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Intergenerational Smartphone Behaviour in Travel Related Activities

Yves Senn | Livia Gotardi | Elena Cholakova | Stefanie Flach | Angelo Schafer

**Lucerne University of Applied Sciences
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Yves Senn

yves.senn@stud.hslu.ch

Livia Mariano Gotardi

liviamariano.gotardi@stud.hslu.ch

Elena Cholakova

elena.cholakova@stud.hslu.ch

Stefanie Flach

stefanie.flach@stud.hslu.ch

Angelo Schafer

angelo.schafer@stud.hslu.ch

Dr. Andreas Liebrich – Head Coach

andreas.liebrich@hslu.ch

Prof. Dr. Jürg Schwarz – Methods Coach

juerg.schwarz@hslu.ch

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Executive Summary

Research Context & Methodology

Due to rapid, technological development, the psychographic composition of travellers has significantly changed compared to previous decades. In this sense, it is imperative to understand how trends will develop in the future, by taking into account the continually increasing acceptance and usage of new technologies (in this research smartphones) in order for companies to be better prepared to serve these newly emerging groups. A survey conducted in Germany, UK and France, designed by PhoCusWright, aimed at understanding the extent to which travelers use technology when planning and taking trips. The quantitative nature of the study required the assistance of the IBM SPSS software to analyze the data. “Binary, logistic regression” and the non parametric tests “Kruskall Wallis” & “Mann Whitney U” have been identified as appropriate for the testing of the defined hypothesis covering the dimensions “Intergenerational Travel Purchasing Behaviour on Smartphone” and “Early Adoption of New Technology & Acceptance of Promotional Offers”.

Outcomes

Regarding the results of “Intergenerational Travel Purchasing Behaviour on Smartphone”, no clear correlation between age cohorts and the booking via smartphone of “hotel rooms” & “airline tickets” could be identified. On the other hand, a clearer correlation could be found regarding the booking via smartphone of “local activities” and “extra services”. In this context, the products have been located along the customer journey: The former (“hotel rooms” & “airline tickets”) are booked during the planning phase, whereas the latter (“local activities” & “extra services”) are more likely to be booked during the travel process (i.e. on-site). Interestingly, no clear difference between the generations could be identified in the planning phase, whereas during the travel process, Generation Y, the youngest cohort of the study, could be identified as “heavy user” compared to other generations. In this sense, the research also states, that hotel rooms are rarely booked very spontaneously (one day or less in advance), regardless of the age of the respondents. The results of “Early Adoption of New Technology & Acceptance of Promotional Offers ” shows that the gap between the age cohorts is narrowing, whereas a clearer difference between “heavy” and “light users” could be identified.

Management Implications & Future Research

Due to differing intergenerational smartphone usage at different stages of the customer journey, it is imperative for marketers to locate products along the different travel phases and to adjust smartphone marketing activities accordingly.

Finally, the identified intergenerational value transfer, assuming a narrowing generational gap, does not allow to use “age” in isolation to other, more complex psychographic factors. This calls for future research which defines the aforementioned psychographic factors and which suggests an appropriate segmentation of smartphone users accordingly.

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1. Introduction

In the past, customers used to visit bricks and mortar travel agencies to purchase their leisure or business travel products. That was due to the fact that travel agencies were the only distribution channel available. However, this scenario changed dramatically over in the last decade, with the easy access to Internet. For instance, the increase in Internet usage has completely changed the way air travel is planned and purchased (Hatton, 2004; Vinod, 2011) and how many other travel services are rendered. From the last decade to recent times, the mobile devices, including smartphones, have also contributed to a new wave of interactions between customers and providers in the tourism industry. Buhalis and Amaranggana (2013) have argued that the rise in mobile technology usage has reshaped travellers buying behaviour. Additionally, it is predicted that purchases of travel related products through smartphones would surpass purchases done on a desktop or laptop computer (Conlin, 2013).

Technological changes are not the only causes of changes in purchasing behaviour of travellers; demographics also play an important factor. That is due to the fact that nowadays, the demographic composition of travellers has significantly changed compared to previous decades. Moreover, it is imperative to understand how demographic trends will develop, so that companies can be better prepared to serve these new groups. When discussing cohorts and travel purchasing behaviours, each one has its particular needs. Nonetheless, Generation Y certainly differs greatly from the others. In that sense, tourism literature has shown great interest in Generation Y travelers recently, for it is predicted to reach its peak spending power and to become a major user of travel related products in the near future (Global Hospitality Insights, 2013). Additionally, Generation Y is considered to be the most active user of technology (Schewe & Meredith, 2006; Moore, 2012; Dewan & Benckendorff, 2013), makes it a desirable target group by most of the companies operating on the travel and tourism market. However, it is not only important to consider Generation Y's purchasing habits on their own, but also how they behave in comparison to other cohorts. The former creates many challenges to tourism related businesses, for there are many dimensions to consider regarding customer acquisition, retention and engagement (Bremner, 2013).

2. Literature Review

2.1. Smartphones Usage in Tourism

As previously mentioned, the advances in technology, including smartphones, have reshaped the way tourism related products are purchased and consumed. Furthermore, the trend is that smartphones are going to be an even more integrated part of individuals' lives. For example, a survey conducted by a company called Salesforce Marketing Cloud, found that 85% of the respondents identified mobile devices as a central part of their every-day life, since they spent close to 3.3 hours using their devices (Mobile Behaviour Report, 2014, p. 6). With regards to tourism, in their research about smartphone usage, Wang, Xiang and Fesenmaier have identified the devices are mostly used namely for "communication, entertainment, facilitation and information search" (2014, p.16). Moreover, there has been researched that argued that the broad variety of activities that can be done via mobile devices, influence tourist's travel behaviour and their overall travel experience (Wang, Park, & Fesenmaier 2011; Wang, Park, & Fesenmaier 2012; Wang, Xiang, & Fesenmaier, 2014). Other research on the topic argues that tourists are becoming more independent and spontaneous and they tend to book hotel rooms in the consumption phase of the trip (Wang et al., 2011), via their mobile devices (Wang & Fesenmaier in Kiilunen, 2013, p.38). In terms of spontaneity, it has been identified that smartphones have a strong effect on the moment of booking or purchase in the course of the entire tourism consumption cycle. This entails that there is more room for tourists to spontaneously alter initial travel routes or to influence micro-decisions such as restaurant, hotel and other leisure activity choices (Kennedy-Eden & Gretzel, 2012; Prayag, Dimanche, & Keup, 2012; Wang et al., 2011; Wang et al., 2014). In terms of other tourism related products and services, customers are more prone to use their smartphone for also purchasing airline tickets, since they feel more autonomous and independent (Yong, 2011). In addition, Generation Y travellers tend to use their smartphones to research and reserve extra services and local activities, more than older travelers (Gasdia, Hoffman, & Rheem, 2011, p.36).

In terms of demographic usage of smartphones there are several differences between cohorts that should be taken into consideration if companies want to target these groups. For instance, Baby Boomers and Generation X respond to economic value (Kumar & Lim, 2008) and are price sensitive, which in turn requires marketers to offer products that stand for good value. With respect to their technology literacy, Baby Boomers have proven to be able to learn how to handle new technology but they show still low ease of use for mobile data services (Yang & Jolly, 2008). In turn, user-friendly interfaces that allow this cohort to access special offers received on their mobile devices independently, should be considered. With respect to technology acceptance, Generation X mobile device users show a high ease of use but are not driven by perceived usefulness when it comes to the use of mobile technology (Yang & Jolly, 2008). This implies, that the Generation X user needs to be motivated by showing them the obvious advantages of mobile devices for tourism purposes. Interestingly, a great portion of travelers aged 35-54 feel that their

smartphones are more useful during the on-site part of the trip, rather than for planning (Gasdia, Hoffman, & Rheem, 2011, p.35). Additionally, Generation X users are suspicious with respect to aggressive marketing campaigns and need to be convinced of the usefulness of a product and prefer to tailor-made products and services to fulfill their needs (Williams & Page, 2011). Generation Y users, on the other hand, can be designated as heavy users of smartphones and have different behaviour. They tend to use their smartphone in everyday routine and are greatly influenced by word-of-mouth (Yoo & Gretzel, 2008; Chang & Jang, 2014) and are more susceptible to direct marketing, since they have grown up influenced by online and offline advertising (Freestone & Mitchell, 2004). According to a study conducted by the mobile App developer Tapoy, the older Generation Y (25-34), are more likely to be influenced by advertisements in applications compared to other generations (Greenberg 2012 in Kiilunen 2013, p. 45). Although they are more likely to download travel-related mobile apps (Global Hospitality Report, 2013, p.9) compared to non-Generation Y users, reaching out to them via company-specific apps might not be the most effective way to turn them into costumers. In addition, marketers should take advantage of the spontaneous nature of the Generation Y tourists when it comes to alter their travel plans by sending them promotional last minute offers via mobile applications and win them as costumers. Besides, it has been argued that last-minute sales channels would increase in importance over the next few years, not only to Generation Y users, but to other cohorts as well (Global Hospitality Report, 2013, p.7).

2.2. Attitudes Towards Smartphones

2.2.1. Generation Y

Schewe & Meredith (2006) have suggested that Generation Y, as a cohort, is comprised of technology devotees. Born between 1980 and 1994, they have also been cited as “Millennium Users” and they are active mobile device users (Moore, 2012). Davidson also argued that these users are more at ease with new technologies and broadcast an intrinsic interest and understanding for the use of new technologies (2008). Furthermore, this cohort has been described as early adopters of new technology (Kumar & Lim, 2008, p. 570). As mentioned in the introduction section of this study, there has been a good deal of research that in the field so far that is about the Gen-Y cohort. This can be attributed to the fact that Generation Y (or millennial) is the cohort that most actively uses their mobile device to access the Internet (Millennials Roundup, 2014). In addition, according to the Global Hospitality Report “it will become the core customer group for travel and leisure during the next 5 to 10 years” (2013, p. 8). Barton, Haywood, Jhunjhunwala and Bhatia (2013) described that Generation Y consumers are more likely to book their trips with online or using applications on their smartphones (p. 9). Dawson and Kim (2009) as well as Neault (2014) have described Generation Y tourists as “more spontaneous and susceptible to impulse decisions” and are likely to book last minute offers of local services via their mobile device (Global

Hospitality Report, 2013). In this regard, McIntyre has also described in his study about decision-making that young tourists are more likely to make on-site, spontaneous decisions (2007).

2.2.2. Other cohorts

When considering smartphone usage in tourism, it is important to assess general attitude and handling of the devices. As the existing literature in the field shows, Baby Boomers include the generation born between 1946 and 1964 and the Generation X cohort, which precedes Generation Y, were born between 1965 and 1977 (Williams & Page, 2011). Although, it has been stated that the younger the consumer the more likely is the adoption to early technology (Yang & Jolly, 2008), older generations should not be ignored (Kumar & Lim, 2008). That is because Generation X have experienced the introduction of personal computers and the internet, and they are aware of the importance of information and technology in products, as well as the high value of technology literacy (Williams & Page, 2011). Nevertheless, although Generation X consumers are able to handle new technologies, such as smartphones, their perceived usefulness for the technology is rather low (Yang & Jolly, 2008). Baby boomers, as opposed to Generation X consumers, have highly regarded the usefulness of smartphone data service, but they rate it low in terms of ease of use (Yang & Jolly, 2008). This means, that they are aware of the usefulness of mobile devices, but might be afraid of how to handle them. Kumar and Lim on the other hand, have defined Baby boomers as being experienced users of modern technologies, yet mainly using it for phone calls (2008). However, Caprani et al., (2012) found that 70% of mobile phone users between the ages of 50 and 64 mainly use the camera function in their smartphones (p. 2).

3. Methodology

3.1. Research Aim & Objectives

The main aim of this study is to explore intergenerational smartphone behaviour in terms of booking travel related products. There is a focus on how Generation Y behave in comparison to other cohorts, as well as the differences between heavy and light smartphone users. From a management perspective, the findings from this study could assist in creating strategies on how to best capture different cohorts. In terms of objectives, the ones set for this study were:

- To analyze differences in intergenerational usage their smartphones in a travel context
- To analyze usage patterns of smartphone users (Heavy versus light usage)
- To explore the smartphone booking patterns of tourists from Generation Y against the other cohorts, who have booked their trips in the last 12 months

3.2. Research Question

Has the rise of smartphone lead to distinctively different booking behaviour of tourism related products between Generation Y and the other cohorts?

3.3. Hypotheses

The hypotheses tested in this study were:

- H(1) Generation Y travellers buy more extra services with their smartphone than other Generations
- H(2) Generation Y travellers buy more local activities with their smartphone than other Generations
- H(3) Generation Y travellers book more airline tickets with their smartphone than other Generations
- H(4) Generation Y travellers book hotel rooms with their smartphone more than other Generations
- H(5) Generation Y travellers tend to book hotel rooms with their smartphone more spontaneous than other Generations
- H(6) Heavy Users are early adopters of new technology compared to light users
- H(7) Generation Y travellers are early adopters of new technology compared to other Generations
- H(8) Heavy Users feel more comfortable receiving tourism promotional offers from nearby businesses than light Users
- H(9) Generation Y travellers feel more comfortable receiving tourism promotional offers from nearby businesses than other generations

3.4. Sample Size & Questionnaire

With regards to sample size, 3457 participants from Germany, UK and France have responded survey questionnaire that aimed at understanding the extent to which travelers use technology when planning and taking trips. The specific focus of the group was to explore smartphone booking patterns of Generation Y versus the other cohorts. The questionnaire used was comprised of a combination of closed-ended questions, ranging from Likert-type to selection type questions. It was also divided in three parts, the first one being about general travel behavior, with questions such as: “how many overnight trips of each type did you take that required the purchase of travel products”. The second part of the questionnaire, was concerned with mobile usage in general, and the third part with how mobile is used for travel purposes.

3.5. Data Analysis

Due to the quantitative nature of this study, the assistance of the IBM SPSS software was used to analyze the data (For the summary of the tests used, please refer to Appendix A(i)). Descriptive statistical analyses were also performed to obtain a clear understanding of the population. Measures of central tendency (means, medians, and other percentiles) and dispersion (standard deviations, ranges) were also computed. Privitera (2014) and Bryman & Bell (2007) recommend choosing the appropriate test based on the nature of the dependent and independent variable. The nature of the variables have been identified according to Stevens (1946) and the appropriate test chosen accordingly (for the decision trees, see Appendix A(ii)):

- Whenever the dependent variable was binary, logistic regression analysis was performed. Within each logistic regression analysis, the predictor was always the categorical variable, which groups the respondents in 4 different age cohorts. In this context, the youngest age cohort “Generation Y” has been chosen as reference category.
- Whenever the dependent variable was categorical and several independent samples, namely the 4 Generations “Generation Y”, “35-44”, “Baby Boomers” and “65+” were compared, non-parametric Kruskal Wallis test was performed, followed by posthoc pairwise comparisons.
- Whenever the dependent variable was categorical and two independent samples, namely “Heavy” and “Light” Users, were compared, non-parametric Mann Whitney U test was performed.

According to Coe (2002) it is important to calculate the effect sizes of samples, since it will have an impact on whether the results are significant or not. This was done whenever a model as a whole showed significant results ($p < .05$). The choice of an appropriate method was based on the chosen tests. In this context, the following methods were used (Please refer to Appendix B for formulas and value table used to calculate the effect sizes in this study):

- Whenever a binary, regression analysis test was performed, *Cohen's f^2* (1988) was chosen to calculate the effect size.
- Whenever a Kruskal Wallis test was performed, Wilcoxon Signed-rank (w) was calculated to suggest the effect size (Siegel, 1956).
- Whenever a Man Whitney U test was conducted, *Hedges g* (1985), taking different sample sizes into account, was calculated to suggest the effect size.

3.6. Limitations

3.6.1. Questionnaire design

The main limitation related to this study, was the fact that the research team did not design the questionnaire. The main purpose of PhoCusWright was to generate a descriptive report that highlighted general European consumer travel behaviour. Nevertheless, this approach was not in line with the group's research question and objectives. If the team had designed the questionnaire, a more explorative approach would have been used, perhaps yielding to more information on purchasing behaviour of Generation Y travellers or on how to segment smartphone users with behavioural factors, not demographically.

3.6.2. Labeling of variables

When the group first looked at the raw data on SPSS, it was somewhat difficult to identify the correct variables for they were not clearly labeled. Besides, some of the labeling used on SPSS does not correspond to the questions presented on the questionnaire.

3.6.3 Limited access to full sample

As a precondition, PhoCusWright did not permit that the group accessed the full sample. Consequently, syntaxes were prepared based on a random sample size, which at later stage were tested on the full sample in presence of the head coach. This practice resulted in different results found between the samples and that additional time was invested to make sure that findings derived would be significant.

3.6.4. Problem of Generalization

The discussed and challenged literature is investigating in partially different markets than the UK, French or German (where PhoCusWright collected the data). Thus, it cannot be confirmed with full certainty, that some findings are only applicable to these specific markets. However, this study did not take any demographic particularities of the literature to be challenged into account.

4. Results

4.1. Profile of the Survey Respondents

From the PhoCusWright survey data, there were (n=3457) participants from Germany, UK and France and their profile, according to the study and relevance for the project, is described below (See Appendix C for the SPSS outputs).

Figure 1.

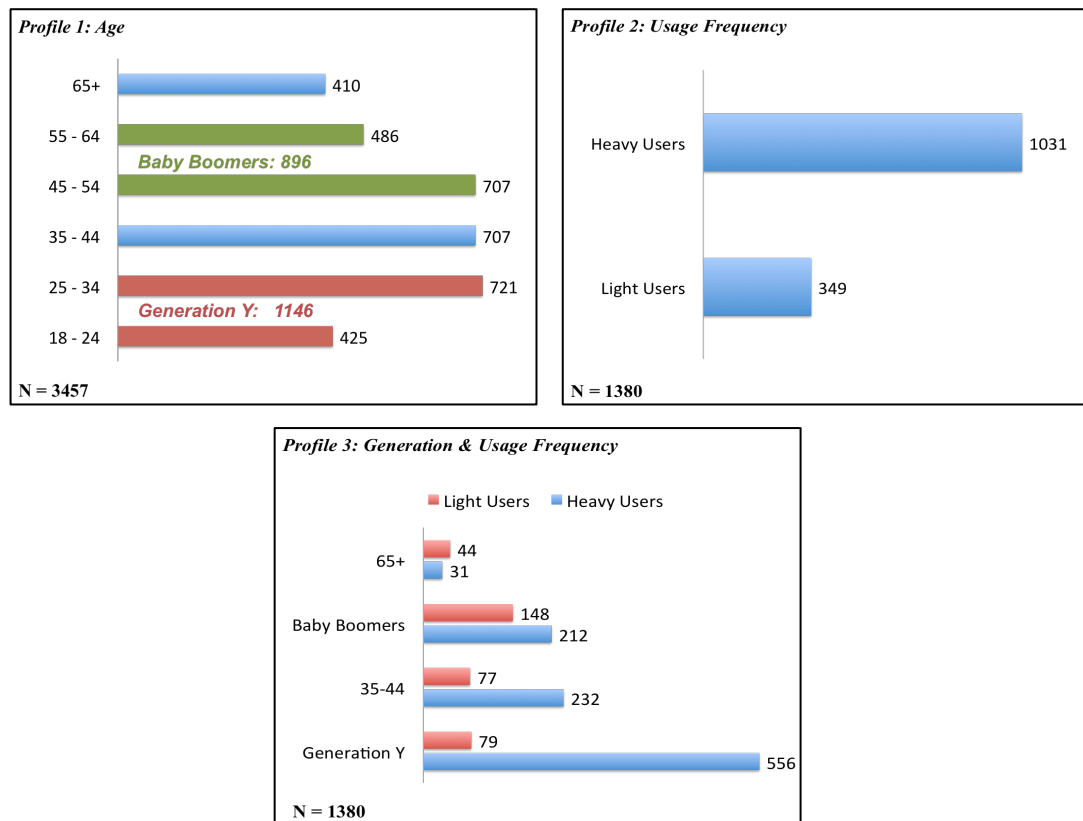


Figure 1. Sample Profiles

The study aimed at comparing Generation Y, as a reference, with three other cohorts: “35-44”, “Baby Boomers” and “65+ (Profile 1). Another aim was to examine differences between “Light Users” of smartphones (monthly or less frequent access to the internet) and “Heavy Users” of smartphones (daily access to the internet). The according frequencies are illustrated in Profile 2. Finally, Profile 3 shows the distribution of Light and Heavy Users along the examined generations.

4.2. Intergenerational Travel Purchasing Behaviour

4.2.1. Purchasing of extra services, local activities, and airline tickets

To find out whether general Generation Y respondents tend to buy extra services (i.e. extra baggage, or in-flight WIFI) more than other generations, the following hypotheses were designed:

H(0) Generation Y travellers do not buy more extra services with their smartphone than other Generations

H(1) Generation Y travellers buy more extra services with their smartphone than other Generations

Binary logistic regression analysis was carried out. The model as a whole is significant ($\chi^2=149,915$, $df=3$, $p=.000$), explains 11% of variance and suggests, according to *Cohen's f*² (0.11), an effect size which is near to moderate. Thus, the null-hypothesis can be rejected. The results of the logistic regression analysis show, that the odds of purchasing extra services with a smartphone, taking Generation Y as starting point, are significantly decreasing from generation to generation (For the SPSS output and exact, relative probabilities, see Appendix D (i)). Descriptive analysis was conducted and illustrated in Figure 2. presenting the share of persons per age cohort who actually did buy extra services with a smartphone:

Figure 2.

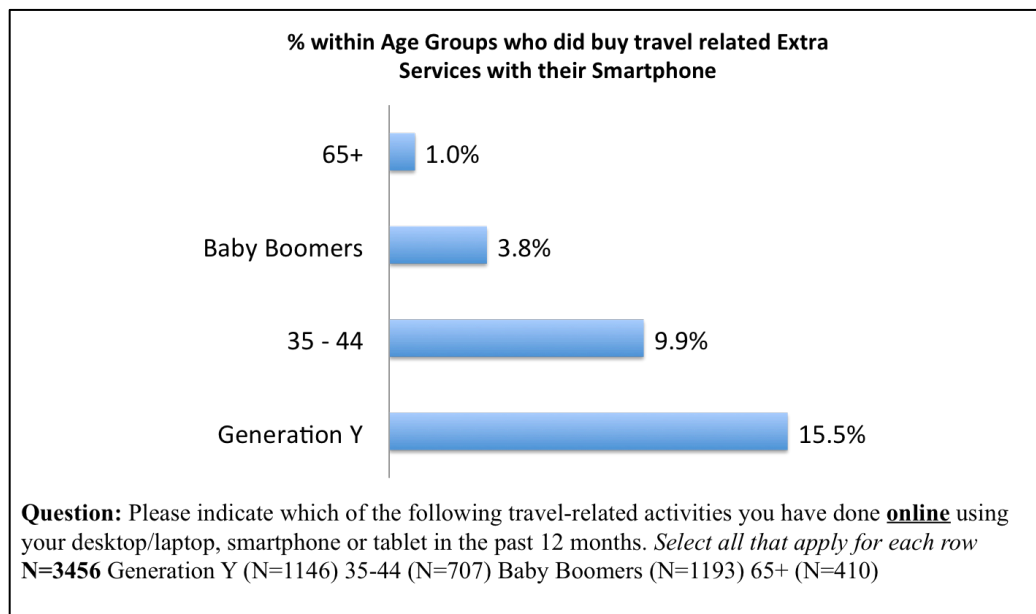


Figure 2. Buying Extra Services with Smartphone

As one can notice, 15.50% of Generation Y, 9.9% of the age group “35-44”, 3.8% of the Baby Boomers and only 1% of the oldest Generation “65+” stated having bought travel related extra services.

In terms of buying behaviour for local activities, such as restaurants and show tickets, the following hypothesis was set:

H(0) Generation Y travellers do not buy more local activities with their smartphone than other Generations

H(2) Generation Y travellers buy more local activities with their smartphone than other Generations

Once again, binary logistic regression analysis was conducted, and the model as a whole is significant ($\chi^2=139,763$, $df=3$, $p=.000$), explains 8% of variance and suggests, according to *Cohen's f*² ($=.08$), an effect size which is small to moderate. Due to the lower effect size, the null-hypothesis cannot clearly be rejected. Nevertheless, the relative probability has been analysed and indicates, again, a decrease of the odds from generation to generation (For the exact results and SPSS output, see Appendix D (ii)). Descriptive Analysis was conducted. Figure 3., below, illustrates the aforementioned results:

Figure 3.

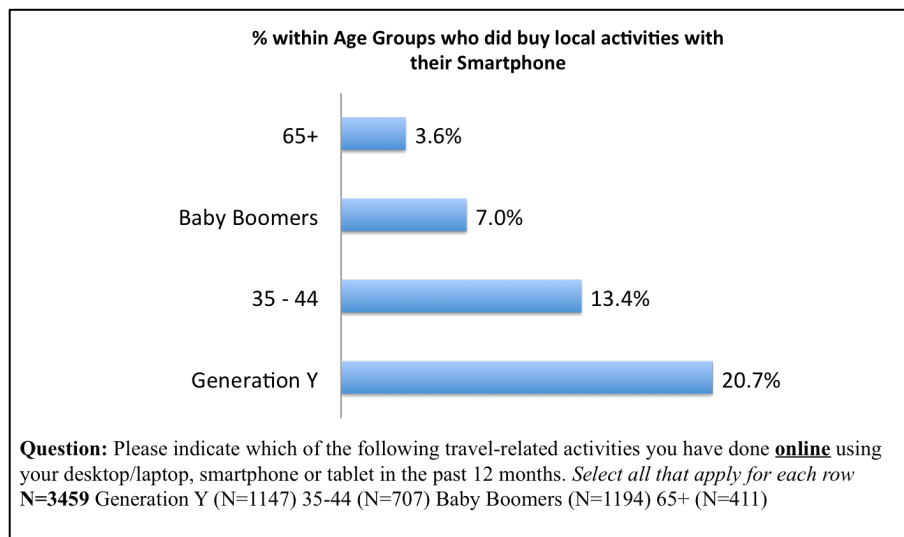


Figure 3. Buying Local Activities with Smartphone

About 20.7% of Generation Y respondents stated having bought local activities such as restaurants and show tickets in the past 12 months, 13.4% within the age group 35-44, 7% of the Baby Boomers and, finally, 3.6% of the oldest group 65+. Even though the small to moderate effect size does not allow clear statements, a relationship between age cohorts and buying local activities can be identified.

It was also important to analyze whether different booking behaviours were demonstrated in terms of airline tickets booking. To test the former, the following hypothesis was created:

H(0) Generation Y travellers do not book more airline tickets with their smartphone than other Generations

H(3) Generation Y travellers book more airline tickets with their smartphone than other Generations

Binary logistic regression analysis was performed. In this case, however, the test is not significant ($\chi^2=6,639$, $df=3$, $p=.084$) and the null-hypothesis is accepted instead (See Appendix D (iii) for SPSS output). The results are mirrored in Figure 4. below:

Figure 4.

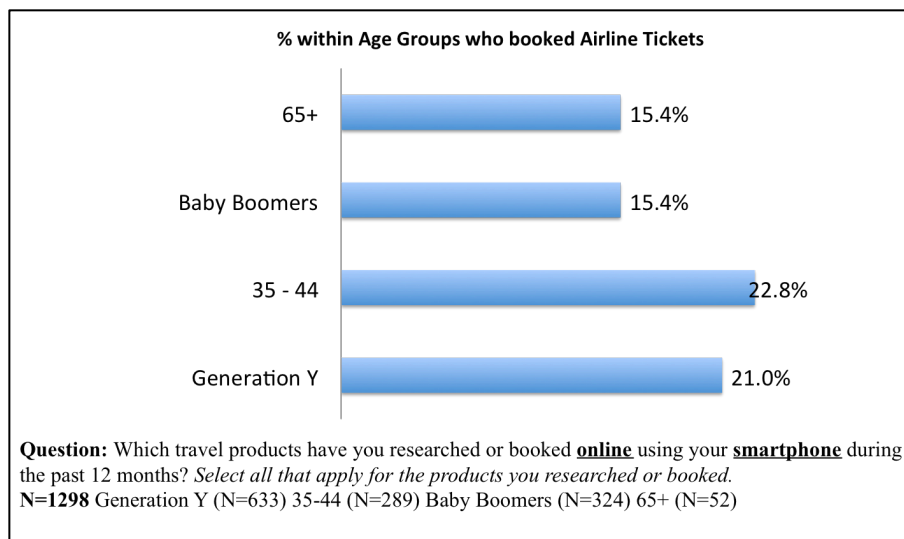


Figure 4. Booking Airline Tickets with Smartphone

The figure shows that Generation Y and the next older cohort, with a score around 20%, perform comparably. Furthermore, the two older cohorts have the exact same score (15.4%), a value that, compared to the results within the other booking activities, is rather high.

4.2.2. Hotel rooms & spontaneity

Besides the previously mentioned products, it was also imperative to investigate the cohorts' behaviour towards hotel rooms' products. For this, the group analyzed two sets of hypotheses, one comparing the purchasing behaviour of Generation Y against the other cohorts, and the other regarding the spontaneity of Generation when booking hotel rooms. The first set of hypotheses was:

H(0) Generation Y travellers do not book more hotel rooms with their smartphone than other Generations

H(4) Generation Y travellers book hotel rooms with their smartphone more than other Generations

To test the first set of hypotheses, Binary logistic regression analysis was computed. The model as a whole is significant ($\chi^2=9,920$, $df=3$, $p=.019$). The model explains 1% of variance and suggests, according to *Cohen's f*² ($=0.01$), a very small effect size. The statistical data, in this case, is very powerful due to its large sample size. Thus, A type II error, when the null hypothesis is false, but erroneously fails to be rejected, can be assumed (See Appendix D (iv) for the SPSS output). Nevertheless, descriptive analyse was computed and the results presented in Figure 5.:

Figure 5.

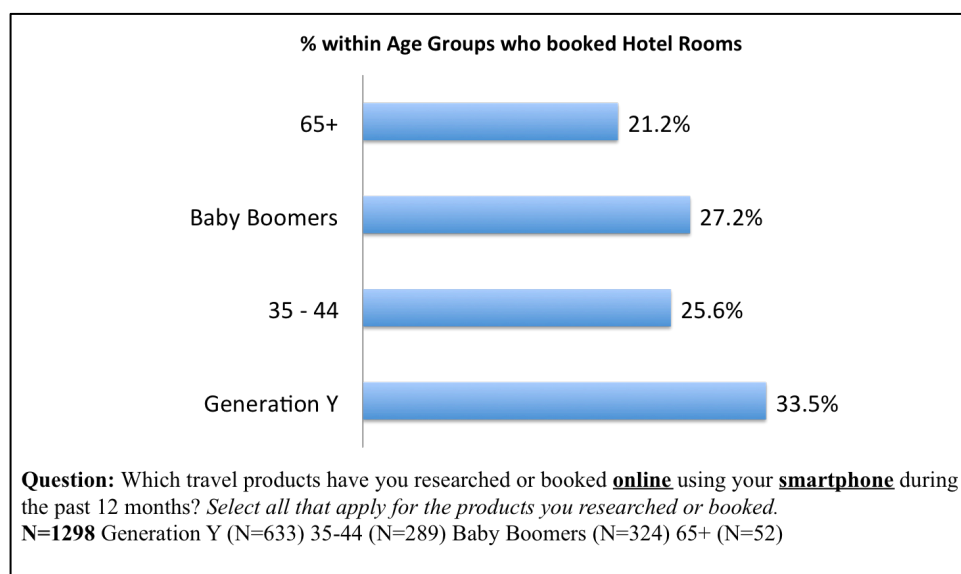


Figure 5. Booking of Hotel Rooms

One could conclude that no significant effect between generations and booking hotel rooms could be identified. This confirms that the significant outcome of the hypotheses testing was due to the power of data. However, the scores are remarkably high (all above 20%). On the other hand, in term of how far in advance a hotel room was booked, the group wanted to verify whether or not Generation Y was more spontaneous than other cohorts. For this, the second set of hypotheses was designed:

H(0) Generation Y travellers do not tend to book hotel rooms with their smartphone more spontaneous than other Generations

H(5) Generation Y travellers tend to book hotel rooms with their smartphone more spontaneous than other Generations

Non-parametrical Kruskal-Wallis test and pairwise post hoc tests were used. The model as a whole is significant ($\chi^2=9,417$, $df=3$, $p=.024$). Nonetheless, overall there is no any significant difference between the pairs, and for this reason the null-hypothesis cannot be rejected (See Appendix D (v) for the SPSS output). Figure 6. below, illustrates the descriptive results:

Figure 6.

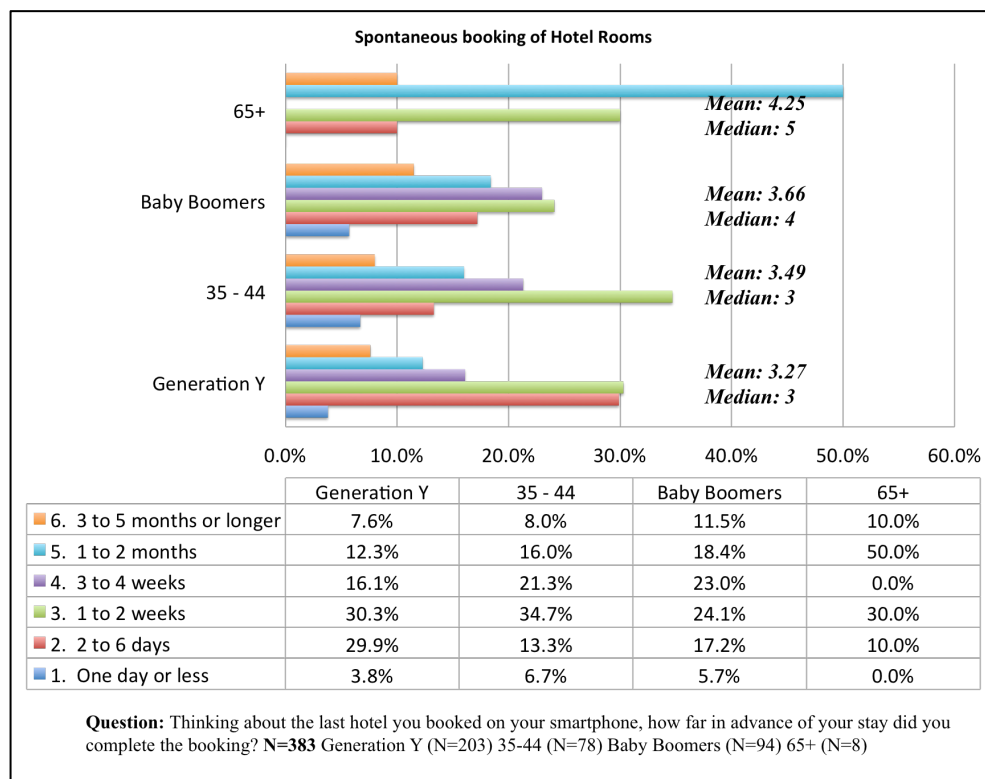


Figure 6. Spontaneous booking of hotel rooms

Due to the small sample size (N=8), the age group 65+ should be judged cautiously. However, the figure shows that only a few of all respondents stated having booked a hotel room very spontaneously (one day or less in advance). Even though the mean values show a tendency that younger Generations tend to book hotel rooms more spontaneous (especially illustrated in the share of category 2: “2 to 6 days”), the overall difference to the other cohorts is not large enough for being significant.

4.3. Early Adoption of New Technology & Acceptance of Promotional Offers

There was also the need to compare usage patterns, rather than just intergenerational aspects. One important aspect that needed to be addressed was the adoption of technology and how comfortable travellers were to receive promotional offers. These concepts were tested first with the aspect of usage frequency (i.e. Heavy versus Light), and then between the cohorts (i.e. Generation Y versus the other cohorts).

4.3.1. Adoption of technology

In terms of early adoption of technology, respondents were asked to indicate on how much they agreed or disagreed with the statements. The first set of hypotheses tested is:

H(0) Heavy Users are not early adopters of new technology compared to light users

H(6) Heavy Users are early adopters of new technology compared to light users

In this case, Non-parametric Man Whitney U was identified as the appropriate test. The p-value (Mann-Whitney U=122319.000, Z=-9.637, p=.000) was lower than .05, indicating high significance of the model as whole. Hedge's g (=0.6), suggests a medium effect size. Thus, the null-hypothesis can be rejected (See Appendix D (vi) for SPSS output). The descriptive results, including mean and median values, are presented in Figure 7. below:

Figure 7.

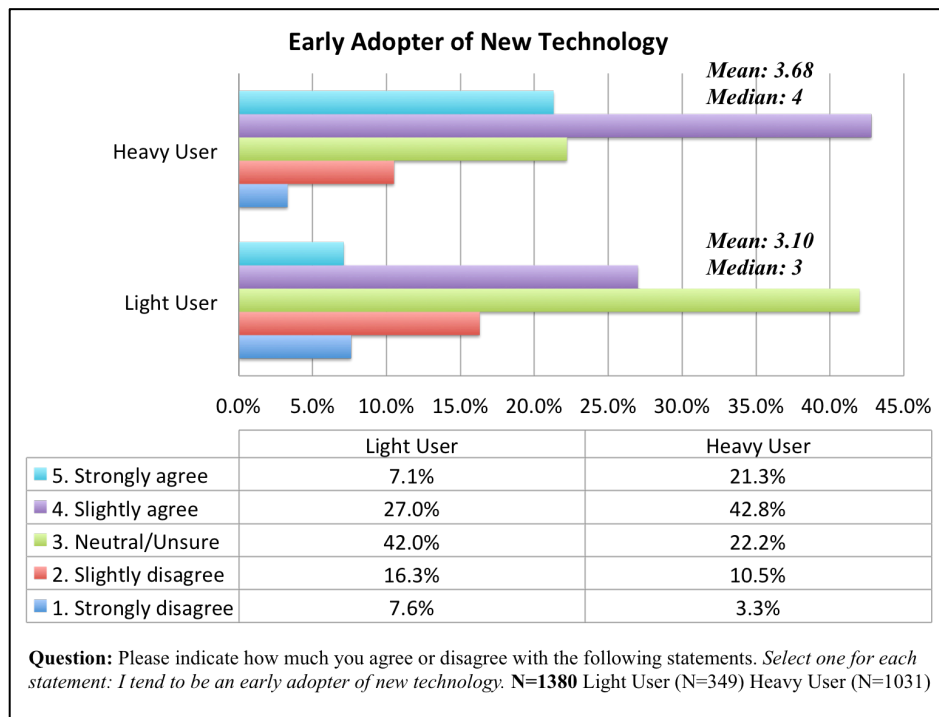


Figure 7. Early Adopter of New Technology – Light VS Heavy Users

The figure illustrates that “Heavy Users” are more likely to be early adopters of new technology ($\tilde{x}=4$, $\bar{x}=3.68$) than “Light Users” who have a rather neutral approach to new technology ($\tilde{x}=3$, $\bar{x}=3.10$).

As previously mentioned, there was a second set of hypotheses tested in the same topic, but this time comparing Generation Y to other cohorts:

H(0) Generation Y travellers are not early adopters of new technology compared to other Generations

H(7) Generation Y travellers are early adopters of new technology compared to other Generations

Non-parametric test Kruskal Wallis was conducted. Again, the model as whole is significant ($\chi^2=161.523$, $df=3$, $p=.000$) with a *Wilcoxon Signed-rank* ($=0.2$) suggesting a small to medium effect size which means that the null-hypothesis cannot clearly be rejected (See Appendix D (vii) for SPSS output). The descriptive results are presented in Figure 8., below:

Figure 8.

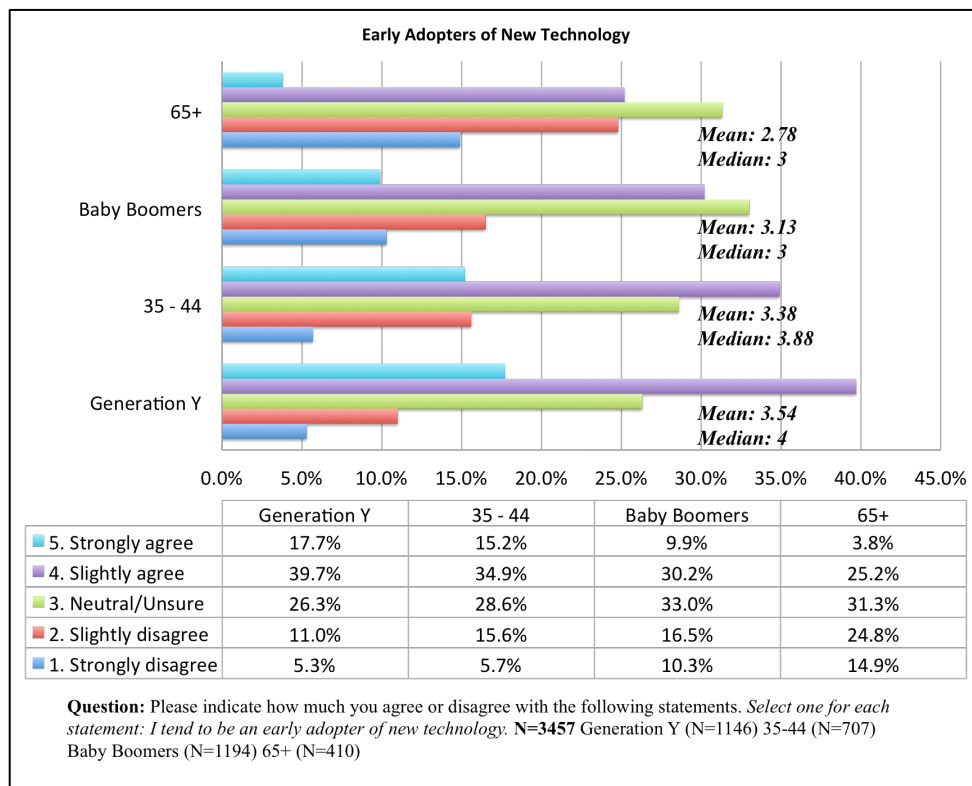


Figure 8. Early Adopters of New Technology – Generation Y VS other Generations

When it comes to early adoption of new technology, Generation Y lead the mean ranks ($\bar{x}=3.54$), followed by the next older Generation “35-44” ($\bar{x}=3.38$). “Baby Boomers” also have a mean value above 3 ($\bar{x}=3.13$) whereas the oldest Generation “65+” has the lowest mean value ($\bar{x}=2.78$). The largest “gap” can be identified between “Baby Boomers” and “65+”.

4.3.2. Willingness to receive promotional offers

In the aspect of whether different cohorts or users feel comfortable in receiving promotional offers, again, two sets of hypotheses were tested.

H(0) Heavy Users do not feel more comfortable receiving tourism promotional offers from nearby businesses than light Users

H(8) Heavy Users feel more comfortable receiving tourism promotional offers from nearby businesses than light Users

Non-parametric Mann-Whitney U test was performed. The difference between the two groups is significant (Mann-Whitney U=121723,5 Z=-9.574, p=.000). Hedges' g (=0.6) suggests a moderate effect size. This means that the null-hypothesis can be rejected (See Appendix D (viii) for SPSS output). Regarding the descriptive results, the values are illustrated in the Figure 9., below:

Figure 9.

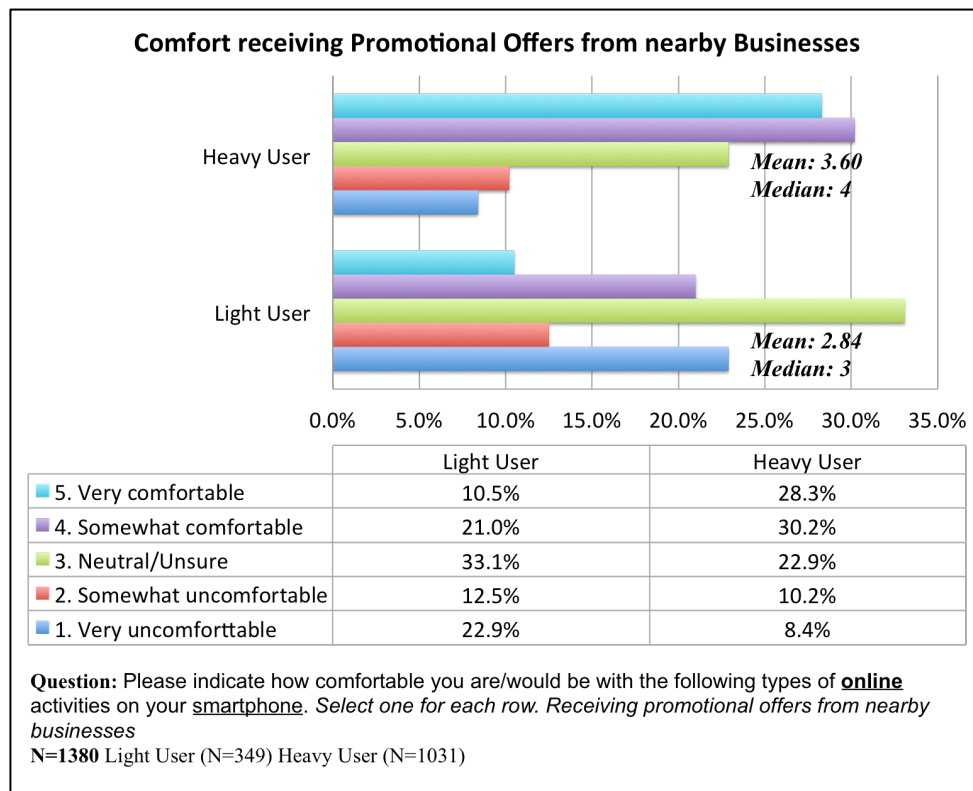


Figure 9. Grade of Comfort receiving Tourism Promotional Offers from nearby Businesses - Light VS Heavy Users

The comparison of the mean and median values show, that “Heavy Users” ($\tilde{x} = 4$, $\bar{x} = 3.60$) feel significantly more comfortable than “Light Users” ($\tilde{x} = 3$, $\bar{x} = 2.84$). The second set of hypotheses for the topic of promotional offers is found below:

H(0) Generation Y travellers do not feel more comfortable receiving tourism promotional offers from nearby businesses than other generations

H(9) Generation Y travellers feel more comfortable receiving tourism promotional offers from nearby businesses than other generations

Non-parametric Kruskal-Wallis was performed and the results have indicated that the test is highly significant ($\chi^2=66,840$, $df=3$, $p=.000$) with a *Wilcoxon Signed-rank* ($=0.15$) suggesting a close to small effect size. However, post hoc pairwise comparison showed, that there is no significant difference between Generation Y and the next older generation. Thus, the null-hypothesis cannot be rejected (See Appendix D (ix) for SPSS outputs). As one can notice, Figure 10. illustrates the proximity of the age groups Generation Y ($\bar{x}=3.43$) and the next older Generation 35-44 ($\bar{x}=3.36$). Again, the largest “gap” is found between Baby Boomers ($\bar{x}=3.10$) and the oldest cohort 65+ ($\bar{x}=2.67$).

Figure 10.

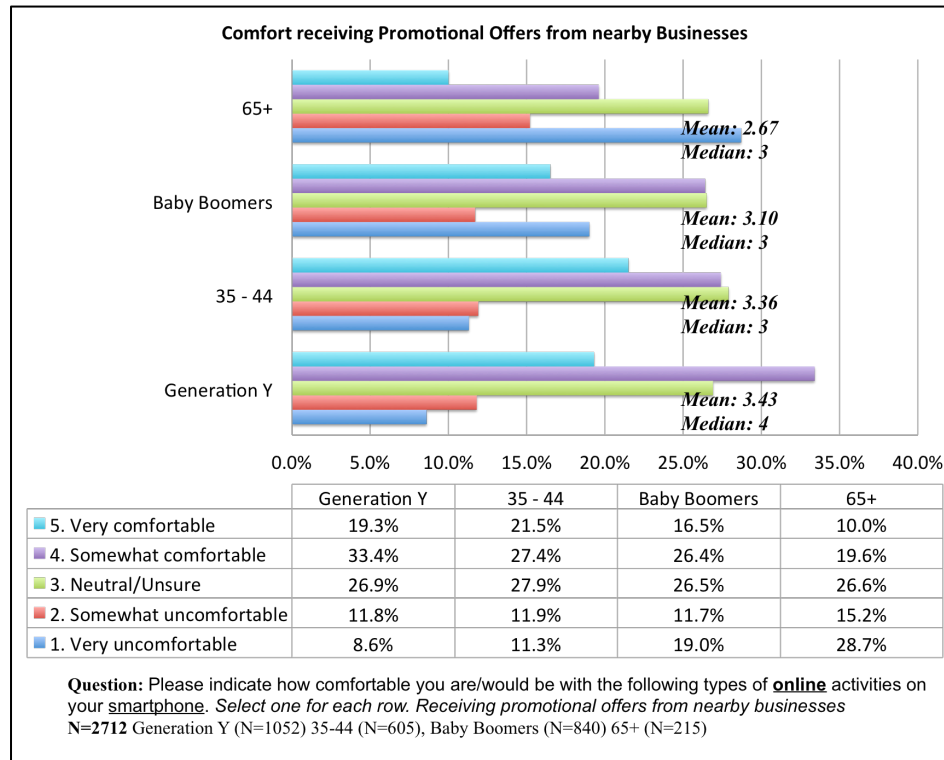


Figure 10. Grade of Comfort receiving Tourism Promotional Offers from nearby Businesses - Generation Y VS other Cohorts

5. Discussion

Smartphones have contributed to a major shift in the way tourism products and services are consumed. In that sense, mobile technology has reshaped the buyer's behaviour (Buhalis & Amaranggana, 2013). With predictions that smartphones usage for purchasing tourism products would surpass the ones done on a desktop or laptop computer (Conlin, 2013), it is imperative to investigate whether or not such changes impacted intergenerational usage as well. The former relates to the main aim of this study, which was to investigate if any distinctively different booking behaviour of tourism related products arose between Generation Y and the other cohorts. After the analysis the most relevant findings derived were: booking behaviour, spontaneity of such bookings, smartphone usage frequency, early adoption of new technology as well as the level of comfort with promotional materials.

5.1. Usage of Smartphone for Booking Tourism Products

With regards to smartphone purchasing behaviour of hotel rooms by Generation Y, it was believed that Generation Y would use their smartphones more than other cohorts. Nonetheless, the tests performed pointed that there is no clear difference between the cohorts. This implies that Generation Y and the older cohorts tend to have similar smartphone booking habits for hotel rooms. The same applies to the booking of airline tickets where no significant difference could be identified. There are several studies that sustain the idea that Generation Y is the most technological savvy one (Davidson, 2008; Zhang, Adipat, & Mowafi, 2009), and performing a great deal of activities on their smartphone (Chang & Jang, 2014). In the topic of tourism, Barton, Haywood, Jhunjhunwala and Bhatia (2013) have argued that Generation Y travelers are more likely to book their trips with online or using applications on their smartphones. Consequently, it would be assumed that the difference between Generation Y and the rest would be larger than the results of this study reflect. Another important aspect related to booking of hotel rooms is the aspect of spontaneity. The findings from the data denote that Generation Y travellers do not book hotel rooms more spontaneously than other cohorts. The results from the testing of the hypotheses were surprising, since there are numerous of researchers pointing to the fact that Generation Y is more spontaneous than other cohorts (Dawson & Kim, 2009; Neault, 2014).

The findings from the data analysis have shown that there is no clear correlation between "age cohorts" and the booking of "hotel rooms" or "airline tickets". On the other hand, a clearer correlation could be identified when it comes to the booking of "extra services" and "local activities". In that sense, the bookings were presumably booked in different travel phases: "hotels" and "airline tickets" are assumed being booked in the planning phase, "extra services" and "local activities" during the travel process (i.e. on-site). This "grouping" of products along the customer journey can be justified with:

- The similar results of hypothesis 1 (local activities) & 2 (extra services) respectively 3 (airline tickets) & 4 (hotel rooms)
- The results found in hypothesis 5 (spontaneity) showing that most of the respondents booked their hotel rooms in the planning phase.
- The corresponding product attributes, presented in Figure 11:

Figure 11.

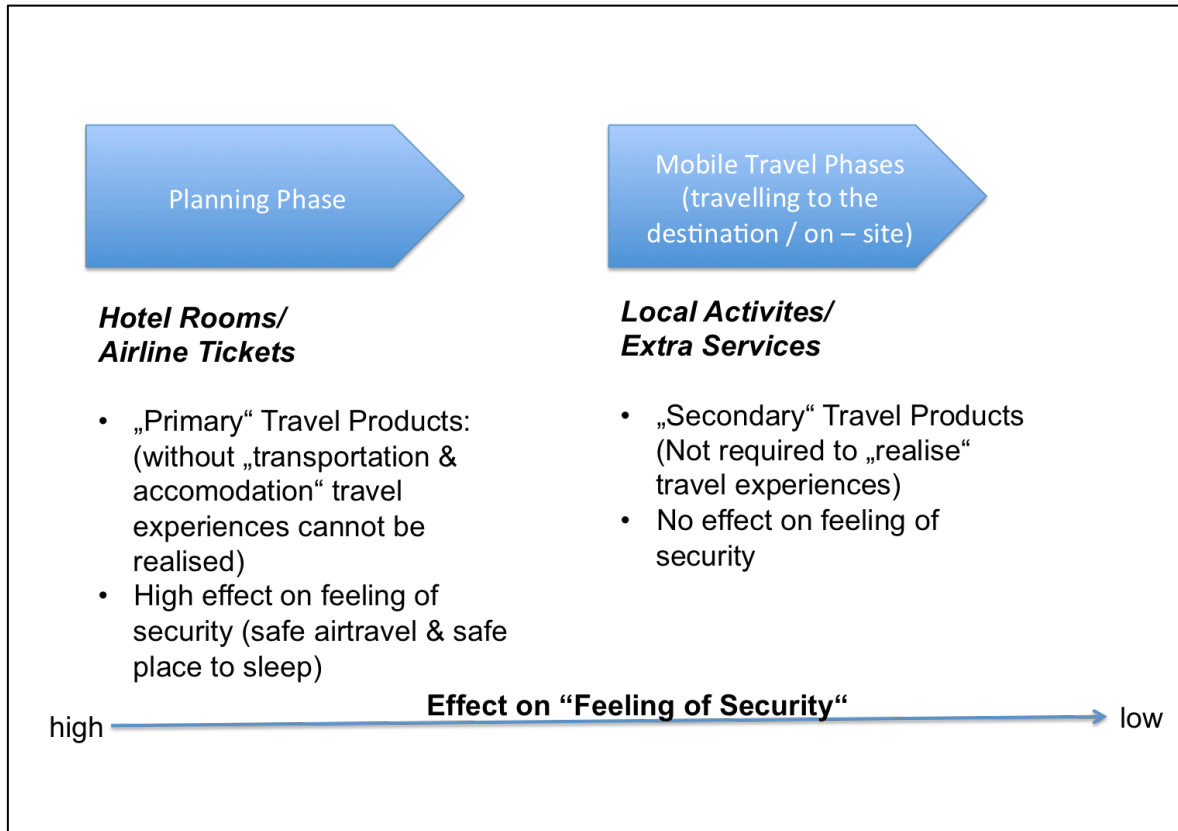


Figure 11. Product Attributes – Hotel Rooms/Airline Tickets VS Local Activities/Extra Services

The findings illustrate that it seems as if all generations perform similar activities in the planning phase, whereas during the travel process (i.e. on-site), Generation Y is more likely to be “heavy user” of smartphones compared to other generations, which substantiates the research of McIntyre (2007) describing young tourists being more likely to make on-site, spontaneous decisions. On the other hand, the finding differ from the ones that correspond to the fact that a great portion of travelers aged 35-54 state to use their smartphones during the on-site part of the trip, rather than for planning (Gasdia, Hoffman, & Rheem, 2011, p.35).

5.2. Adoption of New Technology & Promotional Activities

The group believed it would be interesting not only to test whether age has a correlation with early adoption of technology, but also if “usage frequency” played a role as well. Not surprisingly, the hypothesis associated with heavy usage was significant. In other words, heavy smartphone users from any cohort are early adopters of new technology compared to light users. Significance was also found when the same tests were performed against the cohorts, but with a lower effect size (small to moderate). No large difference between Generation Y and the two next older cohorts (35-44, Baby Boomers) could be identified. Only the oldest Generation (65+) acts as a kind of “outlier” being less of an early adopter. Hence, the results corroborates with literature regarding Generation Y being often described as early adopters (Kumar & Lim, 2008; Yang & Jolly, 2008), but with older Generations being more responsive to new technology than one could expect.

When discussing the level of comfort with receiving promotional offers, respondents were asked to select on a scale from “very uncomfortable to very comfortable”. The results based on “usage frequency” showed that heavy users from any cohort feel more comfortable than light users in receiving promotional offers. When the hypothesis was tested using the age constant no significant difference between Generation Y and the next older cohort could be identified. Also, “Baby Boomers” are not far apart from the younger generations. Again, only the oldest Generation (65+) can be located as an “outlier”. This is interesting because there are differences in terms of acceptance of marketing between cohorts in literature. For example, Generation X users were described as “suspicious with respect to aggressive marketing campaigns” (Williams & Page, 2011). Generation Y users, on the other hand, were described as more susceptible to direct marketing, since they have grown up influenced by online and offline advertising (Freestone & Mitchell, 2004). However, the results state that no clear correlation between age and promotion acceptance could be identified but, on the other hand, clearer results were found when light users were compared with heavy users.

6. Recommendations & Future Research Directions

The findings of the study suggest differing intergenerational smartphone usage along the customer journey. Thus, it is imperative for marketers to locate products along the different travel phases and to adjust smartphone marketing activities accordingly. In terms of the investigated age cohorts, the statistical data reveals that Generation Y is more likely to be “heavy user” of smartphones during the travel process (i.e. on-site). Hence, it is believed that younger Generations are more responsive to location based marketing: Local SEO (search engine optimization), responsive website optimization and micro blogs constitute valuable instruments to meet the psychographic composition of Generation Y. However, the smartphone should not be seen as a marketing channel only, but also as a mediating tool that can enhance travel experiences: Transforming a smartphone into a train ticket, hotel key and ski pass (universal key) can make the journey of tourists significantly more comfortable and enjoyable.

The study also reveals interesting implications for promotional activities. It shows that within all generations customers with low acceptance of aggressive marketing can be identified. Therefore, companies should develop software capable of regulating the intensity of promotional activities according to the psychographic composition of the individual user. Hence, it is believed that high promotional intensity towards customers with low acceptance of promotional offers can create a negative perception of the promoted product.

Another important marketing implication concerns the target segmentation in general. As seen from the study, there is a tendency of intergenerational value transfer, which challenges the common idea to segment customers by age cohorts. The findings prompt a segmentation of heavy vs. light users to be more appropriate when it comes to targeting mobile users. However, the authors believe that the segmentation by “usage frequency”, just as the segmentation by purely “demographic factors”, do not meet the current standard. Other, more complex, psychographic factors need to be taken into account in order to realize an appropriate segmentation of smartphone users.

In conclusion, this study makes a first step in identifying intergenerational smartphone usage patterns and calls for future research that investigates more into the field of intergenerational value transfer. With the generation gap moving ever closer, “age” cannot be viewed in isolation to other complex psychographic factors. Thus, it is the duty and task of future research to define the aforementioned psychographic factors and to suggest an appropriate segmentation of smartphone users accordingly.

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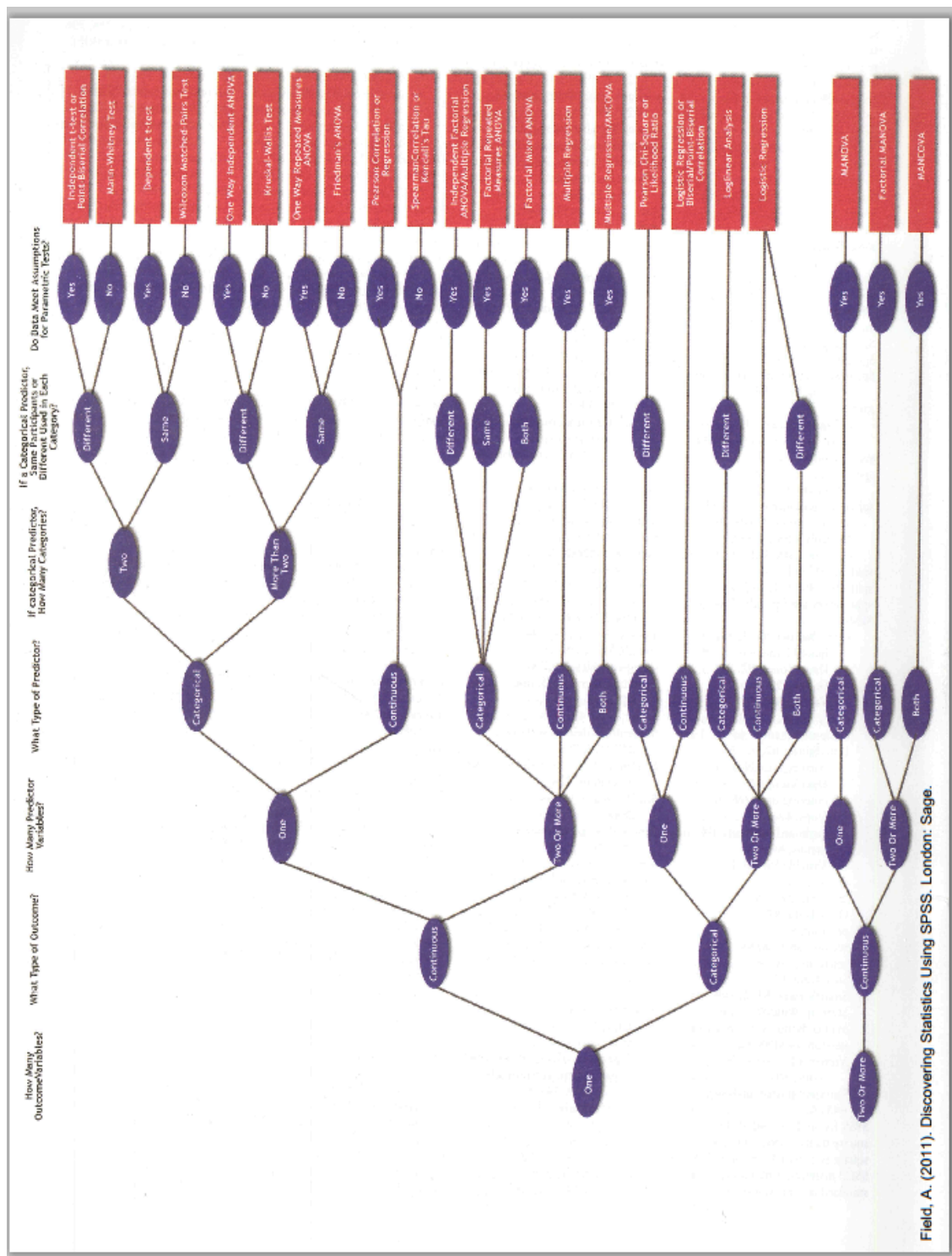
Appendices

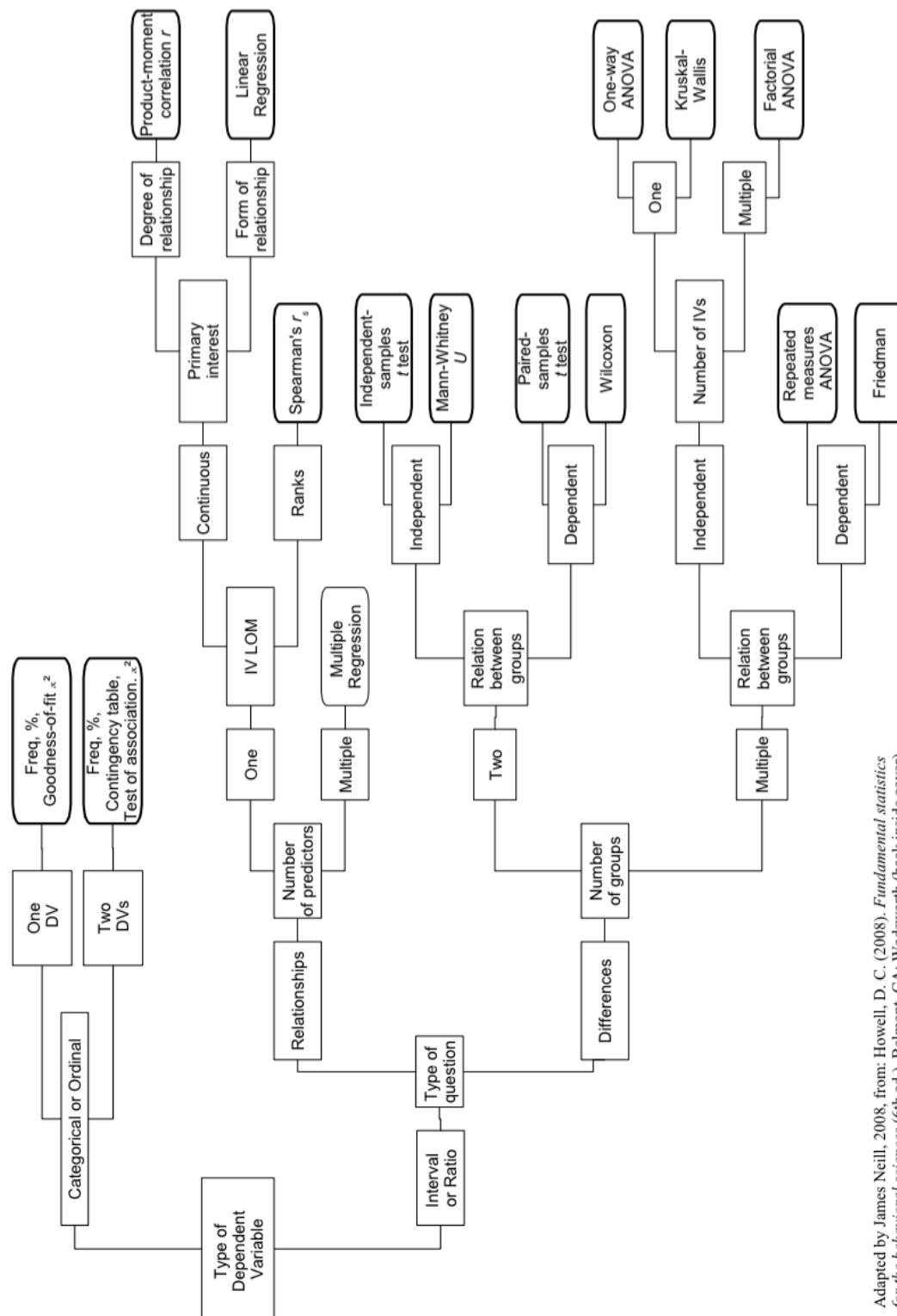
Appendix A: Data Analysis

A (i): Summary of Tests Performed

Hypothesis and Null Hypothesis	Testing Hypothesis		Wilcoxon Signed rank	Calculating Effect Sizes			Comment
	Methods Used	P-Values		Hedges' g	Cohen's f ²	Score Effect Size	
H(0) Generation Y travellers do not buy more extra services with their smartphone than other Generations	Chi Square	0.000			Nagelkerke R Square	0.11 close to Medium	H(0) accepted
H(1) Generation Y travellers buy more extra services with their smartphone than other Generations	Logistic Regression	0.000					
H(0) Generation Y travellers do not buy more local activities with their smartphone than other Generations	Chi Square	0.000			Nagelkerke R Square	0.08 Small - Medium	H(0) can not clearly be rejected
H(2) Generation Y travellers buy more local activities with their smartphone than other Generations	Logistic Regression	0.000					
H(0) Generation Y travellers do not book more airline tickets with their smartphone than other Generations	Chi Square	0.079					H(0) accepted
H(3) Generation Y travellers book more airline tickets with their smartphone than other Generations	Logistic Regression	0.084					
H(0) Generation Y travellers do not book more hotel rooms with their smartphone than other Generations	Chi Square	0.023			Nagelkerke R Square	0.01 Very Small	H(0) can not be rejected due to small effect size
H(4) Generation Y travellers book hotel rooms with their smartphone more than other Generations	Logistic Regression	0.019					
H(0) Generation Y travellers do not tend to book hotel rooms with their smartphone more spontaneous than other Generations	Kruskal Wallis	0.024					H(0) accepted
H(5) Generation Y travellers tend to book hotel rooms with their smartphone more spontaneous than other Generations	Post Hoc (pairwise comparison)	all comparisons >0.05 (not significant)					
H(0) Heavy Users are not early adopters of new technology compared to light users H(6) Heavy Users are early adopters of new technology compared to light users				Mean Independent 1	3.68		
				Mean Independent 2	3.1		
				Std. Deviation Mean 1	1.024		
				Std. Deviation Mean 2	1.007	0.60 Medium	H(0) rejected
				N1	1031		
				N2	349		
H(0) Generation Y travellers are not early adopters of new technology compared to other Generations H(7) Generation Y travellers are early adopters of new technology compared to other Generations	Kruskal Wallis	0.000	Chi Square				H(0) can not clearly be rejected
	Post Hoc (pairwise comparison)	All comparisons < 0.05 (significant)	Sample Size				
				Mean Independent 1	3.60		
				Mean Independent 2	2.84		
				Std. Deviation Mean 1	1.231		
				Std. Deviation Mean 2	1.284	0.60 Medium	H(0) accepted
H(0) Heavy Users do not feel more comfortable receiving tourism promotional offers from nearby businesses than light Users H(8) Heavy Users feel more comfortable receiving tourism promotional offers from nearby businesses than light Users							
H(0) Generation Y travellers do not feel more comfortable receiving tourism promotional offers from nearby businesses than other generations H(9) Generation Y travellers feel more comfortable receiving tourism promotional offers from nearby businesses than other generations	Kruskal Wallis	0.000	Chi Square				H(0) accepted Generation Y do not differ from the next older group
	Post Hoc (pairwise comparison)	comparison 1 - 2 > 0.05 (not significant)	Sample Size				

Appendix A(ii) – Decision trees used for data analysis





Adapted by James Neill, 2008, from: Howell, D. C. (2008). *Fundamental statistics for the behavioral sciences* (6th ed.). Belmont, CA: Wadsworth (back inside cover).

Appendix B: Calculation of Effect Sizes

Cohen's f^2

$$f^2 = \frac{R^2}{1 - R^2}$$

Hedges' g

$$SD^*_{pooled} = \sqrt{\frac{(n_1 - 1)SD_1^2 + (n_2 - 1)SD_2^2}{n_1 + n_2 - 2}}$$

Wilcoxon Signed-rank

$$w = \sqrt{\frac{\text{Chi-Square}}{N}}$$

Effect Sizes – Scoring Table

	Cohen's f^2	Hedge's g	Wilcoxon Signed-rank
Small	0.02	0.2	0.1
Medium	0.15	0.5	0.3
large	0.35	0.8	0.5

Appendix C: Profile of the Survey Respondents

Age Groups

ScreenA

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 18-24	425	12,3	12,3	12,3
25-34	721	20,9	20,9	33,2
35-44	707	20,4	20,4	53,6
45-54	707	20,5	20,5	74,1
55-64	486	14,1	14,1	88,1
65+	410	11,9	11,9	100,0
Total	3457	100,0	100,0	

Light VS Heavy Users

Heavy_VS_Light

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1,00	349	10,1	25,3	25,3
2,00	1031	29,8	74,7	100,0
Total	1380	39,9	100,0	
Missing System	2078	60,1		
Total	3457	100,0		

Crosstab for Usage Frequency & Generations

ScreenClu * Heavy_VS_Light Crosstabulation

Count

		Heavy_VS_Light		Total
		1,00	2,00	
ScreenClu	1,00	79	556	635
	2,00	77	232	309
	3,00	148	212	360
	4,00	44	31	75
Total		348	1031	1379

Appendix D: SPSS Output of Hypotheses

Appendix D (i): Hypothesis One – “Extra Services”

Logistic Regression Analysis

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	149,915	3	,000
	Block	149,915	3	,000
	Model	149,915	3	,000

Classification Table^a

Observed			Predicted		
			C1j_3		Percentage Correct
			Unchecked	Checked	
Step 1	C1j_3	Unchecked	3160	0	100,0
		Checked	297	0	,0
	Overall Percentage				91,4

a. The cut value is ,500

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	1877,977 ^a	,042	,096

a. Estimation terminated at iteration number 7 because parameter estimates changed by less than ,001.

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
								Lower	Upper
Step 1 ^a	ScreenClu			106,615	3	,000			
	ScreenClu(1)	-,518	,150	11,900	1	,001	,596	,444	,800
	ScreenClu(2)	-1,536	,172	79,958	1	,000	,215	,154	,301
	ScreenClu(3)	-2,909	,504	33,260	1	,000	,055	,020	,147
	Constant	-1,693	,082	431,262	1	,000	,184		

a. Variable(s) entered on step 1: ScreenClu.

(Reference Category: Generation Y)

- The relative probability buying extra services with a smartphone of a person belonging to the second youngest age group “35-44” is 40.4% lower ($0.596 - 1 = .404$) than of a person belonging to reference category “Generation Y”.
- The relative probability buying extra services with a smartphone of a person belonging to the “Baby Boomers” is 78.5% lower ($0.215 - 1 = .785$) than of a person belonging to reference category “Generation Y”.
- The relative probability buying extra services with a smartphone of a person belonging to the oldest cohort “65+” is 94.5% lower ($0.055 - 1 = .945$) than of a person belonging to reference category “Generation Y”.

Descriptive Analysis

ScreenClu * C1j_3 Crosstabulation

			C1j_3		Total
			Unchecked	Checked	
ScreenClu	1,00	Count	968	178	1146
		% within ScreenClu	84,5%	15,5%	100,0%
		% within C1j_3	30,6%	59,9%	33,2%
		% of Total	28,0%	5,2%	33,2%
	2,00	Count	637	70	707
		% within ScreenClu	90,1%	9,9%	100,0%
		% within C1j_3	20,2%	23,6%	20,5%
		% of Total	18,4%	2,0%	20,5%
	3,00	Count	1148	45	1193
		% within ScreenClu	96,2%	3,8%	100,0%
		% within C1j_3	36,3%	15,2%	34,5%
		% of Total	33,2%	1,3%	34,5%
	4,00	Count	406	4	410
		% within ScreenClu	99,0%	1,0%	100,0%
		% within C1j_3	12,9%	1,3%	11,9%
		% of Total	11,7%	0,1%	11,9%
Total	Count	3159	297	3456	
	% within ScreenClu	91,4%	8,6%	100,0%	
	% within C1j_3	100,0%	100,0%	100,0%	
	% of Total	91,4%	8,6%	100,0%	

Appendix D (ii): Hypothesis 2 - “Local Activities”

Logistic Regression

Omnibus Tests of Model Coefficients

	Chi-square	df	Sig.
Step 1 Step	139,763	3	,000
Block	139,763	3	,000
Model	139,763	3	,000

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	2453,660 ^a	,040	,075

a. Estimation terminated at iteration number 6 because parameter estimates changed by less than ,001.

Classification Table^a

Observed		Predicted			
		C1e_3		Percentage Correct	
		Unchecked	Checked		
Step 1	C1e_3	Unchecked	3028	0	100,0
		Checked	429	0	,0
	Overall Percentage				87,6

a. The cut value is ,500

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
								Lower	Upper
Step 1 ^a	ScreenClu			119,266	3	,000			
	ScreenClu(1)	-,515	,132	15,162	1	,000	,598	,461	,774
	ScreenClu(2)	-1,248	,135	85,168	1	,000	,287	,220	,374
	ScreenClu(3)	-1,953	,276	49,955	1	,000	,142	,083	,244
	Constant	-1,347	,073	340,680	1	,000	,260		

a. Variable(s) entered on step 1: ScreenClu.

(Reference Category: Generation Y)

- The relative probability buying local activities with a smartphone of a person belonging to the second youngest age group “35-44” is 40.2% lower ($0.598 - 1 = .402$) than of a person belonging to reference category “Generation Y”.
- The relative probability buying local activities with a smartphone of a person belonging to the “Baby Boomers” is 71.3% lower ($0.287 - 1 = .713$) than of a person belonging to reference category “Generation Y”.
- The relative probability buying local activities with a smartphone of a person belonging to the oldest cohort “65+” is 85.8% lower ($0.142 - 1 = .858$) than of a person belonging to reference category “Generation Y”.

Descriptive Analysis

C1e_3 * ScreenClu Crosstabulation

			ScreenClu				Total
			1,00	2,00	3,00	4,00	
C1e_3	Unchecked	Count	910	612	1111	396	3029
		% within C1e_3	30,0%	20,2%	36,7%	13,1%	100,0%
		% within ScreenClu	79,3%	86,6%	93,0%	96,4%	87,6%
		% of Total	26,3%	17,7%	32,1%	11,4%	87,6%
	Checked	Count	237	95	83	15	430
		% within C1e_3	55,1%	22,1%	19,3%	3,5%	100,0%
		% within ScreenClu	20,7%	13,4%	7,0%	3,6%	12,4%
		% of Total	6,9%	2,7%	2,4%	0,4%	12,4%
Total	Count	1147	707	1194	411	3459	
	% within C1e_3	33,2%	20,4%	34,5%	11,9%	100,0%	
	% within ScreenClu	100,0%	100,0%	100,0%	100,0%	100,0%	
	% of Total	33,2%	20,4%	34,5%	11,9%	100,0%	

Appendix D (iii): Hypothesis 3- “Airline Tickets”

Logistic Regression

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	6,639	3	,084
	Block	6,639	3	,084
	Model	6,639	3	,084

Descriptive Analysis

ScreenClu * C3a_2 Crosstabulation

			C3a_2		Total
			Unchecked	Checked	
ScreenClu	1,00	Count	500	133	633
		% within ScreenClu	79,0%	21,0%	100,0%
		% within C3a_2	48,0%	51,8%	48,8%
		% of Total	38,5%	10,2%	48,8%
	2,00	Count	223	66	289
		% within ScreenClu	77,2%	22,8%	100,0%
		% within C3a_2	21,4%	25,7%	22,3%
		% of Total	17,2%	5,1%	22,3%
	3,00	Count	274	50	324
		% within ScreenClu	84,6%	15,4%	100,0%
		% within C3a_2	26,3%	19,5%	25,0%
		% of Total	21,1%	3,9%	25,0%
	4,00	Count	44	8	52
		% within ScreenClu	84,6%	15,4%	100,0%
		% within C3a_2	4,2%	3,1%	4,0%
		% of Total	3,4%	0,6%	4,0%
Total	Count	1041	257	1298	
	% within ScreenClu	80,2%	19,8%	100,0%	
	% within C3a_2	100,0%	100,0%	100,0%	
	% of Total	80,2%	19,8%	100,0%	

Appendix D (iv): Hypothesis 4 - "Hotel Rooms"

Logistic Regression

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	9,920	3	,019
	Block	9,920	3	,019
	Model	9,920	3	,019

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	1568,443 ^a	,008	,011

a. Estimation terminated at iteration number 4 because parameter estimates changed by less than ,001.

Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
							Lower	Upper
Step 1 ^a								
ScreenClu			9,718	3	,021			
ScreenClu(1)	,665	,354	3,524	1	,060	1,945	,971	3,897
ScreenClu(2)	,285	,370	,595	1	,440	1,330	,644	2,746
ScreenClu(3)	,363	,366	,980	1	,322	1,437	,701	2,946
Constant	-1,349	,344	15,356	1	,000	,259		

a. Variable(s) entered on step 1: ScreenClu.

Descriptive Analysis

ScreenClu * C3b_2 Crosstabulation

			C3b_2		Total
			Unchecked	Checked	
ScreenClu	1,00	Count	421	212	633
		% within ScreenClu	66,5%	33,5%	100,0%
		% within C3b_2	46,1%	55,1%	48,8%
		% of Total	32,4%	16,3%	48,8%
	2,00	Count	215	74	289
		% within ScreenClu	74,4%	25,6%	100,0%
		% within C3b_2	23,5%	19,2%	22,3%
		% of Total	16,6%	5,7%	22,3%
	3,00	Count	236	88	324
		% within ScreenClu	72,8%	27,2%	100,0%
		% within C3b_2	25,8%	22,9%	25,0%
		% of Total	18,2%	6,8%	25,0%
	4,00	Count	41	11	52
		% within ScreenClu	78,8%	21,2%	100,0%
		% within C3b_2	4,5%	2,9%	4,0%
		% of Total	3,2%	0,8%	4,0%
Total	Count	913	385	1298	
	% within ScreenClu	70,3%	29,7%	100,0%	
	% within C3b_2	100,0%	100,0%	100,0%	
	% of Total	70,3%	29,7%	100,0%	

Appendix D (v): Hypothesis 5- “Spontaneity”

Kruskal Wallis

Test Statistics^{a,b}

	C4
Chi-Square	9,417
df	3
Asymp. Sig.	,024

a. Kruskal Wallis Test

b. Grouping Variable: ScreenClu

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of Thinking about the last hotel you booked on your smartphone, how far in advance of your stay did you complete the booking? is the same across categories of ScreenClu.	Independent-Samples Kruskal-Wallis Test	,024	Reject the null hypothesis.

Asymptotic significances are displayed. The significance level is ,05.

Each node shows the sample average rank of ScreenClu.

Sample1-Sample2	Test Statistic	Std. Error	Std. Test Statistic	Sig.	Adj.Sig.
1,000-2,000	-20,607	14,384	-1,433	,152	,912
1,000-3,000	-33,363	13,471	-2,477	,013	,080
1,000-4,000	-76,610	38,920	-1,968	,049	,294
2,000-3,000	-12,756	16,538	-,771	,441	1,000
2,000-4,000	-56,003	40,085	-1,397	,162	,974
3,000-4,000	-43,247	39,767	-1,088	,277	1,000

Each row tests the null hypothesis that the Sample 1 and Sample 2 distributions are the same. Asymptotic significances (2-sided tests) are displayed. The significance level is ,05.

Descriptive Analysis

C4 * ScreenClu Crosstabulation

			ScreenClu				Total
			1,00	2,00	3,00	4,00	
C4	One day or less	Count	8	5	5	0	18
		% within C4	44,4%	27,8%	27,8%	0,0%	100,0%
		% within ScreenClu	3,8%	6,7%	5,7%	0,0%	4,7%
		% of Total	2,1%	1,3%	1,3%	0,0%	4,7%
	2 to 6 days	Count	63	10	15	1	89
		% within C4	70,8%	11,2%	16,9%	1,1%	100,0%
		% within ScreenClu	29,9%	13,3%	17,2%	10,0%	23,2%
		% of Total	16,4%	2,6%	3,9%	0,3%	23,2%
	1 to 2 weeks	Count	64	26	21	3	114
		% within C4	56,1%	22,8%	18,4%	2,6%	100,0%
		% within ScreenClu	30,3%	34,7%	24,1%	30,0%	29,8%
		% of Total	16,7%	6,8%	5,5%	0,8%	29,8%
	3 to 4 weeks	Count	34	16	20	0	70
		% within C4	48,6%	22,9%	28,6%	0,0%	100,0%
		% within ScreenClu	16,1%	21,3%	23,0%	0,0%	18,3%
		% of Total	8,9%	4,2%	5,2%	0,0%	18,3%
	1 to 2 months	Count	26	12	16	5	59
		% within C4	44,1%	20,3%	27,1%	8,5%	100,0%
		% within ScreenClu	12,3%	16,0%	18,4%	50,0%	15,4%
		% of Total	6,8%	3,1%	4,2%	1,3%	15,4%
	3 to 5 months or longer	Count	16	6	10	1	33
		% within C4	48,5%	18,2%	30,3%	3,0%	100,0%
		% within ScreenClu	7,6%	8,0%	11,5%	10,0%	8,6%
		% of Total	4,2%	1,6%	2,6%	0,3%	8,6%
Total	Count	211	75	87	10	383	
	% within C4	55,1%	19,6%	22,7%	2,6%	100,0%	
	% within ScreenClu	100,0%	100,0%	100,0%	100,0%	100,0%	
	% of Total	55,1%	19,6%	22,7%	2,6%	100,0%	

Statistics

C4			
1,00	N	Valid	212
		Missing	934
	Mean		3,27
2,00	N	Valid	74
		Missing	632
	Mean		3,49
3,00	N	Valid	88
		Missing	1106
	Mean		3,66
4,00	N	Valid	11
		Missing	400
	Mean		4,25
	N	Valid	11
		Missing	400
	Median		5,00

Appendix D (vi): Hypothesis 6 - "Early Adopters" - Light VS Heavy

Mann Whitney U

Test Statistics^a

	A3a
Mann-Whitney U	122319,000
Wilcoxon W	185865,000
Z	-9,637
Asymp. Sig. (2-tailed)	,000

a. Grouping Variable:
Heavy_VS_Light

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of I tend to be an early user of new technologies:Please indicate how much you agree or disagree with the following statements Select one for each statement is the same across categories of Heavy_VS_Light.	Independent-Samples Mann-Whitney U Test	,000	Reject the null hypothesis.

Asymptotic significances are displayed. The significance level is ,05.

Descriptive Analysis

A3a^a

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Strongly Disagree	26	7,6	7,6	7,6
Slightly Disagree	57	16,3	16,3	23,9
Neutral/Unsure	146	42,0	42,0	65,9
Slightly Agree	94	27,0	27,0	92,9
Strongly Agree	25	7,1	7,1	100,0
Total	349	100,0	100,0	

a. Heavy_VS_Light = 1,00

Statistics^a

A3a		
N	Valid	349
	Missing	0
Mean		10028,10
Std. Deviation		1,007

a. Heavy_VS_Light = 1,00

A3a^a

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Strongly Disagree	34	3,3	3,3	3,3
Slightly Disagree	108	10,5	10,5	13,8
Neutral/Unsure	229	22,2	22,2	35,9
Slightly Agree	441	42,8	42,8	78,7
Strongly Agree	219	21,3	21,3	100,0
Total	1031	100,0	100,0	

a. Heavy_VS_Light = 2,00

Statistics^a

A3a		
N	Valid	1031
	Missing	0
Mean		10028,68
Std. Deviation		1,024

a. Heavy_VS_Light = 2,00

Appendix D (vii): Hypothesis 7- “Early Adopters” - Generations

Kruskall Wallis

Test Statistics^{a,b}

	A3a
Chi-Square	161,523
df	3
Asymp. Sig.	,000

Each node shows the sample average rank of ScreenClu.

Hypothesis Test Summary			
	Null Hypothesis	Test	Sig. Decision
1	The distribution of I tend to be an early user of new technologies:Please indicate how much you agree or disagree with the following statements Select one for each statement is the same across categories of ScreenClu.	Independent-Samples Kruskal-Wallis Test	,000 Reject the null hypothesis.

Asymptotic significances are displayed. The significance level is ,05.

Sample1-Sample2	Test Statistic	Std. Error	Std. Test Statistic	Sig.	Adj.Sig.
4,000-3,000	276,678	60,681	4,560	,000	,000
4,000-2,000	508,443	64,926	7,831	,000	,000
4,000-1,000	659,161	61,879	10,652	,000	,000
3,000-2,000	231,765	44,149	5,250	,000	,000
3,000-1,000	382,483	39,532	9,675	,000	,000
2,000-1,000	150,718	45,783	3,292	,001	,006

Descriptive Results

A3a

ScreenClu	Frequency	Percent	Valid Percent	Cumulative Percent
1,00 Valid Strongly Disagree	60	5,3	5,3	5,3
Slightly Disagree	126	11,0	11,0	16,3
Neutral/Unsure	302	26,3	26,3	42,6
Slightly Agree	455	39,7	39,7	82,3
Strongly Agree	203	17,7	17,7	100,0
Total	1146	100,0	100,0	
2,00 Valid Strongly Disagree	41	5,7	5,7	5,7
Slightly Disagree	110	15,6	15,6	21,3
Neutral/Unsure	202	28,6	28,6	49,9
Slightly Agree	246	34,9	34,9	84,8
Strongly Agree	107	15,2	15,2	100,0
Total	707	100,0	100,0	
3,00 Valid Strongly Disagree	123	10,3	10,3	10,3
Slightly Disagree	197	16,5	16,5	26,9
Neutral/Unsure	394	33,0	33,0	59,9
Slightly Agree	361	30,2	30,2	90,1
Strongly Agree	118	9,9	9,9	100,0
Total	1194	100,0	100,0	
4,00 Valid Strongly Disagree	61	14,9	14,9	14,9
Slightly Disagree	102	24,8	24,8	39,7
Neutral/Unsure	129	31,3	31,3	71,0
Slightly Agree	103	25,2	25,2	96,2
Strongly Agree	16	3,8	3,8	100,0
Total	410	100,0	100,0	

Statistics

A3a			
1,00	N	Valid	1146
		Missing	0
	Mean		10028,54
	Median		10029,00
2,00	N	Valid	707
		Missing	0
	Mean		10028,38
	Median		10028,88
3,00	N	Valid	1194
		Missing	0
	Mean		10028,13
	Median		10028,00
4,00	N	Valid	410
		Missing	0
	Mean		10027,78
	Median		10028,00

Appendix D (viii): Hypothesis 8 - “Promotional Offers” - Heavy VS Light

Mann Whitney U

Test Statistics^a

	B13f
Mann-Whitney U	121723,500
Wilcoxon W	185269,500
Z	-9,574
Asymp. Sig. (2-tailed)	,000

a. Grouping Variable:
Heavy_VS_Light

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of Receiving promotional offers from nearby businesses: Please indicate how comfortable you are/would be with the following types of online activities on your smartphone. Select one for each row is the same across categories of Heavy_VS_Light.	Independent-Samples Mann-Whitney U Test	,000	Reject the null hypothesis.

Asymptotic significances are displayed. The significance level is ,05.

Descriptive Analysis

B13f^a

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very uncomfortable	80	22,9	22,9	22,9
Somewhat uncomfortable	44	12,5	12,5	35,4
Neutral/not sure	115	33,1	33,1	68,5
Somewhat comfortable	73	21,0	21,0	89,5
Very comfortable	37	10,5	10,5	100,0
Total	349	100,0	100,0	

a. Heavy_VS_Light = 1,00

B13f^a

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very uncomfortable	87	8,4	8,4	8,4
Somewhat uncomfortable	105	10,2	10,2	18,6
Neutral/not sure	237	22,9	22,9	41,5
Somewhat comfortable	311	30,2	30,2	71,7
Very comfortable	292	28,3	28,3	100,0
Total	1031	100,0	100,0	

a. Heavy_VS_Light = 2,00

Statistics^a

B13f

N	Valid	349
	Missing	0
Mean		2,84
Median		3,00
Std. Deviation		1,284

a. Heavy_VS_Light =
1,00

Statistics^a

B13f

N	Valid	1031
	Missing	0
Mean		3,60
Median		4,00
Std. Deviation		1,231

a. Heavy_VS_Light =
2,00

Appendix D (ix): Hypothesis 9 - “Promotional Offers” - Generations

Kruskall Wallis

Test Statistics^{a,b}

	B13f
Chi-Square	66,840
df	3
Asymp. Sig.	,000

a. Kruskal Wallis

Each node shows the sample average rank of ScreenClu.

Sample1-Sample2	Test Statistic	Std. Error	Std. Test Statistic	Sig.	Adj.Sig.
4,000-3,000	241,591	64,762	3,730	,000	,001
4,000-2,000	394,964	66,834	5,910	,000	,000
4,000-1,000	436,575	64,367	6,783	,000	,000
3,000-2,000	153,373	39,309	3,902	,000	,001
3,000-1,000	194,984	34,951	5,579	,000	,000
2,000-1,000	41,611	38,654	1,077	,282	1,000

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of Receiving promotional offers from nearby businesses: Please indicate how comfortable you are/would be with the following types of online activities on your smartphone. Select one for each row. is the same across categories of ScreenClu.	Independent-Samples Kruskal-Wallis Test	,000	Reject the null hypothesis.

Asymptotic significances are displayed. The significance level is ,05.

Descriptive Analysis

ScreenClu	Frequency	Percent	Valid Percent	Cumulative Percent
1,00 Valid				
Very uncomfortable	90	7,9	8,6	8,6
Somewhat uncomfortable	124	10,8	11,8	20,4
Neutral/not sure	283	24,7	26,9	47,3
Somewhat comfortable	351	30,6	33,4	80,7
Very comfortable	203	17,7	19,3	100,0
Total	1052	91,7	100,0	
Missing System	95	8,3		
Total	1146	100,0		
2,00 Valid				
Very uncomfortable	68	9,7	11,3	11,3
Somewhat uncomfortable	72	10,2	11,9	23,2
Neutral/not sure	169	23,9	27,9	51,1
Somewhat comfortable	165	23,4	27,4	78,5
Very comfortable	130	18,4	21,5	100,0
Total	605	85,6	100,0	
Missing System	102	14,4		
Total	707	100,0		
3,00 Valid				
Very uncomfortable	159	13,4	19,0	19,0
Somewhat uncomfortable	98	8,2	11,7	30,6
Neutral/not sure	222	18,6	26,5	57,1
Somewhat comfortable	222	18,6	26,4	83,5
Very comfortable	138	11,6	16,5	100,0
Total	840	70,4	100,0	
Missing System	353	29,6		
Total	1194	100,0		
4,00 Valid				
Very uncomfortable	62	15,0	28,7	28,7
Somewhat uncomfortable	33	8,0	15,2	43,9
Neutral/not sure	57	13,9	26,6	70,4
Somewhat comfortable	42	10,3	19,6	90,0
Very comfortable	21	5,2	10,0	100,0
Total	215	52,4	100,0	
Missing System	195	47,6		
Total	410	100,0		

Statistics

B13f

1,00	N	Valid	1052
		Missing	95
	Mean		3,43
	Median		4,00
2,00	N	Valid	605
		Missing	102
	Mean		3,36
	Median		3,00
3,00	N	Valid	840
		Missing	353
	Mean		3,10
	Median		3,00
4,00	N	Valid	215
		Missing	195
	Mean		2,67
	Median		3,00

Declaration of Authorship

We, Yves Senn, Livia Gotardi, Elena Cholakova, Angelo Schafer and Stefanie Flach, hereby certify that this project has been produced independently and only with the help of third parties designed by Lucerne School of Business, that all sources and literature have been referenced, and that the provisions on copyrights held by Lucerne University of Applied Sciences and Arts have been respected.

Signed:

Date: January 09, 2015