travel** phase	The likelihood of future use of **mobile boarding pass** mobile travel applications for the **check-in/check-out** activity during the **during-travel** phase	The likelihood of future use of **integrated expense management** mobile travel applications for the **work-related support** activity during the **during-travel** phase
Kruskal-Wallis	12.045	10.717	14.059	7.889	11.167	9.701	9.755
Asymp. Sig.	.007	.013	.003	.048	.011	.021	.021

The mean rank indicates that:

- In the future, business travellers who travel for meetings with customers (mean rank: 93.83) will be more likely than those travelling for internal meeting purposes (mean rank: 80.92) to use **consolidated itinerary information/automated itinerary sync** mobile travel application functions for the **itinerary consolidation** activity during the **pre-travel** phase.
- In the future, business travellers who travel for meetings with customers (mean rank: 89.14) will be more likely than those travelling for internal meeting purposes (mean rank: 85.72) to use **alerts in gaps in traveller itinerary** mobile travel application functions for the **itinerary consolidation** activity during the **pre-travel** phase.
- In the future, business travellers who travel for meetings with customers (mean rank: 88.90) will be more likely than those travelling for internal meeting purposes (mean rank: 85.72) to use **flight details** mobile travel application functions for the **itinerary consolidation** activity during the **pre-travel** phase.
- In the future, business travellers who travel for internal meeting purposes (mean rank: 87.72) might be more likely than those travelling to meet with customers (mean rank: 82.62) to use **advanced check-in** mobile travel application functions for the **check-in/check-out** activity during the **during-travel** phase.
- In the future, business travellers who travel for customer meeting purposes (mean rank: 88.05) might be more likely than those travelling for internal meeting purposes (mean rank: 85.41) to use **fast check-in/check-out** mobile travel application functions for the **check-in/check-out** activity during the **during-travel** phase.
- In the future, business travellers who travel for customer meeting purposes (mean rank: 86.66) might be more likely than those travelling for internal meeting purposes (mean rank: 85.37) to use **mobile boarding pass** mobile travel application functions for the **check-in/check-out** activity during the **during-travel** phase.
- In the future, business travellers who travel for training purposes (mean rank: 83.08) might be more likely than those travelling for customer meeting purposes (mean rank: 82.00) to use **integrated expense management** mobile travel application functions for the **work-related supporting application** activity during the **during-travel** phase.

$H_{4B(null)}$ is accepted as only seven out of a total of thirty variables tests significant the conclusion if that there is no significant difference on the overall future likelihood to use

mobile travel applications based on trip purpose. Thus, overall $H_{4(null)}$ is accepted for this study.

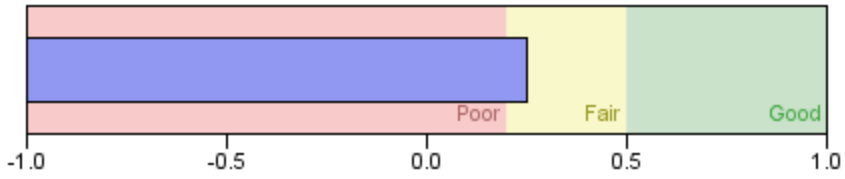
Since the overwhelming quantity of results reported on made it cumbersome to summarise the findings and present them in a comprehensible form, a cluster analysis was embarked upon.

5.4 CLUSTER ANALYSIS

Cluster analysis is an explorative analysis technique that attempts to identify structures within the data. It performs the task of grouping a set of objects or individuals in such a way that clusters can be readily identified that show similar characteristics within the cluster.

In order to determine whether a profile of users could be identified, a two-step cluster analysis was conducted based on the following variables: gender (Q28), monthly nett income (Q 29), level of education (Q 30) and the level of importance of the use of mobile travel applications during the following four stages of travel: searching (21.1); booking (21.2); travelling (21.3); and post travel (21.4). These variables where selected as several other cluster analyses had been conducted with these and other variables, yet this cluster showed the most significant result. Two-step clustering identifies the groupings by running pre-clustering first and then using hierarchical methods. Two-step cluster analysis also mechanically selects the number of clusters. The cluster quality reported a silhouette measure of cohesion (0.3) and separation that was acceptable (fair), as indicated in Figure 5.2.

Figure 5.2: Silhouette measure of cohesion and separation of the different clusters



Two clusters were formed. The most important element in the formation of the clusters was gender (Q28), as illustrated in Figure 5.3.

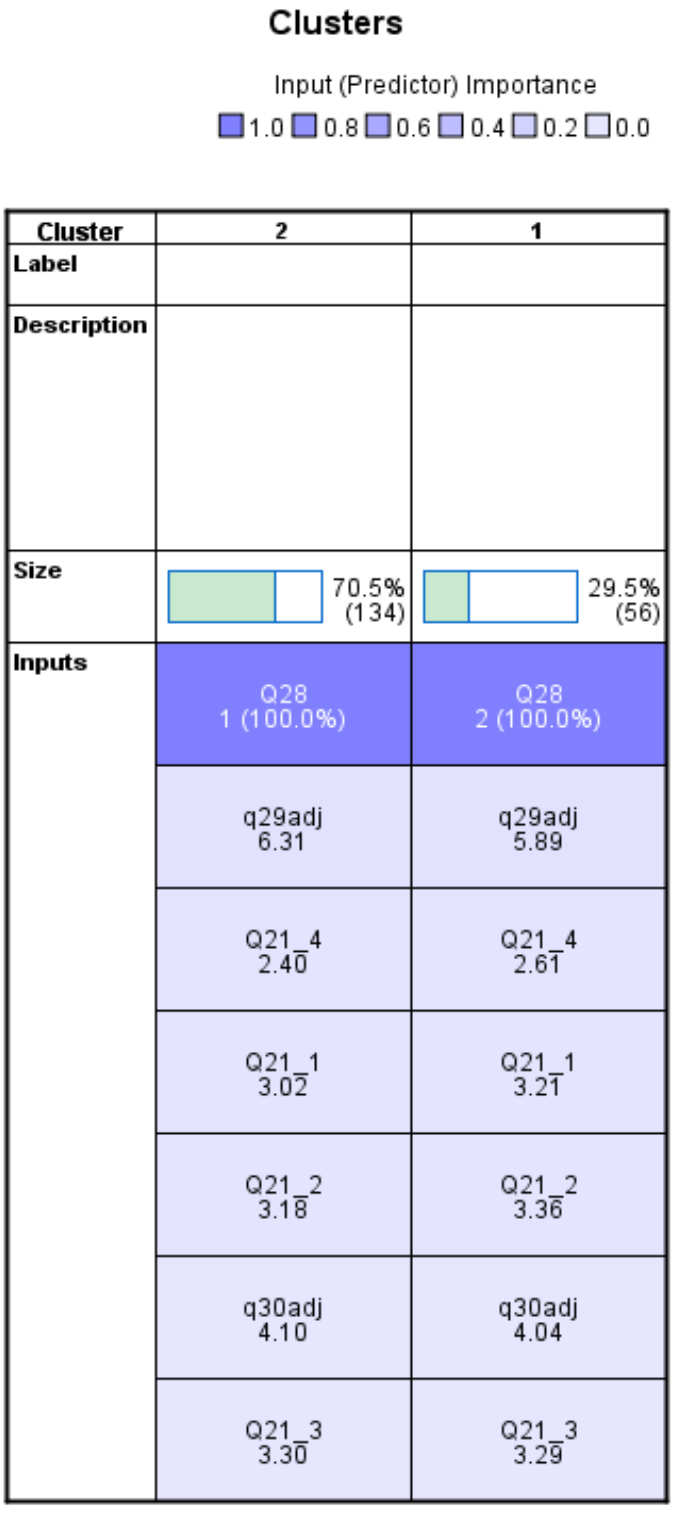
Cluster No. 1, which consisted of 29.5% (56) of the respondents, all the respondents (100%) were female. Their incomes were between R40 001 and R 60 000 per month (Q 29 = 5.89), they had all completed a degree course (Q 30 = 4.04) and they generally found mobile travel

applications to be more important (Q21) than did the respondents in cluster No. 2. For this cluster grouping the mean importance rating with regard to the use of mobile travel applications was found to be the most important during the booking stage (Q21.2 = 3.36), followed first by the travelling stage (Q21.3 = 3.29) and then the searching stage (Q21.1 = 3.21). It was found to be the least important during the post-travel stage (21.4 = 2.61).

The second cluster consisted of 134 (70.5%) respondents, all of whom (100%) were male. Their nett incomes varied between R40 001 and R 60 000 per month (Q29 = 6.31) and all had completed degree courses (Q30 = 4.10). Overall they found mobile travel applications to be less important (Q21) than did the respondents in the first cluster, except for their importance during the travelling stage. By considering the mean importance rating, mobile travel applications were found to be most important during the travelling stage (Q21.3 = 3.30), followed by the booking stage (Q21.2 = 3.18) and then the searching stage (Q21.1 = 3.02). As was the case in the first cluster, mobile travel applications were found to be least important during the post-travel stage (Q21.4 = 2.40).

From the above it was concluded that female business travellers typically earn slightly less, fewer had degrees and they found the use of mobile travel applications to be more important than did their male counterparts. They regarded mobile travel applications as more valuable during the booking stage, whereas the male respondents found them to be more important during the travelling stage.

Figure 5.3: Cluster analysis



Cluster	2	1
Label		
Description		
Size	70.5% (134)	29.5% (56)
Inputs	Q28 1 (100.0%)	Q28 2 (100.0%)
	q29adj 6.31	q29adj 5.89
	Q21_4 2.40	Q21_4 2.61
	Q21_1 3.02	Q21_1 3.21
	Q21_2 3.18	Q21_2 3.36
	q30adj 4.10	q30adj 4.04
	Q21_3 3.30	Q21_3 3.29

5.5 SUMMARY OF FINDINGS

The findings of the hypotheses test are indicative that the current use of the following functions of mobile travel applications are influenced by the profile of the business traveller and their trip characteristics:

- advanced check-in*
- advice on discount possibilities
- air booking
- alerts and delays and cancelations
- door-to-door applications*
- event notifications and ticket purchase
- flight details*
- instant messaging
- invoice upload
- local restaurant
- mobile boarding pass*
- mobile email
- picture upload of expenses*
- preferencing*
- traveller profile management*
- travel requirement applications*.

The hypotheses testing also revealed that the likelihood of future use of the following functions of mobile travel applications are influenced by the profile of the business traveller and their trip characteristics:

- advanced check-in*
- alerts on gaps in traveller itinerary
- consolidated itinerary information/automated itinerary sync
- door-to-door applications*
- fast check-in/check-out
- flight details*
- integrated expense management
- mobile boarding pass*
- picture upload of expenses*
- preferecing*
- seat choice
- travel requirement applications*
- traveller profile management*.

By having an understanding of the breakdown of the profile of their target market, a travel industry supplier may use the results of this study to identify the functions that their customers deem to be important and develop their mobile travel application accordingly. This would

* Functions indicated with a astrix (*) are present in both the current use and future likelihood to use areas.

allow the customer (in this case the South African business traveller) to have a meaningful experience with the brand potentially building brand loyalty.

The corporate company may use the results in conjunction with the company's demographic breakdown and trip purpose to adequately identify and describe a mobile travel application for business travellers to use in accordance to the company's travel policy.

In both instances the bare minimum functions that a mobile travel application should have are listed and elaborated on below. These functions are present in both the current use and future likelihood of use of mobile travel applications and are therefore viewed as the most essential and useful for the South African business traveller:

- **Advanced check-in:** for airlines this option allows travellers to check-in and download their boarding pass. Many airlines allow travellers to select their seats (if they could not do so at time of purchase due to the fare class purchased) and purchase additional ancillary services such as an additional bag, data to use on the wi-fi system, lounge access, chauffer drive and so forth.
- **Door-to-door applications:** Applications supporting address-to-address travel using various modes of transport it that takes into consideration the travellers entire journey, from the moment the leave the house to the moment they return. Travellers are able to see gaps within their itinerary as (in theory) it should show the traveller all activites planned for their trip (walking, driving, rail, hotel, flights, dining etc.) Some applications are evolving this function to allow the traveller to book directly from the mobile travel application and to see the impact on the over cost and timeline if they were to change key component like hotel or flight (e.g. KDS NEO). This is opposed to point-to-point travel where only hubs (like airports and train stations) are taken into consideration.
- **Flight details:** advising travellers of the flight time, aircraft used, class booked and also advising them of any reasons for concern or delay.
- **Mobile boarding pass:** opposed to printing a physical boarding pass an airline may opt to rather send a boarding pass to a traveller via instant messaging or email. This allows the traveller to have the document with them at all times and lessens the chance of the document going missing.
- **Picture upload of expenses:** allows the traveller to take a photo of their receipts while travelling and to save it in a data bank, this lessens the chance of these essential

documents going missing and improves the efficiency of the expense submission and reimbursement process.

- **Preferecing:** the ability to select preferences (e.g. preferred mode of transport or preferred hotel group
- **Travel requirement applications:** Applications that advise the traveller of important information prior to travelling, such as visa requirements and vaccinations.
- **Traveller profile management:** management of personal information such as traveller name, surname, passport/ID Number required for travel reservation purposes.

5.6 CONCLUSION

In this chapter the findings of the empirical research were presented. To start with, the descriptive statistics were stated and the demographic profiles of the respondents, as well as their trip characteristics, were then discussed in detail. The general trends in the use of smartphone/tablet applications were briefly discussed, followed by a description of the use and importance of mobile travel applications at the various stages of travel. An industry profile of the respondents was described and the two open questions that were included in the survey in order to obtain information on the respondents' views regarding the current use and future fulfilment functions of mobile travel applications were discussed. Following this, hypothesis testing was done. The majority of the hypotheses were not rejected. This chapter concluded with a discussion of the results of the cluster analysis.

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CHAPTER 6: DISCUSSION AND CONCLUSION

6.1 INTRODUCTION

The overall aim of this research was to investigate the current use and future expectations of business travellers regarding mobile applications before, during and after their business trips. The objectives were to determine how business travellers currently use mobile applications for travel and what their expectations are regarding the development of related applications for future use; whether the differences between the profiles of business travellers had any effect on their current use and future expectations of mobile applications; and whether differences between business travellers' trip characteristics (such as frequency of travel, purpose of trip, destination of traveller and information requirements of traveller) influenced their current use and future expectations of mobile applications.

This chapter contains a discussion of the interpretation of the results and their value for corporate companies and suppliers. Suggestions are also made regarding possible future research, after which the dissertation is concluded.

6.2 INTERPRETATION OF THE RESULTS

In Chapter 1, the purpose of this research was stated, i.e. to investigate the current use and future expectations of business travellers regarding mobile applications before, during and after their business trips. In Chapter 5, point 5.3 (Hypothesis testing) it was advised that current use is determined by looking at the results indicating both the importance attached to, and the current use of the functions offered by mobile travel applications during the travel life cycle. Figure 6.1 displays the type of activities undertaken during the travel life cycle. The three types of functions (or variables) ranked by respondents as being the most important, most frequently used and most likely to be used in the future are then stated. From this table it is clear that travellers look to mobile travel applications to assist and support them during the entire travel lifecycle by providing access to information and booking facilities and allowing them to select their preferences and identify items they believe to be important. They look to mobile travel applications to streamline the business travel process and make them more efficient. More specifically, during the **pre-travel phase planning activity**, business travellers want to be able to access information that will ensure that they can successfully

reach and spend time at their destinations (visa requirements, exchange rate, weather, etc.). In order for them to be permitted to travel, they also need to either approve or obtain approval for their travel arrangements. With regard to the **booking activity**, they want to be able to make flight and accommodation bookings while at the same time managing their loyalty programmes and taking their preferences into consideration. Lastly, for the **itinerary consolidation activity**, they want to be able to view a consolidated itinerary that would alert them to gaps and provide them with their flight details.

In the **during-travel phase**, **cancellation/modification activity**, business travellers indicated that they considered the ability to make flight bookings as the most important, but ranked this as only the third most frequently used/likely to be used application in the future. They indicated that they used, and were more likely to use mobile travel applications that would alert them to delays/cancellations on their itineraries and allow them to change their bookings, which were the features ranked as second and third most important. With regard to the **continuous support activity** that business travellers used most frequently/were more likely to use, mobile travel applications that featured functions that continually provide updates on their flight status and flight details, and provide them with destination information were also all indicated as being important. They stated that travel approval was important during the during-travel phase, but that they did not use it at the time, nor intended to use it in the future. With regard to the **check-in/check-out activity,** mobile travel application functions that allow business travellers to check in in advance were indicated as not only the most important, but also the most frequently used and the most likely to be used in the future. As regards the **transportation/hotel comfort activity,** business travellers found seat choice and lounge access to be the most important, most frequently used and most likely to be used in the future. In the case of the **additional travel information activity,** business travellers placed the most value on mobile travel application functions that advise on local restaurants, provide access to restaurant reviews and highlight events in the area. Lastly, in respect of the **work-related support activity,** business travellers indicated that mobile email, integrated expense management and mobile instant messaging were the most important features. However, when it comes to the current use and likelihood of future use, expense management falls away and travellers more frequently use/are likely to use mobile travel applications that provide them with a gateway to the office when they are not at their desks.

During the **post-travel phase reviews and personal experience activity,** business travellers found preferencing, loyalty programme management and traveller profile management to be important. Only three of the functions in the **expenses activity** were listed. The business travellers found all three to be important and indicated that they would use mobile travel applications that allow them to upload invoices and obtain approval for expenses, and would also most likely use them in the future.

Figure 6.1 therefore identifies the current use and future expectations of business travellers regarding mobile applications before, during and after their business trips, and in essence describes the minimum functions required for a successful mobile travel application, as seen by South African business travellers. This also validates findings of the studies conducted by Travelport, which state that business travellers should value a travel application that provides them with an infinite amount of information (Travelport. 2012b:6-7); can be customised to their business itineraries (Travelport. 2012a:6), such as maps (important business locations close to their destinations); health and safety information; and continuous updates on their trips, such as flight cancellations and gate changes (Travelport, 2013b:8).

Figure 6.1: The top three types of mobile travel applications as rated by respondents: most important, most frequently used and most likely to be used in the future

Top three:	Most important	Most frequently used currently	Most likely to be used in the future
Pre-travel ▪▪▪			
Planning 13 variables	1. Travel requirements 2. Door-to-door planning 3. Travel approval	1. Destination applications 2. Travel approval 3. Travel requirements	1. Destination applications 2. Travel requirements 3. Travel approval
Booking 14 variables	1. Make flight bookings 2. Preferencing 3. Booking accommodation	1. Make flight bookings\ 2. Booking accommodation 2. Loyalty programme manager 3. Preferencing	1. Make flight bookings 1. Booking accommodation 2. Loyalty programme management 3. Preferencing
Itinerary consolidation 4 Variables	1. Flight details 2. Consolidated itinerary information 3. Alerts about gaps in traveller's itinerary	1. Flight details 2. Consolidated itinerary information 3. Alerts on gaps in traveller's itinerary	1. Flight details 2. Consolidated itineraty information 3. Alerts on gaps in traveller's itinerary
During travel ▪▪▪			
Cancellation/ Modification 13 variables	1. Make flight bookings 2. Alerts about delays/cancelations 3. Change air bookings	1. Alerts on delays /cancellations 2. Search for alternative flights 3. Make flight bookings	1. Alerts on delays/cancelations 2. Search for alternative flights 3. Make flight bookings
Continuous support 20 variables	1. Flight details 2. Flight status notifications 3. Travel approval	1. Flight details 2. Destination applications 3. Flight status notification	1. Flight details 2. Flight status notification 3. Destination applications
Check-in/ Check-out 3 variables	1. Advanced check-in 2. Fast check-in/check-out 3. Mobile boarding pass	1. Advanced check-in 2. Fast check-in/check-out 3. Mobile boarding pass	1. Advanced check-in 1. Fast check-in/check-out 2. Mobile boarding pass
Transportation/ Hotel comfort 14 variables	1. Seat choice 2. Lounge access 3. Upgrades	1. Seat choice 2. Lounge access 3. Car type	1. Seat choice 2. Lounge access 3. Upgrades
Additionnal travel information	1. Local restaurants 2. Advise on discount possibilities 3. Events notification and ticket purchase	1. Local restaurants 2. Restaurant reviews 3. Events notification and ticket purchase	1. Local restaurants 2. Restaurant reviews 3. Events notification and ticket purchase 4. Advise on discount possibilities
Work-related supporting applications 11 variables	1. Mobile email 2. Integrated expense management 3. Mobile instant messaging	1. Mobile e-mail 2. Mobile instant messaging 3. It is a gateway to the office when I am away from my desk	1. Mobile e-mail 2. Mobile instant messaging 3. It is a gateway to the office when I am away from my desk
Post-travel			
Reviews and personal experience 7 variables	1. Preferencing 2. Loyalty programme manager 3. Traveller profile management	1. Loyalty programme management 2. Traveller profile management 3. Preferencing	1. Loyalty programme management 2. Preferencing 3. Traveller profile management
Expenses 3 variables	1. Picture upload of expenses 2. Expense approval 3. Upload picture invoices	1. Expense approval 2. Upload of invoices 3. Picture upload of expenses	1. Upload of invoices 2. Expense approval 3. Picture upload of expenses

THE CURRENT AND FUTURE EXPECTATIONS OF BUSINESS TRAVELLERS REGARDING MOBILE TRAVEL APPLICATIONS

In Chapter 1 point 1.2 (Problem statement) several questions are asked that previous research had not answered and that the researcher aimed to answer in this study. These questions are discussed below, along with the answers provided by this study.

What is the demographic profile of a business traveller using mobile applications?

The average South African business traveller who uses mobile travel applications is male, 44.4 years old, has a postgraduate degree and earns between R20 001 and R40 000, or more than R60 001 per month. He is most employed in the information and communications or manufacturing industry and identifies himself as part of general management.

Which factors motivate business travellers to use a mobile travel application? Is it the frequency of travel, the destination or the type of traveller?

The motivations of South African business travellers were not measured in this study. It is recommended that this be considered for investigation in further research.

What are the expectations of a business traveller when using a mobile travel application? Are these expectations being met, or are there shortcomings?

The literature review included a discussion of a study by Werthner (2003:5) in which the following minimum requirements with which an application should comply are listed as:

- Providing accessible information whenever and wherever the user requires it
- Assisting with steering the decision making process
- Enabling the user to save ‘product bundles’

This is complemented by the following characteristics identified by Posland (2001:28):

- Logical and practical information should be easily accessible.
- Location-aware information at the destination: Users want to know at the push of a button what historical/sporting/entertainment/cultural/economic/artistic activities and establishments are in their vicinity.
- Individualised information: The information provided should take into account the travellers’ personal interests and pastimes.

Participants in the survey listed and rated various mobile travel application functions. The results were successfully related to attributes and travel requirements, flight details, flight status (**providing accessible information//logical and practical information flow**), travel approval, advice on discount possibilities, loyalty programme management (**assisting with**

steering the decision-making process) preferencing, consolidated itinerary information **(enabling the user to save 'product bundles'//individualised information**), locations of local restaurants, event notification and ticket purchases (**location-aware information at the destination**) emerged as the most important. One open-ended question (Question19) asked whether business travellers currently had any additional requirements with regard to mobile travel applications (i.e. requirements not included in the questionnaire) that needed to be met. Of the total of 219 responses received, 185 business travellers had no comment, 13 stated that they were satisfied with what was available at the time and 21 stated that there was no need to develop new mobile travel applications, but that the focus should be on the further development of current mobile travel applications to provide for the suggested improvements, such as 'intuition, i.e. 'it should know where I am and complete certain checklists automatically and provide starting information based on location' and 'Offline access to information to avoid roaming charges'.

How would mobile applications have to be developed to accommodate these needs in the future?

The second open-ended question (Question 20) enquired whether business travellers required any additional functions for mobile travel applications that would be useful to them in the future. The respondents again indicated the new mobile travel applications were not required, and that they would prefer existing applications to be further developed. Most of the comments indicated that South African business travellers want access to real-time information, as mentioned in Chapter 3, point 3.3.

During which parts of their trips do business travellers use mobile applications, for what purposes are they used, and how can the use of those applications improve the travel experience?

The responses to Question 21 indicated that South African business travellers rated mobile travel applications as being 'important' to 'very important' throughout the entire travel lifecycle.

From the above discussion it is evident that the objectives of this study have been met. A summary of the objectives and findings is given below:

- **To determine business travellers' current use and future expectations of mobile applications for travel.** This was determined and discussed in the previous paragraphs of this section.

To investigate whether the different profiles of business travellers have any influence on their current use and future expectations of mobile applications. Whilst hypotheses testing identified that the profile of the business traveller did not have an effect on the use of mobile travel applications, it did identify that certain variables did have certain preferences when it comes to the types of mobile travel applications they use during the travel lifecycle. Overall the profile of the business traveller had an impact on the following mobile travel applications as stated in table 6.1 which indicates the variable that had the most significant ranking of the feature according to the hypothesis test. From this table it is clear that South African business travellers with a post matric qualification find mobile travel applications more important and use them more frequently than their peers with no further qualification, one could also deduct that females and travellers older than 49 years find mobile travel applications to be more important and useful. However, it should be noted that the reason behind this is that the average business traveller possesses a post matric qualification.

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THE CURRENT AND FUTURE EXPECTATIONS OF BUSINESS TRAVELLERS REGARDING MOBILE TRAVEL APPLICATIONS

Table 6.1: Variables business traveller profiles that presented with a significant statistical variance on specific types of mobile travel applications

Travel lifecycle stage	Activity	Mobile travel application functions	Current use / future expectation	Traveller profile variable	Travel profile impact
Pre-travel	Planning	Door-to-door applications	Future use	Gender	Female > Male
		Travel requirement applications	Current use	Education	Post graduate > Graduate
			Future use		
	Itinerary consolidation	Flight details	Future use	Education	Post graduate > Graduate
During travel	Cancelation/modification	Air booking	Current use	Age	59 years and older > 49-58 year olds
				Education	Postgraduate > Post-matric
		Alerts on delays and cancelations	Current use	Age	59 years and older > Generation Y
	Check-in/Check-out	Mobile boarding pass	Current use	Gender	Female > Male
				Education	Graduate > Postgraduate
		Advanced check in	Current use	Education	Graduate > Postgraduate

THE CURRENT AND FUTURE EXPECTATIONS OF BUSINESS TRAVELLERS REGARDING MOBILE TRAVEL APPLICATIONS

Travel lifecycle stage	Activity	Mobile travel application functions	Current use / future expectation	Traveller profile variable	Travel profile impact
	Additional travel information	Event notification and ticket purchase	Current use	Gender	Female > Male
		Local restaurant		Education	Graduate > Postgraduate
		Advice on discount possibilities			Graduate > Postgraduate
	Transportation/ Hotel comfort	Seat choice	Future use	Education	Graduate > Postgraduate
	Continuous support	Flight details	Current use	Education	Graduate > Post graduate
	Work-related supporting application	Instant messaging	Current use	Age	49-58 year olds > 39-48 year olds
		Mobile email		Education	Graduate > High school qualification
Post travel	Expenses	Invoice upload	Current use	Gender	Female > Male
		Picture upload of expenses		Age	49-58 year olds > 39-48 year olds

THE CURRENT AND FUTURE EXPECTATIONS OF BUSINESS TRAVELLERS REGARDING MOBILE TRAVEL APPLICATIONS

Travel lifecycle stage	Activity	Mobile travel application functions	Current use / future expectation	Traveller profile variable	Travel profile impact
		Picture upload of expenses	Future use	Age	Generation Y > 39-48 year olds
	Reviews and personal experience	Preferencing	Future use	Age	Generation Y > 49-58 year olds
		Travel profile management			Generation Y > 49-58 year olds

- **To investigate whether differences between business travellers' trip characteristics (such as frequency of travel, purpose of trip, destination of traveller and information requirements of traveller), influenced their current use and future expectations of mobile applications.** As in the case of their profiles, it was discovered that the different purposes of business travellers' trips had an impact on their use of specific types of mobile travel application functions during specific activities. Business travellers stated that they were more likely to use the integrated expense management functions of mobile travel applications when travelling for training purposes than when travelling to meet with customers. Those travelling to attend conferences are more likely to use the travel profile management functions of mobile travel applications than those travelling for customer meetings. Travellers travelling to attend internal meetings are more likely to use the door-to-door functions of mobile travel applications and there is a strong likelihood that they will use advance check-in in the future. Travellers travelling for customer meetings currently use the flight details and preferencing functions of mobile travel applications and are likely to use mobile boarding pass, fast check-in/check-out, alerts on gaps in traveller itinerary and consolidated itinerary information functions of mobile travel applications should they become available. All of this is depicted in Table 6.2.

THE CURRENT AND FUTURE EXPECTATIONS OF BUSINESS TRAVELLERS REGARDING MOBILE TRAVEL APPLICATIONS

Table 6.2: Variables of the profiles of business travellers that presented with a significant statistical variance on specific types of mobile travel applications

Travel lifecycle stage	Activity	Mobile travel application	Current use / future expectation	Trip characteristic variable	Trip characteristic impact
Pre-travel	Planning	Door-to-door applications	Current use	Trip purpose	Internal meetings > Conferences
	Itinerary consolidation	Flight detail	Current use	Trip purpose	Customer meeting > Internal meeting
		Flight details	Future expectation	Trip purpose	Customer meeting > Internal meeting
		Consolidated itinerary information/automated itinerary sync	Future expectation	Trip purpose	Customer meeting > Internal meeting
		Alerts on gaps in traveller itinerary	Future expectation	Trip purpose	Customer meeting > Internal meeting
During travel	Check-in/Check-out	Advanced check-in	Future expectation	Trip purpose	Internal meeting > Customer meeting

		Fast check-in/check-out	Future expectation	Trip purpose	Customer meeting > Internal meeting
		Mobile boarding pass	Future expectation	Trip purpose	Customer meeting > Internal meeting
	Work related supporting application	Integrated expense management	Future expectation	Trip purpose	Training > Customer meeting
Post travel	Reviews and personal experience	Preferencing	Current use	Trip purpose	Customer meeting > Conferences
		Traveller profile management	Current use	Trip purpose	Conferences > Customer meeting

6.3 MANAGERIAL IMPLICATIONS

For the corporate company the results can be viewed as an indicator of travellers' willingness and readiness to adopt and use mobile travel applications, which emphasises the need for corporate companies to evaluate the mobile applications they think would best suit their travellers' needs and to formulate a mobile application policy. From a corporate company perspective, they would need to consider factors such as information security and cost of use (be it in country or international). Corporate companies may use the results of this study (specifically Figure 6.1) to identify what travellers value most in order to be able to formulate a mutually beneficial policy.

The findings will also inform travel suppliers on what business travellers view as the most important. The correct use of this information can help them to further develop their applications to better meet the needs of the end users, thereby increasing the adoption of their tools and services. By focusing on efforts to develop mobile travel applications that provide customisable information on travel requirements for flights, have booking functionality, allow travellers to save preferences and allow for integration into work-related systems, suppliers will be able to win a larger part of the market and build brand loyalty and awareness. Although some of these features are already available in the market, not all are available on a single mobile travel application.

6.4 RECOMMENDATIONS FOR FURTHER RESEARCH

One aspect of the research questions that this study could not answer relates to the factors that motivate business travellers to use a mobile travel application. A thorough understanding of their motivations would provide corporate companies and travel suppliers with the insight needed to better customise their policies and product offerings.

It is recommended that future research be undertaken with the approval of various corporate companies in order to ensure a better response rate. In the case of this study, the responses were limited due to the limitation placed on the number of notices that could be sent out to remind travellers to complete the survey, and to corporate companies' unwillingness to buy in to the results. By obtaining the approval of corporate companies, the researcher will be enabled to send out more frequent reminders, which should ensure a better response rate.

Another consequence of the low response rate was that two variables, i.e. type of occupation and level of employment, could not be fully analysed owing to the low variance factor. If various corporate companies can be convinced to buy in, the sample may be more representative of the population, which would make the conclusions more applicable.

It is recommended that future research be broken down to smaller segments – perhaps focusing on a specific trip phase – for analysis as this would not only shorten the survey, but also limit the number of variables. A more simplified survey could also be considered.

Furthermore, due to the way in which the survey had been set up, the destination information could not be used in the analysis. Further research could therefore be done to determine how the use of mobile travel applications is affected by a traveller's destination.

Another recommendation would be to research the motivations/needs of both corporate companies and travel suppliers in order to identify common ground and areas of conflict.

6.5 CONCLUSION

This chapter concludes the study, which was undertaken to investigate business travellers' current use and future expectations of mobile applications before, during and after business trips. The results indicate that South African business travellers expect mobile travel applications to enable them to make reservations, change reservations, be alerted to gaps, changes and cancelations, be customisable to their preferences, allow for integration into expense systems and allow for communication and work support. Whether all of these functions can be met by a single, all-encompassing mobile application or will have to be made up of several mobile travel applications will have to be determined by the corporate company or supplier. This study highlights a gap in the market for a mobile travel application that can successfully consolidate the content delivery and transactions processing mobile applications in the business travel arena.

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APPENDIX A

- E-mail sent to respondents specifying letter of consent -

Welcoming email sent to the business travellers:

THE EXPECTATIONS OF BUSINESS TRAVELLERS REGARDING MOBILE TRAVEL APPLICATIONS: NOW AND IN THE FUTURE

Dear valued business traveller,

Carlson Wagonlit Travel South Africa has identified you as a regular traveller. You are herewith invited to participate in an academic research study. This study is conducted by Adrenè van der Merwe, Programme Manager at Carlson Wagonlit Travel, and a master's student in the Division of Tourism Management at the University of Pretoria.

Please be assured that this is not a service delivery survey. Your response will assist in drawing conclusions regarding the above-mentioned topic for the purpose of the academic research undertaken by this student.

The purpose of the study is to determine the current expectations of business travellers, such as yourself, regarding the current use and future expectations of mobile applications.

We would greatly appreciate your participation, but please note:

- This study involves an anonymous survey. Your name will not appear on the questionnaire and the answers you give will be treated as strictly confidential. You cannot be identified in based on the answers you give.
- Your participation in this study is very important to me. You may, however, choose not to participate and you may also stop participating at any time without any negative consequences.
- Please answer the questions as completely and honestly as possible. This should not take more than 15 minutes of your time.
- The results of the study will be used for academic purposes only and may be published in an academic journal. I will provide you with a summary of our findings on request.
- Please contact my study leader, Dr A. Douglas, at tel. 012 420 4073 (email: Anneli.Douglas@up.ac.za) if you have any questions or comments regarding the study.

By clicking on the link below and completing the survey you confirm that you:

- have read and understand the information provided above; and
- agree to participate in the study on a voluntary basis.

Please click here to participate in this study: WWW.URLLINK.COM

APPENDIX B

- Printed version of the online questionnaire -

Welcome screen of URL:

Dear valued business traveller

Thank you for your willingness to participate in this survey of the current expectations of business travellers regarding mobile applications and to indicate your expectations from mobile applications in the future. The survey should not take more than 15 minutes to complete. Since this is an anonymous and confidential survey, you cannot be identified and the answers you provide will be used for research purposes only.

Please click on NEXT to start.

The current use and future expectations of business travellers regarding mobile travel applications

First screen:

Dear valued business traveller

Thank you for your willingness to participate in this survey and indicating your current use and future expectations of mobile applications. The survey should not take more than 20 minutes to complete. Since this is an anonymous and confidential survey, you cannot be identified and the answers you provide will be used for research purposes only.

Q1 I hereby consent to participate in this study on a voluntary basis.

- ❍ Yes (1)
- ❍ No (2)

If No Is Selected, Then Skip To End of Survey

Second screen:

Q2 Do you own a smart phone or a tablet device? A smart phone is a mobile telephone such as the iPhone, BlackBerry or Android based mobile phones which include advanced functionality beyond making phone calls and sending text messages. A tablet is a portable computer that uses a touchscreen as its primary input device (Please select the most appropriate answer).

- ❍ I own a smartphone (1)
- ❍ I own a tablet (2)
- ❍ I own a tablet and a smartphone (3)
- ❍ I own neither a smartphone nor a tablet (4)

If I own neither a smartphone ... was selected, skip to Please indicate the type of organisation (Q23)

Q3 How often do you use the applications on your smartphone/tablet as part of your daily business routine?

- ❍ Never (1)
- ❍ Less than once a month (2)
- ❍ Once a month (3)
- ❍ 2-3 times a month (4)
- ❍ Once a week (5)
- ❍ 2-3 times a week (6)
- ❍ Daily (7)

Q4 Does your company enforce (the use of applications are mandated within your company), recommend (specific applications are recommended for you to use if you wish) or prohibit (you are not allowed applications at all) the use of mobile travel applications?

- ❍ Enforce (1)
- ❍ Recommend (2)
- ❍ Prohibit (3)
- ❍ I don't know (4)
- ❍ None of the above (5)

Third screen:

Q5 How many times have you travelled domestically and/or internationally with-in the past 12 months (please indicate using numbers only)? (Please indicate the number of return trips travelled domestically and internationally as per the options given below, e.g. travelling from Johannesburg to Cape Town and back to Johannesburg is one (1) trip, or travelling

from Johannesburg to Dubai, then to Phuket and Singapore and back to Johannesburg is one (1) trip).

_____ return domestic trips (within the borders of South Africa) (4)
_____ return African trips (travel within the African Continent) (5)
_____ return international trips (outside Africa) (6)

Q6 Please select the countries you have travelled to in the past 12 months. (Kindly indicate all appropriate options.)

- ❑ Afghanistan (4)
- ❑ Albania (5)
- ❑ Algeria (6)
- ❑ Andorra (7)
- ❑ Angola (8)
- ❑ Antigua and Barbuda (9)
- ❑ Argentina (10)
- ❑ Armenia (11)
- ❑ Aruba (12)
- ❑ Australia (13)
- ❑ Austria (14)
- ❑ Azerbaijan (15)
- ❑ Bahamas, The (16)
- ❑ Bahrain (17)
- ❑ Bangladesh (18)
- ❑ Barbados (19)
- ❑ Belarus (20)
- ❑ Belgium (21)
- ❑ Belize (22)
- ❑ Benin (23)
- ❑ Bhutan (24)
- ❑ Bolivia (25)
- ❑ Bosnia and Herzegovina (26)
- ❑ Botswana (27)
- ❑ Brazil (28)
- ❑ Brunei (29)
- ❑ Bulgaria (30)
- ❑ Burkina Faso (31)
- ❑ Burma (32)
- ❑ Burundi (33)
- ❑ Cambodia (34)
- ❑ Cameroon (35)
- ❑ Canada (36)
- ❑ Cape Verde (37)
- ❑ Central African Republic (38)

- ❑ Chad (39)
- ❑ Chile (40)
- ❑ China (41)
- ❑ Colombia (42)
- ❑ Comoros (43)
- ❑ Congo, Democratic Republic of the (44)
- ❑ Congo, Republic of the (45)
- ❑ Costa Rica (46)
- ❑ Cote d'Ivoire (47)
- ❑ Croatia (48)
- ❑ Cuba (49)
- ❑ Curacao (50)
- ❑ Cyprus (51)
- ❑ Czech Republic (52)
- ❑ Denmark (53)
- ❑ Djibouti (54)
- ❑ Dominica (55)
- ❑ Dominican Republic (56)
- ❑ Ecuador (57)
- ❑ Egypt (58)
- ❑ El Salvador (59)
- ❑ Equatorial Guinea (60)
- ❑ Eritrea (61)
- ❑ Estonia (62)
- ❑ Ethiopia (63)
- ❑ Fiji (64)
- ❑ Finland (65)
- ❑ France (66)
- ❑ Gabon (67)
- ❑ Gambia, The (68)
- ❑ Georgia (69)
- ❑ Germany (70)
- ❑ Ghana (71)
- ❑ Greece (72)
- ❑ Grenada (73)
- ❑ Guatemala (74)
- ❑ Guinea (75)
- ❑ Guinea-Bissau (76)
- ❑ Guyana (77)
- ❑ Haiti (78)
- ❑ Holy See (79)
- ❑ Honduras (80)
- ❑ Hong Kong (81)
- ❑ Hungary (82)

- ❑ Iceland (83)
- ❑ India (84)
- ❑ Indonesia (85)
- ❑ Iran (86)
- ❑ Iraq (87)
- ❑ Ireland (88)
- ❑ Israel (89)
- ❑ Italy (90)
- ❑ Jamaica (91)
- ❑ Japan (92)
- ❑ Jordan (93)
- ❑ Kazakhstan (94)
- ❑ Kenya (95)
- ❑ Kiribati (96)
- ❑ Korea, North (97)
- ❑ Korea, South (98)
- ❑ Kosovo (99)
- ❑ Kuwait (100)
- ❑ Kyrgyzstan (101)
- ❑ Laos (102)
- ❑ Latvia (103)
- ❑ Lebanon (104)
- ❑ Lesotho (105)
- ❑ Liberia (106)
- ❑ Libya (107)
- ❑ Liechtenstein (108)
- ❑ Lithuania (109)
- ❑ Luxembourg (110)
- ❑ Macau (111)
- ❑ Macedonia (112)
- ❑ Madagascar (113)
- ❑ Malawi (114)
- ❑ Malaysia (115)
- ❑ Maldives (116)
- ❑ Mali (117)
- ❑ Malta (118)
- ❑ Marshall Islands (119)
- ❑ Mauritania (120)
- ❑ Mauritius (121)
- ❑ Mexico (122)
- ❑ Micronesia (123)
- ❑ Moldova (124)
- ❑ Monaco (125)
- ❑ Mongolia (126)

- ❑ Montenegro (127)
- ❑ Morocco (128)
- ❑ Mozambique (129)
- ❑ Namibia (130)
- ❑ Nauru (131)
- ❑ Nepal (132)
- ❑ Netherlands (133)
- ❑ Netherlands Antilles (134)
- ❑ New Zealand (135)
- ❑ Nicaragua (136)
- ❑ Niger (137)
- ❑ Nigeria (138)
- ❑ North Korea (139)
- ❑ Norway (140)
- ❑ Oman (141)
- ❑ Pakistan (142)
- ❑ Palau (143)
- ❑ Palestinian Territories (144)
- ❑ Panama (145)
- ❑ Papua New Guinea (146)
- ❑ Paraguay (147)
- ❑ Peru (148)
- ❑ Philippines (149)
- ❑ Poland (150)
- ❑ Portugal (151)
- ❑ Qatar (152)
- ❑ Romania (153)
- ❑ Russia (154)
- ❑ Rwanda (155)
- ❑ Saint Kitts and Nevis (156)
- ❑ Saint Lucia (157)
- ❑ Saint Vincent and the Grenadines (158)
- ❑ Samoa (159)
- ❑ San Marino (160)
- ❑ Sao Tome and Principe (161)
- ❑ Saudi Arabia (162)
- ❑ Senegal (163)
- ❑ Serbia (164)
- ❑ Seychelles (165)
- ❑ Sierra Leone (166)
- ❑ Singapore (167)
- ❑ Sint Maarten (168)
- ❑ Slovakia (169)
- ❑ Slovenia (170)

- ❑ Solomon Islands (171)
- ❑ Somalia (172)
- ❑ South Africa (173)
- ❑ South Korea (174)
- ❑ South Sudan (175)
- ❑ Spain (176)
- ❑ Sri Lanka (177)
- ❑ Sudan (178)
- ❑ Suriname (179)
- ❑ Swaziland (180)
- ❑ Sweden (181)
- ❑ Switzerland (182)
- ❑ Syria (183)
- ❑ Taiwan (184)
- ❑ Tajikistan (185)
- ❑ Tanzania (186)
- ❑ Thailand (187)
- ❑ Timor-Leste (188)
- ❑ Togo (189)
- ❑ Tonga (190)
- ❑ Trinidad and Tobago (191)
- ❑ Tunisia (192)
- ❑ Turkey (193)
- ❑ Turkmenistan (194)
- ❑ Tuvalu (195)
- ❑ Uganda (196)
- ❑ Ukraine (197)
- ❑ United Arab Emirates (198)
- ❑ United Kingdom (199)
- ❑ Uruguay (200)
- ❑ Uzbekistan (201)
- ❑ Vanuatu (202)
- ❑ Venezuela (203)
- ❑ Vietnam (204)
- ❑ Yemen (205)
- ❑ Zambia (206)
- ❑ Zimbabwe (207)

Q7 You have selected the countries listed below. Please indicate the number of trips taken to each destination (please indicate using numbers only).

The screen was pre-populated with the above selected countries to enable the respondent to select only the names of the countries travelled to

Fourth screen

S2 During the pre-travel phase, information is gathered and decisions relating to the trip made. During this phase the trip is planned and authorised. This relates to any event prior to the departure date. Several functions that mobile travel applications could fulfil during the pre-travel phase are listed below per activity. Kindly follow the instructions per question asked. This survey is very comprehensive in that it lists all the possible functions of mobile travel applications, but please do not get disheartened, you are only requested to select the most compelling functions. Please answer these questions with the destination/country that you travelled to the most in mind.

Q8 Activity: Planning***	Below is a list of mobile travel application functions. Rank, in order of importance, what you believe to be the FIVE currently most important mobile travel application functions are to you personally with 1 being the most important and 5 being the least important.	Note how frequently you currently use these five (5) travel application functions per trip during the pre-travel phase					Please indicate the likelihood of you using all mobile travel application functions (listed on the left of the screen) in future.				
	Rank in order of importance the top 5 (please indicate using numbers only). (1)	Never (1)	Seldom (2)	Sometimes (3)	Often (4)	Very Frequently (5)	Very Unlikely (1)	Unlikely (2)	Possibly (3)	Likely (4)	Very Likely (5)
Door-to-door planning (Applications supporting address-to-address travel using various modes of transport opposed to point-to-point travel where only hubs(like airports and train stations) are considered). (1)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Peer reviews and recommendations on accommodation establishments and other travel related service providers. (2)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Discussion platform for travel related service providers and travel experiences. (3)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Professional social network/ Social business travel (e.g. using a professional social network application [Linkedin] to determine whether individuals from your network is travelling with you/ attending a conference with you). (4)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Travel requirements (e.g. visa, vaccinations etc) (5)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Repeat booking option for simple recurring trips (6)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Destination applications (e.g. weather-, exchange rate applications, general destination information) (7)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍

Exhaustive information on authorised travel suppliers such as approved accommodation service providers. (8)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Traveller profile management (Management of personal information such as Passport/ID Number required for travel reservation purposes). (9)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Travel policy information (Access to company's travel policy) (10)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Travel approval (Approval of travel requests by relevant person within the company). (11)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Refund possibilities of cancelled flights (12)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Health, Safety and Security Alerts (13)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍

Q9 Activity: Pre-Travel Booking	Below is a list of mobile travel application functions. Rank, in order of importance, what you believe the FIVE current most important mobile travel application functions are to you personally with 1 being the most important and 5 being the least important.	Note how frequently you currently use these five (5) travel application functions per trip during the pre-travel phase					Please indicate the likelihood of you using all mobile travel application functions (listed on the left of the screen) in future.				
	Rank in order of importance the top 5 (please indicate using numbers only). (1)	Never (1)	Seldom (2)	Sometimes (3)	Often (4)	Very Frequently (5)	Very Unlikely (1)	Unlikely (2)	Possibly (3)	Likely (4)	Very Likely (5)
Preferencing (The ability to select preferences (e.g. preferred mode of transport or preferred hotel group) (1)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Mobile payment (2)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Make air bookings (4)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Cancel air bookings (5)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Change air bookings (6)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Make accommodation bookings (7)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Cancel accommodation bookings (8)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Change accommodation bookings (9)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Make car rental bookings (10)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Cancel car rental bookings (11)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Change car rental bookings (12)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Loyalty programme manager (view points/status) (13)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Ability to book travel extensions for leisure (14)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Peer reviews and recommendations on accommodation establishments and other travel related service providers (15)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍

Q10 Activity: Itinerary consolidation	Below is a list of mobile travel application functions. Rank, in order of importance, what you believe the FOUR current most important mobile travel application functions are to you personally with 1 being the most important and 5 being the least important.	Note how frequently you currently use these four (4) travel application functions per trip during the pre-travel phase					Please indicate the likelihood of you using all mobile travel application functions (listed on the left of the screen) in future.				
	Rank in order of importance the top 4 (please indicate using numbers only). (1)	Never (1)	Seldom (2)	Sometimes (3)	Often (4)	Very Frequently (5)	Very Unlikely (1)	Unlikely (2)	Possibly (3)	Likely (4)	Very Likely (5)
Consolidated itinerary information/Automated itinerary sync (where your travel schedule is synced with your business diary) (1)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Alerts on gaps in traveller's itinerary e.g. when flights are booked to a specific destination but no accommodation has been booked. (2)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Flight details (e.g. boarding gate changes) (3)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Trip sharing with colleagues, friends, family etc. (4)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍

Fifth screen:

S3 The ‘during travel phase’ commences on the date and time of departure and ends when the traveller is home. During this phase further information gathering takes place, and last minute decisions are made in relation to the trip. During this phase the purpose of the trip is fulfilled. Several functions that mobile travel applications could fulfil during the during-travel phase are listed below per activity. Kindly follow the instructions per question stated. Please answer these questions with the destination/country in mind that you travelled to the most.

Q11 Activity: During Travel Cancellation/Modification	Below is a list of mobile travel application functions. Rank, in order of importance, what you believe the FIVE current most important mobile travel application functions are to you personally with 1 being the most important and 5 being the least important.	Note how frequently you currently use these five (5) travel application functions per trip during the during-travel phase					Please indicate the likelihood of you using all mobile travel application functions (listed on the left of the screen) in future.				
	Rank in order of importance the top 5 (please indicate using numbers only). (1)	Never (1)	Seldom (2)	Sometimes (3)	Often (4)	Very Frequently (5)	Very Unlikely (1)	Unlikely (2)	Possibly (3)	Likely (4)	Very Likely (5)
Make air bookings (1)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Cancel air bookings (2)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Change air bookings (3)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Make accommodation bookings (4)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Cancel accommodation bookings (5)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Change accommodation bookings (6)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Make car rental bookings (7)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Cancel car rental bookings (8)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Change car rental bookings (9)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Alerts on gaps in travellers itinerary (10)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Alerts on delays/cancellations (11)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Search for alternative flights (12)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Refund possibilities (13)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍

Q12 Activity: Continuous Support	Below is a list of mobile travel application functions. Rank, in order of importance, what you believe the FIVE current most important mobile travel application functions are to you personally with 1 being the most important and 5 being the least important.	Note how frequently you currently use these five (5) travel application functions per trip during the during-travel phase					Please indicate the likelihood of you using all mobile travel application functions (listed on the left of the screen) in future.				
	Rank in order of importance the top 5 (please indicate using numbers only). (1)	Never (1)	Seldom (2)	Sometimes (3)	Often (4)	Very Frequently (5)	Very Unlikely (1)	Unlikely (2)	Possibly (3)	Likely (4)	Very Likely (5)
Flight details (e.g. boarding gate changes) (1)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Road traffic information (2)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Mobile payment (3)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Loyalty programme manager (view points/status) (5)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Book travel extensions for leisure (6)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Consolidated itinerary information/Automated itinerary sync (7)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Airport maps (8)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
GPS/Maps/Directions (9)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Destination applications (e.g. weather-, health-, exchange rate applications) (10)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Exhaustive information on authorised travel suppliers (11)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Traveller profile management (12)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Travel policy information (13)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Travel approval (14)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Bag tracker (16)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Timetables of flights or trains (17)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Meetings and Events Alerts (18)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Health, Safety and Security Alerts (19)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Self Baggage Tagging (20)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍

Flight status notification (21)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Currency conversion (23)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍

Q13 Activity: Check-in/Check-out	**Below is a list of mobile travel application functions. Rank, in order of importance, what you believe the THREE current most important mobile travel application functions are to you personally with 1 being the most important and 5 being the least important.**	**Note how frequently you currently use these three (3) travel application functions per trip during the during-travel phase**					**Please indicate the likelihood of you using all mobile travel application functions (listed on the left of the screen) in future.**				
	Rank in order of importance the top 3 (please indicate using numbers only). (1)	**Never (1)**	**Seldom (2)**	**Sometimes (3)**	**Often (4)**	**Very Frequently (5)**	**Very Unlikely (1)**	**Unlikely (2)**	**Possibly (3)**	**Likely (4)**	**Very Likely (5)**
Advanced check-in (flight/hotel) (2)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Fast check-in/check-out (3)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Mobile boarding pass (4)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍

Q14 Activity: Transportation/Hotel comfort	Below is a list of mobile travel application functions. Rank, in order of importance, what you believe the FIVE current most important mobile travel application functions are to you personally with 1 being the most important and 5 being the least important.	Note how frequently you currently use these five (5) travel application functions per trip during the during-travel phase					Please indicate the likelihood of you using all mobile travel application functions (listed on the left of the screen) in future.				
	Rank in order of importance the top 5 (please indicate using numbers only). (1)	Never (1)	Seldom (2)	Sometimes (3)	Often (4)	Very Frequently (5)	Very Unlikely (1)	Unlikely (2)	Possibly (3)	Likely (4)	Very Likely (5)
Extra bag booking (1)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Lounge access (2)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Airport store (3)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Seat choice (4)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Promotions and specials (5)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Car type (6)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Mobile room key (7)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Upgrades (8)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Hotel Menu (9)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Wake-up call (10)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Safe arrival notification (11)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Cash point advisory (12)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Trip sharing with colleagues, friends, family etc. (13)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Professional social network/ Social business travel (14)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍

Q15 Activity: Extra travel information	Below is a list of mobile travel application functions. Rank, in order of importance, what you believe the FOUR current most important mobile travel application functions are to you personally with 1 being the most important and 5 being the least important.	Note how frequently you currently use these four (4) travel application functions per trip during the during-travel phase					Please indicate the likelihood of you using all mobile travel application functions (listed on the left of the screen) in future.				
	Rank in order of importance the top 4 (please indicate using numbers only). (1)	Never (1)	Seldom (2)	Sometimes (3)	Often (4)	Very Frequently (5)	Very Unlikely (1)	Unlikely (2)	Possibly (3)	Likely (4)	Very Likely (5)
Local restaurants (1)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Advice on discount possibilities (2)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Restaurant reviews (3)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Events notification and ticket purchase (4)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍

Q16 Activity: Work related supporting applications	Below is a list of mobile travel application functions. Rank, in order of importance, what you believe the FIVE current most important mobile travel application functions are to you personally with 1 being the most important and 5 being the least important.	Note how frequently you currently use these five (5) travel application functions per trip during the during-travel phase					Please indicate the likelihood of you using all mobile travel application functions (listed on the left of the screen) in future.				
	Rank in order of importance the top 5 (please indicate using numbers only). (1)	Never (1)	Seldom (2)	Sometimes (3)	Often (4)	Very Frequently	Very Unlikely (1)	Unlikely (2)	Possibly (3)	Likely (4)	Very Likely (5)
Integrated expense management (Where you can submit and/or approve expenses via your mobile phone). (1)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
En-route policy compliance push (Advises traveller of travel policy compliance during the trip) (2)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Productivity applications (applications that assists you in fulfilling work related duties whilst away from your desk). (3)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Mobile e-mail (4)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Mobile instant messaging (E.g. Whatsapp, Facebook Messenger). (5)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
File share/collaboration (applications that allow you to share documents with others) (6)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Streamline/ ease everyday business practices such as consolidating my diary with my travel schedule. (8)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Keeps track of certain tasks/duties I need to do for the day/week in the form a project plan or to do list. (9)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Assists me in planning my day. (10)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍

Provides me with access to pertinent information for decision making purposes. (11)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
It is a gateway to the office when I am away from my desk (it allows me to complete business related tasks even when I am away from my desk e.g. responding to critical emails). (12)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍

Sixth screen:

S4 The ‘post-travel phase’ commences once the traveller has returned from the trip. The outcome of the trip is shared and necessary submissions are made. During this phase the purpose of the trip is reflected on and the merit there-off is confirmed or disputed to validate the future requirement to travel. Several functions that mobile travel applications could fulfil during the post-travel phase are listed below per activity. Kindly follow the instructions per question stated. This survey is very comprehensive in that it lists all possible functions of mobile travel applications. but please do not get disheartened, you are only requested to select the most compelling functions Please answer these questions with the destination/country in mind that you travelled to the most.

Q17 Activity: Reviews and personal experience	Below is a list of mobile travel application functions. Rank, in order of importance, what you believe the FIVE current most important mobile travel application functions are to you personally with 1 being the most important and 5 being the least important.	Note how frequently you currently use these five (5) travel application functions per trip during the post-travel phase					Please indicate the likelihood of you using all mobile travel application functions (listed on the left of the screen) in future.				
	Rank in order of importance the top 5 (please indicate using numbers only). (1)	Never (1)	Seldom (2)	Sometimes (3)	Often (4)	Very Frequently (5)	Very Unlikely (1)	Unlikely (2)	Possibly (3)	Likely (4)	Very Likely (5)
Supplier reviews and recommendations (1)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Discussion platform (2)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Professional social network/ Social business travel (3)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Preferencing (The ability to select preferences (e.g. preferred mode of transport or preferred hotel group) (4)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Loyalty programme manager (view points/status) (5)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Trip sharing with colleagues, friends, family etc. (6)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Traveller profile management (7)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍

Q18 Activity: Expenses	Below is a list of mobile travel application functions. Rank, in order of importance, what you believe the THREE current most important mobile travel application functions are to you personally with 1 being the most important and 5 being the least important.	Note how frequently you currently use these three (3) travel application functions per trip during the post-travel phase					Please indicate the likelihood of you using all mobile travel application functions (listed on the left of the screen) in future.				
	Rank in order of importance the top 3 (please indicate using numbers only). (1)	Never (1)	Seldom (2)	Sometimes (3)	Often (4)	Very Frequently (5)	Very Unlikely (1)	Unlikely (2)	Possibly (3)	Likely (4)	Very Likely (5)
Picture upload of expenses (1)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Upload of invoices (2)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Expense approval (3)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍

Seventh screen:

Q19 Which other function would you like mobile travel applications to fulfil currently? Please answer this question.

Q20 Which other function would you like mobile travel applications to fulfil in future? Please answer this question.

Q21 Please indicate how important mobile travel applications are for you in each of the following stages of travel.

	Futile (1)	Not important (2)	Important (3)	Very important (4)
Searching (1)	❍	❍	❍	❍
Booking (2)	❍	❍	❍	❍
Travelling (3)	❍	❍	❍	❍
Post-travel (4)	❍	❍	❍	❍

Q22 Please indicate the business purpose for which you travel the most from the list below:

- ❍ Internal Meeting (1)
- ❍ Customer Meeting (2)
- ❍ Supplier Meeting (3)
- ❍ Interviews (4)
- ❍ Training (5)
- ❍ Relocation (6)
- ❍ Conference (7)
- ❍ Other (Please specify) (8) _____

Eighth screen:

Q23 Please indicate the type of organisation you work for from the list below:

- ❍ Public Sector (1)
- ❍ Private Sector (2)
- ❍ Not for profit organisation (3)
- ❍ I am self-employed (4)
- ❍ Parastatal (e.g. Eskom) (5)
- ❍ Other (Please specify) (6) _____

Q24 Please indicate the type of industry you work in. (Please select one)

- ❍ Agriculture, Forestry and Fishing (1)
- ❍ Mining and Quarrying (2)
- ❍ Manufacturing (3)
- ❍ Electricity, Gas, Steam and Air-Conditioning Supply (4)
- ❍ Water Supply and Waste Management (5)
- ❍ Construction (6)
- ❍ Wholesale and Retail Trade (7)
- ❍ Transportation and Storage (8)
- ❍ Accommodation and Food Services (9)
- ❍ Information and Communication (10)
- ❍ Financial and Insurance Activities (11)
- ❍ Real Estate Activities (12)
- ❍ Professional Scientific and Technical Activities (13)
- ❍ Administrative and Support Service Activities (14)
- ❍ Public Administration and Defence (15)
- ❍ Education (16)
- ❍ Human Health and Social Work Activities (17)
- ❍ Arts, Entertainment and Recreation (18)
- ❍ Other (please specify) (19) _____

Q25 Please indicate whether your company is a global, local or multinational organisation. (Please select one)

- ❍ Global Organisation (A company with representation across the majority of the continents) (1)
- ❍ Multinational Organisation (A company with representation across a few countries) (2)
- ❍ Local Organisation (A company with representations only in South Africa) (3)
- ❍ None of the above (Please specify) (4) _____
- ❍ Other (Please specify) (5) _____

Q26 Do you consider your company to be a SMME? (Small, Medium and Micro-sized Enterprise is a company with less than 500 employees)

- ❍ Yes (1)
- ❍ No (2)

Ninth screen:

Q27 Please indicate your age (please indicate using numbers only):

Q28 Please indicate your gender.
- ❍ Male (1)
- ❍ Female (2)

Q29 Please indicate your monthly Nett income:
- ❍ Less than R6000 (1)
- ❍ R6001 to R10 000 (2)
- ❍ R10 0001 to R15 000 (3)
- ❍ R15 001 to R20 000 (4)
- ❍ R20 001 to R40 000 (5)
- ❍ R40 001 to R 60 000 (6)
- ❍ More than R60 001 (7)
- ❍ I would rather not say (8)

Q30 Please indicate your level of education:
- ❍ Grade 10 or equivalent (1)
- ❍ Grade 12 (Matric) or equivalent (2)
- ❍ Post Matric Certificate/ Diploma (3)
- ❍ Graduate (4)
- ❍ Post Graduate (5)
- ❍ Other (Please indicate) (6) _____

Q31 Please indicate your job function:
- ❍ Sales and account management (1)
- ❍ Engineering (2)
- ❍ Production (3)
- ❍ Technical support (4)
- ❍ General management (5)
- ❍ Research and development (6)
- ❍ Accounting and finance (7)
- ❍ Distribution and logistics (8)
- ❍ IT (9)
- ❍ Marketing/communications (10)
- ❍ Other (Please specify) (11) _____

Q32 Please indicate your level of employment:

- ❍ Paid employee (1)
- ❍ Paid family worker (2)
- ❍ Self-employed (3)
- ❍ Not working: Retired (4)
- ❍ Not working: Housewife (5)
- ❍ Not working: Student (6)
- ❍ Not working: Unemployed (7)

APPENDIX C

- Letter of permission from CWT ZA -

Carlson Wagonlit Travel

23 September 2014

The Ethics Committee
University of Pretoria
Pretoria
0002

Dear Sir / Madam

Research will be undertaken by Adrenè van Rooyen under the guidance of Prof Berendien Lubbe and Dr Anneli Douglas of the Division of Tourism Management, University of Pretoria, in conjunction with Concorde Travel T/A Carlson Wagonlit Travel on the topic "The Current and Future Expectations of Business Travellers Regarding Mobile Travel Applications" during the period 13 October 2014 to 10 November 2014. The research will be conducted amongst corporate travellers that have booked travel with Concorde Travel T/A Carlson Wagonlit Travel from 1 August 2013 to 31 July 2014 and under conditions agreed upon by Concorde Travel T/A Carlson Wagonlit Travel.

Yours sincerely,

Maria Martins
Director:Programme Management
Carlson Wagonlit Travel

APPENDIX D

- Letter for the Research Ethics Committee of the faculty of Economic and Management Sciences granting ethical clearance-

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

FACULTY OF ECONOMIC AND MANAGEMENT SCIENCES

RESEARCH ETHICS COMMITTEE

Tel: +27 12 420 4102
E-mail: berendien.lubbe@up.ac.za

30 October 2014

Strictly confidential

Prof BA Lubbe
Division: Tourism Management

Dear Professor Lubbe

Project:	Current and future expectations of business travellers regarding mobile travel applications
Researcher:	A van Rooyen
Student No:	25062914
Supervisor:	Prof BA Lubbe
Co-supervisor:	Dr A Douglas
Department:	Tourism Management

Thank you for the application you submitted to the Committee for Research Ethics, Faculty of Economic and Management Sciences.

I have pleasure in informing you that the Committee formally approved the above study on 29 October 2014. The approval is subject to the candidate abiding by the principles and parameters set out in the application and research proposal in the actual execution of the research.

The approval does not imply that the researcher, student or lecturer is relieved of any accountability in terms of the Codes of Research Ethics of the University of Pretoria if action is taken beyond the approved proposal.

The Committee requests that you convey this approval to the researcher.

We wish you success with the project.

Sincerely

PROF BA LUBBE
CHAIR: COMMITTEE FOR RESEARCH ETHICS

cc: Dr A Douglas
Student Administration

APPENDIX E

- Language editor letter –

F.J. Opper - Translator and Language Editor

PO Box 162
ST FRANCIS BAY
6312

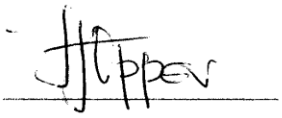
Tel 042 298 0330 / 082 5326 015

Herewith I F. J. Opper, confirm that I undertook the language editing of the dissertation titled:

THE CURRENT IMPORTANCE AND USE OF MOBILE TRAVEL APPLICATIONS DURING THE TRAVEL LIFE CYCLE FOR THE SOUTH AFRICAN BUSINESS TRAVELLER

by

Mrs Adrené van der Merwe.



26 August 2016

APPENDIX F

- Results of hypothesis testing –

APPENDIX G

- Copy of article for submission to Journal of Travel Research (SAGE Publications) –

Appendix F.xlsx

Appendix G Article Cover Page.pdf

Appendix G Article - Manuscript.pdf