

The case of surveillance in an elderly home

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In this paper, we consider a specific case in a residential care home in the Netherlands. In this residential care home the management prepared the implementation of a camera system, in order to create more safety for their clients and a more efficient work environment for their nurses. For privacy reasons, the cameras wouldn't show images on which people could be recognized, but instead produced an 'action-line', a red line that only shows people's movements. After a successful experiment with one device, the clients and family members declined the second pilot just before the actual start. We were asked to investigate why people declined this pilot and how the management could better deal with social and ethical issues in a next innovation process.

In order to be able to analyse what happened during the pilot we reconstructed the process of developing and introducing the surveillance cameras by using all available documents, complemented with interviews with employees and managers of the residential care home. We used the Product Impact Tool as method for analysing and evaluating the data, resulting in an advise for how to introduce innovative technology in a more social responsible way.

When they introduced the camera system, the management of the elderly home had two goals in mind: realising 'more' with 'less'. With 'more' they meant more service, more welfare and a positive development in the quality of life of their residents. 'Less' referred to less deployment of personnel, because through the presence of camera surveillance, a number of nurses might become superfluous. The pilot was started to investigate in what ways the quality of care would be enriched by the use of the surveillance cameras. The management expected the following effects: more autonomy for their residents, more safety due to the presence of the cameras and an early identification of problematic movements that would prevent incidents, and reduction in costs due to less deployment of nurses.

The management was quite optimistic about the chance of success. In their communication policy they wrote about “advertising about the experiment” and “teaching the staff how to

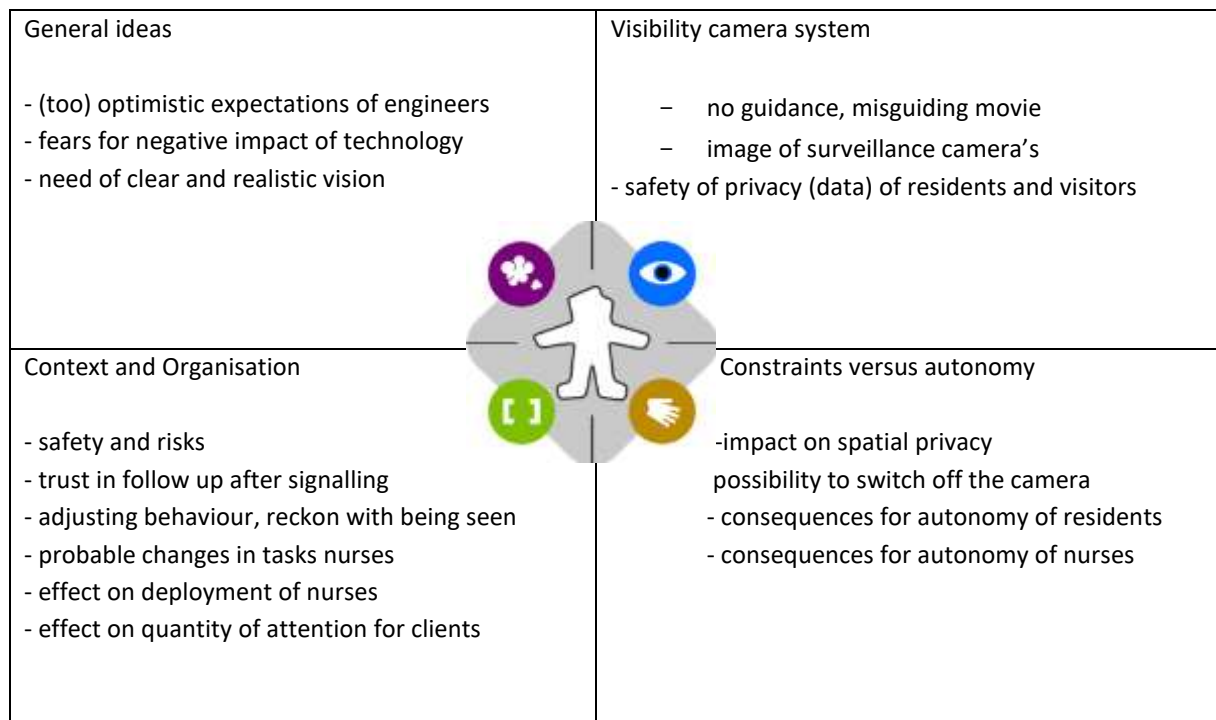
use and adjust to the system". Nothing was written about pre-empting possible concerns, questions, or even resistance, which could be present among clients, family and staff. That does not mean that the management of the elderly home was unaware of possible concerns, but it was not explicitly mentioned as serious point of interest in the design of the pilot. The only ethical issue that was explicitly mentioned in the pilot assignment was privacy, although it was mainly approached from a legal point of view. Of course legal rules are important, but it does not cover everything. Clients, family and staff can experience a case as ethically problematic, even though it is legally correct.

After seven months of preparation, the responsible manager and the council of residents were positive about starting the pilot. The cameras were ordered. Interestingly, at that moment the nurses and the family members had hardly been spoken with yet. When they were informed, it appeared that their worries had been seriously underestimated by the management and misunderstood by the producer of the camera system. Because the nurses and the family felt overwhelmed by the project, they lost their confidence in this pilot. Although the management tried to repair this broken confidence, their attempts failed and eventually the pilot was cancelled.

Analysis with the Product Impact Tool

In the process of purchasing and applying technological devices, such as the use of surveillance cameras in an elderly home, the main question is not so much how to apply the device in a technical sense, but it should start with the underlying ideas and vision on why we want to apply this specific technology in the elderly home, the system that will support the technological application and the impact of the product on both the people involved and the organization as a whole. This is exactly what went wrong in the case of the elderly home. We will analyze the case by applying the Product Impact Tool.

As mentioned above, the Product Impact Tool consists of four ways technology interacts with users. 'Above-the-head' is about general ideas about technology that frame the attitude to a product (in this case the camera). 'Behind-the-back' focuses on the context in which the camera system is implemented and the impact on the organisation that coheres with it. The other two aspects of the Product Impact Tool, on the right, focus on the product and how it can influence a person's behaviour in a direct way. 'Before-the-eye' deals with how people react in a cognitive way when they see the camera. The last aspect, to-the-hand, denotes whether people are physically forced to specific behaviour. We summarise the analysis of the case as follows:



We will elaborate the scheme more in-depth.

Above the head: general ideas

Ideas about the value of technology can be widely divergent. These general ideas can be optimistic, or even utopian, about positive effects of a product. In a utopian view continuous surveillance by this camera minimizes the impact of any accident; an advantage that nobody would be able to resist. A pessimistic view of technology, however, emphasizes possible failures of the system, undesirable dependency, and loss of privacy.

Most of the time people are hardly aware of the general views of technology that propels their enthusiasm or fears concerning new products. The considerations of engineers as well as of consumers, users, clients focus rather on specific products in relation to specific needs and problems. However, when controversies arise, often the optimistic and pessimistic views come to the fore. It appears that on the level of general ideas people have sharply diverging stances towards technology. It is important to understand and take seriously the views of clients, family members and the staff, because they govern expectations regarding the observation system.

In the case of the elderly surveillance camera's we see a general enthusiasm for technical solutions in daily life with of the engineers and managers, while most elder people are rather reluctant technology driven changes of one's way of living . Also the way people weigh the gains of safety and care effectiveness against the loss of privacy and traditional personal care seems to be very different with elderly people than with engineers and managers.

For the introduction of such a new technology it is important to remember the *ambivalence* of technology. If not, too high expectations (*utopian view*) will meet sooner or later with resistance, delay, and disappointment (*dystopian view*).

Behind the back: Context and Organisation

Indirect influences are very important in the case of this camera system. While people can see the camera eye, the larger system and functioning of the system is invisible and intangible.

The fact that the camera records a person's movements may lead to adjustment of someone's behaviour, either consciously or unconsciously. This is not an intended function but a *side effect*. Because it looks like any other camera the actual effects of the system may differ from the intentions of the designers.

Furthermore, people feared that personnel would be fired as consequence of the implementation of the camera system. This points at a series other *side effect*, undesired, at least for the clients. Will the number of caregivers be reduced? Will the tasks and way of working of the staff change to distant monitoring instead of personal contact? Will people, as long they don't need help, be left on their own and lonely?

In addition, the side effects bring a *background condition* of the system to the fore: the organization and staff behind the camera. the camera system only works well when the follow-up has been organised well and the staff knows what to do. Without actual follow-up surveillance camera is of no help to people.

Another factor that influenced the acceptance is that information lacked about how to deal with the risks. Information seems essential. The concealment of the system means that people cannot know how the system works unless they are informed. As it is, people must trust a largely invisible system. This may engender a feeling that the technology is an anonymous system that rules (*technical determinism*).

Before-the-eye

The camera system is designed to function behind the back of people. The system is not intrusive; there is no intention to *persuade* people in any way.

The only thing people can see of the system is the camera eye in the ceiling. It is however questionable if this concealment is indeed a good feature of the system. People are not informed about the status of the camera, about what kind of images it records, nor about how the images are monitored and how follow up in the form of help is started in the case that it is needed. There is also no *guidance* of any kind. To the contrary, the information movie that is available may actually misguide people. The movie shows to frames next to each other, one time the normal image that depicts people and one time only the action line. The suggestion of this movie with the two frames next to each other is that the camera does actually record the full image, instead of only the red line.

Another effect in this quadrant may be *image*. As it is the camera eye is visible in the ceiling but keeps silent and does not show or tell what it does. What will be the connotation

of this silently gazing eye in the ceiling? Probably the image is not that of a caring presence. It will rather have connotations of surveillance as applied in dangerous public spaces.

To-the-hand

There is hardly any interaction of clients with this surveillance system as it is nicely concealed and remotely operated not by staff, and not the clients themselves. The eagle eye does therefore not physically *coerce*.

Still it may be possible that unintentionally the system does lead to adaptation of people's behaviours by the detour of the feeling of being continuously observed. For example, one might be held back to leave the bed at night when one cannot sleep, or the other way around, at day time one might stay up even if one feels the need for an extra nap. The system would that change one's routines (*mediated gestures*).

Subliminal affect does not seem to apply. (However, if it would be the case that clients would always see the camera eye even if they did not look at it, then this unconscious perception of the system would be a case of subliminal affect).

Results of the Product Impact Tool analysis

After this review of effects of the camera surveillance system on people from all sides, what analysis concerning the implementation and use of this technology can be made?

Obviously, in the case of camera surveillance, the issue of privacy plays an important role. In an effort to prevent privacy problems the camera only produces an action line. However, the system does not in any way inform people how it functions with this action line (lack of *guidance* in this respect). The camera eye as it is visible in the ceiling will remind people of other surveillance camera systems (*image*). The information movie only reinforces these effects, because it suggests that not just the action line, but the whole picture is being recorded.

While knowledge about the functioning of the camera is not directly visible, people need to learn about the action line technology and trust that indirect information. This is quite a burden on the successful functioning of the system. Especially as the information movie seems misleading. Seen from this angle it can be understood that people are reluctant about trusting the system. This feeling converges with the fear that the surveillance cameras are implemented not only for improving care but also as a way to save on the number of staff. They cannot know if the organizational *background conditions* have been fulfilled and if not undesirable *side effects* take prominence.

Because the larger part of the system is invisible (behind-the-back) the feeling that one is ruled by a technical system (*technical determination*) may easily be nourished. While some see great opportunities for improving our way of living (tending towards the *utopian view* of technology), the clients and their family members quite understandably do not fully trust the

system, and do not share the enthusiasm. Their doubts may be framed by the dystopian view that technology threatens to take command.

The doubts and negative stances towards this elderly surveillance system have been underestimated, which led to the cancellation of the second pilot. From the Product Impact Tool analysis our estimation is that this is because the system does not in any way make clear the action line feature for preventing privacy issues. What is visible is a surveillance camera eye with all the connotations of privacy violation and ultimately the dystopian image of Big Brother.

A direction for improvement of the system would be make the system reveal its functioning. For this it would be needed that the system has more direct interaction with the clients. What possibilities of interaction before-the-eye and to-the-hand would this camera allow for? One possibility would be to give people the possibility to push a button to switch the camera off. Another possibility would be that a manual informs and reminds people better of the functioning of the action line camera. As said, the current information movie does not fulfil its task. Somewhat more advanced redesign possibilities would be to show the exact same picture of the action line that the caregivers see also to clients. Another way of enhancing the interaction would be to combine the surveillance task of the camera with a robot. A robot that follows a person through the house, but can also be send away or covered with a towel may be less privacy intrusive than a secretly observing eye in the ceiling.

The camera may lead to feelings of reassurance (“When I see the camera, I feel safe”), but it may also consolidate fears (“what does the camera record and what happens to these data?”). As a result of these thoughts, people may adjust their behaviour. These feelings are important in the design process in order to answer the question to what degree the camera needs to be visible. It may help when people can see that the camera only registers action-lines and no recognisable images.

The ethical issues that are at stake here are the amount of freedom, spacial privacy and autonomy. One of the design issues is the question whether the camera can be switched off when people feel the need of spacial privacy.

Conclusions and reflections about PIT and RI

Using the Product Impact Tool in this case provided insight into general ideas and fears of the stakeholders regarding the camera system, in relation to the design of the camera itself and the organisation that is needed for a good implementation of the system. Worries of the stakeholders had been underestimated and the procedure of developing and implementing the camera could have been more transparent.

The Product Impact Tool appears to be a suitable and usable tool for reflection on the impact of a product and can be used well for co-design, evaluation and re-design of products and therefore for social responsible innovation.

The Product Impact Tool model and exemplary effects can be of help in two ways: firstly become aware of social effects of their designs, and secondly, to generate ideas for redesign. The tool is intended for designers, but its use is not restricted to designers. The Tool can very well be used for focus groups and other interactive session with users and stakeholders.

The Product Impact Tool includes popular design concepts such as “persuasive technology”, but these are integrated in a model with a bigger social and ethical scope. A distinctive characteristic of the Product Impact Tool is the combination in one model of perspectives from design, and from psychology to philosophy and ethics. It is a tool that at the same time helps to find ethical issues, engender reflection and discussion, as well as to generate ideas for redesign of technologies.

The Product Impact Tool does not provide ethical rules or advice, but it helps people to see the ethical relevance of technologies and how specific design choices change the ethical impact. An assumption is that learning to see and understand the interaction between technology and humans is as important as acknowledgement of moral responsibility. Attention for the multiple effects of technology will by itself encourage ethical reflection.