Innovative Ageing: the Hospitality of Co-creation in Gerontechnology and Care
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Abstract
The interdisciplinary domain of gerontechnology offers a great field for incorporating co-creation and other open and social innovation processes. In the light of Network of Social Innovation project, called “Co-creation in Silver Markets: open innovation, hospitality and elderly care”, we report results on our study of the influence of co-creation of gerontechnological products and services on the experience of hospitality of care providers. E-Health and the care sector proved to be an interesting market for gerontechnology. The paper elaborates on the possibilities of co-creation in silver markets and furthermore discusses the hospitality of co-creation in gerontechnology and care. Through focus group conversations and expert interviews insights were gathered on the successful use of co-creation to raise awareness among senior care clients for using gerontechnological products and services and how they improved the hospitable experience of the care provider.

Keywords
Active ageing – techno-generational divide – silver market – senior citizens – social innovation

1. Introduction

The ageing of the populations of the EU Member States is evidently one of the most seminal trends determining the living and working conditions of Europeans in the future, as demographic projections (European Commission 2009a; European Commission 2009b) indicate. This demographic trend not only implies considerable challenges and strains for both the European economies and social models, as for existing business models (Reinmoeller, 2008). The trend towards older populations is also associated with a number of new opportunities. Terms like ‘silver market’ (Hedrick-Wong, 2006; Kohlbacher and Herstatt, 2008) or ‘silver economy’ indicate that seniors provide a huge potential for new products and services and are becoming an important target group for market research and marketing campaigns. Research on the ‘silver market phenomenon’ has revealed that the generation aged 50+ is very different from younger consumer groups and heterogeneous with regard to its demands as well as regarding its capacities and preferences (e.g. Enste et al., 2008). As a group, older persons are characterized by specific physical and cognitive abilities and shrinking social networks, which often induce a demand for strong personal ties to staff, e.g. care personnel (Pettigrew, 2008). In addition, the preferences of older consumers for certain types of businesses are very distinct from the average, especially when the use of the Internet is considered (Arnold and Krancioch, 2008). Murata (2008) identifies five key factors that influence the consumer behaviour of the generation aged 50+:

- Physical changes due to ageing
- Changes in each individual’s life stage
- Changes in the life stage of their family
- Changes in their tastes based on their generation
- Change in the time or fashion

Although the issue of the ageing population has been addressed in a variety of disciplines ranging from medicine, psychology and economics, the aspects of healthy ageing with innovative healthcare technologies have been neglected. The majority of literature refers to results that origin from
quantitative research approaches about efficient and cost reductive medical care for senior citizens, but do not address the important question of well-being in relation to innovate care technologies, such as e-health or telecare technologies. Within the field of ageing studies, gerontology and social sciences have investigated issues from a qualitative perspective with important issues as experiences that involve ageing and disabilities and its challenges in society. Yet, the link to technologies that provide care at a distance, such as e-health or telecare technologies is missing (Pols, 2012; Oudshoorn, 2011; Mort, May, and Williams, 2003).

One of the interdisciplinary fields contributing to the connection between gerontology and technology is called ‘gerontechnology’. Within this interdisciplinary field, the silver market has been recognized and is directed towards the aspirations and opportunities for senior citizens (HBFFG, 2013):

“Gerontechnology aims at good health, full social participation and independent living up to a high age, be it research, development or design of products and services to increase the quality of life.”

To enhance the silver market the collaborative design and development of these new products and services is recommended. Many scholars consider these innovation forms, which allow the systematic involvement of older adults in the design and development of products and services for their own needs, as particularly suited for the silver market (e.g. Helminen, 2008; Schmidt-Ruhland and Knigge 2008; Gassmann and Reepmeyer, 2008; Pirk, 2008; Reinmoeller, 2008).

An important market for gerontechnology is the care sector and its e-health aspects (Melkas, 2008). All related products and services are currently widely adopted by care providers and care institutions. Therefore, it is interesting to see how open innovation and other participatory approaches in gerontechnology influence hospitality for the care providers and institutions.

In this paper we report results of Network of Social Innovation project, called “Co-creation in Silver Markets: open innovation, hospitality and elderly care”. In this project, the Collaborative Creativity Group of UNU-MERIT, the Hotel Management School Maastricht and care institution Proteion Home, address issues on open innovation, e-health and telecare solutions, digital media access and use by elderly people, and innovative approaches towards hospitality by care institutions.

Firstly, we will elaborate on the concepts of co-creation in gerontechnology. Secondly, we will present our research and discuss the case of Proteion Home as a care provider involving co-creation with senior citizens to improve their hospitality. This case study will display the success of applying methods for open innovation to increase hospitality and openness towards gerontechnological products and services.

2. Co-creation in Silver Markets

With the prospect of facing challenges related to ageing populations, policy strategies have highlighted the importance of active and healthy ageing by coining numerous concepts. Throughout the past fifty years a number of terms have been added to the ageing phenomenon, all related to the concepts ‘active,’ ‘healthy,’ ‘successful’, ‘productive’ and ‘positive’ ageing, among others (Davey and Glasgow, 2006). Ageing strategies should not only emphasize the importance of senior citizens participating, but also highlight the wellbeing of this particular social group. It has been clearly argued that both society as well as the older individual is responsible for creating and maintaining successful ways of ageing. According to European Commission ageing policies, one way to realize successful ways of ageing is by engaging senior citizens in digital (and online) applications.
In May 2010, the European Commission adopted e-Inclusion as one of the main topics of the ‘Digital Agenda for Europe’ and consequently, the concept entered the debate on ageing populations in full force (European Commission, 2010). E-inclusion is, according to the EC, a possible strategy to achieve active ageing. The concept is strongly related to other European policies on social inclusion, for example, and is conceptualized as a “focus [...] on participation of all individuals and communities in all aspects of the information society” (ibid.). According to the European Commission, e-inclusion is the solution to the gaps in ICT usage, and moreover, will improve quality of life and social participation and thus will reduce social exclusion (ibid.). The Commission furthermore claims that e-Inclusion methods are an effective way of reaching vulnerable social groups such as senior citizens (Stegeman et al., 2012). A multitude of programs specifically designed for senior citizens therefore focus on creating opportunities to make them increasingly active online. It is also stated that these programs decrease dependency and increase responsibility, thus leading to living more active lives as people age.

The European Commission not only emphasizes e-inclusion and active ageing, but also promotes the use of living labs, open innovation ecosystems in real-life settings in which user-driven innovation is fully integrated in the co-creative process of new services, products and societal infrastructures. In line with the aims of these concepts and the efforts of the gerontechnology domain, social innovation refers to “innovative activities and services that are motivated by the goal of meeting a social need and that are predominantly developed and diffused through organisations whose primary purposes are social” (Mulgan, et al., 2007). Social innovations are particularly effective in fields where problems are not yet properly addressed including issues related to demographic changes. The concept is closely linked to user innovation which aims to generate innovation by using knowledge and experiences of individual end-users and other stakeholders, rather than by the researchers or employees of an organization.

Where in 1998 the gerontotechnological researchers and developers still are encouraged to include social innovation in their practices (Plooij-van Gorsel, 1998), one can see now that it is more common to engage senior citizens in research and design processes (Göllner et al., 2010; Naganuma, 2012), and to involve senior users in innovation processes (Peine et al. 2012; Leikas, 2007). The shift in the role of the end-user, from passive to active participant, has been one of the most significant changes in how organizations approach the interests and needs of their customers or members. According to Stegeman et al. (2012), “projects and programs show the best results when older people are involved in the project design and implementation […], when older people contribute to the project as networkers […] and when the action responds to older people’s feedback”.

The application of participatory creation gives senior citizens the ability to actually participate, as untrained designers and especially as users, in the designing process of new services and products, together with other relevant stakeholders such as designers and developers (Sanders and Stappers, 2008). Therefore, co-design can be used to gain insight in specific user needs and requirements. Also, these insights concerning elderly people’s preferences can be directly taken into account and influence key decisions during the designing process (Steen, Manschot and De Koning, 2011).

Open and social innovation in gerontechnological development seems to be a hallmark feature to grasp the potential of the silver market. It does not only increase the understanding of the perceptions of gerontechnology and the acceptance of new technologies as we grow old, but it also systematically and sustainably maintains, advances and taps the rich knowledge and experience base of senior citizens.

3. Open innovation, hospitality and elderly care
In our research we looked into the acceptance of co-creation and other participatory open and social innovation methods among senior citizens in the field of elderly care and how this influenced hospitality towards the care provider.

The concept of hospitality is often associated with tourism and ‘horeca’ (Lashley, 2007). However, care providers are more and more striving to create a positive experience of hospitality towards their clients (or patients) too (King, 1995; Severt et al., 2008). Bolier (1996) designed a hospitality model that elaborates the connection between hospitality, innovation and health care (as cited in Hokkeling & de la Mar, 2012). This model (see Figure 1) describes the service provider, entailing the product, behavior and the environment (PBE, see Figure 1), who creates an experience for the receiver. This receiver of the service (the guest or the client) has certain needs and goals (NG, see Figure 1), that create a certain expectation. If the service provider wants to meet the needs and goals of the service receiver, he needs to innovate on a regular base. When a service provider wants to apply technology in health care, the provider needs to meet the expectations of the service receiver. Since hospitality is defined as an interaction or exchange between host (provider) and guest (receiver) to create an experience (Bolier, 1996) a link to co-creation is easily made, where developers and researchers are interacting with their end-users to create a new product or service. Within this interaction or relationship the host understands how to satisfy the guest and make the guest satisfied, which will enhance the guest’s comfort and wellbeing and improve hospitality (King, 1995).

![Hospitality model](image)

**Figure 1: Hospitality model (Hokkeling & de la Mar, 2012)**

We studied how Proteion Home as a care provider integrates co-creation in their products and services to improve hospitality. For this holistic, in-depth investigation a case study was chosen as the methodology (Feagin, Orum, & Sjoberg, 1991). Within this case study, several participatory methods were applied, namely in-depth interviews and focus group conversations. Proteion Home is a personal service provider in the field of housing, welfare and care in the province of Limburg, the Netherlands. Proteion Home includes care centres, group homes and serviced apartments, a treatment centre, a centre of expertise for chronic organ failure (CIRO), Proteion Homecare, Proteion Clean and Proteion Welfare. As a care provider Proteion Home aims to provide personal attention to clients, residents, volunteers and staff and embraces its customer intimacy concept, which implies the relationship with the clients to learn about their needs and to fulfil them.
Several focus groups were organized to discuss the willingness of accepting and using e-health and other IT solutions — the products and services from the gerontechnological domain — when being provided by a care provider. Focus groups are a very suitable participatory research method to gain insight into attitudes, opinions and experiences through discussions on specific topics, led by a moderator. Furthermore, focus groups can lead to the generation of new creative ideas through the exchange of experiences between participants. In the context of user-driven innovation and development of new services, focus groups are in particular suitable to learn about specific needs and concerns. Focus groups have been introduced by Merton et al. in the 1950s (1956). They study people in an atmosphere more natural and relaxed than a one-to-one interview and this setting creates the possibility to explore unanticipated issues as they arise in the discussion (Marshall and Rossman, 1999). Focus groups are useful for introducing and discussing new technologies, since the group interaction is used to “produce data and insights that would be less accessible without the interaction found in a group” (Morgan, 1998).

Three target groups were selected and the conversations took place between senior citizens as end-users (14 participants, average age 70 years old, 3 male, 11 female), volunteering and informal carers (7 participants, average age 65 years old, 3 male, 4 female), and professional staff from care providers (7 participants, average age 48 years old, 1 male, 6 female). During the focus group conversations their relationship with care providers was discussed, as well as several gerontechnological developments, such as home monitoring, an telecare platform and care robots. It was interesting to see that both the informal and professional care givers were very willing of integrating both IT in general and the proposed products and services in particular.

On the other hand, some volunteers and most of the care clients were more reluctant towards these e-developments. Where the carers talked about the added value of integrating IT in their care practices, the care clients mostly were frightened by the possible lack of privacy, using unknown devices, having not enough technical competences and not being ensured of personal contact while being cared for. The clients indicated that technology “[…] creates a false sense of security” and “[…] is too complicated.” Moreover, one of the participants explained that “People want to be treated as humans, not as machines.”

Most of the informal care givers and volunteers however did see the added value of technology in health care:

“The application of new technology is something nobody is going to stop. It’s going to be an addition to the professional healthcare”.

“Technology can offer a feeling of safety. When you do not have the time to be around with your client, you still have a feeling of control as a result of technological monitoring.”

During in-depth interviews with Proteion’s telecare services project managers and program leaders, it became clear that their vision is to involve clients and end-users as much as possible. While setting up new digital services, such as the ‘virtual care home’ or the ‘care platform’ and other telecare devices, they always start with a research to both their clients’ and staff’s needs. When developing the services pilot tests are run in smaller communities such as a small village. Here, it is easier to understand the impact of a new technology in the care sector and all stakeholders, such as test users, informal carers, volunteers, general practitioners, care personnel, care institutions and the local community, can be monitored and observed more easily. The project managers and program leaders explained that this co-creative pilot test as part of the implementation of new technologies is an important step to create awareness among senior citizens who might want or have to use the products and services. The regular human impact assessment of new technologies may stimulate their adoption by senior clients. As one of the care professionals indicated:
“Technology is great, as long as everything works. Technology should support care professionals. It should have a supporting role and the technology should not increase problems or burdens. It is an aid and when it doesn’t work, it isn’t helping anymore.”

Both the care professionals as the informal carers and volunteers saw the possible problems of the implementation of health care technologies:

(Care professional) “It will take time before senior citizens get used to technology.”
(Informal care giver) “These technical solutions are new for senior citizens. They have to get used to it. But when these people finally are used to it, they will embrace the solutions technology has to offer.”

During our research, Proteion made use of two different kinds of telecare devices that offer communication technologies, such as webcam and IT devices that connect senior citizens living at home with the care provider. One of the devices is a monitoring system called ‘Quiet Care’ that has been installed in homes for elderly patients suffering from dementia in the early stages. Family members and care givers are able to follow the lifestyle and movement of the elderly person with a software programme. The device allows fast action if there has been any irregularity in movement or behaviour. This prevention makes end users, such as family members feel at ease and peaceful at a distance. Although one could assume that privacy would be an issue, the opposite was the case. Research results have shown that the greatest value is the peaceful mind and knowing that the parent in care is safe in their homes because of the transparency of the monitoring system (Krischer, 2013).

The other telecare device offered by Proteion Home is a telecare software system called ‘Care TV’. It offers senior citizens the possibility to live longer and independent in their own home while being in contact via webcam and television with a healthcare professional from Proteion Home at all times in addition to seniors’ usual fall detecting alarm. Proteion Home used the co-creation in the way that they adjusted features to users’ needs, for example offering users the possibility to call a care giver with ‘Care TV’ and connect with other users in their city in order to socialize and see each other via webcam. Research has indicated that users feel comfortable using the technology shortly after the implementation and had no concerns about privacy (Krischer, 2013). The overall aim of these two specific telecare systems used by Proteion Home, aims at supporting independent living in a homecare setting and preventing declining health with the monitoring technology.

For Proteion Home the introduction of ICT in care offers them the same five solutions as the five roles Kaakinen and Törmä (1999) described to gerontechnology. The introduction of ICT and other e-health care products and services are namely:

- Preventive: gerontechnology solutions aim at preventing weakening of health;
- Supporting strengths: gerontechnology develops methods and devices that help in reaching a wider benefit from ageing people’s strengths at work, in leisure time, in learning and social interaction;
- Compensating for weakening abilities: gerontechnology produces methods, devices and products that compensate for weakening senses or ability to move;
- Supporting care work: gerontechnology provides technology for care workers to support their work;
- Furthering research: gerontechnology helps ageing people indirectly by supporting scientific and clinical research, but also gives Proteion Home more insights in their clients’ needs and experiences.
(paraphrased, as cited and translated by Melkas, 2008)
Concluding, Proteon Home’s two specific telecare technologies contribute to all of these solutions. Furthermore, gerontechnology and the open and social innovation approach offers Proteon Home the possibility to interact and engage with clients and staff and set up a participatory method to create new care experiences, as is in line with their hospitality policy.

4. Discussion

Evidently, the far-reaching consequences regarding ageing population cannot go unnoticed. Active ageing policies continually present demographic challenges as one of the prominent issues our society is currently facing. They claim that older persons should increasingly engage in online activities. Moreover social innovation and co-creation are promoted by several policies. Since the ageing population is a different demographic target group, social and open innovation is recommended for developing new products and services. Gerontechnology already proved to be a perfect interdisciplinary domain for incorporating co-creation within its design and development processes.

Hence, co-creation in gerontechnology, will achieve more sustainability in health care. Hospitality experts in care will namely be able to profit thanks to more insights into the changing silver markets. Care institutions will have the necessary know-how to adapt their hospitality towards the silver market clients by involving elderly in their innovation processes. Elderly will profit from an enriched selection of well-tailored services, from facilitated access to digital media, and from enhanced social integration and participation in the information society.

More research is needed on gerontechnological business models and value chains that systematically and sustainably maintain, advance and tap hospitality, health care and the rich knowledge and experience base of the senior citizens. A more systematic approach in this field requires a sophisticated technological and organizational approach towards managing heterogeneous groups within the care community. This approach not only defines values for economy and society that can be produced and delivered to companies, the public sector, and social and cultural institutions by the community, it also opens up new revenue streams for care institutions to refinance their infrastructure, human resources, and services. Such approaches of hospitality are particularly suitable for products and services for senior citizens and the design and testing of gerontechnological solutions.

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