MUNICIPAL CCTV SURVEILLANCE AND PRIVACY

RESEARCH ON THE INFLUENCE OF CCTV SURVEILLANCE IN ENSCHEDE CITY CENTRE.

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Abstract

In public administration, citizens' discomfort with any perceived loss of privacy can create limits on the usage of public data for both public affairs and municipal operations. Investigating such potential loss of privacy is there for interesting to research. Moreover, the use of CCTV surveillance data can help to improve governmental services but it can also create distrust in the government as citizens might question its legitimacy and preventive activities. Therefore, the main objective of this thesis is to examine the attitudes of citizens towards municipal CCTV surveillance with regards to people's privacy and to explain their reactions towards municipal CCTV surveillance. The following main research question has been formulated: *'What explains the reactions of citizens of Enschede towards municipal CCTV surveillance?'* To answer this question, the following sub questions have been formulated: 1). '*What notions of privacy are there and what do people in Enschede consider as privacy?* 2). *'Which types of CCTV surveillance does the municipality of Enschede use and to what extent are these considered intrusive?' 3). 'To what extent do people in Enschede remark these types of CCTV surveillance and how do they react to these?'*

There are basically three notions of privacy: protection of the private sphere, protection of bodily integrity and protection of informational privacy. The protection of the private sphere can be described as the protection from observations and recordings regarding domestic affairs and (group) association. Regarding CCTV surveillance this means, protection of sensitive issues such as peoples' habits and association with whomever people want to. The protection of bodily integrity can firstly be described as the protection of physical invasions of individuals. Regarding CCTV surveillance this means, the protection against the unwanted monitoring and recording of individuals' intimate body parts. Moreover, it also refers to privacy of location and space that individuals have. People have the right to move in public without being monitored, identified or even tracked. More specifically, the protection of personal information can be described as the protection of personal data in networks and computer systems as it has been defined in recent years (Dubbeld, 2004). It is about making sure that personal data is protected by legislation and policies and that the data is not available to other individuals and organizations. This research shows that people in Enschede city centre consider informational privacy the most important notion of privacy. The protection of informational privacy is considered very important by the people in Enschede city centre, while the protection of the private sphere as well as the protection of bodily integrity is considered fairly important.

Public CCTV surveillance in the Netherlands is based on three types of surveillance regarding the use of CCTV. These are monitoring, recognising and identifying. With monitoring CCTV surveillance the operator is able to observe whether one or more persons are present on the images. While with recognising, the operator is able to recognise the persons or objects involved in case of an incident. And with identifying, the operator is able to identify or distinguish unmistakably the facial features of a person. Looking at the municipality of Enschede, they are using recognising surveillance as their main type of CCTV surveillance. The CCTV cameras in Enschede city centre allow for observers to recognise persons which they have previously seen. However, the CCTV surveillance cameras in Enschede city centre do not have enough detailed information that allows for facial recognition by the observers. However, the CCTV cameras do allow for observer to make personal pictures of possible suspects and send them to law enforcement officers in the city centre to help them recognise the possible suspect.

Most people in Enschede city centre agree with the use of all three types of municipal CCTV surveillance. However, people in Enschede city centre do consider monitoring CCTV surveillance to be the least intrusive of the three surveillance types. In addition, most people in Enschede city centre find municipal CCTV surveillance to be a tool to help them feel safe in Enschede city centre. Moreover, people in Enschede city centre trust the observers who are watching them and believe laws and regulations are effective at protecting their privacy. However, when people did find municipal CCTV surveillance in Enschede city centre uncomfortable it were especially the cameras located at the 'Oude Markt' and 'Stadsgraven'. When looking at preventive behaviour, most people in Enschede city centre showed seldom or never any form of preventive behaviour towards municipal CCTV surveillance in Enschede city centre. Finally, testing the concept model of this thesis and giving an answer to the main research question, this thesis showed that as people find private sphere privacy and bodily integrity privacy more important, people's opinion on any of the three CCTV surveillance type's decreases and people will less likely agree with CCTV surveillance. As a result, when people in Enschede city centre find identifying CCTV surveillance more uncomfortable, they feel more unsafe and feel that their privacy is at risk. As a result of feeling unsafe and feeling that their privacy is at risk, people in Enschede city centre will especially avoid places with CCTV surveillance, watch who they associate with and talk to and take protective measures.

Table of contents

1. Introduction

1.1 INTRODUCTION

Throughout western societies, camera surveillance have been more and more deployed by governmental bodies and private institutions in order to monitor a vast collection of domains, such as retail establishments, apartment buildings, public spaces and the internet (Heurmann, Cassak, Kang, & Twitchell, 2016). Most common type of surveillance used by the municipalities in the Netherlands is camera surveillance, also referred to as Closed Circuit Television (CCTV). CCTV is of visual nature and is able to shape our engagement and interpretation of crime, social order and control. The visual images not only help the government with the engagement and interpretation of crime, but CCTV also advises institutional practices (Bekkers, Hartley, & Dawes, 2012).

Overall, The United Kingdom experienced the most spectacular and rapid spread of surveillance in public space, especially in the mid to late 1990s. They invested in new camera schemes, supported by central government assets and operational advice, along with political rhetoric to assist in fighting crime. Alongside, public surveillance was also launched in other European countries such as Germany, France and Austria but also in the Netherlands. In the Netherlands, CCTV is still not as common as in the United Kingdom, however in the Dutch city centres, the camera density is actually rather significant (Nouwt, Vries, & Burgt, 2005).

Together with the growth of CCTV surveillance, the possible technical applications of electronic CCTV surveillance systems also grew significantly. As an illustration, CCTV surveillance systems are nowadays able to connect to the Internet which in return allows for real-time monitoring of public spaces via remote and distant locations. Moreover, CCTV surveillance can be linked to certain software programs which allows for automatic detection and the registration of sounds as well as visual images (Vreeken, 2003). The use of new matching techniques already allows to link data from different sources, private and public, to create a far more comprehensive picture of citizens (Mergel, Kimberley, & Rethemeyer, 2016). Although CCTV surveillance is being acknowledged as the instrument for crime reduction and crime prevention, CCTV has also evoked considerable concern about privacy protection (Dubbeld, 2014). In 1997 the Dutch Presidency of the European Union said the following: '*Cameras as crime prevention tools are in general new and cost-effective ways to offer reassurance to citizens as to their safety. […] Cameras should be part of a comprehensive local and/or national crime prevention policy. Ideally, they should be monitored by trained personnel and the public*

should be aware of their use. Privacy should be safeguarded!' (10:66). After this event, voices opposing the spread of CCTV surveillance and pushing for regulation increasingly expressed their concerns on possible privacy violations (Bekkers et al., 2012). In addition, various studies, reports and surveys have shown that privacy is a top priority of concern among the general public (e.g. Koops & Vedder, 2001; Heumann, Cassak, Kang & Twitchell, 2016). Moreover, civil liberty groups have also criticised the use of CCTV surveillance and have stated privacy as their main worry (ACLU, 1999; Schienke & Brown, 2003). Furthermore, the main stream media have also picked up the issue and reported on the problems of CCTV applications (McCahill, 2002; Gray, 2003). As an example, Dubbeld (2004) showed that between 1997 and 2003, 647 news articles on CCTV surveillance were published, in which 147 news articles referred to privacy concerns. Although ideas on privacy are frequently mentioned in debates on CCTV surveillance, the actual concepts of privacy regarding CCTV surveillance among the population and the way in which it might be experienced as intrusive remains largely unexplored in recent literature. Dubbeld (2004) began researching these possible privacy intrusions and claimed that individuals were also entitles to a certain degree of privacy protection outside their homes. Dubbeld (2004) stated what is needed with regards to CCTV surveillance is 'regulation of the observing gaze and limiting power asymmetries between the observer and the observed'. However, what did go unexplored in the literature was what explains the reactions of individuals towards CCTV surveillance in relation to their privacy. This thesis tries to do that. The upcoming chapter, chapter 1.2 will further discusses this point. In this chapter, background information will be given and the scientific research that already has been done related to CCTV surveillance and privacy will be examined and the chapter will also examine the scientific gap that this thesis tries to fill in.

1.2 BACKGROUND

The rapid spread of CCTV surveillance in the 1990s and early 2000's has been characterized by public and political debates regarding the possible positive and negative effects of CCTV surveillance. While many studies and debates have emphasized the significance of CCTV surveillances as a crime prevention and reduction measure (e.g. Ratcliffe, Taniguchi & Taylor, 2009; Lippert & Wilkinson, 2010), others have challenged those arguments and indicated that CCTV surveillance is intrusive to people's privacy (e.g. Lever, 2008; Moncrieff, Venkatesh & West, 2009).

Though, it has been believed that legislators are rather passive regarding the question of how CCTV surveillance and its data should be regulated, CCTV surveillance and its use are still increasing. There is much that still needs to be done to perserve privacy as much as possible with CCTV surveillance. Hence, the increasing concerns regarding privacy. More specifically, to understand to what extend privacy needs consideration in the future of CCTV surveillance and if surveillance is a real threat to privacy, especially with technology evolving so fast (Kapoor, 2014; Payne et al., 2015). Investigating this potential loss of privacy is there for interesting to research. Recent research already has shown how privacy might be intrusive as a result of CCTV surveillance (e.g. Dubbeld, 2014); it remains unclear, however, what the recent public attitudes are towards CCTV surveillance with regards to privacy, especially on municipal level. The most recent studies on public attitudes on municipal CCTV surveillance in the Netherlands date back to the early 2000's, which are almost 20 years old and were carried out when most of the Dutch municipalities just began with CCTV surveillance (Nouwt, de Vries & Van der Burgt, 2005). In addition, recent research shows that the above mentioned municipal CCTV surveillance might not be as effect with regards to crime prevention as people thought. Moreover, the DDMA Privacy Monitor of 2018 showed that in recent years the public became increasingly aware of their privacy and also became increasingly worried, especially with the Facebook scandal and the introduction of the Sleepwet. Therefore, the main objective of this research is to examine what the public attitudes are on municipal CCTV surveillance with regards to people's privacy and how their reactions towards municipal CCTV surveillance can be explained.

1.3 PROBLEM DEFINITION

This thesis will examine to what extent people have concerns about their privacy regarding municipal CCTV surveillance. In public administration, citizens' discomfort with any perceived loss of privacy can create limits on the usage of public data for both public affairs and municipal operations. Investigating such potential loss of privacy is there for interesting to research. Moreover, the use of CCTV surveillance data can help improve governmental services but it can also create distrust in the government as citizens might question the legitimacy of accessing and providing low-visibility data. The research question that is central in this thesis refers to CCTV surveillance in the city centre of Enschede. On July the 1st 2017 a new designation act (Aanwijzingsbesluit) was issued for camera surveillance in Enschede city centre. The areas mentioned with CCTV surveillance can be found in

appendix 1 (Decentrale overheid, 2017). With this in mind, an answer is needed for the following research question:

'What explains the reactions of citizens of Enschede towards municipal CCTV surveillance?'

In order to answer the above mentioned research question, three sub questions have been formulated:

1. 'What notions of privacy are there and what do people in Enschede consider as privacy?
2. 'Which types of CCTV surveillance does the municipality of Enschede use and to what extent are these considered intrusive?'
3. 'To what extent do people in Enschede remark these types of CCTV surveillance and how do they react to these?'

This first sub question addresses the different notions of privacy that people may have. People can (and do) understand the term privacy in different ways. In order to examine whether or not people in Enschede consider CCTV surveillance an intrusion to their privacy, privacy as a term needs to be defined. Furthermore, this question will explore whether some or all of these notions of privacy are present in the definition that the people of Enschede give to the term privacy, relating to CCTV surveillance. The issue of privacy concerns regarding municipal CCTV surveillance is, however, not limited and not merely dependent on the different notions of privacy. In order to continue, it is important to know which kind of CCTV surveillance the municipality of Enschede uses. Different forms of CCTV surveillance might invoke different responses from people. The second sub question focuses on the intrusiveness of the different types of surveillance in Enschede and to what extent this is experienced. In order to complete this research, one needs to determine whether people in Enschede remark the different types of surveillance and how they react to these different types of surveillance. Therefore, a third and final sub question has been formulated. These three questions together provide the information needed to answer to above mentioned research question.

1.4 RESEARCH APPROACH

This research includes both theoretical and empirical components. The analysis of privacy notions related to CCTV surveillance will be based on a theoretical framework that describes a collection of privacy dimensions that are derived from philosophical as well as legal-philosophical literature. Moreover, the analysis of CCTV surveillance as a concept will also be examined based on a theoretical

framework which will explain different CCTV surveillance types together with how they might be intrusive to privacy. These theoretical perspectives on privacy and CCTV surveillance are used as a foundation of an empirical study on CCTV surveillance within the city centre of Enschede which aims to identify the notions of privacy of people in Enschede and to what extent people in Enschede consider municipal CCTV surveillance in Enschede city centre an intrusion to their privacy.

This research has several key elements that are central in this thesis. It is important to first define a theoretical framework of information that allows for the analysis of the above mentioned problem statement. The next chapter in this thesis will provide such a theoretical framework that will provide a foundation to answer the main questions of this thesis and to comprehend it. This theoretical chapter will include literature about the relation of technology and privacy, the notions of privacy that exist, and CCTV surveillance. This includes discussions and dilemmas of leading scholars within the privacy field and insights in recent developments. The methodology, in chapter three, will help with translating that theoretical framework to specific concepts and items are can be used in order to conduct the empirical part of this thesis. The following chapters will consist of the actual analysis and where the collected data from the empirical research will be analysed. The final chapter allows for a discussion to take place and to state the conclusion of this research together with the answers to the research question.

The basis of this thesis is based on literature about the notions of privacy, CCTV surveillance and the development of technology in the context of privacy. Journals that are central in this part are for example The British Journal of Criminology, The Journal of Criminal Law and Criminology, and The Journal of Surveillance & Society. However, also other literature will be used. The library of University of Twente will be utilized to search for books related to CCTV surveillance and privacy. Moreover, websites such as Web of Science and Scopus will be used to find other relevent scientific rticels relevant to this research. This various articles and books will be used to create a theoretical framework that creates a foundation for this research. The emperical part of this thesis will consist of a survey that is being held in the city centre of Enschede. To narrow down the time and setting of this research, this thesis will focus on the people in Enschede that are aged from 18 to 75. Important to note is that this research does not discuss if CCTV surveillance actually works as crime prevention but rather on whether CCTV surveillance is considered intrusive to privacy by the people in Enschede.

1.5 OVERVIEW

This overview concludes the first chapter, the introduction. Chapter 2 will consist of the theoretical framework that inspires this thesis. This theoretical framework will describe the notions of privacy, CCTV surveillance and the development of technology in the context of privacy and will be the basis of this research. In chapter 3, the methodology of this study will be discussed and enlightened. More specifically, the survey study that will be held in the city centre of Enschede will be enlightened. This allows for an exploration on how privacy notion are seen by the people in Enschede and whether they find CCTV surveillance in Enschede city centre intrusive. This information will be analysed in chapters 4, 5 and 6. In chapter 7, a discussion will take place on the privacy implications of CCTV surveillance in Enschede city centre according the people in Enschede. This concluding chapter will also include the conclusion of this research together with the answers to the research question.

2. Theoretical Framework

This chapter describes and summarizes the most important literature. It also provides insight into the knowledge area, theme, central concepts and the relations between the central concepts of this research. This includes discussions and dilemmas of leading scholars within the privacy field and insights in recent developments. Before starting the actual empirical part of this master thesis, it is important to have a clear picture of how privacy evolved together with rapid technological change. The first paragraph therefore describes the development of privacy and technology. This first paragraph consists of discussions related to the right to privacy in the context of computer technologies, mass media and electronic networks. In the paragraphs that follow, notions of privacy and CCTV surveillance as a whole will be discussed. This includes discussions and dilemmas of leading scholars within the privacy field and insights in recent developments.

2.1 EVOLUTION OF PRIVACY AND TECHNOLOGY

The main concept within this paper, privacy, is rather difficult and abstract to define in one specific sentence. The concept of privacy is rather multi-dimensional. One of the first individuals to define the right of privacy were Warren & Brandeis in the year 1890 in their article 'The right to Privacy'. Warren and Brandeis were two lawyers at the time and they defined privacy as the right to be let alone (Warren & Brandeis, 1890). However, a lot has changed since 1890. In the mid-twentieth century, rapid technological change has created discussions on privacy on several different topics. In the beginning, one's right to privacy was very much defended and was also cautiously defined. In addition, actions by the press that were considered to be intrusive to one's privacy were also clearly defined and enforced. This will be further discussed in chapter 2.1.1. The following years after those developments, privacy changed rapidly due to the creation of computer technologies and electronic networks that were created. This will be further discussed in chapters 2.1.2 and 2.1.3.

2.1.1 Right to privacy

After the early definition of privacy by Warren & Brandeis, mentioned previously, other researchers were more concerned with discussing privacy with regards to a more legal and moral right. Looking at the media as well as the common press in the 1980's, they had a high number of different tools and instruments that could help them to monitor and even register everyday lives of citizens. Warren & Brandeis argued that the laws existing at the time were alone not enough to protect the public

against the invasion of the common press. The authors also noted that the laws in place at that time were not sufficient and also did not help with the protection of emotions, sensations and thoughts of people. Because of this reason, Warren & Brandeis noted that there should be a more general and but also a more separate right to protect the private lives of the general public and people.

More specifically, Warren & Brandeis stated that privacy should be established via the principles that were already there in for example laws and etc. This could mean for example, the copyright law (Warren & Brandeis, 1984, p.82). As a result, the authors noted that the already existing laws were about the right to privacy for sensation, emotions and even thoughts whether people expressed themselves in conversation, in writing, attitudes or even facial expressions (Warren & Brandeis, 1984, p.82). The foundation of this specific right has its roots in the principle of 'an inviolate personality' (Warren & Brandeis, 1984, p.82). In addition, laws and legislation could help as a principle that could protect people from the invasion of the press or any other equipment or person that recorded sounds and/or scenes (Warren & Brandeis, 1984, p.82). A lot of researchers accepted this conclusion of the article, which meant that the right to privacy could be created from existing laws and legislation (Pemper, 1972, p.31). That being said, privacy did not go and evolve as Warren & Brandeis pictured in their article. However, the article did draw awareness and made researchers and legislators think about a more separate right of privacy (Blok, 2002, p.198).

The years after the article about privacy of Warren & Brandeis (1894), privacy in legal issues and cases gained a lot of momentum and also various states in America created certain privacy acts and laws. The evolution that privacy went through as a term and concept but also as a right was done without a specific pre thought out idea or plan, and ideas on privacy invasive issues and cases were quite diverse. As an illustration, in the early 1900s New York City came up with legislation for protecting the use of a person's name or even portrait or a picture without the written consent of that specific person. In addition, the growing debate on the issues of privacy with regards to laws and legislation was also very important in the philosophical debates of the concept of privacy, while announcements regarding privacy helped with public awareness of possible privacy risks (Pember, 1972, p.121). When Warren & Brandeis discussed privacy issues related to the common media and press, the authors referred to the new technologies used by the common media such as newspapers and journals. In the early twenties, new techniques such as radio and making films became a new possible threat for privacy intrusion. For instance, radio and TV commercials were rather ruthless

when it came to names of people. Also, the freedom of press was also seen as a possible strain on the protection of privacy for individuals.

Conclusively, privacy started as the definition 'the right to be left alone' discussed by Warren & Brandeis but other scholars enhanced this definition and added other elements to the definition, such as being protected against the unwanted publication of your name, personal pictures and other private information.

2.1.2 Privacy and the age of computers

Discussions and debates on the issues of privacy sparked enormously during the technological age in the 1950's and 1960's forward. This was especially the case during with creation and spread of (personal) computers. From the 1960's forward, issues of privacy were becoming a more common theme that reoccurred frequently in different analyses of impact assessments of technological developments with regards to computers (Dubbeld, 2004).

Moreover, during the 1960 researchers started noticing and also discussing possible negative effects that those computer applications could have (e.g. Westin, 1967, p.298). Privacy concerns and issues related to the developments of computer applications became also a hot topic with the political agendas. Furthermore, public awareness of possible privacy concerns were sparked by publications coming from Myron Brenton, with *'The Privacy Invaders'* and Vance Packard's '*The Naked Society'* (Brenton, 1964; Packard, 1965). In addition to that, the media also reported more and more on new developments regarding data processing practices sparked by the attention for privacy (e.g. Bennett, 1992). Firstly, privacy issues and concerns were related to plans created in the United States and several governments in Europe. In the early 1960s, The US and Europe wanted to create a national central computer system which stored personal data of their citizens (Dubbeld, 2004). In addition, The US also decided that they could match the Social Security Number with tax data which was considered the first step towards the establishment of a super computer that could invade the privacy of citizens on a large scale (Westin, 1967). Secondly, proposals were also created for the establishment of personal identification codes which in response also created new possible privacy intrusions and debates. Furthermore, the Dutch government announced plans to introduce uniform, general identifiers for government records in 1968 (Holvast, 1986). Both municipalities and provinces rejected the new system, and the public heavily expressed their privacy concerns (Holvast et al., 1989).

Furthermore, Alan Westin's book *Privacy and freedom* made a large and significant contribution to the ever growing concerns regarding privacy in the 1960s. The author argued that there are three types of surveillance that posed a risk towards people's privacy. First, there was the 'physical surveillance', these were considered the cameras and wire taps which could track and trace people (Westin, 1967, p.69). Additional new technologies also enabled monitoring in an even more efficient and effective way, which could create large power imbalances between individuals (who wanted to be anonymous) and those using surveillance techniques. Both business companies and the government used these new surveillance types, according to the author. Moreover, Westin also discussed 'psychological surveillance'. With this he meant that lie detectors and personality tests were increasingly used by government but also by regular companies to help screen and also monitor their employees and even potential employees. The author also found these practices privacy intrusive because the lie detector could intrude the 'inner domain of individuals' (or the unconscious) of people. In addition, feelings of autonomy that people had would be damaged by the lie detector because it registered emotional responses and the results were showed in public. Furthermore, when the government acquired such unconscious of people, it would get an enormous psychological power over individual people. Third, privacy issues and concerns were raised due to the new 'data surveillance', this included gathering and storage of personal data of individuals on (personal) computers (Westin, 1967, p.158). Westin noted that when the use of computers became more available, privacy issues and concerns with regards to the collection of computerized personal data and processing also increased. Moreover, data collection due to governmental activities, such as law enforcement by the police, ignited debates on social implications of these new developments (Dubbeld, 2004).

Around the same time, another researcher, Charles Fried, noted that the protection of privacy was very important due to human relationships. The author discussed the '*insidious intrusions of increasingly sophisticated scientific devices into previously untouched areas and the burgeoning claims of public and private agencies to personal information*'. The author analysed the basis that people had of the right to privacy and the basis of people's needs to protect privacy against the new technologies (Fried, 1984, p.203). The author also noted that privacy was a very important concept and was essential for the development and maintenance of human intimate relations which were important to *`our very integrity as persons'* (Fried, 1984, p.205-206). This specific type of privacy had as basis that individuals had their own control over their own personal identifying information (Fried, 1984, p.209).

The author's discussion on individuals having control over their personal identifying information as a basic principle of privacy protection would also be there in debates on privacy in the years that followed.

Conclusively, the 1960s were marked by public privacy concerns which were about privacy becoming more widespread in response to new computer applications. Researchers studying this new computerized surveillance and other innovative instruments put emphasis on individuals controlling their own personal information instead of privacy being only the right to be left alone.

2.1.3 Privacy and the age of electronic networks

From the 1970's and forwards, new computerized instruments grew rapidly and the public also continued to express their ever growing privacy concerns. The 1970s and 1980s allowed for data protection legislation to be created but these were often not enough and were also not created to deal with the even more rapid developments in ICT in 1990s which in return raised more privacy concerns (Dubbeld, 2004). Dubbeld argued that there were basically three different socio-technical methods that were visible and that also fuelled privacy concerns and issues in the 1990's and early 2000s.

Firstly, there is 'privacy on the internet'. Different Internet and data processing trends have fuelled the attention of privacy scholars. Privacy concerns and issues have been discussed for example related to the use of cookies on the internet and the mining of personal data (e.g. Bennett, 2001). To illustrate, the author explored the privacy risks in relation with tracking software with regards to data mining. In addition, Tavani (1999) noted that the importance of privacy safeguards such as providing individuals the right to control the use and disclosure of their own personal information (Tavani, 1999; Tavani & Grodzinsky, 2002). More specifically, it is important that individuals have control over their personal data. This also reappeared in James Moor's 'control/restricted access theory' (2011). This theory states that one's privacy is protected if the person is protected from interference, intrusion and information access by other individuals or governments and organizations (Moor, 2001, p.355).

Secondly, there is also 'data processing in networked computer systems'. Privacy concerns and issues have been expressed not only online and via the Internet but also via computer-based data processing activities such as data mining, as mentioned before. For example, Jospeh Fulda (2001) argued that the protection of privacy via data mining can be done via terms of consent of the use of

personal data of people. Privacy is then invaded `*when any means are used that bypasses the subject's consent as manifested by the subject's observable (objective) behaviour, reasonably interpreted*' (Fulda, 2001, p.414). When looking via this perspective, data mining can violate a person's privacy due to 'if data about an individual is mined and implicit knowledge about him is discovered, an appropriation has occurred, and further disclosure should not be permitted' (Fulda, 2001, p.416). When analysing privacy issues raised via data mining and through computer networks with related databases, one's consent to information use is the basic foundation in order to protect the privacy of individuals.

Thirdly there is 'privacy in the information age'. Several researchers stated that privacy concerns and issues did not explicitly start with an analysis of a specific type of socio-technical practice developed in the 1990s, but rather they looked into some of the contemporary privacy issues raised with the aim of contributing to a debate of their importance for privacy. To illustrate this, DeCew (1997) proposed to redefine privacy in terms of 'the types of information and activity in which individuals might reasonably expect others not to interfere' (DeCew, 1997, p.75). This specific context of privacy included three notions in which privacy could be examined: accessibility privacy (restrictions towards physical and informational access), informational privacy (protection of people's personal communication) and expressive privacy (protection of the expression of people's self-identity through for example activity or speech).

Conclusively, concepts with regards to privacy from 1970s onwards till even the early 2000s consisted of further elaborating privacy concepts which included protection against Internet tracking (late 1990s) and the use of networked databases (early 21st century). Researchers in that time described privacy as a concept that is not merely concerned with the protection of personal data of individual but also with the protection of a certain situation that allowed individuals to make personal choices and express their own emotions.

2.2 NOTIONS OF PRIVACY

The previous paragraph discussed different privacy concepts that could be relevant in the context of CCTV surveillance. This paragraph will discuss the different notions of privacy which will be based on three aspects of peoples' personal lives. This paragraph will suggest a framework, created by Dubbled (2004), that will be the foundation of this research on possible privacy concerns related to CCTV surveillance in Enschede city centre. Dubbeld (2004) suggest that, in case of CCTV, there are three

types of privacy. Dubbeld defines the three notions of privacy as the protection of the private sphere, of personal information and of physical integrity.

2.2.1 The private sphere

As some of the researchers noted with regards to privacy, one of the most common elements of privacy revolves around the protection of people's private sphere (e.g. can Dijk, 1997; Shapiro, 1998). In the context of that specific element, one of the oldest understandings can be seen as the protection of an individual's personal house and the domestic sphere of an individual (Shapiro, 1998: Capron, 2000). That being said, in the twentieth century the notion of privacy with regards to protecting the private sphere changed a lot and made even more room for including possible safeguards for non-physical privacy intrusions in the private sphere of people. This was further ignited by the rapid changes in surveillance techniques which in return allowed for monitoring and registering other domestic relations of individuals. For example, phone taps, photo cameras and video cameras were often believed to be intrusive to the private and domestic life of people (Schoeman, 1984). In addition, protection of the private sphere was also seen as the laws and legislation that existed for the protection of individuals' domestic and even personal affairs. In addition to this, McArthur (2001) noted that the protection of the private sphere was also about privacy when having a phone call in a public phone booth. Blok (2002) further confirms this as he stated that looking at a United States court ruling that having a telephone call or even a conversation in a phone booth was a violation of the Fourth Amendment law of the United States. Therefore, the protection of the private sphere can be understood as the protection from recordings and even observation regarding domestic affairs and (group) association. Regarding CCTV surveillance this means, protection of sensitive issues such as peoples' habits and association with whomever people want to. The power that people have to act in public spaces without being recorded or monitored by others helps with developing and exercising freedom and autonomy in actions and thoughts. People are protected from governments interfering in their private lives by law. Only very serious reasons can allow governments to interfere (Dubbeld, 2004; Friedewald et al., 2014).

2.2.2 Bodily integrity

As some researchers also argue with regards to privacy, another frequent element of privacy can be seen as the protection of people's bodily integrity (Holvast et al., 1989; van Dijk, 1997). In their survey of the public on privacy, Holvast et al. (1989) considered that the protection of the bodily integrity

was defined as ’the right to self-determination with respect to one's body' (Holvast et al., 1989). As researchers on privacy often pointed out, the availability of technologies in the twentieth century that could be used to monitor individuals and also register people’s personal body grew enormously. The polygraph for example allowed to extract data from people’s body (Westin. 1967), or even biometric identifiers, which used body features of people to set up personal profiles on individuals to recognise them (e.g. van der Ploeg, 2003). Looking at this enormous growth, the use of new surveillance systems that are capable of extracting any information from people’s bodies, researchers and legislators have increasingly come to perceive privacy protections that also includes rights to make decisions about your own body. As Solove (2002) stated, bodily privacy refers to people’s desire to have their own control over their body, this includes concealment of certain body parts and decisions regarding the condition and movement over of your own body (Solove, 2002). In addition to that, bodily integrity was also seen as the protection against the unwanted publication and the monitoring of intimate body parts of people, to be more specific, people’s private body parts (body parts that are covered up by underwear) (Blok. 2002: 93). Regarding law and legal practices, this means rights for people to control images and video of their own intimate body parts. Thusly, the protection of bodily integrity can firstly be explained as the protection of physical invasions of individuals. Regarding CCTV surveillance this means, the protection against the unwanted monitoring and recording of individuals’ intimate body parts. Dubbeld (2004) argued further that there is a need for the 'regulation of the observing gaze', aimed at limiting 'power asymmetries' between the guards and the observed. Secondly, it also refers to privacy of location and space that individuals have. People have the right to move in public without being monitored, identified or even tracked. When citizens are free to move about public space without fear of identification, monitoring or tracking, they experience a sense of living in a democracy and experiencing freedom. Both these subjective feelings contribute to a healthy, well-adjusted democracy (Dubbeld, 2004; Friedewald et al., 2014).

2.2.3 Informational privacy

The protection of personal information has had a lot of interest and there were a lot of discussions. The advancement of technological instruments and other socio-technical applications, specifically based on computers, resulted in privacy discussions and concepts that defined the value and meaning in terms of the protection of personal information (Dubbeld, 2004). The focus on data protection was ignited even more by the rapid innovations in computer instruments and application which also could even be said to have fuelled the growth of a completely new aspect of privacy rights and data

protection (de Graaf, 1977: Blok, 2002). While there was a lot more attention on privacy in the mid-twentieth century, the protection of personal information was to some extent already there. More specifically, different forms of protection of personal information have been used in privacy definitions since the first debates on privacy rights as seen in the previous paragraphs. To illustrate this, the first debates on privacy and its developments regarding the protection of privacy were about concerns and issue related to the publication of photos of individual people. The right to be let alone was established to protect against the publications of people's personal information. Moreover, Vedder (1996) argued that privacy in terms of individual's right was to be free from any 'unwanted dissemination of information, especially via publications of their personal life's' (Vedder, 1996: Dubbeld, 2004). The right to privacy was also established to help protect people from unwanted publication of information about their private life's with regards to the common press. Moreover, the protection of personal information can also be seen as the protection of personal data in computer systems (Dubbeld, 2004). More specifically, it is about that personal data is protected via laws and legislation and that the data is not publicly available to organizations and other individuals.

2.3 CLOSED-CIRCUIT TELEVISION SURVEILLANCE

2.3.1 CCTV surveillance versus the photo camera

CCTV surveillance has a number of technical principles and practical applications that are the same as a photo camera. More specifically, CCTV surveillance could give rise to privacy concerns that are very similar to photo applications. Meaning, existing privacy concepts could still be relevant with regards to privacy and CCTV surveillance (Dubbeld, 2004). The discussion about privacy developed related to the analogue photo camera has described privacy concerns via a number of ways. When cameras are used for law enforcement, privacy concerns are primarily focussed on data protection, as data protection laws helped with the storage of criminal evidence (e.g., Moran, 1998, p.279). Moreover, camera surveillance, in order to gather evidence, has been considered to affect suspects' protection of their personal sphere (Dubbeld, 2004). In other research, privacy concerns were described as the appropriation of a person's likeness, discrediting a person or publicise a picture of an individual without their consent (Prosser, 1984). As a result, several privacy concepts are in place for dealing with the privacy concerns raised by photographic devices. In addition, existing concepts about privacy could be useful for describing the privacy effects of CCTV surveillance. That being said, looking at the differences between CCTV surveillance and photo cameras, it remains largely unclear if privacy

concepts today are enough to capture what is at stake with regards to CCTV surveillance. CCTV surveillance can be seen as an extension to the surveillance capacities of commonly used photo cameras, which can result in privacy definitions and for example the privacy notions, as discussed previously, to be considered insufficient. Meaning, differences and similarities between CCTV surveillance and photo camera pose doubts for the concept of privacy as a whole.

2.3.2 CCTV and processing the electronic data

CCTV surveillance can be seen as one of the new technologies used for automated data processing. To the extent that CCTV surveillance can even collect personal data of people and also rely upon a network of interlinking databases. The basic features of CCTV surveillance systems therefore shows some resembles with regards to the operation of ICT systems that had a lot of privacy concerns since the 20th century. But there are also some gentle differences between CCTV surveillance and data processing technologies. CCTV surveillance reveals aspects of people's identities that primarily cannot be easily derived from textual data; however the observed individual is largely anonymous with regards to CCTV surveillance.

2.3.3 Types of CCTV surveillance

The government's power to obtain and examine recorded information about their citizens through surveillance has increased significantly over the past years or even decades. Since the 1990s, the recorded data has doubles within each year (Seifert, 2008). In the beginning, most government surveillance was devoted to collecting data about fraud against the government and to monitor different programs on their effectiveness. In recent years this changed. Governmental organizations have been experimenting with CCTV surveillance to catch criminals and terrorists (Slobogin, 2008).

Nevertheless, there are several types of surveillance with CCTV. Which all of their own level of intrusiveness on the privacy of people subjected to CCTV. Public camera surveillance in the Netherlands is based on the NEN norm: NEN-EN-IEC 62676-4:2015, which basically states that there are three types of surveillance regarding the use of CCTV. These are monitoring, recognising and identifying.

Every type of surveillance sets different requirements on the camera system (e.g. type of camera, degree of zooming or swivelling and type of lens). In addition, each type of surveillance has consequences for the way in which the visual images can be used and viewed. If the primary purpose

of observation is to respond quickly to incidents, it is obvious to watch the images live. If the emphasis is on identification, images can also be viewed afterwards (CCV, 2009).

More specifically, with monitoring, the operator is able to observe whether one or more persons are present on the images. While with recognising, the operator is able to recognise the persons or objects involved in case of an incident. And with identifying, the operator is able to identify or distinguish unmistakably the facial features of a person (TNO, 2002; Willemsen, 2007; Schreijenberg, Koffijberg & Dekkers, 2009). Figure 1 gives a visual interpretation of these differences.

Figure 1. Visual interpretation monitoring (l), recognising (m) and identifying (r) (Willemsen, 2007).

As figure 1 might suggest, the more personal information that is visible via CCTV surveillance the more people might feel concerned about their privacy. According to Mekovec (2010) and Castañeda and Montoro (2007), the level of information sensitivity and the amount of detail can impact ones privacy concerns, implying that identifying CCTV surveillance leads to the most privacy concerns of people. However, other authors also argued that using low-visibility surveillance (data) results in higher privacy concerns with people due to the fact of possible wrong identification (e.g. Clarke, 1988), implying that monitoring surveillance leads to the most privacy concerns of people.

2.3.4 Perception & Reaction to CCTV surveillance

According to several researchers, CCTV surveillance has an influence on feelings, behaviour and cognitions of people (e.g. Baumeister & Leary, 1995; Van Rompay et al., 2009). These components together create an attitude of person (Ajzen & Fishbein, 1980). Firstly, camera surveillance can influence personal feelings of people. According to Hirsch (2000), people are sensitive of reactions from other people. In addition, if a person cannot see the person who is watching him he will walk in the public area feeling uneasy and unable to adjust his or her behaviour in accordance to how he or she wishes to be seen by the people watching. More specifically, surveillance in public areas might have a 'chilling effect' on people. People feel constraint when moving in public areas with and

become uncomfortable. Secondly, CCTV surveillance has also an influence on cognitions of people. According to De Vries (2004), this means the knowledge and ideas of unsafe situations. This can also include external factors such as, interaction with other citizens and news from media outlets. Important to note is that the cognition of people is related to the feelings that people may have, the first component discussed previously. Lastly, camera surveillance has also an influence on the behaviour of people. The State possesses a monopoly with regards to legitimate force and can deprive citizens of both property and liberty. Therefore, we try to limit these things in order to protect ourselves from possible dangers that are attendant with such powers of the State. These somewhat routine and undesired observations by can violate ones privacy due to the fact that it may uncover something that people do not want the State to know about and does not have the right to know (De Vries, 2004). According to Goold (2008), knowing the identity of the person who is behind the camera and the reason that they are watching is very important in deciding if our privacy is being threatened. Goold (2008) stated that when the camera is watched by security services or the police, people might decide that their privacy is being threatened and will change their behaviour accordingly. Moreover, Garofalo (1981) argued that behaviour can be categorised in six categories: avoid, protective behaviour, insurance behaviour, communicative behaviour, participative behaviour and searching for information. Figure 2 elaborates these different categories in more detail.

1. Avoidance: Actions taken to reduce exposure by moving away or increase the distance to situations where the risk of victimhood is high.	**2. Protective behaviour:** behaviour that wants to increase the resistance against victimhood. More specifically, actions reducing the vulnerability when experiencing threatening situations.	**3. Insurance behaviour**: Behaviour that wants to minimize the cost of victimization, what the consequence of victimhood changes.
4. Communicative behaviour: Sharing information and emotions with others.	**5. Participation behaviour:** Actions in consultation with others.	**6. Search for information:** Consists of: (1) Consulting other sources, where the individual actively seeks information in the media and (2) area exploration, where the person increases the intensity in checking situations for danger.

Figure 2. Six categories of behaviour (Garofalo, 1981).

2.4 CONCEPT MODEL

When looking at the literature discussed in the previous paragraphs, aspect are visible that help us explain the reactions of people towards municipal CCTV surveillance. These different aspects can be transferred to a concept model which allows for a visual interpretation for the explanations of people's reactions towards municipal CCTV surveillance. The concept model of this thesis is visualized in figure 3. This thesis expects that people's notion of privacy has an effect on people opinion on the different types of CCTV surveillance. People's opinions on the different types of CCTV surveillance then determine people's risk perception and safety feeling with regards to privacy and municipal CCTV surveillance. People either feel safe and do not feel threatened or they feel unsafe and /or have privacy concerns. When people do feel unsafe and threatened they are expected to some extent show preventive behaviour.

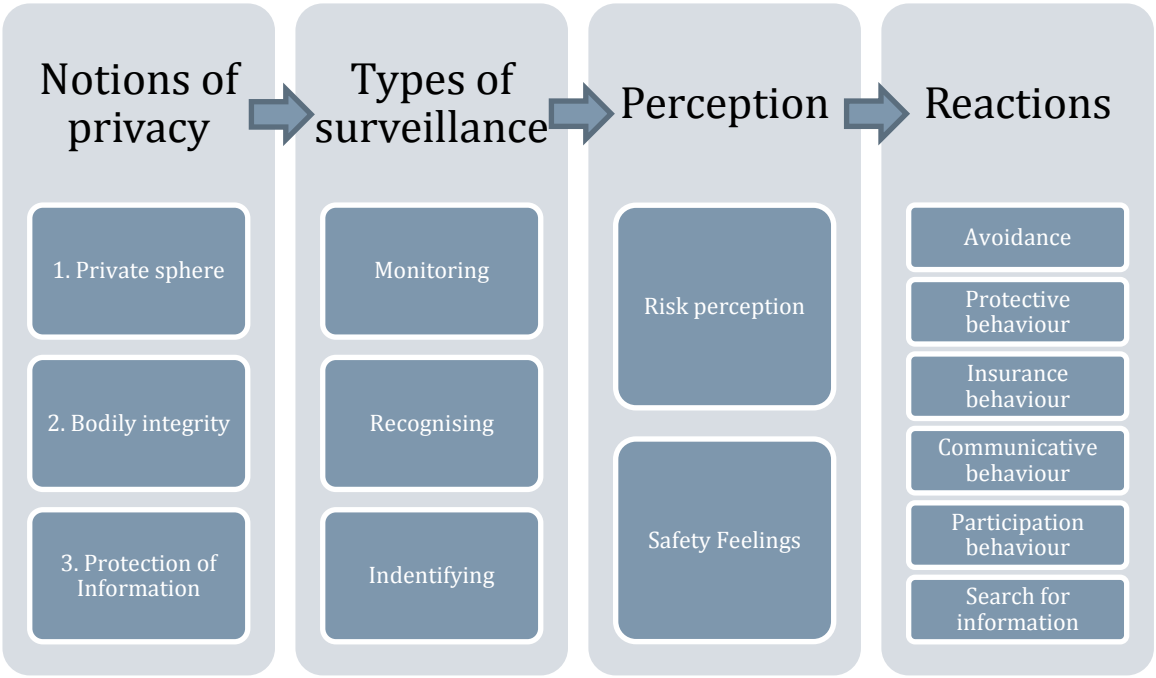

Figure 3. Concept model reactions to CCTV surveillance.

2.5 CONCLUSION

The first scholars in the context of privacy were considered Warren & Brandeis (1984). They argued that people have the right to be left alone. Later, this was enriched with different elements of privacy such as being protection against the unwanted publication of individuals' names, pictures and other private information and protection against intrusion. Moreover, due to rapid technological change

scholar such as Fried and Westin put emphasis on individuals controlling their own information instead of privacy as the right to be let alone. Furthermore concepts of privacy from 1970s onwards till the early 2000s were increasingly dedicated in revision and elaborating information privacy concepts and consisted of protection against Internet tracking and using networked databases. Scholars in that era described privacy as a concept that is not only concerned with protection personal data but also with the protection of a situation which allows people to make personal choices and express their own emotions.

Scholars in the privacy field argue that there are three main notions of privacy today: privacy as the protection of the private sphere, of personal information and of physical integrity. The protection of the private sphere can be explained as the protection from observations and recordings regarding domestic affairs and (group) association. Regarding CCTV surveillance this means, protection of sensitive issues such as peoples' habits and association with whomever people want to. The protection of physical integrity can firstly be explained as the protection of physical invasions of individuals. Regarding CCTV surveillance this means, the protection against the unwanted monitoring and recording of individuals' intimate body parts. Secondly, it also refers to privacy of location and space that individuals have. People have the right to move in public without being monitored, identified or even tracked. Protection of personal information can be explained as the protection of personal data in networks and computer systems as it has been defined in recent years by scholars in the privacy field. It is about making sure that personal data is protected by legislation and policies and that the data is not available to other individuals and organizations.

Moreover, there are several types of surveillance with CCTV. Which all of their own level of intrusiveness on the privacy of people subjected to CCTV surveillance. Public camera surveillance in the Netherlands is based on the NEN norm: NEN-EN-IEC 62676-4, which basically states that there are three types of surveillance regarding the use of CCTV. These are monitoring, recognising and identifying. With monitoring, the operator is able to observe whether one or more persons are present on the images. While with recognising, the operator is able to recognise the persons or objects involved in case of an incident. And with identifying, the operator is able to identify or distinguish unmistakably the facial features of a person. This level of information sensitivity and the amount of detail can impact ones privacy concerns, implying that identifying CCTV surveillance leads to the most privacy concerns of people. However, scholars also argue that using low-visibility surveillance (data) results in higher privacy concerns with people due to the fact of possible wrong

identification (e.g. Clarke, 1988), implying that monitoring surveillance can also lead to the most privacy concerns of people. Moreover, people's reaction towards CCTV surveillance can differ from one another. According to several researchers, CCTV surveillance has an influence on feelings, behaviour and cognitions of people (e.g. Baumeister & Leary, 1995; Van Rompay et al., 2009).

3. Methodology

The purpose of this chapter is to outline the research methodology and also to determine the direction in order get the knowledge required to answer the main research question. This chapter contains the methods for data analysis and data processing. The choice for the data processing will be substantiated, as the collection of data can be done in different ways. Also the criteria for the (respondent) selection will be covered. In data analysis, the concepts that are important for the analysis are operationalized according to the theoretical framework. This chapter describes how the data is being processed and analysed and also helps to integrate the theoretical framework into the answering of the main research questions.

3.1 RESEARCH DESIGN

For this research, a combination of qualitative and quantitative research strategy is chosen to study possible privacy concerns of people in Enschede city centre in the context of CCTV surveillance. A combination of qualitative and quantitative research design is chosen because this study aims for quantifiable insight but also looks at the 'why' and 'how'. This thesis is trying to uncover and dive into thoughts and opinions but is also trying to quantify the problem in numerical data and usable statistics. The advantage of using this mixed method is that one can develop both a detailed and a general image. To illustrate this, this thesis has both empirical and theoretical components. The analysis of privacy notions related to CCTV surveillance is based on a theoretical framework that describes a collection of privacy dimensions that are derived from philosophical as well as legal-philosophical literature. Moreover, the literature review of CCTV surveillance as a concept is also examined based on a theoretical framework that explains different CCTV surveillance types together with how they might be intrusive to privacy. These theoretical insights can be found in chapter 2. As a result, these theoretical perspectives on privacy and CCTV surveillance are used as a foundation for an empirical study on CCTV surveillance within the city centre of Enschede which aims to identify the notions of privacy of people in Enschede and to what extent people in Enschede consider municipal CCTV surveillance in Enschede city centre an intrusion to their privacy. By using a combination of quantitative and qualitative research one can do a more in-depth study into privacy notions and CCTV surveillance as a whole and incorporate those findings into a survey that is submitted to a group of people. In this way, one can further analyse the different aspect of privacy notions and CCTV

surveillance together with the reactions and remarks of people while also establishing possible interesting aspects of a relationship by investigating statistical connections. In this way one combines the strong characteristics of both methods and while also avoiding the limitations of using just one research design.

3.2 DATA COLLECTION

In this paragraph the process of collecting the empirical data will be explained. As mentioned in the introduction chapter, the people in Enschede can be considered the population of this research and will be studies in order to analyse possible privacy concerns in the context of CCTV surveillance within the city centre of Enschede. Central in this paragraph are the means of respondent selection and discussing the survey design in order to collect the data.

3.2.1 Population & respondents

The population of this research are the people in Enschede city centre aged 18 to 75 and their perceived privacy concerns. Enschede city centre has an average of about 270.000 unique visitors per week. In order to have a 90% confidence level we need to have a sample size of at least 68 respondents (10% margin of error). In order to get at least 68 respondents we make sure that we include all of the targeted population in the sampling. In addition, we make sure that all the demographics are represented in the survey and the survey will be held at different times to decrease non-response.

In social research there are basically two types of sampling methods available. These are called probability and nonprobability sampling. Probability sampling is a sampling method where the samples are collected via a process that gives all the members of the population the same chances of being selected for the study. However, nonprobability sampling is a sampling method where the samples are collected via a process that does not give all the members of the population the same chances of being selected for the study (Babbie, 2012). This research uses convenience sampling which is a form of non-probability sampling which involves respondents being drawn from the population that is close at hand. To illustrate, the survey will be held face to face with respondents within different areas in the city center of Enschede. These areas are ‘Oude Markt’ and ‘Stationsplein’. These respondents will be asked to about their notions of privacy, to what extent they remark the different types of CCTV surveillance and how do they react to these. The respondents are

labelled with a number ensure anonymity of respondents. The anonymity is to create a sense of trust with the respondents and to prevent socially desirable answers.

3.2.2 Survey design

To research the notions of privacy of people in Enschede and to what extent they remark and react to the different types of CCTV surveillance in Enschede city centre, a survey study will be conducted. A survey is a form of data collection where standardized questions are asked to a set of respondents in order to say something about a certain population. This research uses face to face surveys. While face to face surveys are more time-consuming, the choice for face to surveys is made due to the possibility to ask follow-up questions and to provide better understanding of the answers that the respondents provide.

Moreover, there are three types of survey research based on the time span needed to complete a research: cross sectional, interrupted time series and classical experiments. In order to test the theoretical framework discussed in chapter 2, this research uses a 'cross sectional' design. This is a survey design which uses an analysis of collected data from respondents on a given moment in time (Babbie, 2012). The data will be collected in January. The collected data helps to analyse the differences in the notions of privacy, sense of privacy intrusion and reactions and remarks on CCTV surveillance in Enschede city centre. Moreover, the survey will be held, as previously mentioned, in the city centre of Enschede itself, via Qualtrics, at different times. And finally, business cards will be made which contain a QR-code that allows possible respondents to make the survey at home or when it suits them best. The survey will be published and taken via Qualtrics. Qualtrics provides a link and allows us to conduct the survey via tablet or phone (even offline). This makes it easier to share the survey and the threshold will reduce for respondent to reply to the survey. In addition, Qualtrics allows us to transfer the data gathered to IBM SPSS Statistics.

3.3 DATA ANALYSIS

The literature review allowed us to analyse privacy notions related to CCTV surveillance and the creation of a theoretical framework that described a collection of privacy dimensions that are derived from philosophical as well as legal-philosophical literature. Moreover, the literature review of CCTV surveillance as a concept is also examined based on a theoretical framework that explains different CCTV surveillance types together with how they might be intrusive to privacy of people's reaction to these. These theoretical insights can be found in chapter 2. As a result, these theoretical perspectives

on privacy and CCTV surveillance are used as a foundation for the survey study within the city centre of Enschede which aims to identify the notions of privacy of people in Enschede and to what extent people in Enschede consider municipal CCTV surveillance in Enschede city centre an intrusion to their privacy. To analyse this data three basic steps will be conducted: collecting data, organizing data and analysing data. First the collection of data will be done via the actual research, as explained in the previous paragraph. Second, the data will be organized to select relevant and non-relevant data. More specifically, the data retrieved with the surveys is likely to be unstructured due to the fact that it is based on opinions and experience and there for the data needs to be coded. By coding the data, a connection is made between different units. Therefore, via labelling the data and organizing it, the data will be analysed by comparing and interrelating the codes given to the interpreted data and by analysing the meaning of it. The survey data is transferred from Qualtric to IBM SPSS Statistics where the data will be coded. The coded data in SPSS allows us to conduct statistical analyses. When analysing the data we will first look at the mean and standard deviations of the different variables. In addition, there might also be significant connections among variables. To determine if there are indeed strong correlations among variables a Pearson's R analysis will be conducted. In order to analyse differences among means, an ANOVA test will be used. Moreover to determine the difference between age, gender and nationality an independent sample t-test will be conducted. With this test one can investigate whether the difference is significant and if it can be said with 95% certainty or more whether this difference exists. This is the case with a significance (Sig) value of 0.05 or less. The following part of the data analysis consists of calculating the correlations between each variable. Using a correlation overview, the various relationships between the independent variables and the dependent variables are visible. Finally, there will also be linear regression analysis. This analysis is used to determine whether there is a positive/negative causal relationship between two or more independent and one dependent variable. This test is only performed with notions of privacy and types of CCTV surveillance as independent variables and the behaviour as a dependent variable. With discovering the various relationships an evaluation can be made with the theory that the change of notions of privacy and the types of CCTV surveillance and behaviour explains. Ultimately this will test the hypotheses discussed in chapter 2 and might explain if there are positive or negative relation between notions of privacy, types of CCTV surveillance and people's reactionary behaviour.

3.4 OPERATIONALIZATION

This paragraph will describe how the notions of privacy, types of CCTV surveillance and the reactions of people in the context of CCTV surveillance in Enschede city centre will be measured. Central in making these constructs measureable, this study will use primary items based on the Likert-scale. This method is developed by the American Likert in 1932. Via this method, constructs are operationalized in several aspects, which are placed in various propositions. This Likert-scale ranges from categories least to most, when indicating how much they agree or disagree, approve or disapprove or believe that something is true or false. The score on a Likert-scale as a whole is usually formed by addition of all scores, whether or not divided by the number of statements in the scale.

3.4.1 Notions of privacy

The theoretical framework showed that there are basically three notions of privacy: protection of the private sphere, protection of bodily integrity and protection of informational privacy. The protection of the private sphere can therefore be explained as the protection from observations and recordings regarding domestic affairs and (group) association. Regarding CCTV surveillance this means, protection of sensitive issues such as peoples' habits and association with whomever people want to.

The protection of bodily integrity can firstly be explained as the protection of physical invasions of individuals. Regarding CCTV surveillance this means, the protection against the unwanted monitoring and recording of individuals' intimate body parts. Moreover, it also refers to privacy of location and space that individuals have. People have the right to move in public without being monitored, identified or even tracked. More specifically, the protection of personal information can be explained as the protection of personal data in networks and computer systems as it has been defined in recent years (Dubbeld, 2004). It is about making sure that personal data is protected by legislation and policies and that the data is not available to other individuals and organizations. With various propositions about the notions of privacy, the variables are made measurable. This is shown in the overview below.

Construct	Variable	Item How important, if at all, is it for you to be able to. . .	Answer options

Notions of privacy	Importance of protection private sphere	. . . meet with people without being monitored.	0 = no opinion, 1= Not at all important, 2 = Not very important, 3 = Fairly important, 4 = Very important, 5 = Essential
		. . . go shopping without being monitored.	0 = no opinion, 1= Not at all important, 2 = Not very important, 3 = Fairly important, 4 = Very important, 5 = Essential
		. . . have no government interference.	0 = no opinion, 1= Not at all important, 2 = Not very important, 3 = Fairly important, 4 = Very important, 5 = Essential
	Importance of protection bodily integrity	. . . have no monitoring of your intimate body parts.	0 = no opinion, 1= Not at all important, 2 = Not very important, 3 = Fairly important, 4 = Very important, 5 = Essential
		. . . walk freely in Enschede city centre without being monitored.	0 = no opinion, 1= Not at all important, 2 = Not very important, 3 = Fairly important, 4 = Very important, 5 = Essential
		. . . live freely in Enschede city centre without being monitored.	0 = no opinion, 1= Not at all important, 2 = Not very important, 3 = Fairly important, 4 = Very important, 5 = Essential
	Importance of	. . . know who has information about you.	0 = no opinion, 1= Not at all important, 2 = Not

	protection informational privacy		very important, 3 = Fairly important, 4 = Very important, 5 = Essential
		. . . control who has access to your personal surveillance data.	0 = no opinion, 1= Not at all important, 2 = Not very important, 3 = Fairly important, 4 = Very important, 5 = Essential
		. . . know that laws and procedures are effective at protecting your personal surveillance data.	0 = no opinion, 1= Not at all important, 2 = Not very important, 3 = Fairly important, 4 = Very important, 5 = Essential

Figure 4. Operationalization of the notions of privacy.

3.4.2 Types of CCTV surveillance

In order to measure to what extent people in Enschede remark the different types of surveillance, items will be adopted that are based on the three types of surveillance: *monitoring*, *recognising* and *identifying.* With various propositions about the types of CCTV surveillance, the variables are made measurable. This is shown in the overview below.

Construct	Variable	Item In my opinion, CCTV Camera's in Enschede city centre. . .	Answer options
Types of CCTV surveillance	Opinion on observing CCTV surveillance	. . . may observe a person or a group of persons	0 = no opinion, 1= Strongly disagree, 2 = Disagree, 3 =Neutral, 4 = Agree, 5 = Strongly agree
	Opinion on recognising CCTV surveillance	. . . have no monitoring of your intimate body parts.	0 = no opinion, 1= Strongly disagree, 2 = Disagree, 3 =Neutral, 4 = Agree, 5 = Strongly agree

	Opinion on identifying CCTV surveillance	. . . may distinguish a person from all other persons and / or identify a specific action	0 = no opinion, 1= Strongly disagree, 2 = Disagree, 3 =Neutral, 4 = Agree, 5 = Strongly agree

Figure 5. Operationalization types of CCTV surveillance.

3.4.3 Perception

In order to measure what the perception of people is with regards to municipal CCTV surveillance, items are created that based on the theory from Garofalo (1981), Goold (2008) and De Vries (2004). These items are related to safety feelings and risk perception of people. With various propositions about the perception of people on CCTV surveillance, the variables are made measurable. This is shown in the overview below.

Construct	Variable	Item	Answer options
Perception on CCTV surveillance	Safety feelings	CCTV surveillance in Enschede city centre makes me feel safe	0 = no opinion, 1= Strongly disagree, 2 = Disagree, 3 =Neutral, 4 = Agree, 5 = Strongly agree
		To what extent do you feel uncomfortable while being under CCTV surveillance in Enschede city centre?	0 = no opinion, 1= Almost always, 2 = Often, 3 =Sometimes, 4 = Seldom, 5 = Never
	Risk perception	To what extent do you believe laws are effective at protecting your privacy?	0 = no opinion, 1= Very ineffective, 2 = ineffective, 3 =Neutral, 4 = Effective, 5 = Very effective
		To what extent do you trust that the observers watching the cameras will act accordingly	0 = no opinion, 1 = no trust at all, 2 = not really trustful, 3 = Neutral, 4 = Mostly trusted, 5 = Completely trusted

3.4.4 Reactions to CCTV surveillance

In order to measure how people react to the three kinds of surveillance, items are created based on the theory from Garofalo (1981), Goold (2008) and De Vries (2004). These items are related to six categories: protect, avoid, assure, participate, looking for information and communicate and to safety feelings. With various propositions about the possible reactions to CCTV surveillance, the variables are made measurable. This is shown in the overview below.

Construct	Variable	Item	Answer options
Reaction to CCTV surveillance	Avoid	I avoid certain place in Enschede city centre where there is CCTV surveillance.	0 = Don't know, 1 = Never, 2 = Seldom, 3 = Sometimes, 4 = Often, 5 = Almost always
	Protect	I take precaution to protect myself while being under CCTV surveillance in Enschede city centre.	0 = Don't know, 1 = Never, 2 = Seldom, 3 = Sometimes, 4 = Often, 5 = Almost always
	Insure	I watch who I talk to or associate with while being under CCTV surveillance in Enschede city centre.	0 = Don't know, 1 = Never, 2 = Seldom, 3 = Sometimes, 4 = Often, 5 = Almost always
	Communicate	I talk(ed) with other people about CCTV surveillance in Enschede city centre.	0 = Don't know, 1 = Never, 2 = Seldom, 3 = Sometimes, 4 = Often, 5 = Almost always
	Participate	I'm actively involved in (organising) actions against CCTV surveillance in Enschede city centre.	0 = Don't know, 1 = Never, 2 = Seldom, 3 = Sometimes, 4 = Often, 5 = Almost always
	Search for information	I am keeping a close eye on information about CCTV surveillance in Enschede city centre.	0 = Don't know, 1 = Never, 2 = Seldom, 3 = Sometimes, 4 = Often, 5 = Almost always
	Safety feelings	CCTV surveillance in Enschede city centre makes me feel safe	0 = no opinion, 1= Strongly disagree, 2 = Disagree, 3 =Neutral, 4 = Agree, 5 = Strongly

			agree
		To what extent do you feel uncomfortable while being under CCTV surveillance in Enschede city centre?	0 = no opinion, 1= Almost always, 2 = Often, 3 =Sometimes, 4 = Seldom, 5 = Never
	Risk perception	To what extent do you believe laws are effective at protecting your privacy?	0 = no opinion, 1= Very ineffective, 2 = ineffective, 3 =Neutral, 4 = Effective, 5 = Very effective
		To what extent do you trust that the observers watching the cameras will act accordingly	0 = no opinion, 1 = no trust at all, 2 = not really trustful, 3 = Neutral, 4 = Mostly trusted, 5 = Completely trusted

Figure 6. Operationalization reaction to CCTV surveillance.

3.5 RELIABILITY & VALIDITY

Reliability is about to the repeatability of analyses. If the same study is carried out, the same research findings should be discovered. The validity of a qualitative research refers to if the researcher measured what was intended to measure. Looking at this master thesis, the thesis measured want it was supposed to measure. Moreover, validity of a research also refers to the generalizability of a study. The question is asked: are the findings also applicable in other research fields? To enhance the validity and reliability of this study a Cronbach's Alpha will be calculated. Cronbach's Alpha will have a value between 0 and 1. The higher the value, how more reliable the result is. A value of 0.7 or higher is considered acceptable. Moreover, this thesis uses a cross-sectional design, in which data is collected at one moment in time. In addition, this research uses a standardized questionnaire with mostly closed questions, which minimizes the possibility of influence by the interviewer and

enchances validity. In addition, the data comes from random individuals, which makes this study highly generalizable.

3.6 CONCLUSION

There are certain steps to undertake in order to get answers to the main research question. In order to have reliable and creditable data, the research must be carried out correctly. This study is a mixed method study. It is both qualitative and quantitative. By interviewing at least 68 respondents in Enschede city centre, data should be collected that can be used efficiently. The sampling method used in this research is the nonprobability sampling method of convenience. Random respondents are selected on the street from different ages, genders, and nationalities. The respondents in this study will be subjected to a face to face survey with a cross sectional design in order to give the respondents their view about their notions of privacy, opinions about different types of CCTV surveillance and their reaction and remarks to those types of CCTV surveillance. It gives the respondents the chance to talk about and speak about their experiences and perceptions. After collecting this data, the data analysis takes place by organizing and analysing the collected data. The survey data is transferred from Qualtrics to IBM SPSS Statistics where the data will be coded. The coded data in SPSS allows us to conduct statistical analyses. When analysing the data we will first look at the mean and standard deviations of the different variables. In addition, there might also be significant connections among variables. To determine if there are indeed strong correlations among variables a Pearson's R analysis will be conducted. In order to analyse differences among means, an ANOVA test will be used. Moreover to determine the difference between the variable(s) an independent sample t-test will be conducted. With this test one can investigate whether the difference is significant and if it can be said with 95% certainty or more whether this difference exists. This is the case with a significance (Sig) value of 0.05 or less. The following part of the data analysis consists of calculating the correlations between each variable. Using a correlation overview, the various relationships between the independent variables and the dependent variables are visible. Finally, there will also be linear regression analysis. This analysis is used to determine whether there is a positive/negative causal relationship between two or more independent and one dependent variable. With discovering the various relationships an evaluation can be made with the theory that the change of notions of privacy, types of CCTV surveillance and perception can explain ones behaviour. Ultimately this will test the hypotheses discussed in chapter 2 and might explain if there

are positive or negative relations between notions of privacy, types of CCTV surveillance, perception and people's reactionary behaviour.

4. Results

This chapter describes the results of this thesis. Section 4.1 analyses the results and the data that emerged from the surveys related to the privacy notions of people in Enschede city centre. This section will display which notions of privacy exist among the people in Enschede city centre. Section 4.2 deals with the different types of CCTV surveillance used in the city centre of Enschede. This section also displays and discusses the intensity of the camera surveillance. Section 4.3 deals with the reactions and remarks that people may have based on their privacy perception and the type of surveillance that is used within Enschede city centre. Finally, section 4.4 tests the concept model discussed in our theoretical chapter.

4.1 PRIVACY NOTIONS OF PEOPLE IN ENSCHEDE

The theoretical framework showed that there are basically three notions of privacy related to CCTV surveillance: protection of the private sphere, protection of bodily integrity and protection of informational privacy. The protection of the private sphere could be explained as the protection from observations and recordings regarding domestic affairs and (group) association. The protection of bodily integrity, related to CCTV surveillance, could be explained as the protection against the unwanted monitoring and recording of individuals' intimate body parts and it also referred to privacy of location and space that individuals have. Finally, the protection of personal information could be explained as the protection of personal data in networks and computer systems. More specifically it is about making sure that personal data is protected by legislation and policies and that the data is not available to other individuals and organizations.

In order to use the item statements for measuring the variables operationalized in the previous chapter, the Cronbach's alpha is used to see which statements can form a scale together. The value, which results from the Cronbach's alpha, can vary from 0 to 1. If the value is higher than 0.7, the reliability of this combination is sufficient enough to form a scale of the different statements.

The importance of protection of the private sphere is measured via the following item statements: 'how important, if at all, is it for you to be able to meet with people without being monitored', 'how important, if at all, is it for you to be able to go shopping without being monitored' and 'how important, if at all, is it for you to be able to have no government interference'. These statements together create a Cronbach's alpha of 0.506. This is lower than 0.7, which means that not

all three of these statements measure the same construct. When looking at the output labelled 'Cronbach's alpha if item deleted' there is a Cronbach's alpha of 0.808 if we delete the item of 'how important, if at all, is it for you to be able to go shopping without being monitored'. This is quite a significant amount. Therefore this item is removed to enhance the reliability of this thesis. As a result, the scale that measures the importance of the protection of the private sphere consists of the two remaining statements.

The importance of the protection of bodily integrity is measured via the following item statements: 'how important, if at all, is it for you to be able to have no monitoring of your intimate body parts', 'how important, if at all, is it for you to be able to walk freely in Enschede city centre without being monitored' and 'how important, if at all, is it for you to be able to live freely in Enschede city centre without being monitored'. These statements together create a Cronbach's alpha of 0.067. This is lower than 0.7, which means that not all three of these statements measure the same construct. When looking at the output labelled 'Cronbach's alpha if item deleted' there is a Cronbach's alpha of 0.854 if we delete the item of 'how important, if at all, is it for you to be able to have no monitoring of your intimate body parts'. This is quite a significant amount. Therefore this item is removed to enhance the reliability of this thesis. As a result, the scale that measures the importance of the protection of bodily integrity consists of the two remaining statements.

The importance of the protection of informational privacy is measured via the following item statements: 'how important, if at all, is it for you to be able to know who has information about you', 'how important, if at all, is it for you to be able to control who has access to your personal surveillance data' and 'how important, if at all, is it for you to be able to know that laws and procedures are effective at protecting your personal surveillance data'. These item statements together create a Cronbach's alpha of 0.708, which means that all three item statements can be used for the scale that measures the importance of the protection of informational privacy.

Table 1 shows the combination of the three scales mentioned (private sphere, informational privacy and bodily integrity) with the according descriptive statistics. The statistics in table 1 show a mean value of 3,18 for the important of the protection of the private sphere, a mean value of 1,95 for the importance of the protection of informational privacy and a mean value of 3,22 for the importance of the protection of bodily integrity. This is on a scale where 1 is considered to be essential and 5 is considered to be not at all important. This means that people in Enschede city centre find the protection of informational privacy to be more essential than the protection of the

private sphere and the protection of bodily integrity. In addition, people in Enschede city centre also find the protection of private sphere a bit more important than the protection of bodily integrity.

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Private sphere	88	1,50	4,00	3,18	,59
Informational privacy	88	1,00	3,00	1,95	,42
Bodily integrity	88	1,50	5,00	3,22	,67
Valid N (listwise)	88				

Table 1. Decriptive statistics notions of privacy.

However, in order to determine whether or not there is a significant difference between these mean values, a paired sample t-test is used. This t-test investigates if there is a significant difference and if it can be said with 95% certainty or more if this difference exists. This is the case with a significance (Sig) or p-value of 0.05 or lower. When pairing informational privacy against private sphere, there is a p-value of $p < 0.001$, which means the difference between informational privacy and private sphere is significant. Furthermore, pairing private sphere against bodily integrity, there is a p-value of $p = 0.214$, which means that the difference between private sphere and bodily integrity is not a significant difference. Finally, pairing informational privacy against bodily integrity, there is a p-value of $p < 0.001$, which means that this difference is also significant.

Conclusively, people in Enschede city centre consider informational privacy to be the most important notion of privacy. The protection of informational privacy is considered to be very important by the people in Enschede city centre, while the protection of the private sphere as well as the protection of bodily integrity is considered to be fairly important. In addition, looking at the theory discussed in chapter 2, not all items constructed to measure the protection of the private sphere as well as the protection of bodily integrity were reliable and valid. The items 'how important, if at all, is it for you to be able to go shopping without being monitored' and 'how important, if at all, is it for you to be able to have no monitoring of your intimate body parts' did not measure their related variable (protection of bodily integrity and protection of private sphere). This thesis therefore notes that however Friedewald et al. (2014) and Dubbeld (2004) argue that the protection of private sphere is related to the protection of people's habits, not all habits - such as shopping – are able to measure ones protection of private sphere. This thesis argues that the protection of private sphere

can be more likely related to peoples‘ association with whomever people want to and the protection against government interference. Moreover, this thesis also argues that however Friedewald et al. (2014) and Dubbeld (2004) argue that the monitoring of intimated body parts is part of the concept of the protection of bodily integrity; it can be better a separate concept apart from the protection of bodily integrity.

4.2 CCTV SURVEILLANCE IN ENSCHEDE CITY CENTRE

There are ten main CCTV surveillance cameras in the city centre of Enschede. These camera images are recorded 24/7. As of April 2017, SA-INT Security and the Twente Safety Region entered into a partnership to monitor the CCTV surveillance footage in the Regional Surveillance Room (RTR). Municipalities can use this Regional Surveillance Room to monitor their CCTV surveillance footage.

At first, both on Thursday and Saturday evenings cameras were live monitored via the Regional Monitoring Room of the Twente Safety Region but this changed. Presently, SA-INT Security has two observers on Saturday night (22.00-06.00 hours) for Hengelo and Enschede. Thursday night is no longer monitored live. This was decided in consultation with the police, as it turned out to be of little use. Live monitoring is extended when required, for example in case of events and public holidays. This is done in consultation with the police. Camera surveillance in Enschede is therefore generally more focused on reaction rather than prevention.

By observing and monitoring correctly, a camera observer is able to recognize situations early on, so that a possible incident can be properly recorded. The RTR is in direct contact with the Twente control room to alert the emergency services as quickly as possible when needed. By recognising incidents and those involved, evidence is recorded and the chance of being caught is considerably increased. They can also monitor the quality of life in the city centre. This can be accomplished by reporting, for example, broken street lighting, graffiti or hanging youth to the municipality directly.

Figure 6 shows the placement of CCTV surveillance cameras in Enschede city centre (red dots). As one can see, the cameras are more focussed on the nightlife area of Enschede city centre than the shipping area of Enschede city centre. Moreover, CCTV surveillance in Enschede is limited only to the city centre and is not yet used in the other parts of the city. The use of CCTV surveillance is a heavy tool that may only be used if other lighter measures have not achieved or will not achieve the intended objective. In the city centre there are ten camera locations and one connection point at Jamin (ei van Ko), where a camera can be placed in light of events. The camera locations are

determined in close consultation with the police. In addition, by means of signs (green dots in figure 6), the public is made aware that they are in an area with camera surveillance.

Furthermore, the CCTV footage is recorded 24 hours a day and stored for a maximum of 28 days, after which they are deleted. The police can look back 28 days after an incident. Moreover, the observers are in direct contact with the police during the live viewing via the groups of the catering services in Enschede. In addition, the control room operators (meldkamer) can use Live View to watch the camera images directly when a violent crime such as a burglary or robbery occurs. With these real-time camera images, the police have a direct view of the situation and can therefore react faster and more adequately. Important to note is that the police is ultimately responsible for the CCTV cameras in Enschede city centre.

Figure 7. Overview CCTV surveillance cameras Enschede city centre.

Looking at the three different types of CCTV surveillance: 'monitoring', 'recognising' and 'identifying', a Dutch municipality is most likely to choose recognising or identifying CCTV surveillance as their main surveillance type. Because monitoring CCTV surveillance results in visual data that does not allow

observers to distinguish persons from each other on the basis of any characteristic (e.g. type of clothing). Looking at the municipality of Enschede, they are using recognising surveillance as their main type of CCTV surveillance. The CCTV cameras in Enschede city centre allow for observers to recognise persons which they have previously seen. However, the CCTV surveillance cameras in Enschede city centre do not have enough detailed information that allows for facial recognition by the observers. However, the CCTV cameras do allow for observer to make personal pictures of possible suspects and send them to law enforcement officers in the city centre to help them recognise the possible suspect.

Table 2 gives shows the data that gives insight to what extent people in Enschede remark the different types of surveillance. The statistics in table 2 shows a mean value of 2,03 for people's opinion on monitoring CCTV surveillance, a mean value of 2.26 for people's opinion on recognising CCTV surveillance and a mean value of 2.44 for people's opinion on identifying CCTV surveillance. This is on a scale where 1 is where people strongly agree with the type of CCTV surveillance and 5 is where people strongly disagree with the type of CCTV surveillance. This means that people in Enschede city centre agree more with monitoring CCTV surveillance than recognising and identifying CCTV surveillance. In addition, people in Enschede city centre tend to agree more with recognising CCTV surveillance than identifying CCTV surveillance. That being said, with mean values of 2.03, 2.26 and 2.44, people in Enschede city centre do agree with the use of all three types of surveillance.

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Monitor	87	1	4	2,03	,580
Recognise	88	1	5	2,26	,809
Identify	88	1	5	2,44	,969
Valid N (listwise)	87				

Table 2. Descriptive Statistics remarks on different types of surveillance.

Again, in order to determine whether or not there is a significant difference between these mean values, a paired sample t-test is used. When pairing people's opinion on monitoring CCTV surveillance against people's opinion on recognising CCTV surveillance there is a p-value of $p<0.001$ which means the difference between people's opinion on monitoring and recognising CCTV surveillance is significant. Furthermore, when pairing people's opinion on recognising CCTV surveillance against

people's opinion on identifying CCTV surveillance there is a p-value of $p<0.001$ which means the difference between people's opinion on recognising CCTV surveillance and identifying CCTV surveillance is also significant. Finally, when pairing people's opinion on monitoring CCTV surveillance against identifying CCTV surveillance there is also a p-value of $p<0.001$ which means the difference between people's opinion on monitoring CCTV surveillance against identifying CCTV surveillance is also significant. This means that overall people in Enschede city centre do agree

Conclusively, people in Enschede city centre agree with the use of all three types of municipal CCTV surveillance. Moreover, people in Enschede city centre do consider monitoring CCTV surveillance to be the least intrusive of the three surveillance types. However, people in Enschede city centre consider recognising to be less intrusive than identifying CCTV surveillance but more intrusive than monitoring CCTV surveillance while identifying CCTV surveillance is being considered the most intrusive of the three types. In addition, looking at the theory discussed in chapter 2, this thesis agrees with the finding of Mekovec (2010) Castañeda and Montoro (2007) and disagrees with the findings of Clarke (1988), implying that the level of information sensitivity and the amount of detail does impact ones privacy concerns. More specifically, suggesting that the more personal information is visible via CCTV surveillance the more people feel concerned about their privacy.

4.3 REMARKS & REACTIONS

The pie charts in figure 7 and 8 show the results of safety feelings of people in Enschede with regards to municipal CCTV surveillance. Figure 7 shows the results of the statement: 'to what extent do you feel uncomfortable while being under CCTV surveillance in Enschede city centre'. More than half of the respondents (51%) stated that they never felt uncomfortable while being under CCTV surveillance in Enschede city centre. Approximately 23% of the respondent stated that they sometimes or often felt uncomfortable while being under CCTV surveillance in Enschede city centre.

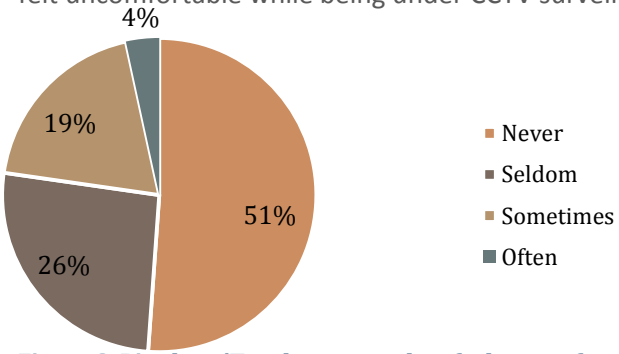

Figure 8. Pie chart 'To what extent do u feel uncomfortable while being under CCTV surveillance in Enschede city centre'.

Figure 8 shows the results of the statement: 'CCTV surveillance in Enschede city centre makes me feel safe'. Approximately 51% of the respondents stated that they agree or strongly agree that CCTV surveillance in Enschede city centre makes them feel safe. Only 14% of the respondents indicated that they disagree or strongly disagree with the statement.

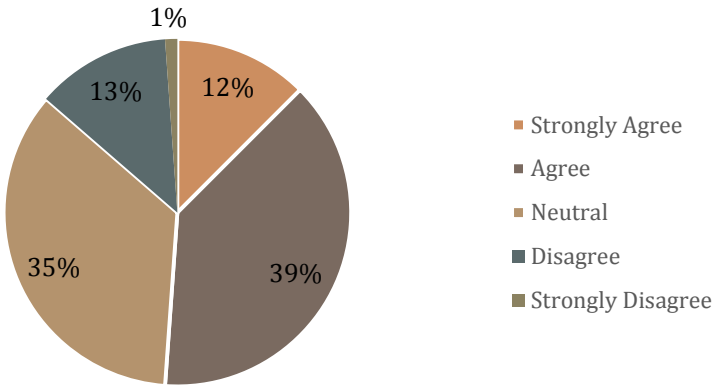

Figure 9. Pie chart 'CCTV surveillance in Enschede city centre makes me feel safe'.

In addition, when respondents indicated that they disagreed or strongly disagreed with the statement, 'CCTV surveillance in Enschede city centre makes me feel safe', were given an option to indicate which of the camera locations on the map they remarked the most. Figure 9 shows this result in the form of a heat map. Figure 9 shows that people in Enschede city centre that feel unsafe due to CCTV surveillance in Enschede city centre, are mostly concerned about four camera locations. Three of those cameras are at 'Oude Markt' and one camera is at 'Stadsgravenstraat', also near 'Oude Markt'.

Figure 10. Heat map of concerned camera locations.

The pie charts in figure 11 and 12 show the results of risk perception of people in Enschede with regards to municipal CCTV surveillance and people's privacy. Figure 9 shows the results of the statement: 'to what extent do you believe laws and regulations are effective at protecting your privacy'. Almost half of the respondents (49%) believe that laws and regulations are effective or very effective at protecting their privacy. Approximately 33% of the respondents believe that laws and regulations are ineffective or very ineffective at protecting their privacy while 18% of the respondents are neutral about the topic.

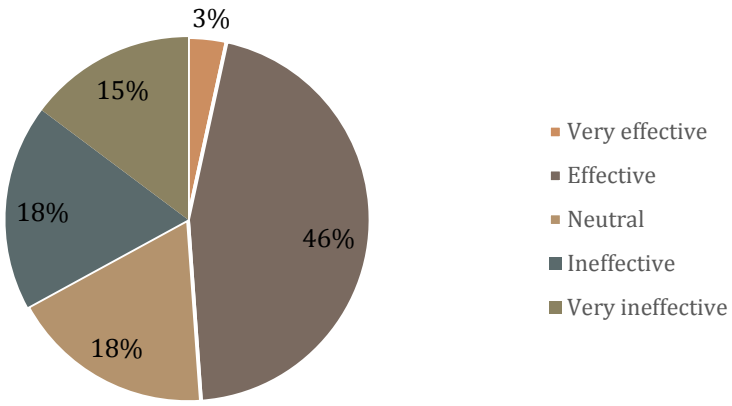

Figure 11. Pie chart 'to what extent do you believe laws and regulations are effective at protecting your privacy'.

Figure 11 shows the results of the statement: 'to what extent do you trust that observers watching the cameras will act accordingly'. In this case, 66% of the respondents stated that they mostly or completely trust the observers who are watching the CCTV surveillance cameras in Enschede city centre. Approximately 14% of the respondents indicated that they have no trust in the observers while 20% of the respondents are neutral about the topic.

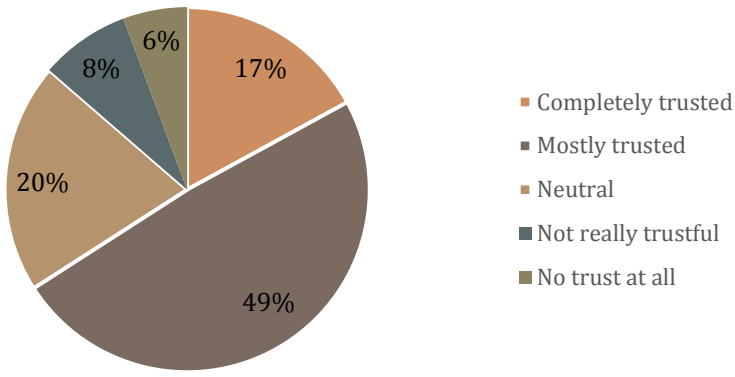

Figure 12. Pie chart 'to what extent do you trust that observers watching the cameras will act accordingly'.

Table 3 gives insight to what extent people in Enschede city centre show preventive behaviour when it comes to CCTV surveillance in the city centre of Enschede. Examining avoidance behaviour towards CCTV surveillance, it is striking that more than 71% of the respondents show no avoidance behaviour in contrast to only 9.09% of the respondents sometimes showing avoidance behaviour towards CCTV surveillance cameras. Furthermore, when looking at protective behaviour, more than 68% of the respondents show no protective behaviour towards CCTV surveillance and only 15.91% of the respondents showed sometimes protective behaviour. Moreover, none of the respondents indicated that they often or almost always showed avoidance or protective behaviour towards municipal CCTV surveillance in Enschede city centre. When looking at insurance behaviour of people in Enschede city centre, 79.31% of the respondents indicated that they seldom or never showed insurance behaviour. In addition, only 20.69% of the respondents showed sometimes or often insurance behaviour towards municipal CCTV surveillance in Enschede city centre. When examining communicative behaviour of people in Enschede city centre, 83.91% of the respondents indicated that they seldom or never showed communicative behaviour with regards to municipal CCTV surveillance in Enschede city centre. In addition, only 16.09% of the respondents showed sometimes or often communicate behaviour with regards to municipal CCTV surveillance in Enschede city centre. When looking at organising actions, 96.59% of the respondents said to have never organised actions towards municipal CCTV surveillance in Enschede city centre. Moreover, the other 3.41% of the respondents indicate that they seldom organised actions towards municipal CCTV surveillance in Enschede city centre. Finally, when looking at searching for information with regards to municipal CCTV surveillance in Enschede city, 95.40% of the respondents indicate seldom or never to have searched for information with regards to municipal CCTV surveillance in Enschede city. In addition, only 4.60 % of the respondents indicated that they often or sometimes searched for information with regards to municipal CCTV surveillance in Enschede city.

Preventive behavior	**Almost always**	**Often**	**Sometimes**	**Seldom**	**Never**	**N**
Avoid	0.00%	0.00%	9.09%	19.32%	71.59%	88
Protect	0.00%	0.00%	15.91%	15.91%	68.18%	88
Insure	0.00%	5.75%	14.94%	18.39%	60.92%	87
Communicate	0.00%	3.45%	12.64%	58.62%	25.29%	87

Organizing actions	0.00%	0.00%	0.00%	3.41%	96.59%	88
Search for information	0.00%	3.45%	1.15%	11.49%	83.91%	87

Table 3. Results preventive behaviour of people in Enschede city centre.

Conclusively, people in Enschede city centre do not remark the municipal CCTV surveillance in Enschede city centre. Most of the people in Enschede city centre trust the observers who are watching them and believe laws and regulations are effective at protecting their privacy. However, when people did find municipal CCTV surveillance in Enschede city centre uncomfortable it were especially the cameras located at the 'Oude Markt' and 'Stadsgraven'. In addition, when looking at preventive behaviour and the theory of Garofalo (1981), most of the people in Enschede city centre showed seldom or never any form of preventive behaviour towards municipal CCTV surveillance in Enschede city centre. When looking at the theory discussed in chapter 2, this thesis argues that CCTV surveillance has no or little negative effect on people as discussed by Hirsh (2000). Rather than feeling uneasy and feeling constraint by CCTV surveillance, most of the people in Enschede city centre find municipal CCTV surveillance a tool to help them feel safe.

4.4 EXPLAINING REACTIONS

In order to test the concept model discussed in chapter 3, relationships need to be examined between the different variables discussed in this chapter. In order to examine these relationships, correlation and regression analyses will be conducted. Firstly, the relationship between people's notions of privacy and people's opinion on the types of surveillance will be examined. This will be done via a linear regression analyses. The outcome of this analyse is shown below, where the independent variables are privacy of private sphere, privacy of informational privacy and privacy of bodily integrity and where the dependent variable is either opinion on monitoring CCTV surveillance, opinion on recognising CCTV surveillance or opinion on identifying CCTV surveillance.

Firstly, look at table 4 in appendix 3. The results show that there is a correlation of 0.623 between privacy of bodily integrity, privacy of informational privacy and privacy of private sphere as independent variables and opinion on monitoring CCTV surveillance as dependent variable. With a significance of $p<0.001$, this correlation is significant. 38.9% of people's opinion on monitoring CCTV surveillance is influenced by their notions of privacy. However, as the results also show, the notion of

informational privacy has not a significant impact on people opinion on monitoring CCTV surveillance (p=0.935). Conclusively, as people find private sphere privacy and bodily integrity privacy more important, people's opinion on monitoring CCTV surveillance decreases and people will less likely agree with monitoring CCTV surveillance.

Secondly, look at table 5 in appendix 3. The results show that there is a correlation of 0.806 between privacy of bodily integrity, privacy of informational privacy and privacy of private sphere as independent variables and opinion on observing CCTV surveillance as dependent variable. With a significance of p<0.001, this correlation is significant. 64.9% of people's opinion on observing CCTV surveillance is influenced by their notions of privacy. However, as the results also show, the notion of informational privacy has not a significant impact on people opinion on observing CCTV surveillance (p=0.935). Conclusively, as people find private sphere privacy and bodily integrity privacy more important, people's opinion on observing CCTV surveillance decreases and people will less likely agree with observing CCTV surveillance.

Thirdly, look at table 6 in appendix 3. The results show that there is a correlation of 0.811 between privacy of bodily integrity, privacy of informational privacy and privacy of private sphere as independent variables and opinion on identifying CCTV surveillance as dependent variable. With a significance of p<0.001, this correlation is significant. 65.7% of people's opinion on identifying CCTV surveillance is influenced by their notions of privacy. However, as the results also show, the notion of informational privacy has not a significant impact on people's opinion on identifying CCTV surveillance (p=0.731). Conclusively, as people find private sphere privacy and bodily integrity privacy more important, people's opinion on identifying CCTV surveillance decreases and people will less likely agree with identifying CCTV surveillance.

People's perception consists of the variables risk perception and safety feelings. Risk perception was measured in the survey with two item statements: 'to what extent do you believe laws and regulations are effective at protecting your privacy' and 'to what extent do you trust that the observers watching the cameras will act accordingly'. In order to also create one scale for the variable risk perception, Chronbach's alpha is used to see whether these two items can create a scale together. These statements together create a Cronbach's alpha of 0.814 which means that all two item statements can be used for the scale that measures the risk perception.

Table 7 in appendix 3 shows the regression result of people's opinion on monitoring CCTV surveillance, people's opinion on recognising CCTV surveillance and people's opinion on identifying

CCTV surveillance as independent variables and risk perception as dependent variable. The results show that there is a correlation of 0.801 between people's opinion on monitoring CCTV surveillance, people's opinion on recognising CCTV surveillance and people's opinion on identifying CCTV surveillance as independent variables and risk perception as dependent variable. With a significance of $p<0.001$, this correlation is significant. 64.1% of people's risk perception influenced by their opinion on the CCTV surveillance types. However, as the results also show, people's opinion on monitoring CCTV surveillance ($p=0.076$) as well as people's opinion on recognising CCTV surveillance ($p=0.658$) have not a significant impact on people's risk perception. Conclusively, as people find identifying CCTV surveillance more uncomfortable the more they feel that their privacy is at risk.

Safety feelings was also measured via two items statements: 'to what extent do you feel uncomfortable while being under CCTV surveillance in Enschede city centre' and 'CCTV surveillance in Enschede city centre makes me feel safe'. In order to also create one scale for the variable safety feelings, Chronbach's alpha is used to see whether these two items can create a scale together. These statements together create a Cronbach's alpha of 0.898 which means that all two item statements can be used for the scale that measures safety feelings.

Table 8 in appendix 3 shows the regression result of people's opinion on monitoring CCTV surveillance, people's opinion on recognising CCTV surveillance and people's opinion on identifying CCTV surveillance as independent variables and safety feelings as dependent variable. The results show that there is a correlation of 0.823 between people's opinion on monitoring CCTV surveillance, people's opinion on recognising CCTV surveillance and people's opinion on identifying CCTV surveillance as independent variables and people's safety feeling as dependent variable. With a significance of $p<0.001$, this correlation is significant. 67.8% of people's safety feelings are influenced by their opinion on the CCTV surveillance types. However, as the results also show, people's opinion on monitoring CCTV surveillance ($p=0.103$) as well as people's opinion on recognising CCTV surveillance ($p=0.969$) have not a significant impact on people's safety feelings. Conclusively, as people find identifying CCTV surveillance more uncomfortable the more they feel unsafe.In order to measure if there is a correlation between the safety feelings and risk perception of people on their preventive behaviour regarding CCTV surveillance, a Pearson correlation test is conducted. The results of this test can be found in table 9. Table 9 shows that safety feelings of people in Enschede city centre has a very strong negative correlation with avoidance (-0.770), protective (-0.824) and insurance (-0.883) behaviour. All three correlations have a significance of $p<0.001$ which means that

the correlations are statistically significant. Moreover, safety feelings of people in Enschede city centre has a medium to strong negative correlation with communicate (-0.567), organising action (-0.376) and search for information (-0.489). All three correlations have a significance of $p<0.001$ which means that the correlations are statistically significant.

When looking at the risk perception of people in table 9, in appendix 3, the results show that the risk perception of people in Enschede city centre has also a very strong negative correlation with avoidance (-0.735), protective (-0.831) and insurance (-0.849) behaviour. All three correlations have a significance of $p<0.001$ which means that the correlations are statistically significant. In addition, the risk perception of people in Enschede city centre has also a medium to strong negative correlation with communicate (-0.526), organising action (-0.341) and search for information (-0.512). All three correlations have a significance of $p<0.001$ which means that the correlations are statistically significant. Conclusively, as people feel more unsafe and find themselves more at risk the more they show preventive behaviour. As a consequence, people in Enschede city centre will especially avoid places with CCTV surveillance, watch who they associate with and talk to and take protective measures.

4.5 CONCLUSION

This research showed that people in Enschede city centre consider informational privacy to be the most important notion of privacy. The protection of informational privacy is considered to be very important by the people in Enschede city centre, while the protection of the private sphere as well as the protection of bodily integrity is considered to be fairly important. Looking at the municipality of Enschede, they are using recognising surveillance as their main type of CCTV surveillance. The CCTV cameras in Enschede city centre allow for observers to recognise persons which they have previously seen. However, the CCTV surveillance cameras in Enschede city centre do not have enough detailed information that allows for facial recognition by the observers. However, the CCTV cameras do allow for observer to make personal pictures of possible suspects and send them to law enforcement officers in the city centre to help them recognise the possible suspect. In addition, people in Enschede city centre agree with the use of all three types of municipal CCTV surveillance. Moreover, people in Enschede city centre do consider monitoring CCTV surveillance to be the least intrusive of the three surveillance types. However, people in Enschede city centre consider recognising to be less intrusive than identifying CCTV surveillance but more intrusive than monitoring CCTV surveillance while

identifying CCTV surveillance is being considered the most intrusive of the three types. Furthermore, most people in Enschede city centre find municipal CCTV surveillance a tool to help them feel safe. Moreover, people in Enschede city centre trust the observers who are watching them and believe laws and regulations are effective at protecting their privacy. Next, when looking at preventive behaviour, most people in Enschede city centre showed seldom or never any form of preventive behaviour towards municipal CCTV surveillance in Enschede city centre. Finally, testing the concept model it showed that as people find private sphere privacy and bodily integrity privacy more important, people's opinion on any of the three CCTV surveillance types decreases and people will less likely agree with CCTV surveillance. As a result, when people in Enschede city centre find identifying CCTV surveillance more uncomfortable, they feel more unsafe and feel that their privacy is at risk. As a result of feeling unsafe and feeling that their privacy is at risk, people in Enschede city centre will especially avoid places with CCTV surveillance, watch who they associate with and talk to and take protective measures.

5. Conclusion & Discussion

In this chapter the sub questions will be answered. Once these sub questions have been answered, answers to the main research question are obtained. In addition, after answering the mean research question, a small discussion is held. The main research question in this thesis was: *What explains the reactions of citizens of Enschede towards municipal CCTV surveillance?*

The first sub question was: *What kind of notions of privacy are there and what do people in Enschede consider as privacy?* There are basically three notions of privacy: protection of the private sphere, protection of bodily integrity and protection of informational privacy. The protection of the private sphere can therefore be explained as the protection from observations and recordings regarding domestic affairs and (group) association. Regarding CCTV surveillance this means, protection of sensitive issues such as peoples' habits and association with whomever people want to.

The protection of bodily integrity can firstly be explained as the protection of physical invasions of individuals. Regarding CCTV surveillance this means, the protection against the unwanted monitoring and recording of individuals' intimate body parts. Moreover, it also refers to privacy of location and space that individuals have. People have the right to move in public without being monitored, identified or even tracked. More specifically, the protection of personal information can be explained as the protection of personal data in networks and computer systems as it has been defined in recent years (Dubbeld, 2004). It is about making sure that personal data is protected by legislation and policies and that the data is not available to other individuals and organizations. Finally, this research showed that people in Enschede city centre consider informational privacy to be the most important notion of privacy. The protection of informational privacy is considered to be very important by the people in Enschede city centre, while the protection of the private sphere as well as the protection of bodily integrity is considered to be fairly important.

The second sub question was: *Which types of CCTV surveillance does the municipality of Enschede use and to what extent are these considered intrusive?* Public CCTV surveillance in the Netherlands is based on the NEN norm: NEN-EN-IEC 62676-4:2015, which basically states that there are three types of surveillance regarding the use of CCTV. These are monitoring, recognising and identifying. Every type of surveillance sets different requirements on the camera system (e.g. type of camera, degree of zooming or swivelling and type of lens). More specifically, with monitoring, the operator is able to observe whether one or more persons are present on the images. While with

recognising, the operator is able to recognise the persons or objects involved in case of an incident. And with identifying, the operator is able to identify or distinguish unmistakably the facial features of a person. Looking at the municipality of Enschede, they are using recognising surveillance as their main type of CCTV surveillance. The CCTV cameras in Enschede city centre allow for observers to recognise persons which they have previously seen. However, the CCTV surveillance cameras in Enschede city centre do not have enough detailed information that allows for facial recognition by the observers. However, the CCTV cameras do allow for observer to make personal pictures of possible suspects and send them to law enforcement officers in the city centre to help them recognise the possible suspect. In addition, people in Enschede city centre agree with the use of all three types of municipal CCTV surveillance. Moreover, people in Enschede city centre do consider monitoring CCTV surveillance to be the least intrusive of the three surveillance types. However, people in Enschede city centre consider recognising to be less intrusive than identifying CCTV surveillance but more intrusive than monitoring CCTV surveillance while identifying CCTV surveillance is being considered the most intrusive of the three types.

The third and final sub question was: *To what extent do people in Enschede remark these types of CCTV surveillance and how do they react to these?* Most people in Enschede city centre find municipal CCTV surveillance a tool to help them feel safe in Enschede city centre. Moreover, people in Enschede city centre trust the observers who are watching them and believe laws and regulations are effective at protecting their privacy. However, when people did find municipal CCTV surveillance in Enschede city centre uncomfortable it were especially the cameras located at the 'Oude Markt' and 'Stadsgraven'. When looking at preventive behaviour, most people in Enschede city centre showed seldom or never any form of preventive behaviour towards municipal CCTV surveillance in Enschede city centre. Finally, testing the concept model of this thesis and giving an answer to the main research question, this thesis showed that as people find private sphere privacy and bodily integrity privacy more important, people's opinion on any of the three CCTV surveillance type's decreases and people will less likely agree with CCTV surveillance. As a result, when people in Enschede city centre find identifying CCTV surveillance more uncomfortable, they feel more unsafe and feel that their privacy is at risk. As a result of feeling unsafe and feeling that their privacy is at risk, people in Enschede city centre will especially avoid places with CCTV surveillance, watch who they associate with and talk to and take protective measures.

Reflecting on the theory discussed in chapter 2 and implying them to this thesis also has given some interesting results and scientific insights. Firstly, looking at the theory discussed in chapter 2 related to the three notions of privacy, not all items constructed to measure the protection of the private sphere as well as the protection of bodily integrity were reliable and valid in this thesis. The items 'how important, if at all, is it for you to be able to go shopping without being monitored' and 'how important, if at all, is it for you to be able to have no monitoring of your intimate body parts' did not measure their related variable (protection of bodily integrity and protection of private sphere). This thesis therefore notes that however Friedewald et al. (2014) and Dubbeld (2004) argue that the protection of private sphere is related to the protection of people's habits, not all habits - such as shopping – are able to measure ones protection of private sphere. This thesis argues that the protection of private sphere can be more likely related to peoples' association with whoever people want to and the protection against government interference. Moreover, this thesis also argues that however Friedewald et al. (2014) and Dubbeld (2004) argue that the monitoring of intimated body parts is part of the concept of the protection of bodily integrity; it can be better a separate concept apart from the protection of bodily integrity. Because this thesis argues that people consider the protection of bodily integrity to be more about having their own control over their body and thus agreeing with the theory of Solove (2002). Secondly, looking at the theory discussed in chapter 2 related the different types of CCTV surveillance and their intrusiveness, this thesis agrees with the finding of Mekovec (2010) Castañeda and Montoro (2007) and disagrees with the findings of Clarke (1988), implying that the level of information sensitivity and the amount of detail does impact ones privacy concerns. More specifically, suggesting that the more personal information is visible via CCTV surveillance the more people feel concerned about their privacy. Thirdly, when looking at the theory discussed in chapter 2 related to people's perception and reaction to CCTV surveillance, this thesis argues that CCTV surveillance has no or little negative effect on people. Hirsh argued that CCTV surveillance could have such a big impact, this thesis rejects this theory. Rather than feeling uneasy and feeling constraint by CCTV surveillance, most of the people in Enschede city centre find municipal CCTV surveillance a tool to help them feel safe agreeing with scholars such as Van Rompay (2009).

Moreover, when looking at the scientific gap and practice implications of this thesis, one can argue that this thesis can be used as a foundation in justifying the use of municipal CCTV surveillance. To illustrate this, although people became increasingly aware of their privacy and also became increasingly worried in recent years, people did not find that municipal CCTV surveillance was a threat

to their privacy. Thus, as municipal CCTV surveillance and its use are still rapidly increasing, people do not consider it a threat to their privacy. However, it does need consideration in the future due to technology evolving so fast, especially after this thesis showed that people do consider informational privacy essential. Moreover, we almost live in a light of government surveillance systems. Debates and discussions on CCTV surveillance privacy, more specifically data protection issues are everywhere. CCTV surveillance statistics show that the numbers of CCTV cameras are increasing every year. But does it really matter that we are being watched in public places? This research showed that we hardly feel uncomfortable. We sacrifice a part of our privacy to get security. Do we need to choose privacy or do we need to choose security that is the ever longing question. Is the idea of Benjamin Franklin, *'those who would sacrifice liberty for security deserve neither',* really out-dated in this era? What concerns us the most is informational privacy. We accept that we are being watched, but we do care a lot about the observers who are actually behind CCTV cameras, who has control and access over our surveillance data and we need to know that the laws and regulations are effective at protecting our surveillance data. The dilemma of CCTV surveillance in public spaces is still in front of us and also will be there for a long time coming. We are being watched more and more. What we can do now is, look at our personal behaviour in public places with CCTV surveillance and look for protection of laws and regulation of CCTV surveillance.

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Appendix

APPENDIX 1: CCTV PLACEMENT ENSCHEDE CITY CENTRE

CCTV Placement Enschede city centre	Additional information
1. Oude Markt	-
2. Stadsgravenstraat	-
3. Menistenstraat	-
4. Bolwerkstraat	-
5. Noorderhagen	-
6. Van Lochemstraat	-
7. Minkgaarde	-
8. Kruispunt de Graaff	As well as the roads Korte Hengelosestraat, Brammelerstraat, Korte Haaksbergerstraat, de Marktstraat and de Zuiderhagen
9. Walstraat	Between Marktstraat and Op de Wal
10. Willem Wilminkplein, Harry Banninkplein	-
11. Stationsplein	-
12. The square at de Langestraat in front of Enschede town hall ('Ei van Ko')	As well as the roads Langestraat (the area west of the intersection with de Hofstraat and the area south of the intersection with the Hofstraat), Van Loenshof (the area east of the intersection with the Windbrugstraat) and the Raadhuisstraat (the area north of the intersection with the Windbrugstraat).

Table 4. CCTV placement city centre Enschede (Decentrale Overheid, 2017).

APPENDIX 2: SURVEY QUESTIONNAIRE

INTRODUCTION:

You are being invited to participate in a research study titled **Municipal CCTV surveillance and Privacy.** This study is being done by **Maarten de Groot** from the Faculty of Behavioural, Management and Social Sciences at the University of Twente.

The purpose of this research study is to know what people think of the Close Circuit Television Cameras in Enschede city centre and to what extent privacy concerns may exist. It will take you approximately **2-5** minutes to complete it. The data will be used for my Master Thesis.

Your participation in this study is entirely voluntary and you can withdraw at any time. You are free to omit any question.

We believe there are no known risks associated with this research study. However, to the best of our ability your answers in this study will remain confidential. We will minimize any risks by not using any personal identifying information and the information will not be used for other means then the research mentioned above. The data will be securely stored via Qualtrics and SPSS and only Maarten de Groot and the project supervisors have access to the data.

When you are interested in the results, please send an email to: maartendegroot8@gmail.com and you will get a summary of the most important results.

1. How often do you visit the city centre of Enschede?

- ❍ Daily
- ❍ Weekly
- ❍ Monthly
- ❍ Once a semester
- ❍ Once a year
- ❍ Never

2. Are you aware of CCTV surveillance in Enschede city centre?

3. Who do you think manages these CCTV surveillance cameras? (Could check multiple options)

- ❍ The Police
- ❍ Municipality of Enschede
- ❍ Private Security Companies (e.g. Securitas and/or Trigion)
- ❍ Other …..

4. To what extent do you feel uncomfortable while being under CCTV surveillance in Enschede city centre?

- ❍ Never
- ❍ Seldom
- ❍ Sometimes
- ❍ Often
- ❍ Almost always
- ❍ No Opinion

5. To what extent do you agree with the following statement:

CCTV surveillance in Enschede city centre makes me feel safe.

- ❍ Strongly Agree
- ❍ Agree
- ❍ Neutral
- ❍ Disagree
- ❍ Strongly Disagree
- ❍ No Opinion

6. In the picture below, can you indicate and **click**, which of the camera locations (red dots) concern you the most? (**Only when question 5 is answered with disagree or strongly disagree).**

7. How important, if at all, is it for you to be able to. . .

	Essential	Very Important	Fairly important	Not very important	Not at all important	No opinion
. . . meet with people without being monitored.	❍	❍	❍	❍	❍	❍
. . . go shopping without being monitored.	❍	❍	❍	❍	❍	❍
. . . have no government interference.	❍	❍	❍	❍	❍	❍

. . . know who has information about you.	❍	❍	❍	❍	❍	❍
. . . control who has access to your personal surveillance data.	❍	❍	❍	❍	❍	❍
. . . know that laws and procedures are effective at protecting your personal surveillance data.	❍	❍	❍	❍	❍	❍
. . . have no monitoring of your intimate body parts	❍	❍	❍	❍	❍	❍
. . . walk freely in Enschede city centre without being monitored	❍	❍	❍	❍	❍	❍
. . . live freely in Enschede city centre without being monitored.	❍	❍	❍	❍	❍	❍

8. Can you indicate to what extent you agree with the following statements?
In my opinion, CCTV Camera's in Enschede city centre. . .

	Strongly Agree	**Agree**	**Neutral**	**Disagree**	**Strongly disagree**	**No opinion**
. . . may observe a person or a group of persons (Figure 1).	❍	❍	❍	❍	❍	❍

. . . may recognise persons which have previously been seen with the CCTV camera's (Figure 2).	❍	❍	❍	❍	❍	❍
. . . may distinguish a person from all other persons and / or identify a specific action (Figure 3).	❍	❍	❍	❍	❍	❍

Figure 1

Figure 2

Figure 3

9. Can you indicate to what extent the following statements are applicable to you?

a. I avoid certain place in Enschede city centre where there is CCTV surveillance.

❍ Almost always ❍ Often ❍ Sometimes ❍ Seldom ❍ Never ❍ Don't know

b. I take precaution to protect myself while being under CCTV surveillance in Enschede city centre.

❍ Almost always ❍ Often ❍ Sometimes ❍ Seldom ❍ Never ❍ Don't know

c. I watch who I talk to or associate with while being under CCTV surveillance in Enschede city centre.

❍ Almost always ❍ Often ❍ Sometimes ❍ Seldom ❍ Never ❍ Don't know

d. I talk with other people about CCTV surveillance in Enschede city centre.

❍ Almost always ❍ Often ❍ Sometimes ❍ Seldom ❍ Never ❍ Don't know

e. I'm actively involved in (organising) actions against CCTV surveillance in Enschede city centre.

❍ Almost always ❍ Often ❍ Sometimes ❍ Seldom ❍ Never ❍ Don't know

f. I am keeping a close eye on any information about CCTV surveillance in Enschede city centre.

❍ Almost always ❍ Often ❍ Sometimes ❍ Seldom ❍ Never ❍ Don't know

10. To what extent do you believe laws and regulations are effective at protecting your privacy?

❍ Very Effective

❍ Effective

❍ Neutral

❍ Ineffective

❍ Very Ineffective

❍ No Opinion

11. To what extent do you trust that the observers watching the cameras will act accordingly?

❍ Completely trusted

❍ Mostly trusted

❍ Neutral

❍ Not really trustful

❍ No trust at all

❍ No Opinion

THANK YOU VERY MUCH FOR YOUR PARTICIPATION

APPENDIX 3: TABLE RESULTS

Table 5. Results regression analyses with privacy of bodily integrity, privacy of informational privacy and privacy of private sphere as independent variables and opinion on monitoring CCTV surveillance as dependent variable.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,623[a]	,389	,366	,461

a. Predictors: (Constant), PrivacyBodilyIntegrity, PrivacyInformational, PrivacyPrivateSphere

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	11,229	3	3,743	17,584	,000[b]
	Residual	17,668	83	,213		
	Total	28,897	86			

a. Dependent Variable: Opinion monitoring CCTV surveillance

b. Predictors: (Constant), PrivacyBodilyIntegrity, PrivacyInformational, PrivacyPrivateSphere

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4,016	,302		13,276	,000
	PrivacyPrivateSphere	-,362	,136	-,372	-2,666	,009
	PrivacyInformational	-,011	,137	-,008	-,082	,935
	PrivacyBodilyIntegrity	-,251	,109	-,293	-2,311	,023

a. Dependent Variable: Opinion monitoring CCTV surveillance

Table 6. Results regression analyses with privacy of bodily integrity, privacy of informational privacy and privacy of private sphere as independent variables and opinion on observing CCTV surveillance as dependent variable.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,806[a]	,649	,637	,488

a. Predictors: (Constant), PrivacyBodilyIntegrity, PrivacyInformational, PrivacyPrivateSphere

ANOVA[a]

Model	Sum of Squares	df	Mean Square	F	Sig.

1	Regression	37,012	3	12,337	51,877	,000[b]
	Residual	19,977	84	,238		
	Total	56,989	87			

a. Dependent Variable: Opinion recognising CCTV surveillance

b. Predictors: (Constant), PrivacyBodilyIntegrity, PrivacyInformational, PrivacyPrivateSphere

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	5,794	,320		18,129	,000
	PrivacyPrivateSphere	-,655	,143	-,480	-4,567	,000
	PrivacyInformational	,042	,144	,022	,288	,774
	PrivacyBodilyIntegrity	-,475	,115	-,395	-4,131	,000

a. Dependent Variable: Opinion recognising CCTV surveillance

Table 7. Results regression analyses with privacy of bodily integrity, privacy of informational privacy and privacy of private sphere as independent variables and opinion on identifying CCTV surveillance as dependent variable.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,811[a]	,657	,645	,578

a. Predictors: (Constant), PrivacyBodilyIntegrity, PrivacyInformational, PrivacyPrivateSphere

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	53,699	3	17,900	53,667	,000[b]
	Residual	28,017	84	,334		
	Total	81,716	87			

a. Dependent Variable:

b. Predictors: (Constant), PrivacyBodilyIntegrity, PrivacyInformational, PrivacyPrivateSphere

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	6,705	,379		17,715	,000

	PrivacyPrivateSphere	-,852	,170	-,521	-5,013	,000
	PrivacyInformational	,058	,171	,025	,339	,735
	PrivacyBodilyIntegrity	-,517	,136	-,359	-3,798	,000
a. Dependent Variable: Opinion identifying CCTV surveillance						

Table 8. Regression result of people's opinion on monitoring CCTV surveillance, people's opinion on recognising CCTV surveillance and people's opinion on identifying CCTV surveillance as independent variables and risk perception as dependent variable

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,801[a]	,641	,628	,62009

a. Predictors: (Constant), Opinion on monitoring CCTV surveillance, Opinion on recognising CCTV surveillance, opinion on identifying CCTV surveillance

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	56,999	3	19,000	49,413	,000[b]
	Residual	31,915	83	,385		
	Total	88,914	86			

a. Dependent Variable: RiskperceptionFinal

b. Predictors: (Constant), Opinion on monitoring CCTV surveillance, Opinion on recognising CCTV surveillance, opinion on identifying CCTV surveillance

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	,238	,248		,960	,340
	Opinion monitoring CCTV surveillance	,376	,209	,215	1,797	,076
	Opinion recognising CCTV surveillance	,115	,260	,092	,444	,658
	Opinion identifying CCTV surveillance	,575	,169	,550	3,405	,001

a. Dependent Variable: RiskperceptionFinal

Table 9. Regression result of people's opinion on monitoring CCTV surveillance, people's opinion on recognising CCTV surveillance and people's opinion on identifying CCTV surveillance as independent variables and safety feelings as dependent variable.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,823[a]	,678	,666	,49238

a. Predictors: (Constant), Opinion on monitoring CCTV surveillance, Opinion on recognising CCTV surveillance, opinion on identifying CCTV surveillance

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	42,331	3	14,110	58,201	,000[b]
	Residual	20,123	83	,242		
	Total	62,454	86			

a. Dependent Variable: SafetyfeelingFinal

b. Predictors: (Constant), Opinion on monitoring CCTV surveillance, Opinion on recognising CCTV surveillance, opinion on identifying CCTV surveillance

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	,114	,197		,580	,563
	Opinion monitoring CCTV surveillance	,274	,166	,186	1,646	,103
	Opinion recognising CCTV surveillance	,005	,207	,005	,026	,979
	Opinion identifying CCTV surveillance	,596	,134	,681	4,449	,000

a. Dependent Variable: SafetyfeelingsFinal

Table 10. Correlation table safety feelings and riskperception on preventive behaviour.

		Avoid	Protect	Insure	Communicate	Organising action	Search for information
SafetyfeelingFinal	Pearson Correlation	-,770**	-,824**	-,883**	-,567**	-,376**	-,489**
	Sig. (2-tailed)	,000	,000	,000	,000	,000	,000
	N	88	88	87	87	88	87
RiskperceptionFinal	Pearson Correlation	-,735**	-,831**	-,849**	-,526**	-,341**	-,512**
	Sig. (2-tailed)	,000	,000	,000	,000	,001	,000
	N	88	88	87	87	88	87