

BIG CONCERNS

What is the impact of the variable 'age' on the privacy concerns of customer about big data use by companies?

Author: Plug, Vincent (s1894528)

Venture: University of Twente

Date: 27-07-2018

Version number: 2

Major changes with previous version:

- More elaborated Introduction
- Better graphic view of results
- Sharper conclusion

Management summary

In the age where big data becomes more important, also privacy becomes more important. Governments are making new laws and also customers are more aware of the fact that their data is being obtained.

Some research has been done in this area, but only in a specific area or branch, like social media or health companies. However based on the already known research it can be argued that there is a difference in privacy concerns between age groups. Furthermore, when we look at non-academical references, it has always been the assumption that older generations have more concerns about the use of their personal data than younger generations. These claims mainly come from media and other non-academic publications, but this has never been researched academically. Therefore this research aims to analyze the differences between the generations and see if older customers do have more concerns about their privacy when we speak about big data use by companies. The research question is therefore: *“What is the impact of the variable ‘age’ on the privacy concerns of customers about big data use by companies?”*

The result of this research give a clear picture of the impact of age on privacy concerns of customers about big data use. In general age has a positive effect on privacy concerns, which means that the higher the age the higher the privacy concerns. However, the reason that this effect is measured can be partly assigned to the 3 attributes that influence a person’s privacy concerns. The 3 attributes that influence privacy concerns can function as moderator variables for the effect that age has on privacy concerns. Awareness, knowledge, and return on big data (ROBD) are the three attributes and all have a negative effect on privacy concerns, which means that the higher the awareness, knowledge, and ROBD the lower the privacy concerns.

Also it has become clear that the higher the age the lower the awareness, knowledge, and ROBD. It can therefore be concluded that the privacy concerns of older generations can be partly assigned to the fact that these generations do not have awareness, knowledge, and ROBD and find it therefore scary.

When these insights are combined, it can be concluded that if a person has a high age but has a lot of awareness, knowledge and ROBD that this person has lower privacy concerns than a person with a high age who does not have awareness, knowledge and ROBD. One could therefore argue that when a company informs their older customers better and shows them what positive returns they can get for giving up their privacy, that the privacy concerns of these older customers can be decreased. This paper can be very helpful for companies that mainly have older customers but still want to use big data to effectively reach and influence these customers.

Furthermore, health reasons and anti-terrorism apparently overrule privacy concerns for almost all generations. This is an important conclusion, mainly for governments, hospitals and insurance agencies. By emphasizing on these reasons, the government, hospitals and insurance agencies can decrease the privacy concerns of their clients.

1. Introduction

'Big Data' refers to novel ways in which organizations, including government and businesses, combine diverse digital datasets and then use statistics and other data mining techniques to extract hidden information and surprising correlations from them both (Rubinstein 2012).

In the age where big data becomes more and more important, also privacy becomes more important. At the beginning of 2018 a big scandal came out that Facebook was sharing the data of their users with Cambridge Analytica and making profiles of their users for marketing purposes (Sherr, 2018). Customers still don't know much about big data and as a reaction to these kind of scandals, governments are making new laws about data storage and about the sharing of data. The most recent example in the Netherlands is the new law named "Algemene verordening gegevensbescherming" (English name is: General Data Protection Regulation), which was introduced on the 25th of May, 2018.

Not only governments, but also customers are more aware of the fact that their data is being obtained for marketing purposes and this makes the issue of privacy concerns about the use of big data very important and recent.

Intel IT Center has surveyed 200 IT managers of large companies and asked them what they would like to see addressed as research in big data analytics and they answered with: technology to keep customers' data private, insights of consumer concerns for different ages/education/background, data transparency and data security (Sagiroglu and Sinanc 2013). This indicates that insights in privacy concerns of customers are desired by managers and businesses.

As shown in the next chapter, there has been a lot of research done on general privacy concerns of customers about the use of big data and a distinction is made between, for example, high-income vs. low-income customers, majority vs. underprivileged customers (like disabled), highly educated vs. low educated and gender.

When we speak about the distinction between age groups/generations the research lacks immersion. The combination of privacy concerns and age groups has been researched before, but this is mainly in the context of social media, mobile commerce, or in a specific branch like health, for example in the research of Taylor 2011, Zhang 2015, Baek 2014, and Bergstrom 2015 (Taylor, Lewin, & Strutton, 2011) (Zhang, Chen, & Lee, 2015) (Baek, Kim, & Bae, 2014) (Bergstrom, 2015). Also the combination of big data and age groups has been research before, but the focus is here on which kind of big data is best for which age group and not on privacy concerns, for example in the research of Varian 2014 and Soto 2011 (Varian, 2014) (Soto, John, Gosling, & Potter, 2011).

However based on the academical research that has been done on privacy concerns and the distinction between age groups there is a big difference between younger and older customers. *"Young people are intrinsically more risk-taking. They may have a lower degree of privacy and security concerns because they are young, generally less wealthy, and have less to lose"* (Bergstrom, 2015). Furthermore, when we look at non-academical references, they make you believe that older customers are much more traditional and do not like change, also they are not used to the fast-changing technological time (Williams and Page 2011) and therefore it has always been the assumption that they have more concerns about the use of their personal data than younger generations. These claims mainly come from media and other non-academic publications, but this has never been researched academically. Therefore it is interesting to analyze the differences between the generations and see if older customers do have more concerns about their privacy when we speak about big data use by companies. More importantly, it is interesting to analyze why

older customers do (not) have more concerns and what are the underlying reasons for these concerns.

Therefore, this research aims to analyze; to what extend older customers do (not) have more concerns about the use of big data, by first doing a quantitative analysis and testing the hypothesis that there is a difference in privacy concerns between the generations. Furthermore, an analysis will be done on what drives the concerns of the generations by asking the 'why' question in a qualitative part of the research. The following research question is made:

- *What is the impact of the variable 'age' on the privacy concerns of customers about big data use by companies?*

This report exists of a theory part where the already known theory about privacy concerns of customers about the use of big data by companies and different generations is presented in the second chapter. In the third chapter the methodology is presented, in the fourth chapter the results of the research are explained and in the fifth chapter a discussion and conclusion are given.

2. Theory and hypothesis development

In this chapter, the theory that is important for starting this research will be given. For obtaining theory about the privacy concerns of customers with the use of big data by companies and generations in the marketing context the 'grounded theory literature-review method' (Wolfswinkel, Furtmueller et al. 2013) is used.

At first, the database that will be used is selected. One might want to search in a specific branch for results, but this is not the case. Therefore Scopus will be used to search for academic articles because this database will give the most complete results of related articles.

Secondly, the search criteria are made per subject and are explained per subject.

At last a certain timeframe of publication is used to determine relevant articles. This timeframe is that the search is among all articles published in 2011 or later. This is done because there are no results in the first search (big data and privacy concerns) earlier than 2011. Also, some say that 2011 is the year that big data became 'big' and gained widespread interest (Burrows and Savage 2014). Therefore, the same timeframe is used for the second search (generations in the marketing context), to make a consistent literature review.

a. Big data and privacy concerns

In this report we talk about privacy concerns, being that customers have concerns about their privacy with the use big data. However, in other research there are might be different terms that are used. Therefore, the OR function has been used to include as many articles on privacy concerns as possible. After the first search the words 'customer concerns' were added to the search criteria because in the first search there was mainly information about the privacy issues of big data for companies (like data breaches, data storage, etc.) and not so much about privacy concerns of customers. After adding these words, the information was more about the privacy concerns of customers is stead of the privacy issues for companies. The criteria are:

"big data" AND "privacy issues" OR "privacy concerns" OR "privacy problems" AND "customer concerns" (2011 or later)

Big data and privacy concerns

'Big Data' refers to novel ways in which organizations, including government and businesses, combine diverse digital datasets and then use statistics and other data mining techniques to extract hidden information and surprising correlations from them both (Rubinstein 2012). Another, more specific, definition comes from McAfee, big data is defined as "high-volume, high-velocity and high-

variety information assets that demand cost-effective, innovative forms of information processing for enhanced insight and decision making"(McAfee and Brynjolfsson 2012). Later on, two more v's have been added, veracity and value (McAfee and Brynjolfsson 2012). Big data is collected from video, images, online transactions, email, clickstream, logs, search queries, social networking interactions and health records (Tene and Polonetsky 2013).

Big data use has become huge in the past years and issues with big data are mainly about two challenges. Firstly as a technological challenge, such as dealing with data-intensive domains and secondly as a sociological challenge, such as privacy concerns of customers (Smith, Szongott et al. 2012).

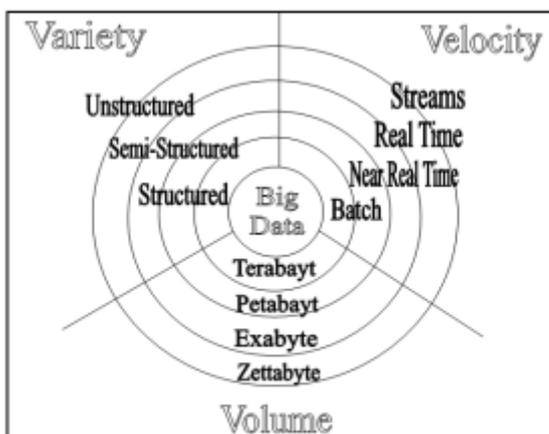


Figure 1. The three Vs of big data

This research focusses on the second challenge.

Big data has many economic and social benefits, but it also raises serious privacy concerns. Companies collect more and more personal data and definitely control the market in personal data with their own interests in mind (Kshetri 2014). Therefore the use of big data is strongly linked to privacy. An example is the use of high-velocity (fast) data, such as cookies and GPS trackers. Businesses that collect these types of data have met much resistance from customers (Taylor, Schroeder et al. 2014). Customers have expressed growing concern about the data collections methods of companies, especially the use of tracking technologies. These concerns are valid since there are reports that, for example, iPhones and Android Phones are secretly sending information about users' locations to Apple and Google (Cohen 2013). Furthermore, the commissioner of the U.S. Federal Trade Commission (FTC) says: "The potential benefits of Big Data are many, but consumer understanding is lacking, and the potential risks are considerable" (Brill 2012). Firms know a lot about customer tastes, price sensitivities, etc. but most customers do not know what a company does with their data and lack the awareness of the firm's offerings based on that data (Kshetri 2014). This puts customers in a disadvantaged position and some say that especially low-income and minority customers are affected by this (Rubinstein 2012). The research of Rubinstein (2012) also gives a reason why less sophisticated and low-income customers are more affected by the privacy violations with the use of big data. This is because they usually lack knowledge and insight about how businesses are using and collecting their information. According to the research they are more dispersed, less organized and less interested in exercising their democratic rights. Furthermore, they lack the ability to spot unfair or deceptive information collection by marketers and businesses (Rubinstein 2012).

As mentioned before, the biggest concern is high-velocity and real-time data, like GPS tracking, cookies and social media usage (Kshetri 2014). In 2013 a national survey has been conducted in the U.S. by the Pew Internet & American Life Project (Kshetri 2014). These surveys found that customers are concerned about misuse and abuse of their personal data. Customized offerings of companies based on real-time and fast data can lead to unpleasant experiences for customers. This illustrates the impact of privacy violations by these companies and it is therefore very understandable that many customers are having concerns about the use of big data by companies. The survey of the Pew Internet & American Life Project also reveals that many customers are turning off location tracking features to prevent companies from collecting data of their whereabouts and that they would anonymize their online activities when that is possible (Kshetri 2014).

In the book 'the power of habit' Charles Duhigg (Duhigg 2012) gives an example of this so called predictive privacy harm (Crawford and Schultz 2014) where a man's high school daughter is tracked by a retailer called 'Target'. The company predicted the pregnancy of the man's daughter and sent them promotional mails for products for pregnant women, even before the father knew her daughter was pregnant.

The example of the retailer 'Target' is shocking and most customers find it very concerning that this is possible, but there is a difference in privacy concerns in terms of what kind of company collects and uses their data. Predictive analysis based on high-velocity and real-time data is not only used by businesses for marketing purposes, but also by law enforcement and national security agencies (Tene and Polonetsky 2013). The Dutch TV program 'hunted', where a group of Dutch citizens voluntarily go on the run from the police and get hunted down by a special agency based on their online activity is a good example of the possibilities for governmental agencies. Also, George Orwell predicted the 'big brother is watching you' dilemma in his book 1984. Customers however find it less concerning when governmental agencies collect and use their personal data then when businesses collect and use it for marketing purposes, because the government only collect this data for national security and customers have more confidence in the security of their personal data with government agencies

(Rubinstein 2012, Tene and Polonetsky 2013). Also, hospitals and health insurance have less resistance when collecting data of their patients (Rubinstein 2012). This illustrates that when customers know or think that their personal data is safe and find getting positive returns important and also see the positive side of the use of their data (national security, health, etc.) they are more willing to give up a little of their privacy.

Furthermore, many customers are strongly against the sharing of their data with third parties (Rubinstein 2012). One of the five aspects of big data is 'volume' (McAfee and Brynjolfsson 2012), which means that there is a huge amount of data collected and this 'volume' relates to the necessity of outsourcing. Not all companies can store these huge amounts of data and therefore use servers of third parties to store and sometimes even analyze big data (Rubinstein 2012). Trustwave's global security report shows that 64% of the data breaches are committed at third party companies that are specialized in data storage (Trustwave 2013).

Trustwave's global security report and the example of 'girls around me' show that the concerns of customers about sharing their data with third parties are valid.

Another example of sharing data with third parties, and the privacy violations that come with it, is the app 'Girls Around Me'. This app obtained data from Facebook and Foursquare to detect women in the area of the user (Kshetri 2014). The user could scan his neighborhood to identify women that he liked and instantly go to their Facebook page to see her full name, photos, etc. (Kshetri 2014). The women that were being tracked did not know that they were being stalked like that (Kshetri 2014).

Kamakshi (2014) did a survey among customers about their privacy concerns of the use of big data. This survey reveals that 92% of the respondents are worried about their online privacy, 55% of the respondents say that they do not trust most companies with their personal data and 89% of the respondents said that they would even avoid companies when they are not sure that their personal data is protected (Kamakshi 2014). A lack of confidence in a specific company can starve the business of valuable data as customers are less likely to use apps, enable location tracking, etc. (Kamakshi 2014). This indicates that customers find their privacy and security of personal data important and that companies need to assure the privacy of online customers in order not to lose them. This also shows that a company can not only obtain more big data by innovating and modernizing their data collection methods, but also by taking crucial action to deal with the privacy concerns, risk reduction and build trust among users. Therefore researching these areas and privacy concerns can have a positive influence on companies and governments that want to use big data analytics.

b. Different generations in the marketing context

The criteria that were used to search information about different generations that are distinguished in the marketing context are named below. Also with this search the OR function has been used, because of the same reason explained in the previous chapter. The word 'marketing' has been added to the search criteria so that information is obtained about the generations that are best to distinguish in the marketing context and not in general.

"marketing" AND "generations" OR "age categories" OR "age groups" (2011 or later)

As mentioned in the introduction the main hypothesis of this research is that there is a difference in privacy concerns between generations and it is therefore important to know which generations are mainly distinguished in the marketing world. This way the researcher can have generations that are reliable and that are considered different in marketing.

Generations

When businesses distinguish multi-age categories for marketing purposes this is referred to as 'multi-

generational marketing'. This is the practice of appealing to the unique needs of the different generations, with a generation being a group of customers that are born around the same time and can be characterized as equal in terms of customer needs (Williams and Page 2011)

A well-cited and relevant research about generations is the research of Williams and Page (2011). They explained which generations are best to distinguish and what the characteristics of these groups are. According to their research, there are 6 main generations; Pre Depression, Depression, Baby Boom, Generation X, Generation Y, and Generation Z (Williams and Page 2011). The age categories are named in the table below.

Generation	Age in 2017	Date of birth
Pre-depression	88 and above	Before 1930
Depression	72-87	1930-1945
Baby Boom	53-71	1946-1964
Generation X	41-52	1965-1977
Generation Y	23-40	1977-1994
Generation Z	Less than 23	1994 and later

Table 1: Generations

Even though the date of birth of these generations might differ with some years, many more academic researchers use the same 6 generations (Chaney, Touzani et al. 2017, Ishida, Miyaki et al. 2017, Savitha and Dhivya 2017). Also in reliable media (like 'CNN' and 'The Telegraph') and in non-academic articles these generations are usual (Wallop 2014, Stewart 2016, Novak 2018, Schroer 2018, Wikipedia 2018). Based on the research article of Williams and Page and on the other named references, the 6 generations are further explained in appendix 1.

c. Hypothesis development and conceptual model

This research focusses on the difference between generations, in terms of privacy concerns. Older customers are much more traditional and do not like change and are not used to the fast-changing technological time (Williams and Page 2011) and therefore it has always been the assumption that they have more concerns about the use of their personal data than younger generations. These claims mainly come from media and other non-academic publications, but this has never been researched academically. Therefore it is interesting to analyze the differences between the generations and see if older customers do have more concerns about their privacy when we speak about big data use by companies. The first hypothesis is therefore:

H1: Older generations have more privacy concerns about the use of big data than younger generations

Big data has many economic and social benefits, but it also raises serious privacy concerns of customers. Based on the previous research it can be said that customers have many privacy concerns about the use of big data by companies. Furthermore, based on the research, it can be suggested that the privacy concerns of big data are made out of multiple attributes.

Knowledge and awareness

The first two attributes are knowledge and awareness. It might be unclear what the difference is between the two attributes 'knowledge' and 'awareness'. The article of Schacter (1990) sheds light on this question (Schacter, 1990). According to Schacter (1990), knowledge is set of experiences, skills, insights etc. and awareness is the perception of that knowledge and using of that knowledge. More importantly awareness comes before knowledge, so usually when someone is not aware they also do not have the knowledge.

At first, privacy concerns of customers come from a lack of awareness. Awareness in this context can be that a person is not aware that companies try to obtain their information, either in a normal way or a misleading way. Also, a person might not be aware of the fact that they get something in return for sharing their personal data. Hypothesis 2 is therefore:

H2: A person with less awareness has higher privacy concerns than a person with more awareness

Secondly, the privacy concerns of customers come from a lack of knowledge about, for example, what a company can do with the personal data and how a company acquires someone's personal data. Hypothesis 3 is therefore:

H3: A person with less knowledge has higher privacy concerns than a person with more knowledge

When we go into the different generations, it might be the case that because older generations have more privacy concerns and the privacy concerns come from a lack of knowledge and awareness that the older generations also have less 'awareness' and 'knowledge'. This is just an assumption of the researcher and is not based on academical research that indicates such a relation. Therefore fourth and fifth hypothesis's are not coming from research but only from the assumption of the researcher:

H4: Older generations have less awareness than younger generations.

H5: Older generations have less knowledge than younger generations

ROBD

The third attribute is the importance of return on big data (ROBD), derived from the concept 'ROI' (return on investment). Customers find it important to get positive returns for giving up some of their privacy and say that sharing their data with governments gives them national security. Sharing their data with commercial companies, however, gives them; selling data to third parties, misleading advertisements, etc. Based on this, it can be said that the return on big data is of importance for the willingness of customers to share their personal data and the privacy concerns about the use of big data. As well as the other two attributes, this attribute might differ between the generations, based on the assumption of the researcher. Therefore H6 and H7 are:

H6: When a person finds ROBD important, the person has more privacy concerns than a person who finds ROBD less important

H7: Older generations find ROBD more important than younger generations

Conceptual model

Hypotheses are created that privacy concerns and the attributes differ between generations. The three attributes that influence the privacy concerns can serve as moderators of the influence that age has on the privacy concerns because age is hypothesized to influence the three attributes. However, age might also have a direct effect on privacy concerns. This concludes to the conceptual model in figure 2 on the next page.

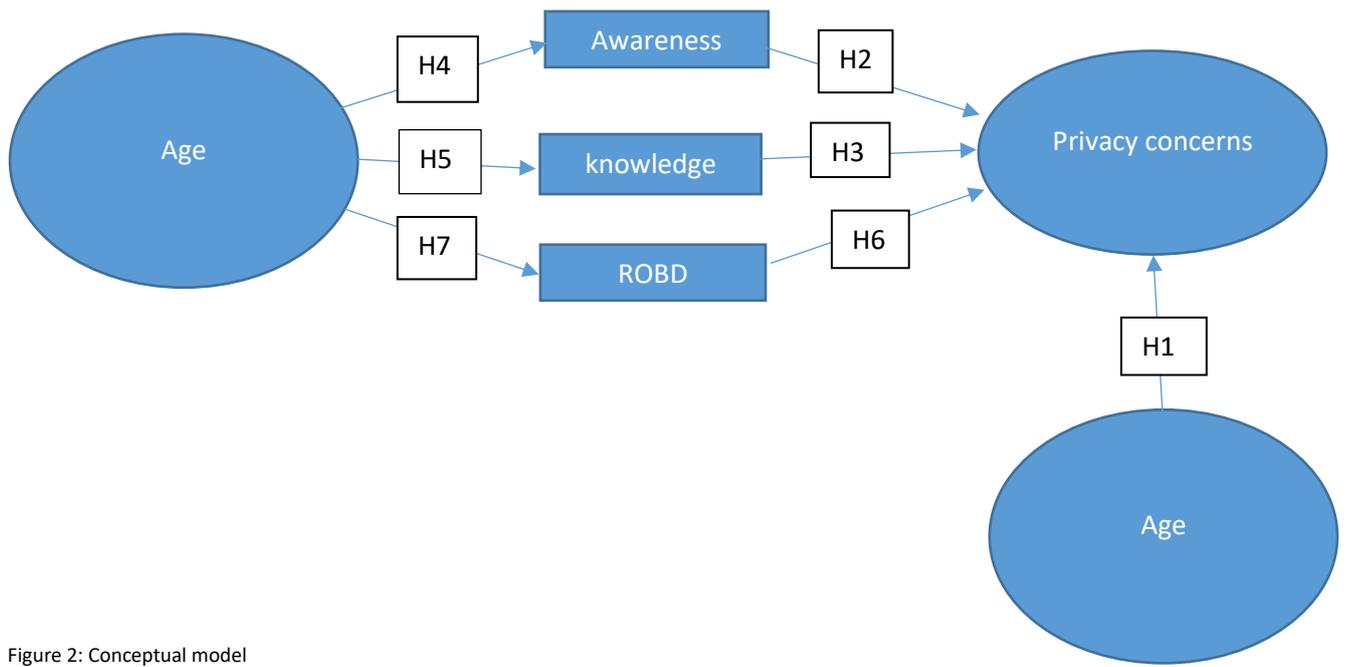


Figure 2: Conceptual model

3. Method

In this chapter, the research methods that are used to obtain and analyze information are explained. The research methods of this chapter are based on the theory from ‘methoden en technieken van onderzoek’ and ‘social research methods’ (Saunders, Thornhill et al. 2004, Vos 2009).

a. Research design

This research consists of two parts. The first part is a confirmatory comparative deductive research design because this part consists of hypothesis testing and it is the aim to make comparisons across different categories for one dependent variable, based on quantitative data and regression analysis's. The second part is an exploratory inductive research design because this part aims to generate posteriori hypothesis by examining qualitative data that is obtained during the research.

b. Data collection/measurement method

The data collection/measurement method of this research is a survey among the 5 generations (see sampling method). A survey is a way to collect, mostly quantitative, data by developing a questionnaire and ask respondents to fill in the questions. The survey consists of 10 scale questions where the respondent was asked to fill in a number between 1 and 10 to state to what extent one agrees with the given statement. The first four questions are general questions about the privacy concerns of the respondents, the fifth and sixth question are questions to test the knowledge about the use of big data, the seventh and eighth question are questions to test the awareness of the use of big data, and the ninth and tenth question are questions to test the importance of ROBD. Furthermore, 4 open questions were asked to the respondents to explain the reason why he/she has privacy concerns.

c. Sampling method

The sampling method that is used to get the respondents for the survey was ‘snowball sampling’. This involves of finding a small group of respondents in each category to start with and use these respondents to get more respondents in the same category. The reason why this sampling method is used is because it will be very hard for the researcher to get enough respondents for each category when using another sampling method. The independent variable consists of 5 age categories shown in table 2.

Generation 1	Depression/pre-depression	72 and above	Lower than 1945
Generation 2	Baby Boom	53-71	1946-1964
Generation 3	Generation X	41-52	1965-1977
Generation 4	Generation Y	23-40	1977-1994
Generation 5	Generation Z	Less than 23	1994 and later

Table 2: Final generations

It was harder to get respondents within the last two categories ‘pre-depression’ and ‘depression’, because these are small groups. To make the group bigger and better reachable these two categories were combined. In the rest of the report the generations will be named by their number.

d. Data analysis

The first part of this research is analyzed with SPSS. There were 10 scale questions asked to the respondents, these questions were all related to the privacy concerns of customers with the use of big data (see appendix 2). To test hypothesis 1, 4, 5, and 7 a series of one way analysis of variance were done because these tests consist of categorical independent variable and a metric dependent variable. To test hypothesis 2, 3, and 6 a series of regression analysis were done because these tests

consist of a metric dependent variable and a metric independent variable. Before the ANOVA tests were done, the results of the questions 1, 2, 3, and 4 were combined to one new variable by summing up the score with a principal component analysis. Furthermore, before the regression analysis were done, the results of the questions 5 and 6, 7 and 8, and 9 and 10 were also combined to three new variables by using a principal component analysis. A principal component analysis is part of a factor analysis and is generally used for data reduction and summarization to identify a new, smaller, set of variables. Therefore this analysis was used on these questions to combine them into new variables that contain information about the privacy concerns of the different generations and contain information about the three attributes that influence the privacy concerns.

The second part of the research contains 4 open-ended survey questions and will get qualitative results. These 4 questions were asked to shed light on the reason why the generations have privacy concerns. Transcribing is used to analyze the qualitative information because this makes it better analyzable. Conclusions can be drawn from these results to add information to the first part of the research, about the reasons why certain generations do (not) have privacy concerns and where these concerns come from.

e. Validity and reliability

Before the tests can be done in SPSS the requirements for these tests need to be met. Therefore a series of tests are done to see if the requirements are met.

Factor analysis

An appropriate sample size should be used when doing a factor analysis. There should be at least five times as many observations (respondents) as there are variables. In the first factor analysis there are 4 variables that are combined, which means that there need to be at least 20 respondents. In the second, third, and fourth factor analysis there are 2 variables which means that there need to be at least 10 respondents.

ANOVA

With an ANOVA test, there is the assumption of 'equal variance across groups'. Therefore a test of homogeneity will be done to test this assumption. Also, the group size is of importance when conducting ANOVA. According to the rule of thumb, this means that each group needs to consist of at least 20 respondents and it is desired to have approximately equal sample sizes per group. A test of homogeneity is only needed when the groups are very much apart and are not equal.

Regression

For the regression analysis there need to be an appropriate sample size. To hold a power of at least 0,8 there need to be at least 100 observations.

Reliability of the survey

Reliability is the observed variables degree of precision (reproducibility of results) and thus the lack of random measurement error. This means that when conducting this research multiple times, the same results will occur. The quantitative tests, as explained in 'data analysis', will be conducted correctly according to the theory. When all the assumptions are met, the research and test can be seen as reliable.

Also, the Cronbach's alpha will be used to determine the reliability of the survey. The results of the cronbach's alpha is between 0 and 1, where 1 is perfect reliability and 0 is no reliability at all.

Validity of the survey

Validity is the degree to which a measure accurately represents what it is supposed to and thus the lack of systematic measurement error. To assure the validity of this research, the survey will first be

tested among respondents to see if the answers are correct and clear. If the questions are not clear or if the answers are incorrect, the survey will be adapted based on the feedback of the respondents. Also, the survey questions will be examined by two teachers of the University of Twente, who can be seen as experts, to validate the questions.

Missing data

Missing data is information that is not available for a subject (respondent) while other information about that subject is available. This occurs when a respondent fails to answer one or more questions in a survey and this can distort the results. The researcher will take missing data into account and only use respondents with complete data when there is missing data of 10% or higher. When there is missing data of less than 10%, this will be ignored.

4. Results

At the beginning of this report, there were seven hypotheses made. In this chapter, the results of the closed survey questions are given to test the seven hypotheses. Furthermore, the results of the open questions are given to shed light on the reason why the 5 generations do/do not have privacy concerns.

Before the tests are done, the descriptives are examined to see if the requirements to do the tests are met. As explained in the previous chapter there need to be at least 20 respondents that filled in the survey to do the factor analysis. There are 117 total respondents so a factor analysis can be done. There are no missing results so no respondents were deleted.

If one does an ANOVA test, then every group in the categorical variable needs a minimum of 20 respondents and it is desirable to have approximately equal group sizes. Table 3 (see appendix 4) shows that the number of respondents is 23, 23, 21, 28 and 22 for the 5 groups. These sizes are all above 20 and are approximately equal. Therefore the requirements for the ANOVA test are met.

In table 4 (see appendix 4) the descriptives of the ratio variables that are used during the regression analysis's are shown. When one does a regression analysis the minimum number of respondents is 100. Also, the minimum ratio of observations to variables in the regression test is preferred to be 20 to 1. There are 4 variables tested, which means that there need to be at least 80 respondents. As shown in table 4 (seen appendix 4) the total respondents for these 4 variables are 117, 117, 114 and 114 and therefore all the requirements are met.

At last the reliability of the survey is tested by testing the Cronbach's alpha of the related questions of privacy concerns. This test determines whether the questions are really testing the underlying constructs in a consistent way. Before doing this, it is important to see if the questions are positive or negative. The first three questions that test the privacy concerns are positive, and the fourth question is negative (see appendix 2). Therefore, the fourth question is recoded before doing the reliability analysis.

As shown in table 5 (see appendix 4) the Cronbach's alpha 0,946, which is very high and therefore the reliability of the survey can be seen as high.

Furthermore, it is important to test if there are questions in the survey that decrease that Cronbach's alpha and are therefore not testing the same underlying construct. With the 'item-total statistics' function, one measures if it would be better to delete a question from the survey. In table 6 (see appendix 4) it is shown that the Cronbach's alpha will not increase significantly if one or more questions are deleted. Also the items are strongly correlated to each other, which makes a principal component analysis (explained in the next chapter) suitable.

a. Anova results

Hypothesis 1, 4, 5, and 7 are tested by doing a series of one-way analysis of variance (ANOVA).

Privacy concerns

The first hypothesis that is tested is: *H1: Older generations have more privacy concerns about the use of big data than younger generations*

This hypothesis is tested with the first 4 questions in the survey (see appendix 2). Before combining the scores with a principal component analysis, they are first analyzed separately. In table 7 (see appendix 3) the scores of the groups on these four questions are given. The first three questions are negative questions, which means that the lower the mean score the less the privacy concerns. The

fourth question is a positive question, which means that the higher the mean score the less the privacy concerns. In figure 3 these scores are graphically shown.

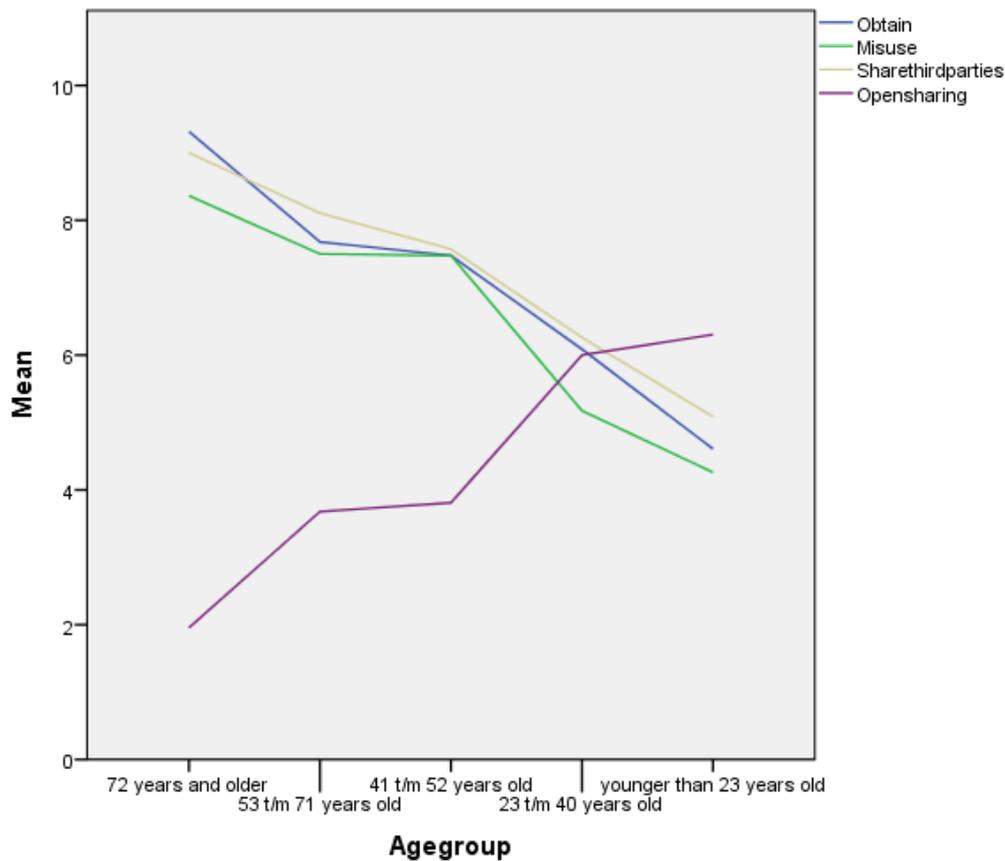


Figure 3: Mean scores of privacy concerns per generation

In the figure above it is clearly shown the lower the age the lower the mean score for the first three questions and the higher the mean score for the fourth question.

More specifically it is shown in table 7 (see appendix 3) that generation 5 (the youngest generation) has a mean score of respectively 4,61, 4,26, 5,09 and 6,30 for the four questions. For the first three questions generation 5 has the lowest score and for the fourth question, they have the highest score. It can, therefore, be concluded that generation 5 has the lowest privacy concerns of all the generations.

When we look at generation 1 (the oldest generation) the opposite result comes up. They have the highest score for the first three questions and the lowest score for the fourth question. It can, therefore, be concluded that generation 1 has the highest privacy concerns.

Furthermore, is clear that the older the generation the higher the score for the first three questions and the lower the score for the fourth question if we look at all the generations together. One could, therefore, argue that H1 is true.

However, that the scores of the generations differ does not mean that this difference is significant. Therefore, four one way ANOVA tests were conducted on these questions to test the significant difference between the scores of the five generations. The results are shown in table 8.

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Obtain	Between Groups	286,441	4	71,610	13,425	,000
	Within Groups	597,422	112	5,334		
	Total	883,863	116			
Misuse	Between Groups	279,701	4	69,925	11,670	,000
	Within Groups	671,068	112	5,992		
	Total	950,769	116			
Sharethirdparties	Between Groups	220,140	4	55,035	8,374	,000
	Within Groups	736,082	112	6,572		
	Total	956,222	116			
Opensharing	Between Groups	295,463	4	73,866	12,074	,000
	Within Groups	685,169	112	6,118		
	Total	980,632	116			

Table 8: ANOVA privacy concerns per question

In table 8 it is clearly shown that all four ANOVA tests are significant when using a significance level of less than 0,05. The significance level of all four questions is 0,00 which means that the significance level is less than 0,001 and is therefore very significant. This means that the scores of these questions are significantly different between the 5 generations and that older generations do have more privacy concerns than younger generations.

Because these four questions are all testing the same underlying construct, namely to what extend the respondents have privacy concerns, these four questions can be added together by summing up the score with a factor analysis to create one variable that holds all the information of the underlying construct. Before this is done the positive question (question four) is recoded so that all questions are negative. With this new variable, another ANOVA test is conducted to test the overall difference of privacy concerns between the 5 generations. In table 9 the result of this test is given, which shows that the privacy concerns are again significantly different with a significance level of less than 0,001 and we, therefore, accept H1.

ANOVA

Totalprivacyconcerns

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	4232,861	4	1058,215	13,566	,000
Within Groups	8736,284	112	78,003		
Total	12969,145	116			

Table 9: ANOVA total privacy concerns

Multiple comparisons

At last it important to note that this does not mean that all generations are significantly different from each other, but just that one or more generations are significantly different from others. Therefore a multiple comparison ANOVA test is conducted to cross-reference all the generations to each other. In table 10 (see appendix 3) the results of the multiple comparison ANOVA tests are given. We again use the new variable that came from the factor analysis.

Based on these results it can be concluded that generation 4 and 5 are not significant from each other, because they have a significance level of 0,140 and this is much higher than the needed level of 0,05 of less. Even though there is a difference, it can be argued that these two generations have the same score of privacy concerns and can be added together as one group. However generation 4 and 5 are significant from all other generations with a significance level of less than 0,05. The same holds for generation 2 and 3, so also these two group can be added together as one group because they have a significance level of 0,727. Generation 1 is significantly different from all other generations when we use a significance level of less than 0,05.

Combining these results, it can be argued that 3 generations can be distinguished instead of 5.

Attributes of privacy concerns

Now that it is clear that age has an influence on privacy concerns in general, it is important to find out if this is also the case with the 3 attributes that are said to influence the privacy concerns. As explained in chapter 2 there are 3 hypothesis's made to test if the attributes differ between the 5 generations, but these 3 hypothesis's are not based on suggestions from the literature review, but are based on the assumption of the research. These hypotheses are:

H4: Older generations have less awareness than younger generations.

H5: Older generations have less knowledge than younger generations

H7: Older generations find ROBD more important than younger generations

All three attributes are tested with two questions. These two questions are again added together for all three attributes, by doing a factor analysis to get one variable that holds the information of the underlying construct. The descriptives of these 3 variables are shown in table 11 (see appendix 3) and are shown graphically in figure 4 on the next page. The first variable tests the awareness, the second tests the knowledge and the third tests the importance of ROBD. The questions within these three variables are all positive, which means that the higher the score the higher the awareness, knowledge, and importance of ROBD.

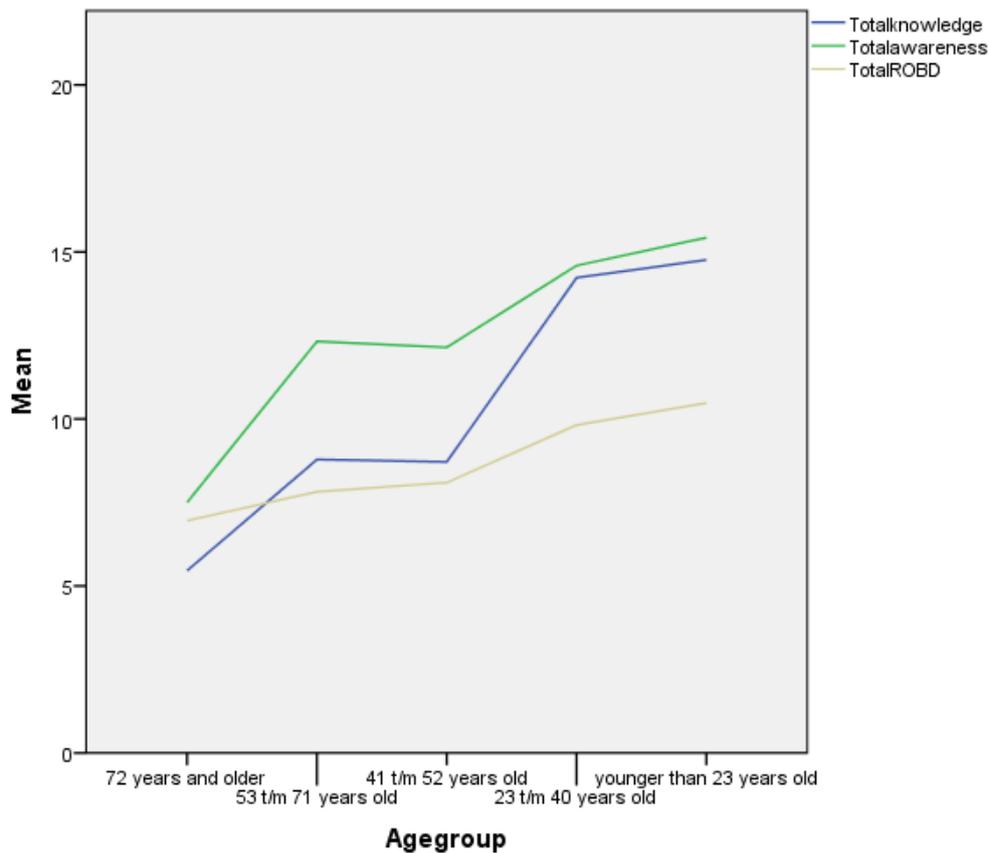


Figure 4: Mean scores of attributes per generation

It is clearly shown that the higher the age the lower score on all three variables. Generation 4 and 5 have more awareness and knowledge (with a mean score of 15,43 and 14,59 on awareness and a mean score of 14,57 and 14,48 on knowledge) than generation 1, 2, and 3 (with a mean score of 12,14, 12,32 and 7,50 on awareness and a mean score of 8,71, 8,79 and 5,45 on knowledge). One could therefore argue that H4 and H5 are true.

A striking result is that the same result comes up when we look at the ROBD. Generation 1 (6,95) find ROBD less important than generation 5 (10,48). Also, the older the generation the lower the score on the importance of ROBD. One could therefore argue that H7 is rejected because older generation appear to find ROBD less important than younger generations.

However, this does not mean that this difference is significant, so we do a series of ANOVA tests to test the significance of the difference again with a significance level of 0,05. In table 12 on the next page the results of these ANOVA tests are shown. Also, for the three attributes, the difference is significant and we, therefore, accept H4 and H5, and reject H7.

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Totalawareness	Between Groups	827,887	4	206,972	13,096	,000
	Within Groups	1722,640	109	15,804		
	Total	2550,526	113			
Totalknowledge	Between Groups	1452,274	4	363,068	17,290	,000
	Within Groups	2351,846	112	20,999		
	Total	3804,120	116			
TotalROBD	Between Groups	188,407	4	47,102	4,406	,002
	Within Groups	1165,382	109	10,692		
	Total	1353,789	113			

Table 12: ANOVA of the three attributes

As mentioned in the theory part, awareness comes before knowledge according to Schacter (1990). It is important to note that the results come to the same conclusion because the mean score of awareness is higher than the mean score of knowledge, which means that the respondents are more aware than they have knowledge.

Multiple comparisons

Again we do a multiple comparison ANOVA to see which generations are different from each other. In table 13, 14, and 15 (see appendix 3), the results of the comparison are shown. A significance level of 0,05 is used.

When we look at the awareness and knowledge we see that generation 4 and 5 are again not significant from each other, but are significant from all other generations, so again we can add these two groups together. The same holds for generation 2 and 3 so also these two groups can be added together. Generation 1 is again significantly different from all other generations and therefore stands alone.

When we look at the importance of ROBD a different result comes up. Generation 4 and 5 are again not significant from each other but are significant from all other groups. However, generation 1, 2, and 3 are all not significant from each other but are significant from the two youngest generations. We can, therefore, conclude that generation 4 and 5 can be added together for the importance of ROBD and also generation 1, 2, and 3 can be added together for the importance of ROBD.

b. Regressions results

Hypothesis 2, 3 and 6 are tested by doing a series of linear regression analysis's because the variables are all scale variables.

Awareness

The first attribute that is said to influence privacy concerns, is the awareness about the fact that a company is trying to obtain your personal information for marketing purposes. The following hypothesis is tested:

H2: A person with less awareness has higher privacy concerns than a person with more awareness

In table 16 the result of the regression analysis is given and is tested with a significance level of less than 0,05.

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	43,814	2,260		19,383	,000
	Totalawareness	-1,318	,171	-,589	-7,723	,000

a. Dependent Variable: Totalprivacyconcerns

Table 16: Regression of awareness and total privacy concerns

It is clearly shown that awareness has an effect of -1,318 on privacy concerns. This is a negative effect, which means that the lower the awareness the higher the privacy concerns. Also this effect is very significant and therefore hypothesis 2 is accepted.

Knowledge

The second attribute that is said to influence someone’s privacy concerns is the knowledge about, for example, how a company obtains personal information and what a company can do with this information. According to the already known literature the less the knowledge the higher the privacy concerns. The following hypothesis is tested with a significance level of less than 0,05:

H3: A person with less knowledge has higher privacy concerns than a person with more knowledge

In table 17, the results of the regression analysis are given.

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	37,240	1,758		21,178	,000
	Totalknowledge	-,939	,148	-,509	-6,336	,000

a. Dependent Variable: Totalprivacyconcerns

Table 17: Regression of knowledge and total privacy concerns

Also for the knowledge attribute there is a negative effect (-0.939) and again this effect is significant. It can therefore be said that the lower the knowledge the higher the privacy concerns and hypothesis 3 is accepted.

ROBD

At last, the return on big data (ROBD) is said to have an influence on someone’s privacy concerns. When a person finds getting positive returns for giving up their personal information important, this person has more privacy concerns according to the literature. The following hypothesis is tested with a significance level of less than 0,05:

H6: When a person finds ROBD important, the person has more privacy concerns than a person who finds ROBD less important

The regression results are shown in table 18 on the next page.

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	39,857	2,369		16,828	,000
	TotalROBD	-1,439	,256	-,469	-5,618	,000

a. Dependent Variable: Totalprivacyconcerns

Table 18: Regression of ROBD and total privacy concerns

As shown in table 18 there is, again, a negative effect (-1,439) on the importance of ROBD to a person’s privacy concerns, which means that the lower the importance of ROBD the higher the privacy concerns. Also this effect is significant and therefore hypothesis 6 is rejected.

c. Qualitative results

Now that all the quantitative tests are done it is interesting to see why the generations have privacy concerns. In the survey, 4 open questions were asked to the respondents about the reason why they have privacy concerns.

It has become clear that the 5 generations can be decreased to 3 generations because generation 4 and 5 have equal privacy concerns and also generation 2 and 3 have equal privacy concerns. The oldest generation (generation 1) is still a single group. The results of the generations are explained in this chapter per question. The full list of answers, categorized per question and per generation, can be found in appendix 3.

Question 1

The first question is: *“Why do you have privacy concerns about a company obtaining your personal information for marketing purposes?”*.

Generation 1 clearly states that they do not know what can happen with the data and that they have no control over it. They therefore find it scary what can happen with all the personal data that a company obtains from them. They also stay that a company should ask them permission before obtaining information from them. Only one person says that marketing becomes more effective when they have your personal data and does not care about this.

Generation 2 and 3 also say that they have no control over what happens with the data. More importantly they say that they cannot avoid it because a company does it anyway. Also they find it sometimes annoying that they get a lot of advertisements or emails after searching for a certain product. They want to make their own decision and not be influenced by the companies that have obtained their data.

Furthermore, 6 respondents say that they do not care about the fact that companies obtain their personal information. They say that it is sometimes handy to get personalized advertisements or discounts and that they do not find this troublesome.

Within generation 4 and 5, most of the respondents say that they do not find it very troublesome that companies obtain their personal information. They say that there are a lot of privacy laws that assure the safety of your information. Also the data that companies use can create interesting content and they say this is just how companies operate and some use add blockers so that they do not get all the advertisements. However, these generations do have privacy concerns about this when their data is obtained in a misleading way or when they are approached directly through, for

example, telephone. Also they say that it should be more clear what kind of data a company has of you, so that the customer has more influence on what can be used and what cannot be used.

Question 2

The second question is: *“Why do you have privacy concerns about abuse of your personal data by companies”*.

The oldest generation (generation 1) says that companies just do whatever they want and therefore they are worried about abuse of their personal data. Some use the Facebook scandal that came out in 2018 to express their concerns. Also they say that they have no control over what happens with their data and they find it very scary what the companies can do with all the data.

6 respondents in the second and third generation say that they do not worry about abuse of their data because they say that there is not much that can go wrong. However, most of the respondents say that they have concerns about the abuse of their data because they say that this happens more and more. They also use the Facebook case to express their concerns. Furthermore, they say that they want to decide for themselves what a company knows about them and what a company can do with this data.

Almost half of the respondents in generation 4 and 5 say that they are not really concerned about abuse of their data. Most of them point out that there are privacy laws that decelerate abuse and make sure that companies do what they are supposed to. They say that the new law in the Netherlands (AVG) that was introduced on may 1th 2018 helps prevent scandals like the Facebook scandal in the future. However, more than half of the respondents do have concerns about abuse of their data. They say that companies can earn a lot of money with their data and that they try to do as much as possible within the boundaries of the law and do not always do what they are supposed to. Also there are growing concerns about the manipulation of political opinions and misleading advertisements.

Question 3

The third questions is: *“Why do you have privacy concerns about the fact that companies sometimes share your data with third parties”*.

The oldest generation (generation 1) says that they do worry about the sharing of their data with third parties. They do not know to which companies their data is shared and have no influence on this. Also they say that companies do this without their permission and if a company would ask their permission that they will not give it.

In generation 2 and 3, 6 respondents say that they have no concerns about the sharing of their data to third parties. They say that everybody can know everything about them because they have nothing to hide. However, most of the respondents do have concerns about the sharing of their data to third parties. They say that companies do this without their permission and they see this as abuse of their data. Also they do not know the other companies and the privacy laws in the home country of this company. Furthermore, they find it very annoying to get emails and advisements from all these companies because they have no connection to these companies whatsoever.

The same amount of respondents (6) in the two youngest generations (generation 4 and 5) have no concerns about the sharing of their data to third parties. However, most of them say that they find this a lot more worrying than the company that they have a connection with obtains their personal data. They say that their data cannot just be sold to everybody because this affects their privacy a lot

more. They say that by combining data from different companies or platforms the companies can make profiles of them and that affects their privacy according to most of the respondents.

Question 4

The fourth question is: *“In which situation would you give up some of your privacy to get positive results in return”*.

In generation 1 the respondents say that they are only willing to give up some of their privacy if it involves their health. Also they say that the organizations need to maintain their privacy by not sharing it without their consent. Furthermore most of the respondents that say that they would never give up their privacy for positive returns.

Generation 2 and 3 give a series of situations where they would give up some of their privacy. First the respondents say that they would give up their privacy for their health or for reasons of national security like anti-terrorism. Also 5 respondents say that, if they have a connection with the organization and get appropriate advertisements they would give up some of their privacy. However, 10 respondents (which is almost half of the respondents) say that they cannot think of a situation where they would give up their privacy.

In generation 4 and 5 there are only 6 respondents that say that they would never give up some of their privacy to get positive returns. The main reasons that this group wants to give up some of their privacy is for financial gain, like when they can save money on something. Also they want to give up their privacy to get the right advertisements for products that they are interested in. Furthermore, 3 respondents say that they would only give up their privacy for governmental agencies for national security or health.

5. Discussion and conclusion

In this chapter the results of the research are discussed further. The results of the different tests are compared and the conclusions that can be drawn upon these results are given.

At the beginning of this research, a literature review has been done to obtain information about the already known literature in the context of combining big data, privacy concerns of customers about big data, and age groups. It has become clear that there is some research about the distinction between age groups, but not in the context of privacy concerns of customers about big data. Also it has become clear that there are three drivers for privacy concerns of big data in general, namely;

- Knowledge
- Awareness
- Return on big data

These three drivers influence the level of concerns about the use of big data that a person has.

Furthermore many non-academical sources claim that these privacy concerns differ between age groups/generation. More specifically, it has always been the assumption that older generations have more privacy concerns than younger generations, also in the context of big data. Therefore the following research question has been made to test this claim:

“What is the impact of the variable ‘age’ on the privacy concerns of customers about big data use by companies?”.

To answer this question there have been made seven hypothesis based on the already known theory about privacy concerns of big data use. Hypothesis 1, 4, 5, and 7 were tested by doing a series of ANOVA tests and hypothesis 2, 3, and 6 were tested by doing a series of linear regression analysis. Also the qualitative results will be compared to the quantitative results to explain the reason why the respondents have privacy concerns.

The following hypothesis' were tested:

H1: Older generations have more privacy concerns about the use of big data than younger generations

H2: A person with less awareness has higher privacy concerns than a person with more awareness

H3: A person with less knowledge has higher privacy concerns than a person with more knowledge

H4: Older generations have less awareness than younger generations.

H5: Older generations have less knowledge than younger generations

H6: When a person finds ROBD important, the person has more privacy concerns than a person who finds ROBD less important

H7: Older generations find ROBD more important than younger generations

Privacy concerns (H1)

To test the first hypothesis a series of ANOVA tests were done to test to what extent the respondents have privacy concerns on four different aspects, namely if they have concerns about a company obtaining their personal data, a company misusing their data, a company sharing their data with third parties, and how open they are with sharing their personal data to companies. It has become clear that there is a significant difference between the generations on all four aspects and

therefore it is concluded that older generations have more privacy concerns than younger generations, so hypothesis 1 is accepted. However, at the beginning of the research there were 5 generations that were distinguished in the marketing context, but based on the results of this research it can be concluded that only 3 generations can be distinguished when we speak about privacy concerns of the use of big data by companies. Generation 4 and 5, and generation 2 and 3 can be added together because they are not significantly different from each other.

Furthermore, it is clear that the respondents have the most privacy concerns about companies sharing their data with third parties because this variable has the highest score of all four aspects that were tested. When we compare this result to the qualitative results the same conclusion can be drawn. All the generations say that they have the most privacy concerns about companies sharing their data with third parties.

When we compare the quantitative results to the qualitative results it can be explained why older generation have more privacy concerns than younger generations and where these concerns come from. The oldest generation (generation 1) clearly state that they have no knowledge of companies obtaining their personal data. Also they say that they cannot influence this and have no control over it. Therefore, they find it scary and have many privacy concerns. Generation 2 and 3 have less concerns about their privacy because the advertisements can be helpful according to the respondents, but they still find it annoying if their data is used for aggressive advertisements like email and cold-calling, so they would like to be able to influence the way that their data is used. The two youngest generations (generation 4 and 5) have the least concerns about their privacy. They say that they have nothing to hide and the advertisements do not bother them to much because they just ignore them or use ad blockers if they do not want to see them. Also they say that there are a lot of privacy laws that assure the safety of their data and their privacy.

Awareness and knowledge (H2, H3, H4, H5)

After hypothesis 4 and 5 were tested with ANOVA tests, it has become clear that older generation have less awareness about the fact that their data is being obtained for marketing purposes. Also older generations have less knowledge about the way that their data is being obtained and what a company can do with this data. However, when we compare these results between the different generations the same result comes up as with the results of the privacy concerns, so also for awareness and knowledge there are 3 generations that can be distinguished. Hypothesis 4 and 5 are therefore accepted.

Furthermore, hypothesis 2 and 3 were tested by doing a series of regression analysis'. When we analyze these results it can be concluded that a person with less awareness and knowledge about big data use has more privacy concerns than a person with more awareness and knowledge about big data use. Therefore also hypothesis 2 and 3 are accepted.

When we compare these results to the qualitative results, the same conclusion can be drawn. As explained in the previous paragraph about privacy concerns in general, it has become clear that the privacy concerns of the oldest generation mainly come from a lack of knowledge and awareness. They find it scary because they do not understand it. The younger generations however say that there are privacy laws, that they use ad blockers, and that the advertisements can be helpful, which indicates that they do have knowledge and awareness about the use of big data by companies. They even know how to avoid it.

Return on big data (H6 and H7)

At last, based on the already known theory, a person that finds ROBD data important has more privacy concerns about big data than a person that finds ROBD less important. Compared with the

assumption that older generations have more privacy concerns one would think that older generations find ROBD more important than younger generations. However, after doing the ANOVA test to test hypothesis 7, a different result comes up. There is a significant difference between the generations when we speak about the importance of ROBD, but after taking a closer look at the data it has become clear that younger generations find ROBD more important, instead of older generations. However, there can only be distinguished 2 generations because generation 1, 2, and 3 are not significantly different from each other and generation 4 and 5 are also not significantly different from each other. Therefore hypothesis 7 is rejected.

Also, based on the regression analysis hypothesis 6 can also be rejected. Based on the regression analysis it can be said that a person who finds ROBD less important has more privacy concerns than a person that finds ROBD more important. At first one might think that this is odd because when a person finds it important to get positive results you would think that this person would be very careful with sharing their data and has more privacy concerns but when we compare this result to the qualitative results, the respondents give a clear explanation for this. The older generations have the most privacy concerns and when we examine the reason why they find ROBD important, they say that they do not find ROBD important because they do not want to share their data at all, even if they get positive results for giving up some of their privacy. The only reason why the oldest generation (generation 1) would give up some of their privacy is if it involves their health, like sharing their data with hospitals and health insurance agencies. Even though there is no significant difference between generation 1 and generation 2 and 3, generation 2 and 3 are less strict based on the qualitative results. Still, most of the respondents say that they cannot think of a situation where they would give up some of their privacy to get positive returns, but the remaining respondents give more examples of situations, apart from only health reasons. Generation 2 and 3 say that they would also give up some of their privacy for reasons of national security, anti-terrorism and appropriate advertisements. The two youngest generations (generation 4 and 5) are more willing to give up their privacy based on the qualitative results. They say that the right advertisements or discounts can be helpful and they can get financial gain from this. Based on these results it can be concluded that older generation do not care about positive results and have the most privacy concerns. The younger generations on the other hand find ROBD more important because they say that they would give up some of their privacy if they get positive returns.

Concluding theoretical model

A conceptual model was made, at the beginning of this research, based on the already known theory and the suggestion that older generation have more privacy concerns than younger generations. Now that all the hypothesis' are tested, a concluding theoretical model is made, which is displayed in figure 5 on the next page. A negative effect is noted with a -, and a positive effect is noted with a +. Also the significance is noted with a *, whereas one * means a significance level lower than 0,10, two * means a significance level lower than 0,05, and three * means a significance level lower than 0,01.

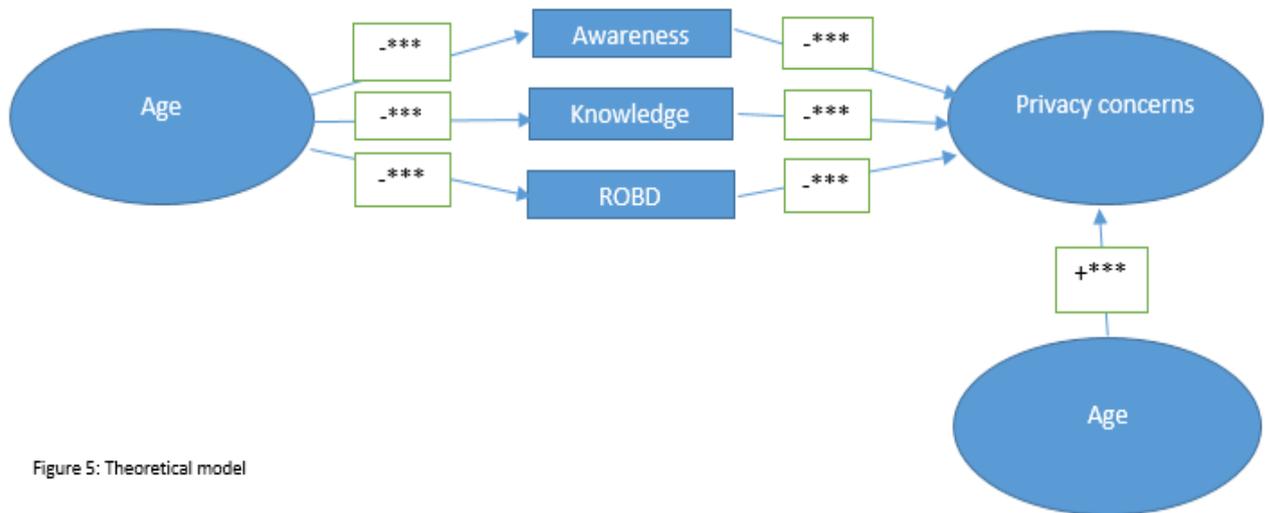


Figure 5: Theoretical model

Conclusion

After analyzing and comparing the data the main research question “What is the impact of the variable ‘age’ on the privacy concerns of customers about big data use by companies?” can be answered.

Concluding generations

First of all it can be concluded that there are 3 generations that can be distinguished when we speak about privacy concerns about the use of big data. These three generations are:

Generation	Privacy concerns	Awareness	Knowledge	ROBD	Important drivers
Generation 1	+	-	-	-	Health
Generation 2	+ -	+	-	+ -	Anti-terrorism, appropriate advertisements
Generation 3	-	+	+	+	Advertisements, financial gain, helpful

Table 19: Privacy concerns and attributes per concluding generation

- Generation 1 is the oldest generation and has the most privacy concerns. Based on the research, this generation finds it scary what can happen with their data, because they have no knowledge and awareness about big data. Also they do not care about positive results (ROBD) that they can get for giving up some of their privacy. However, health is the only reason that this generation would give up some of their privacy which means that health overrules everything.
- Generation 2 is the middle generation and has medium privacy concerns. This generation say that they have no control over what a company does with their data. However they also say that it happens anyway so the most respondents are not very concerned. This generation is therefore more aware than the older generations, but the knowledge about big data is still too low. Furthermore they would give up their privacy for their health or for reasons of national security like anti-terrorism, but also for appropriate advertisement. ROBD is therefore also higher.
- Generation 3 in the youngest generation and has low privacy concerns. This generation does not care much about the use of their data because according to the respondents there are

privacy laws that prevent a company from abusing their data. Also the respondents within this generation say that they use add blockers to avoid unwanted advertisement. Based on these claim is can be concluded that generation 3 has much more knowledge and awareness about big data than older generations. Generation 3 is also more willing to give up their privacy for positive results (ROBD). They say that the right advertisements or discounts can be helpful and they can get financial gain from this.

General conclusions

In general, as shown in figure 5 and table 19, age as a positive effect on privacy concerns, which means that the higher the age the higher the privacy concerns. However, the reason that this effect is measured can be partly assigned to the 3 attributes that influence a person's privacy concerns. The 3 attributes that influence privacy concerns can function as moderator variables for the effect that age has on privacy concerns. Awareness, knowledge and ROBD all have a negative effect on privacy concerns, which means that the higher the awareness, knowledge and ROBD the lower the privacy concerns.

For example, when a person has a lot of awareness about the fact that their personal data is being obtained by companies, finds it important to get positive results for giving up their privacy, but does not have the knowledge about the way that companies obtain their personal data, then this person can be seen as a person with moderate privacy concerns. On the other hand, when a person does not have awareness and knowledge about companies obtaining their personal data and does not find it important to get positive returns for giving up their privacy, then this person can be seen as a person with high privacy concerns. Shortly, these three attributes can be combined to predict ones privacy concerns.

Also, it has become clear that that the higher the age the lower the awareness, knowledge and ROBD. It can therefore be concluded that the privacy concerns of older generations can be partly assigned to the fact that these generations do not have awareness, knowledge, and ROBD and find it therefore scary.

Practical implications of the research

When these insights are combined, it can be concluded that if a person has a high age but has a lot of awareness, knowledge and ROBD that this person has lower privacy concerns than a person with a high age who does not have awareness, knowledge and ROBD. One could therefore argue that when a company informs their older customers better and shows them what positive returns they can get for giving up their privacy, that the privacy concerns of these older customers can be decreased. Also by focusing on the 'important drivers' (see table 19) of the specific generation, a company can try to decrease the privacy concerns of this generation. This paper and can be very helpful for companies that mainly have older customers but still want to use big data to effectively reach and influence these customers.

When we speak about the younger generations the main aspects that have to be emphasized by companies are financial gain. For example, discounts or special need related offers that can benefit the customer.

Furthermore, health reasons and anti-terrorism apparently overrule privacy concerns for almost all generations. This is an important conclusion, mainly for governments, hospitals and insurance agencies. By emphasizing on these reasons, the government, hospitals and insurance agencies can decrease the privacy concerns of their clients.

Theoretical implications of the research

Also, this paper contributes to the theory about privacy concerns of big data and has a theoretical impact. When a researcher needs information about the influence of age on privacy concerns of big data, this report can be helpful to better understand these effects.

Further research suggestions

At last, some suggestions for further research can be given. Firstly, as explained in this chapter, the privacy concerns of older customers can be decreased by increasing the awareness, knowledge and ROBD. However, it is not clear how this can be done effectively. Therefore it might be helpful to do further research in this area. When that research is combined with this research, then it can be really valuable for companies.

Secondly, it is important to note that this research has been done right after the scandal came out that Facebook was sharing data of their users with Cambridge Analytica. One could therefore argue that, because of this event, people were angry and had more privacy concerns than they would normally have. This could have distorted the results of the research and decreased the reliability. On the other hand one could argue that, because of the Facebook scandal, the answers were more well thought-out and therefore the reliability of the research increased. Further research is needed to test the effect of the Facebook scandal on the results of this research.

6. Appendixes

a. Appendix 1

Pre-depression

These children were born during the depression and experienced high unemployment rates, traumatic times and economic strife. Most of them began their life with high expectations, but these were eventually destroyed by WW1 and WW2. They were young adults during the time of WW2. The characteristics of this generation are: altruistic, conservative and not materialistic. They also care about financial and personal security, disposition of belongings, health and aging. However, this generation is very small because many are deceased and are not very interesting for marketers and businesses.

Depression

This generation were young children during WW2 and during the depression. The characteristics of this generation are: they are slow to adopt new things and do not trust changes, they rely on tested and true ways of doing things. Their values are saving, ethics, morals and rationing. Also family and social tranquility are very important to this generation.

Baby boom

Most of these children were born right after WW2 and they are with many. The baby boom generation gets its name from a huge increase in childbirth. The characteristics of this generation are: workaholic, more tech-savvy than previous generations, energy, wellness, and health are important goals and they can be seen as suspicious of authority and self-centered. Also, they value optimism, self-expression, and individualization.

Generation X

This generation endured difficult economic times during adulthood and success was not self-evident. They had to work hard to reach their goals and many are self-employed professionals. They value family, grew up in a time with the rise of personal computers and are less traditional than other generations. The characteristics of this generation are balancing life, work, energy, not sacrificing time and relationships.

Generation Y

These are the children of the 'Baby Boom' generation and they grew up in a fast-changing time with increasing technology, globalization, multiculturalism and they are used to a world where anything is possible. The characteristics of this generation are: self-reliant, self-absorbed, independent, competitive, image-driven, need for peer acceptance, want to fit in and use social media to do that. Also, they are optimistic, goal oriented and open minded.

Generation Z

This is the youngest generation of our time and they are still in their early years. They live in a time with global terrorism, school violence, recession, mortgage crisis, and economic downfall. When we speak about characteristics these children are the new conservatives, self-controlled, more responsible, they value authenticity, peer acceptance is important and they value security. This generation has never lived without internet and high tech environments are very normal for them.

b. Appendix 2

Pagina: 1

Welkom

Welkom!

Deze enquête bestaat uit 15 vragen verdeeld over 3 pagina's en zal maximaal 10 minuten in beslag nemen

Alvast bedankt!

Start

Pagina: 2

Welkom



In hoeverre bent u het eens met de volgende stellingen? Vul een cijfer in van 1 t/m 10, waarbij 1 inhoudt dat u het er NIET mee eens bent en 10 inhoudt dat u het er WEL mee eens bent.



1.

Ik heb er problemen mee dat bedrijven mijn persoonlijke gegevens verzamelen voor marketingdoeleinden. *



2.

Ik maak mij zorgen om misbruik van mijn persoonlijke gegevens door bedrijven. *



3.

Ik maak mij er zorgen om dat bedrijven mijn persoonlijke gegevens soms delen met derden. *



4.

Ik ben open met het delen van mijn persoonlijke gegevens aan bedrijven. *



5.

Ik ben ervan op de hoogte wat een bedrijf allemaal met mijn persoonlijke gegevens kan doen. *



6.

Ik ben op de hoogte van welke manieren bedrijven mijn persoonlijke gegevens kunnen verzamelen. *



7.

Ik ben mij er bewust van dat bedrijven of marketeers mijn persoonlijke gegevens op een oneerlijke of misleidende manier verzamelen/proberen te verzamelen. *



Volgende pagina

Pagina: 3



In de volgende vragen wordt er gesproken over 'positieve resultaten'. Hiermee kan worden bedoeld:

- Gepersonaliseerde content
- Gepersonaliseerde advertenties
- Aanbiedingen



8.

Ik ben mij er bewust van welke positieve resultaten ik ervoor terug kan krijgen wanneer bedrijven gebruik maken van mijn persoonlijke gegevens. *



9.

Ik zou het contact met een bedrijf vermijden als ik er niet zeker van ben dat ik er positieve resultaten voor terugkrijg. (vermijden kan zijn: het uitzetten van gps, anoniem surfen op internet, niet inloggen met Facebook bij derden, cookies niet accepteren, etc.) *



10.

Ik ben bereid om mijn privacy gedeeltelijk op te geven als ik daar positieve resultaten voor terugkrijg. *



Volgende pagina

Pagina: 4



De volgende vragen zijn open vragen. Hierbij wordt naar uw mening gevraagd en kunt u vrij antwoorden.



11.

Waarom heeft u er wel of geen problemen mee dat bedrijven uw persoonlijke gegevens verzamelen voor marketingdoeleinden? *



12.

Waarom maakt u zich wel of geen zorgen om misbruik van uw persoonlijke gegevens door bedrijven? *



13.

Waarom maakt uw zich wel of geen zorgen om het feit dat bedrijven uw gegevens soms delen met derden partijen? *



14.

In welke situatie zou u uw privacy op willen geven als u daar positieve resultaten voor terugkrijgt? *

An empty text input field with a light gray border. On the right side, there are three vertically stacked arrows: a small upward arrow, a square button, and a small downward arrow. On the left side, there are two horizontally stacked arrows: a small leftward arrow and a square button.

15.

In welke leeftijdsgroep valt u? *

- 72 jaar en ouder
- 53 t/m 71 jaar
- 41 t/m 52 jaar
- 23 t/m 40 jaar
- Jonger dan 23 jaar

c. Appendix 3

	Frequency
Valid 72 years and older	22
53 t/m 71 years old	28
41 t/m 52 years old	21
23 t/m 40 years old	23
younger than 23 years old	23
Total	117

Table 3: Number of respondents per generations

	N
Totalprivacyconcerns	117
Totalknowledge	117
Totalawareness	114
TotalROBD	114
Valid N (listwise)	114

Table 4: Number of respondents for total privacy concerns and the three attributes

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,946	,946	4

Table 5: Cronbach's alpha

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Obtain	20,44	64,369	,899	,824	,920
Misuse	20,91	63,931	,867	,793	,929
Sharethirdparties	20,25	62,447	,906	,858	,917
opendelenrecode	20,82	65,373	,808	,677	,948

Table 6: Cronbach's alpha item total

Report

Mean

Agegroup	Obtain	Misuse	Sharethirdparties	Opensharing
72 years and older	9,32	8,36	9,00	1,95
53 t/m 71 years old	7,68	7,50	8,11	3,68
41 t/m 52 years old	7,48	7,48	7,57	3,81
23 t/m 40 years old	6,09	5,17	6,26	6,00
younger than 23 years old	4,61	4,26	5,09	6,30
Total	7,03	6,56	7,22	4,35

Table 7: Mean scores of privacy concerns per generation

Multiple Comparisons

Dependent Variable: Totalprivacyconcerns

LSD

(I) Agegroup	(J) Agegroup	Sig.
72 years and older	53 t/m 71 years old	,044
	41 t/m 52 years old	,028
	23 t/m 40 years old	,000
	younger than 23 years old	,000
53 t/m 71 years old	72 years and older	,044
	41 t/m 52 years old	,727
	23 t/m 40 years old	,002
	younger than 23 years old	,000
41 t/m 52 years old	72 years and older	,028
	53 t/m 71 years old	,727
	23 t/m 40 years old	,008
	younger than 23 years old	,000
23 t/m 40 years old	72 years and older	,000
	53 t/m 71 years old	,002
	41 t/m 52 years old	,008
	younger than 23 years old	,140
younger than 23 years old	72 years and older	,000
	53 t/m 71 years old	,000
	41 t/m 52 years old	,000
	23 t/m 40 years old	,140

Table 10: Multiple comparisons total privacy concerns per generation

Report

Mean

In welke leeftijdsgroep valt u?	Totalawareness	Totalknowledge	TotalROBD
72 years and older	7,50	5,45	6,95
53 t/m 71 years old	12,32	8,79	7,82
41 t/m 52 years old	12,14	8,71	8,10
23 t/m 40 years old	14,59	14,48	9,82
younger than 23 years old	15,43	14,57	10,48
Total	12,37	10,40	8,58

Table 11: Mean scores of attributes per generation

Multiple Comparisons

Dependent Variable: Totalawareness

LSD

(I) Agegroup	(J) Agegroup	Sig.
72 years and older	53 t/m 71 years old	,000
	41 t/m 52 years old	,000
	23 t/m 40 years old	,000
	younger than 23 years old	,000
53 t/m 71 years old	72 years and older	,000
	41 t/m 52 years old	,877
	23 t/m 40 years old	,048
	younger than 23 years old	,008
41 t/m 52 years old	72 years and older	,000
	53 t/m 71 years old	,877
	23 t/m 40 years old	,046
	younger than 23 years old	,009
23 t/m 40 years old	72 years and older	,000
	53 t/m 71 years old	,048
	41 t/m 52 years old	,046
	younger than 23 years old	,491
younger than 23 years old	72 years and older	,000
	53 t/m 71 years old	,008
	41 t/m 52 years old	,009
	23 t/m 40 years old	,491

Table 13: Multiple comparisons of awareness per generation

Multiple Comparisons

Dependent Variable: Totalknowledge

LSD

(I) Agegroup	(J) Agegroup	Sig.
72 years and older	53 t/m 71 years old	,012
	41 t/m 52 years old	,022
	23 t/m 40 years old	,000
	younger than 23 years old	,000
53 t/m 71 years old	72 years and older	,012
	41 t/m 52 years old	,957
	23 t/m 40 years old	,000
	younger than 23 years old	,000
41 t/m 52 years old	72 years and older	,022
	53 t/m 71 years old	,957
	23 t/m 40 years old	,000
	younger than 23 years old	,000
23 t/m 40 years old	72 years and older	,000
	53 t/m 71 years old	,000
	41 t/m 52 years old	,000
	younger than 23 years old	,949
younger than 23 years old	72 years and older	,000
	53 t/m 71 years old	,000
	41 t/m 52 years old	,000
	23 t/m 40 years old	,949

Table 14: Multiple comparisons of knowledge per generation

Multiple Comparisons

Dependent Variable: TotalROBD

LSD

(I) Agegroup	(J) Agegroup	Sig.
72 years and older	53 t/m 71 years old	,354
	41 t/m 52 years old	,255
	23 t/m 40 years old	,004
	younger than 23 years old	,001
53 t/m 71 years old	72 years and older	,354
	41 t/m 52 years old	,772
	23 t/m 40 years old	,034
	younger than 23 years old	,006
41 t/m 52 years old	72 years and older	,255
	53 t/m 71 years old	,772
	23 t/m 40 years old	,087
	younger than 23 years old	,020
23 t/m 40 years old	72 years and older	,004
	53 t/m 71 years old	,034
	41 t/m 52 years old	,087
	younger than 23 years old	,511
younger than 23 years old	72 years and older	,001
	53 t/m 71 years old	,006
	41 t/m 52 years old	,020
	23 t/m 40 years old	,511

Table 15: Multiple comparisons of ROBD per generation

d. Appendix 4

Generation 1

Open vraag 1

Aantasten privacy

Geen overzicht c.q. zelf controle over wat wel/niet doeleinden zijn

Ik wil zelf bepalen wat ik koop.

Het zou me in ieder geval gevraagd moeten worden. Het hangt er vanaf welk doel het dient.

Omdat marketing daardoor effectiever kan worden

heb er wel problemen mee, omdat ik niet wil dat mijn hele hebben en houden bekend is.

ik weet niet wat er mee gebeurt en ik vind het eng. dus ik heb er wel problemen mee.

Open vraag 2

Aantasten privacy

zie Facebook verhaal!

Ik kan onnodige informatie krijgen of geven

Ik maak me geen zorgen maar vind het wel brutaal

Ik men niet kwetsbaar te zijn

Ik maak me daar zorgen over, omdat ik geen enkele invloed heb op wat bedrijven doen met alle info die ze krijgen.

omdat bedrijven gewoon doen wat ze willen. daarom maak ik me er zorgen om.

Open vraag 3

Het ontvangen van grote hoeveelheden ongewenste reclame

Geen overzicht c.q. zelf controle over wat wel/niet doeleinden zijn

Ik weet niet wat zij er mee doen

Daar zou ik niet in toestemmen. Zit ook niet op face book.

Ik meen niet kwetsbaar te zijn

Ik heb daar geen invloed op en weet niet wat ze ermee gaan doen. Daar maak ik me zorgen over.

ik weet niet wat voor bedrijven dus daar maak ik me wel zorgen om.

Open vraag 4

Geen enkele

Alleen in uiterste noodgevallen

Geen

Misschien in het geval het een specifiek medicijn zou zijn waar ik veel aan zou kunnen hebben.

Indien belanghebbenden daar goed mee omgaan

Als het om mijn gezondheid gaat.

Ik zou zo geen reden kunnen bedenken

Geen

Geen idee

Geen

Generation 2 and 3

Open vraag 1

Wel problemen mee omdat ik net wil dat mijn persoonlijke gegevens ergens terecht komen waar ik het niet wil.

Ik vind het heel irritant en opdringerig om ongevraagde advertenties voorgeschoteld te krijgen

Ik heb er een probleem mee omdat ik er zelf niet om heb gevraagd. Het wordt me opgedrongen.

Privacy

Ik vind het niet prettig dat er adressen verzameld worden. Je bent de controle kwijt over je eigen gegevens.

Ik heb er niet zo heel veel problemen mee, mits ze mij bijvoorbeeld telefonisch gaan lastig vallen.

Bedrijven en marketing in het bijzonder, wantrouw ik bij voorbaat. Het gaat alleen om eigen gewin, heeft niets met mij te maken.

Geen problemen. Voor niets gaat de zon op! Als je iets wilt gebruiken dat gratis is, staat daar tegenover dat er verdiend wordt aan advertenties. Daar heb ik geen moeite mee.

Wel bezwaar, je weet niet waar het naar toe gaat en wat er mee gebeurt!

Uit privacy-overwegingen

wel problemen omdat ik zelf wel op zoek ga op internet als ik geïnteresseert ben in bepaalde producten en bedrijven, ik wil niet door hen benaderd worden.

Advertenties interesseren mij niet of nauwelijks; m.a.w. ze doen hun best maar

ben zelf werkzaam bij organisatie waarbij we big data vergaren. Denk dat het niet te vermijden is dat men inzicht heeft in voor welk bedrijf we onderdeel zijn van de doelgroep

Ik heb er problemen mee dat bedrijven mijn persoonlijke gegevens verzamelen voor marketingdoeleinden omdat de persoonlijke gegevens in handen van derden kunnen komen en niet duidelijk is welke consequenties dit kan hebben.

Ik heb problemen met de continue ongevraagde informatie van deze bedrijven

Gaat zonder dat je het weet en ze koppelen dingen voor eigen gewin

Wel probleem mee. Ik wil niet overspoeld worden met reclames en wil zelf mijn keuzes maken. Wil niet dat ik overgeleverd word aan de keuzes van het desbetreffende bedrijf.

Het zijn MIJN data

ik heb er problemen mee omdat je bestookt wordt met mails en andere zaken. Bovendien voelt het niet prettig (en dan heb ik nog weinig te verbergen..)

Maak me er niet echt druk over. Soms vind ik het handig om persoonlijke aanbiedingen te krijgen. Levert voordeel op.

Ik geen behoefte aan ongewenste reclame, die steeds weer terugkomt op mijn mobiel enz.

Je krijgt er vaak ook veel voor terug. Bijv. Leuke acties.

Om marktwerking en gewenste producten te creëren zal er gegevens verzameling moeten worden gedaan.

Omdat de samenleving niet draait om winst en geld en het toestaan van verstrekken van prive gegevens verregaande consequenties kan hebben die mensen niet kunnen overzien en/ of schadelijk zijn. Daarnaast vind ik dat de overheid dit moet verbieden, omdat het uitmelken van prive personen t.b.v. commerciële doeleinden schadelijk is en de overheid de burger hiertegen zou moeten beschermen.

Teveel mails, irritante banners tijdens het surfen

Open Vraag 2

Ik maak me hier wel zorgen over omdat steeds meer blijkt dat dit gebeurt.

Ik heb bezwaar tegen de doorverkoop van adressen. Ik wil zelf de bedrijven uitzoeken waar ik zaken mee wil doen. ik wil niet lastig gevallen worden door ongevraagde reclame!

Ik maak me zorgen omdat mijn vrijheid me lief is. Ik wil graag zelf bepalen wie wat van me weet.

Misbruik van gegevens (facebook)

In de praktijk blijkt nu al dat onze gegevens zelfs in het buitenland terecht komen. Ik zie daar het nut niet van in.

Ik maak me er niet zo druk om

Ik maak mij zorgen om de afschuwelijke nieuwsgierigheid naar consumenten om hen nog meer te laten consumeren.

Wel zorgen. Omdat nu blijkt dat gegevens gebruikt worden voor andere doeleinden, bv. Verspreiden van nepnieuws.

Ze kunnen mij controleren en mijn gaan en staan volgen.

Maak me wel zorgen om misbruik. Heb geen controle over de aard van het misbruik

wel zorgen maar wil daar ook niet al te zwaar aan tillen

Ambivalent: a: ik lees allebn advertenties die mij interesseren. b: ik wil niet voortdurend achtervolgt worden door opflitsende advertenties, maar daarvoor heb ik een add-blocker

Ene keer wel andere keer niet, misbruik kan niet volledig voorkomen worden.

Ik maak mijn zorgen omdat ik niet goed kan overzien wie deze informatie nog meer krijgt

Kan op andere manier gebruikt worden

Ik maak mij nauwelijks zorgen over het misbruik. Ik zou niet weten hoe het misbruikt kan worden.

Data is geld waard

de reclame terreur.

Heb niet het idee, dat er veel mis kan gaan.

Je weet nooit wat ze er verder mee doen

Geen zorgen. Kan me overal wel zorgen om maken. Heb al grijze haren genoeg.

Nee

Mensen zouden te weten kunnen komen waar je woont of wat je in je vrije tijd doet..

Open vraag 3

Daar maak ik me wel zorgen over omdat ik de privacy regels van andere bedrijven niet ken.

Hoe meer bedrijven ons adres hebben hoe meer spam/reclame je binnen krijgt. Het is een vorm van vervuiling en zéér irritant!

Ik maak me zorgen omdat ik dit ervaar als misbruik maken van iets waar ik niet om gevraagd heb.

Misbruik van gegevens

Als adressen worden doorverkocht is de controle op betrouwbaarheid onmogelijk.

ook dat maakt me niet veel uit

Ik vertrouw geen bedrijf, en al helemaal geen bedrijf waar ik totaal niets van weet, dat zijn de derden.

Wel zorgen. Omdat je dan helemaal niet meer weet naar wie ze gaan en wat die ermee doen. Gebeurt trouwens ook via de post. Adressenbestanden worden ook verkocht aan derden.

Ik heb er geen weet van en dat is niet prettig

Maak mevvel zorgen omdat ik er geen grip op heb

wel zorgen, ik geef daar geen toestemming voor

Omdat dit totaal oncontroleerbaar is ; wie is die derde partij ; waarom wil die mijn gegevens zo graag hebben ; hoe durft iemand mijn gegevens door te VERKOPEN aan een ander

Ene keer wel andere keer niet, misbruik kan niet volledig voorkomen worden.

Er wordt ongevraagd nog meer informatie gedeeld en krijg steeds meer ongevraagde info toegestuurd

Diefstal misbruik

Gegevens delen zonder mijn toestemming aan derden merk ik niet.

in verband met escalatie van het stalken

Sta er niet zo bij stil en weet niet wat er kwaad mee kan.

je weet niet in hoeverre ze bekend zijn met de persoonlijke gegevens en wat ze hiermee doen

Geen zorgen, ze mogen alles van me weten.

omdat ik niet weet wat ze ermee gaan doen

Ja, eerst vragen

Niet beheersbaar. Zijn vaak bedrijven waar je geen bemoeienis mee wilt

Open vraag 4

Geen enkele. Behalve bij mijn medische gegevens.

Alleen met bedrijven waarmee ik zelf contact opzoek op een tijdstip dat ik ze nodig heb!

Voor de algemene veiligheid bijv. bij terreur en in oorlogssituatie of milieubedriegingen.

Als er geen Misbruik van de gegevens wordt gemaakt

Alleen als ik zelf een leverancier benader op het moment dat ik die nodig heb!

Ik wil er geen extra moeite voor doen om mijn privacy op te geven.

x

Ik begrijp het hele begrip positieve resultaten niet, daarom keek ik nog eens op blz. 2 en nu zijn al mijn ingevulde antwoorden verdwenen! Ik heb een universitaire scholing maar weet niet wat gepersonifieerde advertenties zijn.... ik geef dus geen privacy op voor positieve resultaten, geloof niet in het begrip.

Ik gebruik geen facebook, maar wel bv whatsapp. En zoals gezegd, gratis bestaat niet. Dus advertenties vind ik irritant, maar daar heb ik wel begrip voor. En de GPSfunctie is ook handig. maar je zou willen dat die gegevens alleen gebruikt werden om jou te helpen en niet voor allerlei andere vage doeleinden.

Privacy gaat boven alles en ik hoef daar geen beloning voor

Nooit

Veiligheid

niet ; alleen voor het verhinderen van terroristische en criminele praktijken mits dat door een zeer betrouwbare instantie gebeurt

bijvoorbeeld ten behoeve van uitbreiden netwerk. Voor werk of bijvoorbeeld verhuur 2e huis

In principe in geen enkele situatie

In geen enkele situatie

Geen

Geen idee wat '\positieve resultaten\' inhoudt.

Niet

bijvoorbeeld leuke aanbiedingen voor andere functies of bezigheden.

Niet

Als het om goede doelen gaat

Als ik er financieel op vooruit ga

in geen enkele

Passende aanbiedingen en informatie. Geen hardloopschoenen bijvoorbeeld

Geen

Door bv goedkopere prijzen op artikelen bij een juiste promotie op sociale media

Generation 4 and 5

Open vraag 1

Ik wil hier voor niet gestoord worden

Geen probleem omdat het uiteindelijk meer interessante content voor jezelf creëert, wel problemen omdat het meestal ongevraagd gebeurt waardoor je niet weet welke gegevens men wel en niet van je bewaard.

Omdat mijn leven en gedrag niet gratis is. Als ze mij willen volgen mogen ze er ook voor betalen

Ik heb er wel problemen mee, Omdat ik niet weet wat er nog meer mee gedaan wordt en wie er verder bij kan komen

Ik vind dat het initiatief om tot aanschaf van een product over te gaan bij mijzelf moet liggen. Iedere vorm van (agressieve) marketing vind ik niet prettig. Zelfs wanneer dat kortingen en andere aanbiedingen zou opleveren. Het verzamelen van mijn gegevens, zonder mijn toestemming vind ik dus altijd een probleem.

Vervelend om ongevraagd gebeld te worden.

Ze maken er misbruik van bijv tijdens zwangerschap je wil alles kopen

Bedrijven hebben niks te maken met mijn persoonlijke gegevens, ook niet als ze voor marketing doeleinden gebruikt worden.

Ik heb er wel problemen mee, omdat mijn identiteit wordt gebruikt om geld te verdienen. Bovendien wordt er nooit expliciet verteld wat ze met je data doen.

geen problemen, omdat het wel handig kan zijn als ik er wat voor terug krijg soms.

Ik deel vrij weinig informatie en ben erg bewust van hoe die informatie vervolgens gebruikt wordt

Als het voor beide partijen een positief resultaat oplevert en er geen misbruik van gemaakt wordt prima.

Geen problemen mee omdat je er soms wijzer van word.

In positieve zin heb ik er geen problemen mee.

Omdat ik nooit weet wat ze er precies mee gaan doen.

ik heb er problemen mee als ze de gegevens die ik verstrek voor andere doeleinden gebruiken dan waar ik ze voor heb ingevuld. facebook advertenties vind ik geen probleem, maar als ik mijn 06 op

facebook bijv. invul wens ik niet opeens benaderd te worden telefonisch voor aanbiedingen die mij op basis van mijn internetgebruik zouden kunnen intrinsieren bijv.

Persoonlijke gegevens worden vaak op een misleidende manier verzameld dus ik zou er zeker een probleem mee hebben.

Zolang ik niet direct wordt benaderd, zowel telefonisch of fisiek

Het kan vaak geen kwaad, en daarnaast is iedereen verplicht zorgvuldig met de gegevens om te gaan!

Omdat je dan vaak gebeld of gemailt wordt met aanbiedingen of reclames.

mensen zijn meer dan nummers op een scherm, of "consumenten". Als ik een wc bril haal, komt dat omdat ik er een nodig heb, en ik heb dan geen zin de drie daaropvolgende weken wc bril advertenties te zien.

Op deze manier krijg je gericht reclame voor je neus geschoven. Dit kan zowel positief als negatief ervaren worden.

Op deze manier kunnen bijvoorbeeld verkiezingen gemanipuleerd worden. Dat moet niet kunnen

Wel, het zijn jouw gegevens niet zomaar voor t oprapen

Open vraag 2

datalekken

Je weet niet wie er toegang heeft tot je gegevens en waar het bewaren van die gegevens invloed op heeft.

wel, ze hebben niks te maken met mijn gedrag

Ik vraag mij af wat andere met deze gegevens kunnen. Hierdoor heb ik hier gemengde gevoelens over

Ik maak mij geen zorgen meer om mijn privacy, omdat ik maatregelen heb getroffen om dat tegen te gaan. Daarnaast wordt de Europese regelgeving ook geactualiseerd met de komst van de Algemene Verordening Gegevensbescherming die veel strikter optreedt dan huidige nationale wetgeving (Wet bescherming persoonsgegevens).

Toch bang dat ze in je persoonlijke dingen zitten te neusen

Geen zorgen wet van privacy

Ik maak me hier een beetje zorgen om, maar onderneem hier verder geen actie om.

Ik maak me zeer ernstig zorgen, er is veel geld te verdienen met big data. En juist dat zorgt er voor dat misbruik makkelijk plaatsvindt.

een beetje. bedrijven doet niet altijd wat ze zouden moeten doen en dat baart mij wel zorgen.

Mijn eigen gegevens hebben ze weinig aan of kunnen ze niet goed tegen mij gebruiken, anderen overkomt dit echter wel veel

Omdat je van alles hoort op social media en tv.

Maak me geen zorgen dat mijn gegevens gebruikt worden. Als ik iemand niet wil spreken neem ik gewoon mijn telefoon niet op.

Maak mij geen zorgen omdat ik hier nog nooit problemen mee heb gehad.

Ik maak me er wel zorgen om, omdat ik niet weet welke gegevens ze gebruiken en waarvoor. Dat word me nooit verteld.

bedrijven werken ook met de wet bescherming persoonsgegevens en daarom remt de wet het misbruik ook af.

Je weet niet precies wat hun doeleinden zijn dus de ene keer maak ik me wel zorgen dan de andere keer.

Omdat ze vaak heel misleidend kunnen zijn.

Omdat ik persoonlijk niks te verbergen heb

Over het algemeen maak ik mij hier geen zorgen over, omdat ik het gevoel heb dat er weinig mogelijk is qua persoonlijke gegevens (wat ik voor mijzelf persoonlijk vindt)

Omdat ik denk dat niet alle bedrijven handelen met goede intenties.

het is natuurlijk meer dan marketing. Ook mijn politieke opinie kan beïnvloed worden, of privégegevens. Veel dingen die ik niet wil kunnen (agressief) aan mij geadverteerd worden, online, over de telefoon of op een andere manier, waardoor ik uiteindelijk misschien toch overstag ga, waar ik dat anders niet zou doen, wat mij weer geld kan kosten, of moeilijkheden met zich mee kan brengen.

Op deze manier kunnen bijvoorbeeld verkiezingen gemanipuleerd worden. Dat moet niet kunnen

Wel, je wil niet dat iedereen je gegevens heeft en misbruikt

Open vraag 3

Datalekken

Derde partijen is een ruim begrip, je krijgt het gevoel dat je gegevens ongewild in verkeerde handen vallen. Tegelijkertijd merk je er ook vrij weinig van waardoor ik er niet heel veel problemen mee heb.

omdat naast bedrijven niks met mij hebben de derde partijen er al he le maal niks mee mogen.

Ik maak mij daar wel zorgen over, ik weet niet met wie het gedeeld wordt en voor welke doeleinden.

Die vind ik wel lastig. Dat is ook de voornaamste reden dat ik niet op websites bestel waarvan het moederconcern in China gevestigd is. Chinese bedrijven zijn namelijk verplicht om hun klantgegevens te verstrekken aan de overheid. Ik kan mij voorstellen dat wanneer ik een 'verkeerd' product heb besteld en dus een verkeerd profiel krijg, ik in de toekomst problemen kan krijgen bij het verkrijgen van een visum voor China.

Geen zorgen daar moet je toestemming voor geven.

Weet ik niet

Die andere bedrijven zijn onbekend en je weet dus nooit waar het terecht komt.

daar maak ik mij wel zorgen om. omdat ik niet weet wat die andere bedrijven met de gegevens gaan doen. en ik daar niet expliciet toestemming voor heb gegeven.

Ik deel zelden informatie maar als ik dat doe weet ik met wie, als dit zonder mijn weten aan derden wordt gegeven maak ik mij zorgen omdat dit invloed kan hebben op mijn toekomst, baankansen etc

Omdat zij dan degene zijn die geld verdienen aan mijn gegevens. Verdien er liever zelf wat aan.

Ik maak me geen zorgen dat mijn gegevens delen met bedrijven. Als ik geen interesse heb als er contact met mij opgenomen word geef ik dit gewoon netjes aan.

Ik maak mij geen zorgen, omdat ik hier niet mee bezig ben.

Ik maak me er wel zorgen om, omdat ik niet wil dat privé dingen worden rondgeslingerd.

ik weet vanuit mijn ergens werkervaring dat het veel gebeurd. en ja ik maak me er dus zorgen over. Altijd de kleine lettertjes lezen en dat zie je soms vaak over het hoofd.

Het word op een misleidende manier gedaan dus het komt dan onverwacht aan.

Vanwege privacy

Omdat ik niet weet waar mijn gegevens terecht komen.

Dit vind ik meer zorgelijk omdat er dan geen zicht op is wie welke gegevens van mij heeft, en daarnaast wat er dan mee gedaan wordt!

Daar maak ik me minder zorgen om omdat ik in die zin nog niet gecontacteerd ben door derde partijen

Bijvoorbeeld mijn likes op facebook gaan andere partijen simpelweg niks aan, het enige wat ze daarmee kunnen is mij gericht targetten, waar ik, zoals uitgelegd bij de vorige vraag, helemaal niet op zit te wachten.

Boeien

Wel, het mag niet zomaar verspreid worden

Open vraag 4

Geen commerciële zaken, wel voor zaken voor politie en justitie. Zou men door mijn gegevens ergens achter kunnen komen wat criminaliteit tegen gaat zou ik mijn privacy daar wel voor opgeven.

Geen. Ik waardeer mijn privacy, dit ook de reden waarom ik niets van doen wil hebben met slimme ads

Geen.

Wanneer het voor mij positief uitvalt zoals een besparing

Geen enkele!!

Geen enkele

Geen

overheden, of als ik er iets positiefs voor terugkrijg!

Locatie delen ivm routeplanning, verder zelden

In veel situaties. Heb weinig geheimen.

Ik zou mijn persoonlijke gegevens opgeven aan een bedrijf die mij ergens mee helpt.

Door de juiste reclame te ontvangen.

Ik kan me zo geen situatie bedenken

als ik zou gaan besparen op een dienst of iets dergelijks wat ik sowieso al afneem ben ik best bereid benaderd te worden. of dat advertenties die ik toch al krijg meer op mij worden gericht vind ik dat ook niet erg.

Geen.

Lagere kosten

Onbekend

Op het moment dat er dan meer werkgelegenheid komt e.d, en dat selecties op bepaalde vacatures makkelijker worden!

Hooguit als het het dagelijkse leven bevordert zonder negatieve kanten te hebben. Kan me weinig casussen voorstellen waarin dat het geval is. Dingen die ik zoek zoek ik gericht op een eigen manier.

nooit helemaal. Ik zou niet weten wanneer perse wel. Gedeeltelijk kan wel (bijv mijn naam, leeftijd, dat soort basis dingen, maar specifiekere info liever nooit)

Als ik er geld voor terugkrijg

Heeeel veel geld

7. References

- Baek, Y., Kim, E., & Bae, Y. (2014). My privacy is okay, but theirs is endangered: Why comparative optimism matters in online privacy concerns. *Elsevier*, vol 31, 48-56.
- Bergstrom, A. (2015). Online privacy concerns: A broad approach to understanding the concerns of different groups for different uses. *Elsevier*, Vol 53, 419-426.
- Brill. (2012). *Jaarverslag 2012*. Leiden: Koninklijke Brill N.V.
- Cohen. (2013). The ICS International Chronostratigraphic Chart. *Episodes*, 30-39.
- Crawford, K., & Schultz, J. (2014). Big Data and Due Process: Toward a Framework to Redress Predictive Privacy Harms. *Boston College Law Review*, vol 55, issue 1, Article 4.
- Duhigg, C. (2012). *The power of habit*. New York: Random House Usa Inc.
- Gartner. (2018, 1 10). *Big Data*. Retrieved from www.gartner.com: <https://www.gartner.com/it-glossary/big-data>
- Kamakshi, P. (2014). SURVEY ON BIG DATA AND RELATED PRIVACY ISSUES. *International Journal of Research in Engineering and Technology*, Vol 3 (12), 68-70.
- Kshetri, N. (2014). Big Data's Impact on Privacy, Security and Consumer Welfare. *Telecommunications Policy*, 38 (11), 1134-1145.
- McAfee, A., & Brynjolfsson, E. (2012). Big Data: The management revolution. *Harvard Business Review*, 60-69.
- Novak, J. (2018, Januari 15). *The Six Living Generations In America*. Retrieved from www.marketingteacher.com: <http://www.marketingteacher.com/the-six-living-generations-in-america/>
- Rubinstein, I. S. (2012). Big Data: The End of Privacy or a New Beginning. *New York University Public Law and Legal Theory*, Paper 357.
- Sagiroglu, S., & Sinanc, D. (2013). *Big Data: A Review*. Ankara: Gazi University.
- Saunders, M., Thornhill, A., & Lewis, P. (2004). *Methoden en technieken van onderzoek*. London: Peason Education.
- Savitha, N., & Dhivya, K. (2017). Consumer ethnocentrism: A comparison between generations X and Y. *South Asian Journal of Marketing & Management Research*, 7, 5, 21-31.
- Schacter, D. L. (1990). Towards a cognitive neuropsychology of awareness: implicit knowledge and anosognosia. *Journal of clinical and experimental neuropsychology* 12(1), 155-178.
- Schroer, W. (2018, Januari 15). *GENERATIONS X,Y, Z AND THE OTHERS*. Retrieved from [www.socialmarketing.org](http://socialmarketing.org): <http://socialmarketing.org/archives/generations-xy-z-and-the-others/>
- Sherr, I. (2018, 4 18). Facebook, Cambridge Analytica and data mining: What you need to know. *Cnet*.

- Smith, M., Szongott, C., Henne, B., & von Voigt, G. (2012). Big Data Privacy Issues in Public Social Media. *IEEE International Conference on Digital Ecosystems and Technologies (DEST), 6th*, 1-6.
- Soto, C., John, O., Gosling, S., & Potter, J. (2011). Age differences in personality traits from 10 to 65: Big Five domains and facets in a large cross-sectional sample. *Journal of Personality and Social Psychology* 100(2), 330-348.
- Stewart, J. (2016, Januari 25). Which generation has it worse? *CNN*.
- Taylor, G., Lewin, J., & Strutton, D. (2011). Friends, Fans, and Followers: Do Ads Work on Social Networks? *Journal of Advertising Research* vol. 51 no. 1, 258-275.
- Tene, O., & Polonetsky, J. (2013). Big Data for All: Privacy and User Control in the Age of Analytics. *Journal of technology and intellectual property*, vol 11, issue 5, 239-273.
- Trustwave. (2013). *2013 Trustwave Global Security Report*. Chicago: Trustwave Holdings Inc.
- Varian, H. (2014). Big Data: New Tricks for Econometrics. *Journal of economic perspective*, Vol 28, issue 2, 3-28.
- Vos, H. (2009). *Social research methods*. Edinburgh: Peason Education Limited.
- Wallop, H. (2014, Juli 31). Gen Z, Gen Y, baby boomers – a guide to the generations. *The Telegraph*.
- Wikipedia. (2018, Januari 15). *Generation*. Retrieved from www.wikipedia.org:
<https://en.wikipedia.org/wiki/Generation>
- Williams, K., & Page, R. (2011). Marketing to the generations. *Journal of Behavioral Studies in Business*, 3, 37-52.
- Wolfswinkel, J. F., Furtmueller, E., & Wilderom, C. P. (2013). Using grounded theory as a method for rigorously reviewing literature. *European journal of information systems*, 22, 45-55.
- Zhang, R., Chen, J., & Lee, C. (2015). Mobile Commerce and Consumer Privacy Concerns. *Journal of computer information systems* Vol 53, issue 4, 31-38.
- Brill (2012). *Jaarverslag 2012*. Leiden, Koninklijke Brill N.V.
- Burrows, R. and M. Savage (2014). "After the crisis? Big Data and the methodological challenges of empirical sociology." *Big Data & Society* 1(1): 2053951714540280.
- Chaney, D., M. Touzani and K. Ben Slimane (2017). "Marketing to the (new) generations: summary and perspectives." *Journal of Strategic Marketing* 25(3): 179-189.
- Cohen (2013). "The ICS International Chronostratigraphic Chart." *Episodes*: 30-39.
- Crawford, K. and J. Schultz (2014). "Big Data and Due Process: Toward a Framework to Redress Predictive Privacy Harms." *Boston College Law Review*, vol 55, issue 1: Article 4.
- Duhigg, C. (2012). *The power of habit*. New York, Random House Usa Inc.
- Ishida, Y., M. Miyaki, Y. Fujisawa and K. Iwasaki (2017). "How does tourism differ among generations? Tourists from the United States and their willingness to visit Japan." *International Journal of Tourism Sciences* 17(1): 49-60.
- Kamakshi, P. (2014). "SURVEY ON BIG DATA AND RELATED PRIVACY ISSUES." *International Journal of Research in Engineering and Technology*, Vol 3 (12): 68-70.
- Kshetri, N. (2014). "Big Data's Impact on Privacy, Security and Consumer Welfare." *Telecommunications Policy*, 38 (11): 1134-1145.

McAfee, A. and E. Brynjolfsson (2012). "Big Data: The management revolution." Harvard Business Review: 60-69.

Novak, J. (2018). The Six Living Generations In America. www.marketingteacher.com.

Rubinstein, I. S. (2012). "Big Data: The End of Privacy or a New Beginning." New York University Public Law and Legal Theory: Paper 357.

Sagiroglu, S. and D. Sinanc (2013). Big Data: A Review. Ankara, Gazi University.

Saunders, M., A. Thornhill and P. Lewis (2004). Methoden en technieken van onderzoek. London, Peason Education.

Savitha, N. and K. Dhivya (2017). "Consumer ethnocentrism: A comparison between generations X and Y." South Asian Journal of Marketing & Management Research, 7, 5: 21-31.

Schroer, W. (2018). GENERATIONS X,Y, Z AND THE OTHERS. www.socialmarketing.org.

Smith, M., C. Szongott, B. Henne and G. von Voigt (2012). "Big Data Privacy Issues in Public Social Media." IEEE International Conference on Digital Ecosystems and Technologies (DEST), 6th: 1-6.

Stewart, J. (2016). Which generation has it worse? CNN.

Taylor, L., R. Schroeder and E. Meyer (2014). "Emerging practices and perspectives on Big Data analysis in economics: Bigger and better or more of the same?" Big Data & Society 1(2): 2053951714536877.

Tene, O. and J. Polonetsky (2013). "Big Data for All: Privacy and User Control in the Age of Analytics." Journal of technology and intellectual property, vol 11, issue 5: 239-273.

Trustwave (2013). 2013 Trustwave Global Security Report. Chicago, Trustwave Holdings Inc.

Vos, H. (2009). Social research methods. Edinburgh, Peason Education Limited.

Wallop, H. (2014). Gen Z, Gen Y, baby boomers – a guide to the generations. The Telegraph.

Wikipedia (2018). Generation. www.wikipedia.org.

Williams, K. and R. Page (2011). "Marketing to the generations." Journal of Behavioral Studies in Business, 3: 37-52.

Wolfswinkel, J. F., E. Furtmueller and C. P. M. Wilderom (2013). "Using grounded theory as a method for rigorously reviewing literature." European journal of information systems, 22: 45-55.