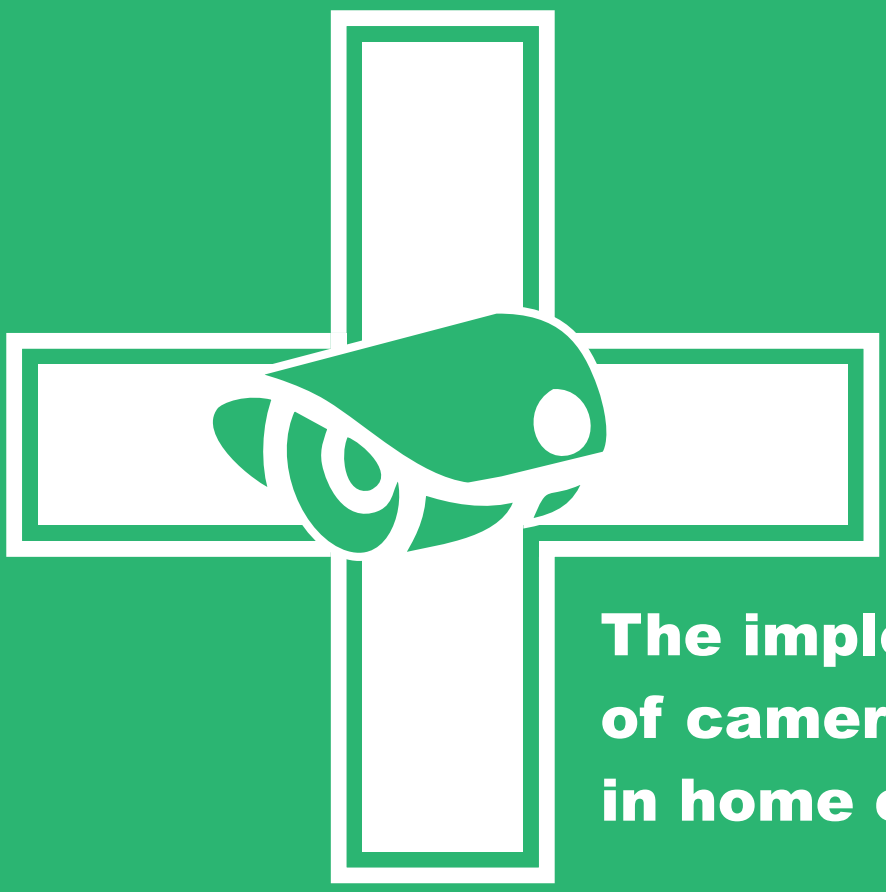

# The implementation of camera surveillance in home care

## The influence of PRIVACY, TRUST and POWER on the willingness of health care professionals to accept in home camera surveillance

UNIVERSITY OF TWENTE.

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prof. mr. dr. Michiel Heldeweg

## Voorwoord

Voor u ligt mijn masterthese ter afronding van mijn masterstudie Public Administration aan de Universiteit Twente. Het afstuderen is een vrij lang maar altijd prettig proces geweest, het enthousiasme van mijn beide begeleiders Ton Spil en Michiel Heldeweg over dit onderwerp werkte aanstekelijk, mijn dank hiervoor! Ik heb geleerd om dit enthousiasme te vertalen en te combineren met eigen inzichten. Ook heb ik weer ervaren dat de kunst van het schrijven vooral het schrappen van woorden is. Veel mensen vroegen mij aan het einde van het proces wekelijks hoe het met afstuderen ging, het werd maar eens tijd om aan die belangstelling gehoor te geven.

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Ik wens u veel plezier met het lezen van deze scriptie!

Marie-Claire Ottenhof,
Enschede, 20 juni 2018

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# Table of content

## Abstract

Health care organizations are willing to innovate on the application of assistive technology. The appliance of technology is seen as one of the solutions to meet the strong growing need of health care, combined with a decrease of health care professionals. The organizations struggle about the most successful implementation strategy. On the other hand, health care professionals seem not that eager to accept those technologies. We need more practice based knowledge and spread the word, how to implement technology in health care? In this paper the influence of privacy, trust and power on the willingness of care employees to adopt camera surveillance is explored by a semi-structured interview. The results show that the violation of privacy is not a big issue, acceptation depends on the way the technology will be implemented. Trust and power are of more importance. In conclusion, always approach the concepts privacy, trust and power together by imposing such a radical change in health care process. Consider the care giver as a key player as the change agent. Practice implications: to accept the technology in a broad spectrum spread practice based evidence about the technology and use trust to make a positive trade-off between relative advantage and the violation of privacy. This study provides a new view on the implementation of camera surveillance. The protection of privacy seems not of that great importance and is concerning the acceptation of technology not an autonomous term. The concepts trust and power prove to be important players in this arena.



**Key words:** dementia, telemedicine, surveillance domotica, acceptance of technology, privacy, trust, power.



Zorgorganisaties zien de noodzaak om te innoveren met zorgtechnologie op afstand, telemedicine. Het toepassen van telemedicine wordt gezien als een van de oplossingen om tegemoet te komen aan de groeiende vraag naar zorg en het afnemende aantal zorgprofessionals. De organisaties zijn zoekende naar de meest succesvolle implementatiemethode, zorgprofessionals zijn op hun beurt niet direct gedreven om te werken met nieuwe technieken. We hebben meer praktijkkennis nodig om het vertrouwen te winnen en techniek op een natuurlijke manier te kunnen implementeren. In dit paper wordt de invloed van privacy, vertrouwen en macht op de bereidheid van de acceptatie van surveillance camera's van zorgprofessionals onderzocht. De methode is een semi gestructureerd interview. Resultaten laten zien dat het schenden van privacy niet perse relevant is in dit vraagstuk, acceptatie hangt af van manier hoe de technologie wordt geïmplementeerd. Vertrouwen en macht lijken belangrijker. Concluderend, benader privacy, vertrouwen en macht gezamenlijk bij een radicale verandering in een zorgproces. Geef de zorgprofessional de sleutelrol als 'change agent'. Voor succes in de praktijk: verspreid op de praktijk gebaseerde kennis en gebruik vertrouwen om tot een positieve afweging te komen tussen relatief voordeel en de schending van privacy. Deze studie heeft een nieuw inzicht op de implementatie van camera surveillance geleverd. De bescherming van privacy blijkt niet altijd het grootste belang te zijn en is betreft de acceptatie technologie niet een op zichzelf staand begrip. De concepten vertrouwen en macht blijken ook belangrijke spelers in dit krachtenveld.

# 1. INTRODUCTION

## 1.1 General background

The healthcare domain which faces many challenges in the near future is the care and support for people with dementia. People diagnosed with dementia experience an irreversible, progressive decline in cognitive abilities, such as memory, speech, thought, perception, and reasoning. In later stages of the disease, the effort increases to perform even the most basic tasks such as maintaining basic hygiene or eating. Also changes in personality and behavior are often observed. (Hoppe, Keene, & Fairburn, 1999).

Age is the principal risk factor for dementia, with the prevalence increasing from 5% to 10% at 65 years to around 45% at <95 years (Health Council of the Netherlands 2002). Worldwide the prevalence of dementia will increase considerably: from 36 million in 2010 to 115 million in 2050 (Prince and Jackson 2009). Simultaneously, the potential working population will decrease (Health Council of the Netherlands 2002). Therefore in future, the importance of assistive technology will become more important and expected to grow particularly in dementia care (Sixsmith et al., 2007). The major challenge will be able to continue to adequately care for the growing number of persons with dementia.

The use of technologies to provide clinical health care at a distance, also called telemedicine, has been shown to be advantageous for the improvement of long-term health outcomes in the most commonly observed frailty-related diseases (Lattanzio et al., 2015). Especially older persons suffering dementia are correlated with a greater need of assistance towards maintaining mobility and adequate eating habits, avoiding sleep disorders, and behavioural as well as psychological symptoms of dementia. These problems translate into stress for family caregivers as well as professional medical care staff. The different stages related to the intensity of dementia require specific geriatric attention: these needs should be the basis for technology innovation in dementia care (Lattanzio et al. 2015).

In the context of homes where life-style monitoring is used to optimize care, also called smart homes, technology anxiety can affect the willingness of patients and care givers to participate in smart home projects (Courtney, 2008). Privacy can be a barrier for an elderly's acceptance of the technology of smart homes, however, the security and the increase in health care efficiency may exceed their privacy concerns, see figure 1. The concept privacy is defined as withdrawal from public view or company and retaining one's private life. The individual has a right to be left alone and so protection in person and in property (Warren and Brandeis, 1890). According to public opinion polls, the protection of personal privacy is the most important issue in every Western nation (Flaherty, 1989).

Concerning smart homes, the privacy issue may influence the willingness of people to participate in smart home projects. Besides willingness, the acceptance of certain types of smart home IT is highly individualized (Courtney, 2008). The extent of the current concern over the protection of personal privacy in Western industrialized countries is well known (Flaherty, 1989). People want to control their privacy, but people feel that they have lost control over the

protection of their own privacy in a world dominated by computers. The acceptance of this technology by elderly can also contribute to the awareness of their health condition. If so, those who might profit the most may be the least willing persons to adopt smart home technology. It is suggested that some people might feel like they are losing a lot of their independency, having to rely on somebody else in a general context, which is often hard for people to accept (Courtney, 2008).

A more freedom restricting measurement than the previously mentioned domotics is the use of cameras in smart homes, with the aim of monitoring demented elderly. This kind of domotics will be increasingly applied in long-term care. Formerly, monitoring by cameras was applied especially in care for disabled people in combination with acoustic surveillance. In elderly care, it is not common to monitor behaviour by camera, but this expands slightly because suppliers of nurse-call systems offer camera systems integrated in the call systems (Vilans, 2015).

The use and application of surveillance domotica in dementia care leads to considerable ethical discussion among healthcare professionals and ethicists. Some ethicists view the use of this technology as a contravention of human rights or as a contrary to human dignity because it reduces privacy of the person and of the concerned caregivers (Niemeijer, Frederiks, Depla, Legemaate, Eefsting & Hertogh, 2011). In general, new technologies often give rise to unknown ethical problems, and it often takes many years to fully integrate them in society (Palm & Hansson, 2006).

Because of new and more refined means for identifying and collecting various types of information about individuals, private spaces where individuals may remain free from intrusion seem to decline. Besides, specifically in care, resorting to technology might result in a reduction in the essential human contact between caregivers and their clients (Nijmeijer et al., 2011).

The executive boards of health care companies are aware of the urgency to implement surveillance technology but how can they use their power effectively? Health care organisations may be confronted with resistance of the health care professionals (also called care givers) against the implementation of surveillance cameras and they may not know how to motivate these care givers to work with this new technology (Peeters, Wiegers, de Bie & Friele, 2013). Many individual care givers do not acknowledge the added value of technology; they have no idea which possibilities domotics can offer and are particularly afraid that they should work more efficiently. In case of monitoring by surveillance domotics and especially cameras, care givers seem to be very negative and have no or little trust that their privacy will be secured. Trust can reduce uncertainty and make reliance on, another person or entity acceptable, as well as increase desirable behavior (Akter, D'Ambra & Ray, 2011). All in all, three determinants of technology adoption, privacy, trust and power, are explored and will be addressed in this study. This conception in combination to the appliance of figure 1 leaded to the following research question:

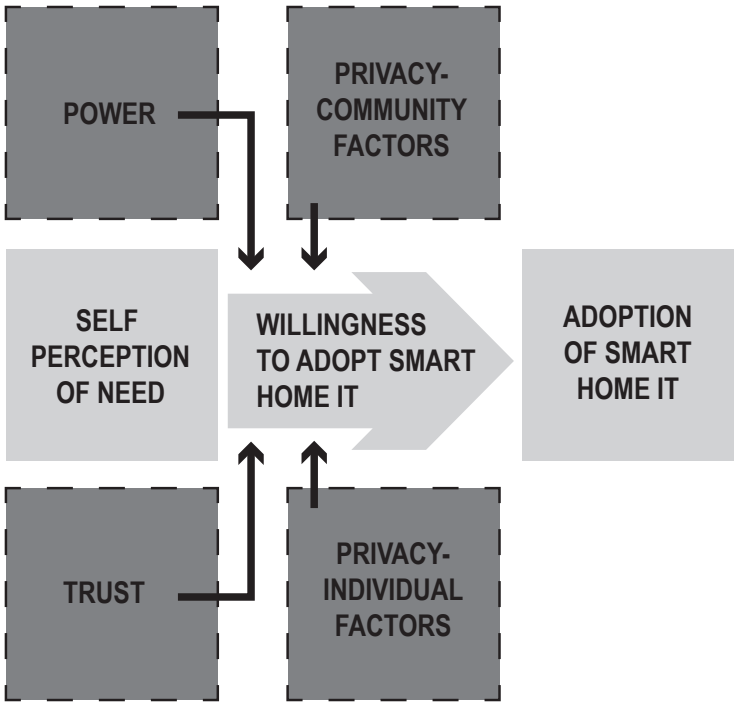


***Figure 1: Privacy, power and trust as a determinant to adoption, Courtney 2008***

How are privacy, trust and power balanced in order to influence the willingness to use and thereafter the adoption of camera surveillance at a health care organization?

- What is the influence of privacy on the willingness of the adoption on surveillance technology?
- What is the influence of trust on the acceptation of camera surveillance in home setting?
- Can power overrule privacy and trust of the employees?
- What effects a shifting landscape in the organization?

# 2. THEORETICAL FRAMEWORK

## 2.1 Shifting landscapes

The role of technology in a shifting landscape provides important contextual insights into the relationships between people, place and care. These interrelations can be referred to camera surveillance provided for home care where the caregivers are the professionals and the clients their network. In the changing landscape of healthcare, the role of technology has not been considered for a long time. Recent studies apply a geographical approach to study the local telecare practices and real-life experiences of caregivers and clients (Oudshoorn, 2011). Other authors focused on telecare and domestic technologies developed especially for frail, elderly people, to comprehend how these new care technologies contribute, and how they reallocate care to the domestic home, initiate new responsibilities and new actors, and create a new significance of 'ageing in place'. To conquer and further explore the role of technology in shifting dimensional configuration of healthcare, the concept of technological geography of care is introduced (Oudshoorn, 2011). This concept refers to two enlaced processes involved in changing the relationships between people, places, care and technology. First, it refers on how technologies participate in changing the landscape of care by connecting rather diverse places, redefining the meaning of the concerned places and creating new sites where care takes place. Second, technologies contribute by creating interdependencies and distributing responsibilities between people, places and technical devices, and so reconfiguring who cares (Oudshoorn, 2011). The expansion of new surveillance technologies is associated with the decrease of the assurance of privacy. What has the priority: optimization of health care or the absolute assurance of privacy for the employees and the clients?

## 2.2 Acceptance of technology

First we explain how the adoption of technology occurs over time and differs among individuals. Besides willingness, the acceptance of certain types of smart home IT is highly individualized (Courtney, 2008). The profound effect of the 'tipping point', the point at which a trend catches fire and exponentially spreads through the population, is that the concerning trend suggests that change can be promoted rather easily in a social system through a domino effect (Orr, 2003). The tipping point has its origin in the diffusion theory. This is a set of assumptions regarding the typical spread of innovations within a social system, here we can refer to a shifting landscape in health care. According to Rogers (1995), diffusion is the process where an innovation is shared through certain channels over time among the members of a social system. In this study the members of the social system are the clients, caregivers and the decision makers of the health care organization (HCO). Assuming that decisions are not authoritative or collective, each member of the social system faces his or her own innovation-decision that follows the five-step process.

People who do not adopt lose status or economic viability, this contextual pressure persuades an attitude which motivates adoption (Orr, 2003). The wireless sensor network (WSN) system is an example of a technology for the

target group, elderly in an early stage of dementia. This system is developed to prolong the time the elderly can live at home and at the same time provide the elderly with the freedom to remain independent for as long as possible. For a new system, it is important to invent the determinants of its acceptances when systems will be quite probably recognized negatively by the users (Steele, Lo, Secombe & Wong, 2009). This is in particular important for systems designed for elderly because this group is in general not used to modern technology. The invented determinants, privacy, trust and power will be discussed in the following paragraphs.

## 2.3 Privacy

First privacy, camera surveillance in a health care setting can contribute to the safety of the patients, visitors and caregivers, but the violation of privacy is immense. Therefore, health care institutions are only allowed to apply cameras if they comply with strict conditions where privacy is always secured (Smeets, 2004). The institution needs a legitimate interest for the appliance of camera surveillance, for example the prevention of theft or improper care. Camera surveillance should only be applied when it is necessary and if there is no other possibility which is less radically for ensuring privacy. To apply, a privacy test must be executed (Smeets, 2004). The interest of the health care institution should be balanced against the interests of the client, family and caregivers. By use of symbols the institution can inform the use of camera surveillance. Normally, the images will be saved for a particular period. If an incident is recorded, the images may be saved till the procedure is completed (Smeets 2004), and so the General Data Protection Regulation applies. Since May 2018 every organization must be able to demonstrate which personal data they collect, how they use this data and how they secure this data (European Commission, 2018).

Surveillance by camera in an extramural setting should be considered even more delicate. Home is the place which can be understood as the specific location where privacy and identity are protected (Courtney, 2008). The perception of 'feeling at home' will be related to the perception of privacy. Home is equal to personal identity and as such a transition to a residential care facility. The inclusion of smart home IT, in this study cameras, could affect privacy by re-establishment of personal space to adapt the technology or through more subtly changing the perception of the home from private space into more public space (Courtney, 2008). As far as possible the client must make the trade-off between the relative advantage of camera surveillance and the violation of his/her privacy, see figure 1.

***In this figure the term self-perception of need is the replaces the concept relative advantage. A high level of trust that the organization will protect privacy leads to a positive trade-off between relative advantage and the violation of privacy (Damschroder et al., 2006).***

## 2.4 Trust

Second, trust is posited as a multi-faceted concept that embodies competence, integrity and goodwill (Guo et al., 2014). Competence refers to the ability of the provider to implement effectively, and integrity refers to providers' honesty in fulfilling their promises. Trust is used as a multidimensional construct with sub constructs, the abovementioned dimensions illustrate

how they enhance the perception of trust on providers (Guo et al., 2014). The providers or here care givers are the key to the success of the implementation camera surveillance, they are called the 'change agents' (Peeters et al., 2013).

***"Staff also talked to him during personal care, gently explaining what they were doing, and played music that he liked. They planned that staff members he trusted would, when possible, give personal care. He began to accept personal care again." (Livingstone et al. 2017)***

Approached as an acceptance determinant, trust is used to study its role in reducing uncertainty in the acceptance of technology (Guo et al., 2014). The avoidance of uncertainty is a way in which people in a given culture prefer structured over unstructured situations (Sun & Zhang, 2005). In structured situations it is evident how people should behave. In societies with high uncertainty avoidance, individuals are more dependent on the richness of technology. They will use technology to reduce harmful situations, for example the use of cameras in public and private spaces to prevent theft. People in societies with high uncertainty avoidance are more likely to listen to other persons' opinion to reduce the uncertainty; there is greater trust in these persons (Sun & Zhang, 2005). Consequently, a lack of trust influences users' acceptance of, in this study: camera surveillance. So, trust plays an important role in the acceptance of camera surveillance because trust can eliminate the uncertainty (Guo et al., 2014).

## 2.5 Power

Third, power is an entrenched value-dependent concept and can also be approached as an 'essentially contested concept' (Lukes, 2005). The core notion within power is that, given two actors A and B, A in some way affects B and vice versa. Obviously, we all affect each other in many different ways all the time, the concept of power and the related concepts of coercion, influence and authority select ranges of such affecting as being significant in specific ways. A way of defining the concept of power which could be useful in the analysis of social relationships must imply an answer to the question: 'what can be constructed as a significant manner?' and 'what makes A's affecting B significant'? The defined concept of power proceeds one or more views of power, like ways of identifying cases of power in the real world (Lukes, 2005). In its legitimized form the power of A over B is the "right" of A, as a decision-making section involved in collective process, to make decisions which take primacy over those of B. In this study, the so-called two dimensional view of power can be applied best. "The two dimensional view approaches decision-making and non-decision-making, issues and potential issues, observable conflict and (subjective) interests seen as policy preferences or grievances" (Lukes, 2005). The policy issue, implementing camera surveillance in the home care setting, the most freedom-restrictive home automation application, approaches the use of power of the possible ways in which there is an observable conflict of (subjective) interests. The interests of HCO, the clients, family and the care givers can be embodied in express policy preferences. Kuhlmann (2013) in turn, confirms the complexity of the arenas of innovation policy. Also institutions and agencies are entering

the arenas, next to national governments, partly as cooperation partners and partly as competitors. Kuhlmann (2013) states that a lot of broad concerns are too narrowly defined too poorly managed and implemented. There is a shortage on supportive conditions from society due to historical, cultural and political reasons. The ultimate end of social innovation is to help create better futures, (Pol and Ville, 2009). The optimization of the quality of life from the lightly demented home living should be the core reason of implementing camera surveillance as a home automation variant.
All in all, the implementation of telemedicine is a quite radical change for the health care process, care givers have to provide care in a whole different manner. It takes a lot of effort from the board to make this change. In the end the client has the most essential role, a successful implementation depends on the way of acceptance of the technology of the client (Peeters et al., 2013).

***"If patients say yes, they want to be asked in the first place"***
***(Damschroder et al., 2006).***

All in all, change mostly occurs slowly. In the arena of innovation in home care technology three main characters can be appointed: the client, the care giver and the board. The board has to be patient with the implementation of camera surveillance and must use their power very discrete. First the care givers must accept the new technology to awaken confidence, or trust, in their role as a change agent to the clients so that the clients can make a positive trade-off between the relative advantage of the technique and the violation of privacy. See figure 3, here the optimum balance between privacy, trust and power according to the theory is shown.

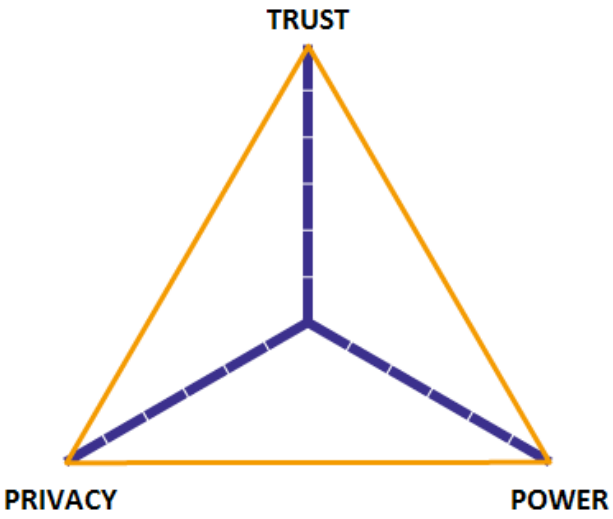


***Figure 2: relations of the determinants according to theory***

## 2.6 Metagovernance

Likewise the care givers contribute mainly to the success of the implementation of surveillance cameras in home care. Actors in policy arenas follow bounded rationalities, experienced in a given arena, with limited scope actors in one domain often lacking insight into other arenas (Smits, Kulhmann & Shapira, 2010). Normally public regulation and policy instruments develop in a progressive way, sometimes, though, actors see the need for strategic change themselves. All in all, innovation practice and innovation policy must overlay the polarity between path dependence and creative destruction, permanent innovation (Smits et al. 2010).

The use of strategic niche management as a policy tool does not suggest that authorities create niches in a top-down manner, this is often assumed by commentators, but focuses instead on management (Schot & Geels, 2002). This kind of steering can be prosecuted by a lot of different actors, including users and societal groups. Steering can involve many parts of the process, by adding a new actor, a specific learning process or a set of demonstration projects which may redirect evolving dynamics toward a desired path. The route for the future can be formed into more sustainable directions. Strategic niche management can be defined as reflexive governance (Schot et al. 2002). Thereafter, transition management promotes practices in ‘transition arenas’, those arenas consist of regime actors, niche actors and outsiders. By using niche experiments and by influencing the cognitive frames of regime actors transition management aims to influence the regime actors (Schot et al. 2002). Transformative power of influencing cognitive frames can be seen as an important aspect of reflexive governance. Biases and limitations in existing institutions can be overcome by providing actors with a meta-vision that helps with the challenge of creating fundamental change (Schot et al. 2002). Referring to the first paragraph about shifting landscapes, we asked this question: what has the priority, optimization of health care or the absolute assurance of privacy for the employees and the clients? When implementing surveillance cameras the landscape must be fundamentally changed, by the delicate use of power, trust can be provoked and so the relative advantage will go beyond privacy. Finally, this will lead to the acceptance of camera surveillance.

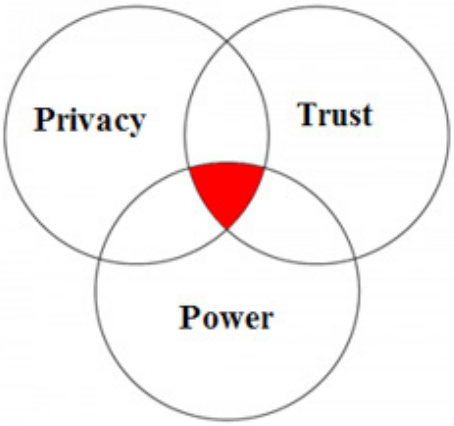


***Figure 3: where privacy, power and trust meet***

# 3. METHODS

How should privacy, trust and power be balanced in order to influence the willingness to use and thereafter the adoption of camera surveillance at a health care organization?

'A qualitative study calls for continuous refocusing and redrawing of study parameters during fieldwork, but some initial selection still is required. A conceptual framework and research questions can help set the focus and boundaries for sampling decisions' (Miles, Huberman & Saldana, 2014). Figure 1 shows the conceptual framework with privacy as the most important concept which associates the willingness to use and thereafter the adoption of camera surveillance.

To answer this research question a semi structured interview and a literature study is used. Staff and health care professionals from a Dutch health care organization are interviewed. An implementation in the primary workplace concerns the whole range of employees within an organization.

Roughly, the board and the staff must decide, prepare and support the implementation, here the concepts trust and power are of interest. The health care professionals should accept to work while a camera is recording, ensuring privacy is of great importance in this issue. The interview is designed by use of the five phases of Rogers' diffusion theory, combined with the concepts trust, power and privacy.

***Validity:*** "do you measure that what you want to measure"? If you use the variable and the associated conception, attributes and dimensions well you will measure what you want to measure. You literally use all the 'aspects' of the variable.

***Reliability:*** "to what extent is the measurement free from measurement errors"? To ensure reliability you should use the same survey, interview or other measuring method by different 'measuring objects', most of the time persons, diseases, supervising tools and medicaments.

| | |
|---|---|
| 1) Knowledge | person becomes aware of an innovation and has some idea of how it functions |
| 2) Persuasion | person forms a favorable or unfavorable attitude toward the innovation |
| 3) Decision | person engages in activities that lead to a choice to adopt or reject the innovation |
| 4) Implementation | person puts an innovation into use |
| 5) Confirmation | person evaluates the results of an innovation-decision already made |

***Table 1: five phases of the diffusion theory, Rogers 1995***

# 4. RESULTS

The literature on diffusion theory suggests that a lot of studies have been dedicated to studying the people differences in innovativeness, in determining the characteristics of the different adopter categories (Rogers, 1995). Less effort was committed by analyzing differences in innovation, investigating how the properties of innovations affect their rate of adoption. In this study the differences in acceptance are analyzed by an interview scheme focused especially on staff and one scheme focused especially on health care professionals employed in the same health care organization (HCO).

## 4.1 Respondents

All in all, eleven persons who are involved in HCO are consulted via an interview. Six home care professionals, a policy advisor, an ICT project leader, a member of the works council, the chair of the client board and human resource advisor. Everybody except the chair of the client board is employed by HCO. Four home care professionals are mainly responsible for route planning, indication of the needs of new clients and efficiency of the process within the executive home care team. Two home care professionals have their explicit focus on home care to the clients. The respondents were roughly informed about the topic and were all very eager to give the interview. The interviews lasted 45 minutes on average.

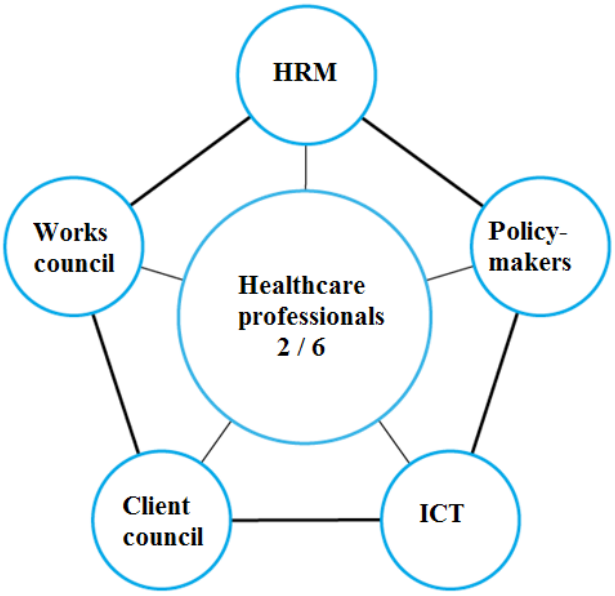


***Figure 4: relations health care professionals versus staff***

## 4.2 Healthcare professionals

The key questions and main opposite example answer-types by the six health care professionals read as follows.

- What is the influence of privacy on the willingness of the adoption on surveillance technology?

*"No problem, it is in advance of our safety."*

"It is ok for me if it is consulted in advance. Security goes beyond privacy. I don't feel violated in my privacy."

- What is the influence of trust on the acceptation of camera surveillance in home setting?

*"During implementations communication is not transparent. For me it seems like that HCO hides information."*

"Yes that should be obvious. Camera surveillance is furthermore a control tool for your work and the work from your colleagues"

- Can power overrule privacy and trust of the employees?

*"Every care team member needs clear explanation about what and why. They should become aware from the added value, and then a lot of people would accept cameras."*

*"Explain it clearly to the people. Do not delegate from the office, use people with practical experience. Do not create ambiguity, people can spread their negative feelings among each other."*

We can summarize the given answers (6 of 11 respondents to 3 questions) as follows:

| | + | +/- | - |
|---|---|---|---|
| *Privacy* | 3 | 3 | |
| *Trust* | 6 | | |
| *Power* | 3 | 2 | 1 |

***Table 2: health care professionals - privacy, trust and power***

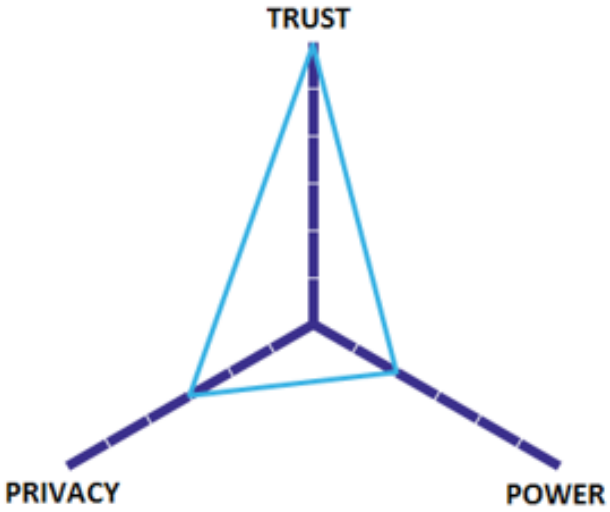


***Figure 5: interpretation determinant relations by healthcare professionals***

In conclusion we can say that according to our six health care professionals, trust compensates power and privacy. The importance of power is low but the trust in the organization is high.

## 4.3 Staff

The key questions and main opposite example answer-types by the five staff members read as follows.

- What is the influence of privacy on the willingness of the adoption on surveillance technology?

*“Laconic, I try to do my work as well as possible. For the professional it is quite radical, as works council we should ask questions about it. Privacy is very delicate, what is more important security or privacy?”*

*“First, they should appoint you on camera surveillance. A permanent camera in the living room is quite radical. Try to apply the less radical solution, it is an infringement on someone’s life. You should secure the privacy thoroughly”.*

- What is the influence of trust on the acceptation of camera surveillance in home setting?

*“First a test run, like in a ‘test garden’ do not implement directly. The method or procedure should be tested first, and employees must be consulted to speed up the acceptation process. Involvement creates support and probably initiators. Explain in clear language the ‘why and how’ and do not create an opportunity to create distracting nuances.”*

*“It is hard to control the healthcare professional in homecare. HCO is not allowed to use the camera images to control their work, I assume they don’t. When I should doubt about the integrity of HCO I wouldn’t work for HCO. The purpose and means must be explicit.”*

- Can power overrule privacy and trust of the employees?

*“On several locations, we have camera surveillance which is before mentioned. It is an endless discussion, some of the employees do not want to work under camera surveillance. You might call it ‘work refusal’, but we do not have a protocol about this. At the first sight, it is always a choice to work at HCO. Employees should adapt to the policy; we should implement it smoothly and try to create less resistance.”*

*“Support by innovation is of great importance, we as staff can do this but actually people in the field should do this and find a chairman or supervisor. As a policymaker we cannot talk to anybody, you make a fine selection of whom you want to talk to. On the other hand we have to complete tasks from the board of directors, if they want to implement cameras we have to do research on how to implement these we cannot have an opinion on that.”*

We can summarize the given answers (5 of 11 respondents to 3 questions) as follows:

| | + | +/- | - |
|---|---|---|---|
| *Privacy* | 3 | | 2 |
| *Trust* | 2 | 3 | |
| *Power* | 5 | | |

***Table 3: staff - privacy, trust and power***

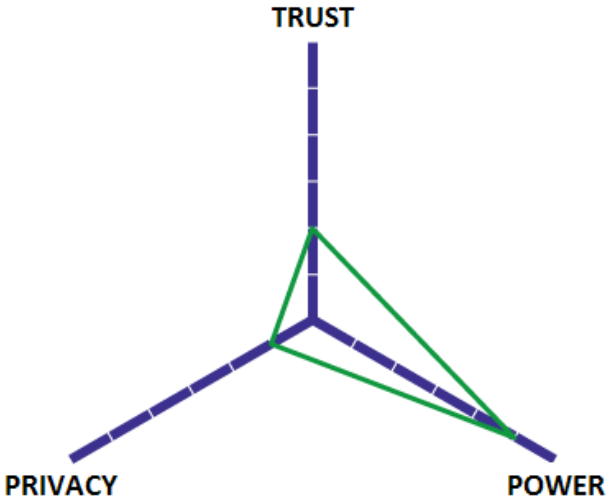


***Figure 6: interpretation determinant relations by staff***

In conclusion, the importance of power is high. Both privacy and trust are low, which is conflicting with the results from the health care professionals.

## 4.4 Health care professionals versus staff

If we combine the results from 4.1 and 4.2 this are the most striking differences:
*"Privacy is not a big topic" – "privacy should be surely addressed".*
"*Trust is very important" – "trust is a minor thing".*
*"Power is not that important, we want to get the info from the lowest level" – " power is very important in decision making".*

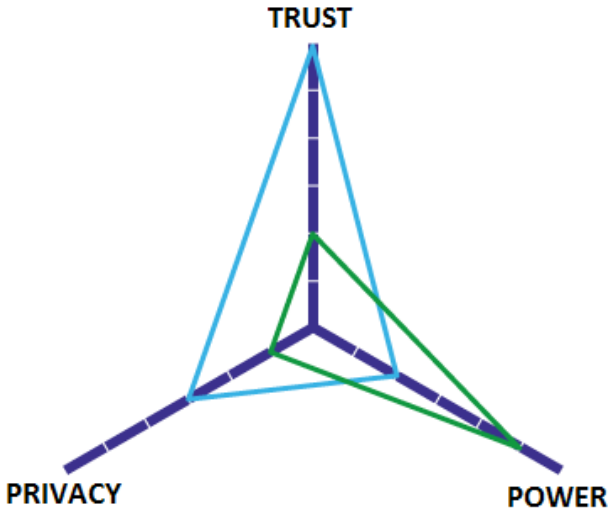


***Figure 7: interpretation determinants health care professionals (blue) and staff (green)***

| | *Privacy* | *Power* | *Trust* |
|---|---|---|---|
| **Health care professionals** | M | L | H |
| **Staff** | M-L | H | M-L |

***Table 4: staff versus health care professionals – privacy, trust, power***

In conclusion, to compare staff versus health care professionals: the results are quite divergent. The biggest difference is the importance of the use of power to implement camera surveillance and the trust in the organization about the way of implementing the technique. Privacy shows a difference as well but is not that divergent as expected. In the next chapter we will further analyze and discuss the above findings.

# 5. DISCUSSION AND CONCLUSION

The aim of this study was to analyze the balance between the concepts privacy, trust and power in order to influence the willingness to use and thereafter the adoption of camera surveillance at a health care organization. To answer this research question a semi structured interview and a literature study is used. Staff and health care professionals from the health care organization are interviewed.

Health care organisations will be confronted with resistance of the health care professionals against the implementation of surveillance cameras and they may not know how to motivate these care givers to work with this new technology (Peeters, et al., 2013). Many care givers do not notice the added value of technology, feel violated in their privacy and are particularly afraid that they should work more efficiently (Courtney, 2008).
“I would like to be the innovator, but it costs a lot of (negative) energy. Our team is quite old and will create resistance, for me it is hard to ‘fight against’ them”, here theory and empirical findings correspond. Subsequently we can wonder about how to change this attitude in favour of acceptation of the technology, here the concepts privacy, trust and power meet.

A striking difference is found between the theoretical and empirical findings of the concept privacy. In case of monitoring by surveillance domotics and especially cameras, care givers seem to be very negative and have no or little trust that their privacy will be secured.

Trust can reduce uncertainty and make reliance on, another person or entity acceptable, as well as increase desirable behavior (Akter, D’Ambra & Ray, 2011).
According to the empirical results, the consulted care givers seem to have an average positive attitude towards the privacy issue, and they are even aware of the advantages of cameras. In their opinion camera images can be used for education and peer review, “we always work autonomous and without supervision, images can be useful for feedback”. Some ethicists view the use of this technology as a contravention of human rights or as a contrary to human dignity because it reduces privacy of the person and of the concerned caregivers (Niemeijer et al., 2011). Despite the fact that this opinion is shared by one of the staff members, in general the staff has a positive attitude towards the privacy issue either (very low score of importance of privacy). This is conflicting with the existing literature and could be a topic for a follow-up study. An explanation for this conflict can be the rate of trust in the organization, care givers experience a high rate of trust this probably compensates the privacy issue. Therefore we can assume that the concepts trust and privacy are proportional, a high rate of trust leads to positive attitude towards the privacy issue and so a low importance rate of privacy.

Where trust is of great importance for the care givers, power is very meaningful for the staff. In its legitimized form the power of A over B is the “right” of A, as a decision-making section involved in collective process, to make decisions which take primacy over those of B (Lukes, 2005).

This top-down approach confirmed by the staff: “the director has the ‘decision-making power’, you should not want to regulate the acceptation per sé.” conflicts with the five step process of Rogers (1995). The diffusion of a technology is the process where an innovation is shared through certain channels over time among the members of a social system. Assuming that decisions are not authoritative or collective, each member of the social system faces his or her own innovation-decision that follows the five-step process (Rogers, 1995). Though, this diffusion process corresponds with the opinion of the care givers: “we need evident information, from experienced care givers, each care team member needs an evident explanation about ‘what and why’”.

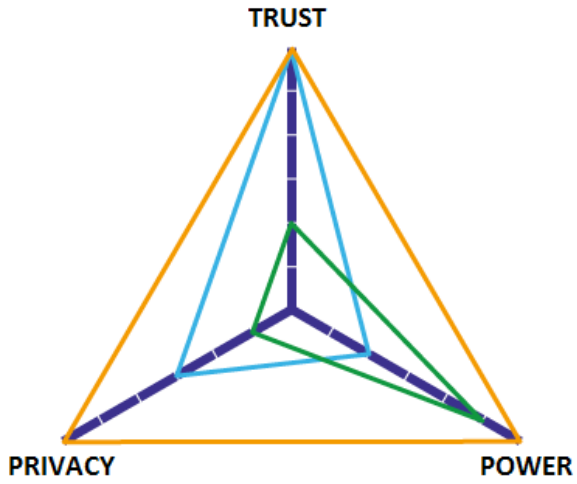


***Figure 8: Theory and interpretations of the determinants***

To approach  the exact balance, referring to the theory where the concepts are in exact balance the care professionals need more awareness of power and even some  more interest of privacy. The staff must create a greater awareness for both privacy and trust, power has an outstanding high score. However, the empirical findings can be even valuable compared to the theory. The conflicts in balance of the concepts between theoretical and empirical findings can trigger further research. Another important issue is that in this study clients are not consulted and they seem very important for the acceptation of technology especially in home care. Here we did not include clients because the HCO explicitly asked to consult the care givers, they are their first concern. This was a convenient choice because theory confirmed that care givers can play a key role as the ‘change agent’ in the acceptation of technology by being the change agent.

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# 7. Appendix

1. Summary interviews health care professionals and staff

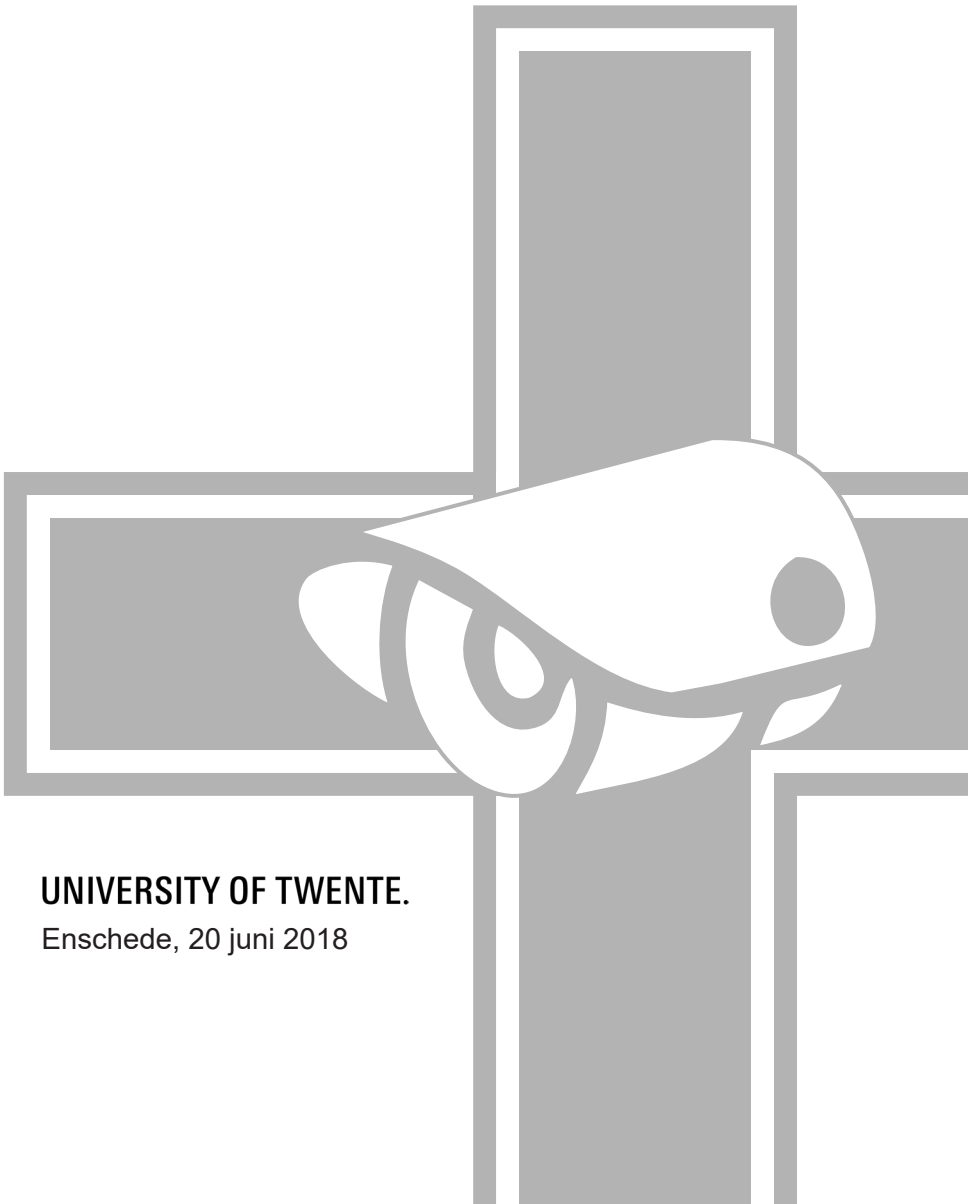
| Topic | Perception |
|---|---|
| **PRIVACY** | |
| Use of cameras in public space | No awareness, no problem. I think it is necessary. Security goes beyond privacy. |
| | No problem, it is in advance of our safety. |
| Use of cameras in private space | I am seriously against surveillance in home setting. Feels like you are controlled, what is the added value? Privacy means: camera off. |
| | No problem when it is consulted. Security beyond privacy. I don't feel violated in my privacy. |
| Perform the HCO slogan 'share your life' | Just try to share your private issues, happiness and sadness. 'Share your life' is pleasant but I am not 24 hours available for work. |
| | The HCO approach is too broad and too literally. |
| | |
| **TRUST** | |
| HCO uses the images for improving health care only | You should assume that HCO uses the images carefully. Besides, the images are a good tool to check your and your colleagues work, feedback is welcome. |
| | Yes, I do trust HCO. I am not doing anything wrong. |
| HCO & innovations | HCO is not a real innovator, but integer. I do not trust the ICT department. |
| | During implementations communication is not transparent. For me it seems like that HCO hides information. |
| | |
| **POWER** | |
| Introduction & implementation cameras HCO | We need evident information, from experienced care givers. Policy advisors invent nice things at the office but they must consider, what is practical? |
| | The team can be informed by the team leader; the overall information should be evident. The manager informs the team leader. Sharing proper information is in favour to create support. |
| Do you expect resistance in your care team by implementation cameras? | Each care team member needs an evident explanation about 'what and why', then awareness increases and consequently the acceptation of cameras. |
| | Yes, I expect resistance in my team. But we need a thorough conversation and then I should accept the cameras. The manager should talk to the leader of the team, intervene top-down in case of troubles. I would like to be the innovator, but it costs a lot of (negative) energy. Our team is quite old and will create resistance, for me it is hard to 'fight against' them. |

*Table 3; summary interviews healthcare professionals*

| Topic | Perception |
|---|---|
| **PRIVACY** | |
| Camera private | Laconic, I try to do my work as good as possible. For the professional it is quite radical, as the work council we should ask questions about it. Privacy is a very delicate concept. We should consider: what is more important security or privacy? |
| | First, they should appoint you on camera surveillance. A permanent camera in the living room is quite radical. Try to apply the less radical solution, it is an infringement on someone's life. You should secure the privacy thoroughly. |
| Address policy on privacy in the labour contract | Yes, policy about privacy is already integrated into your labour contract, for new and existing employees. |
| | Resistance occurs because of a clause about cameras and the suspicion of theft. The employee and the client are both protected. |
| **TRUST** | |
| Implementation of home cameras by HCO | How do you create followers? The care team is not always aware of the organisation itself. But when it is about camera surveillance it becomes more important. We should connect the employees with the organisation, but I doubt about it. All-in all the goal should be clear and communicated in the premature status. The modus operandi should be described very clearly. How and when are the images used? |
| | First a test run, like in a 'test garden' do not implement directly. The method or procedure should be tested first, and employees must be consulted to speed up the acceptation process. Involvement creates support and probably initiators. Explain in clear language the 'why and how' and do not create an opportunity to create distracting nuances. |
| Trust in HCO by the introduction of an innovation | It is hard to involve all the employees within the organisation. If the intention is to implement cameras for the security of the client than you will have a good story. You should always create backing, make them the 'owner' of the topic. The best is that the team experience by their selves that this is a valuable implementation and that they form a group to develop the implementation process. |
| | Yes, if this is a new serious technique, I think so. Our employees are not willing to change. If something literally will be conducted for example the use of tablets, then they are willing to participate. Resistance occurs often because of ignorance. To discourage the resistance, you should have a clear reasoning and explanation to make the implementation of cameras more acceptable. |

| **POWER** | |
|---|---|
| Acceptation camera surveillance, by employees | You should not want to regulate the acceptation per sé. What you can regulate is that employees do not take and share pictures from clients randomly. |
| | On several locations, we have camera surveillance which is before mentioned. It is an endless discussion; some of the employees do not want to work under camera surveillance. You might call it 'work refusal', but we do not have a protocol about this. At the first sight, it is always a choice to work at HCO. Employees should adapt to the policy; we should implement it smoothly and try to create less resistance. |
| | Communication is the most important here, you should choose your words carefully. |
| Role from department in 'innovation decision making' | The support for decisions is set in the worker's council. We need solid arguments to maintain decisions from the board to our followers. Employees work together on a location, they are not aware of the organisation 'above' them. Possible quote: 'A new director? I don't care, we are working in a nice team that's ok for me' |
| | The director has the 'decision-making power', it is our task to provide advice to the concerning managers. We are a council and prepare the business cases, finally this becomes a 'total package' for the director which includes our vision. If we implement extramural camera surveillance, we are dependent from Giovanni's vision. If he agrees than we make policy for this. The care team leader will coordinate. We must provide in care-oriented advice, in consultation with the care team leader. The DIO department should also change their way of advising, more care-oriented. |

*Table 4; summary interview staff*



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