Defining Seniors' Value-based Objectives for ICT-supported Governmental Elderly Care Services: Preliminary Lessons from Poland and Sweden

Ella Kolkowska
Informatics, ella.kolkowska@oru.se

Ewa Soja
Cracow Univeristy of Economics, ewa.soja@uek.krakow.pl

Piotr Soja
Cracow University of Economics, eisoja@cyf-kr.edu.pl

Defining Seniors' Value-based Objectives for ICT-supported Governmental Elderly Care Services: Preliminary Lessons from Poland and Sweden

Emergent Research Forum (ERF)

Ella Kolkowska
Örebro University
Ella.Kolkowska@oru.se

Ewa Soja
Cracow University of Economics
Ewa.Soja@uek.krakow.pl

Piotr Soja
Cracow University of Economics
eisoja@cyf-kr.edu.pl

Abstract

ICT-supported governmental elderly care services are often introduced in an ad-hoc, technology-driven manner, which results in a low level of acceptance by seniors. The current paper aims to address this shortcoming by applying a Value-focused thinking (VFT) approach to investigate value-based objectives of older adults. The presented solution is based on the interviews with seniors (65-85) in Poland and Sweden, two countries with very diverse approaches to governmental elderly care services. The designed research approach includes the analysis of the data gathered following the VFT approach, comparison of findings across the two countries, definition of fundamental and means objectives of seniors, and formulation of recommendations regarding strategies for the implementation of governmental elderly care services. The preliminary findings suggest that using VFT is promising in the identification of value-based objectives that can be included in policies guiding ICT-supported elderly care services.

Keywords

Value-focused thinking, governmental elderly care service, Poland, Sweden, ICT

Introduction

The progressive ageing of the population, which is a typical phenomenon in developed countries, entails a number of challenges. In particular, it increases the government's need to provide elderly care services (European Commission 2017). The increased number of older adults in the population, not followed by the same growth of available resources put existing health and care systems in risk, which is a challenge experienced by governments in many European countries (European Commission 2021). Local governments that are usually responsible for providing elderly care services struggle to find new ways for delivering elderly care services with retained quality. The use of ICT and the evolution from a traditional to a digitalized model of services are often viewed as a solution for issues related to the ageing of the population and increasing healthcare expenses (Frennert 2019b).

The digitalization of care and healthcare services has taken place in different forms and degrees in most European countries (Rigby et al. 2013), reflecting the differences in care and health systems from one nation to another. In some countries (such as Sweden), the system is built on a model based on state responsibility with a strong emphasis on redistribution, social inclusion, and the universality of public services. In other countries (such as Poland), only some care needs are satisfied by the government, while families and private service organizations render other services (Klimczuk 2016).

Independently of the existing models, governments in all countries are pushing digitalization of health- and elderly care to be able to meet challenges related to the growing number of older adults in the

population and the lack of sufficient resources. Digitalization is mainly driven by governments and technology providers that allocate resources and put massive efforts to develop and implement ICT as part of elderly care (Scott and Mars 2013). Despite this efforts many of the initiatives fail because of narrow technology-driven focus, and ad-hoc approaches as well as inadequate policies and strategies (Greenhalgh et al. 2020)

To successfully introduce ICT solutions as part of existing care systems ICTs need to be seen as means to achieve higher goals such as enhancing quality, improving well-being, increasing safety and efficiency of care and not an end in itself, which is unfortunately often the case in today's data-driven efforts (Sheikh et al. 2021). Sheikh et al. (2021) argue that a successful transformation from a traditional to a digitalized model of services needs to be supported by a combination of well-designed bottom-up policies and top-down strategies. Bottom-up policies should aim to identify and address the main stakeholders' (seniors, staff, relatives) needs, while top-down strategies focus on implementing common approaches across the whole care system in the country/countries.

Seniors as a group are often excluded from decision making regarding ICT since they are considered as no familiar with the modern ICT solutions and do not use technology to the same extent as other generations (e.g. Soja 2017; Kolkowska et al. 2017). Their needs are often identified by asking other stakeholders such as relatives or care staff. As indicated by a scoping review by Nordin et al. (2021), future research should engage older adults and health professionals in developing technology based on their needs. Following this argument the current study seeks to answer the following research question:

RQ: *What value-based objectives are important for seniors in Poland and Sweden in the context of implementation of ICT-supported governmental elderly care services?*

The current study focuses on values held by seniors in Poland and Sweden, as these countries demonstrate significant differences with respect to various technology-related and socio-economic considerations (Soja et al. 2019) and we want to find out how seniors' values regarding ICT are similar independently on a country they live in. Poland and Sweden differ regarding the level of digital development and organization of the healthcare system (Soja et al. 2019).

Background

To face the consequences of an ageing population, EU experts indicate the necessity to develop tailor-made policy responses to ageing at national, regional and local level. They suggest that integration of care through close cooperation and information-sharing between professionals, patients and their carers (including informal carers) has the potential to contain the rising costs of health and social care and at the same time help older people to remain independent for longer and increase their well-being (European Commission 2021).

On the same note, WHO experts propose a multi- and inter-sectoral (a whole-of-government approach) analytical framework to support the development and implementation of national and subnational health policies, strategies and plans (WHO 2020). The authors argue that the key factor for a successful implementation of ageing strategies is a formulation of clear, common policy objectives for multi-/inter-sectoral action. They further argue that clearly identified mutual objectives have been shown to increase the commitment of all parties (stakeholders) involved (WHO 2020).

As mentioned earlier, implementation of ICT as part of government elderly care services is not clearly incorporated or defined in ageing policies. Although ICTs are often seen as a way of improving care services, most of the implementation projects fail especially when they are large, ambitious, and complex (Robbins et al. 2018). Greenhalgh et al. (2020) argue that the high failure rate may depend on the techno-centric focus in the projects leading to not considering competing values, goals, and stakeholder interests. Frennert (2019a) point out that core values of care might be lost in the process for digitalization due to the lack of organizational skills and knowledge in transforming the relationship of caregiving and care-receiving through the use of digital technology. Therefore, our study focuses on identification of value-based objectives which could be a starting point for policy formulation.

By applying the Value-Focused Thinking (VFT) approach, this paper addresses challenges related to the design of bottom-up policies that meet the main stakeholders' needs using ICTs as a mean to achieve important for these stakeholders' higher objectives. VFT was put forward by Keeney (1992) to improve

decision-making and creating policies in a specific context by grounding these policies in values identified in that context. This approach is different from traditional (problem-solving) approaches for policy formulation, where focus is on choices based on a solution's availability (existing solutions). In the VFT approach, decision makers are forced to identify 'what people really care about' and use this knowledge as a starting point for creating policies (Keeney 1992). In this way, the value-focused thinking approach helps decision makers to be proactive in decision making by creating value-based options instead of being limited to the available alternatives. According to this approach, the objectives included in policies should be based on key stakeholders' values (Keeney 1992; Gregory and Keeney 1994). In the context of developing and implementing ICT as part of governmental elderly care services, various key stakeholders can be identified: seniors, relatives, care staff, municipality officers, nurses, and doctors. VFT supports formulation of policies based on different stakeholders' values (Gregory and Keeney 1994) but in this study we focus only on seniors as one of the key stakeholders group in our decision context.

Research Method

The study is being conducted using the VFT approach (Keeney 1992), as described in Figure 1. In order to identify values, in the first step of the procedure, interviews with the concerned people are being held (at this research stage 15 interviews in Poland and 15 in Sweden). The interviewees are older adults (aged 65-85). In order to facilitate gathering of respondents' values, we follow the suggestion of Keeney (1992) and use such words as trade-offs, consequences, impacts, concerns, fair and balance, to trigger questions which would make implicit values more explicit. The first step of the analysis results in a list of statements that are numbered, written as values, and input into a database. This step was conducted separately in each country.

During the second step of the procedure, identified values are being stated in a common form in order to eliminate duplicates. Then, each value is being converted into an objective, following the VFT rule that each value is anchored in an objective (Gregory and Keeney 1994) and thus can be easily translated into that objective. The next activity is to analyze to identify those objectives that deal with similar considerations. As a result, all objectives dealing with similar issues are classified into categories and labeled. This step was first conducted in each country separately and then a cross-country analysis was conducted to identify value-based objectives that are common for both seniors in Poland and Sweden.

The third step is the classification of objectives into two groups: 'fundamental' and 'means' objectives. Fundamental objectives are essential objectives in a given decision context, while means objectives help to achieve the fundamental objectives (Keeney 1992). The classification process is being performed with the help of the WITI (Why Is That Important) test, during which each objective is examined by asking a question "Why is this objective important in the decision context?". If the answer is that a given objective has an impact on some other objectives, the objective in question is classified as a means objective; otherwise, it is categorized as a fundamental objective. This step was not presented in this paper and is planned in future research.

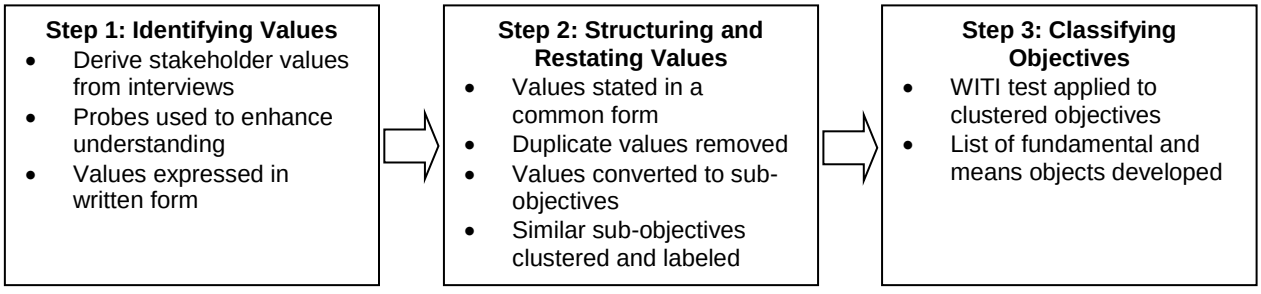

Figure 1. Research Approach (adapted from Keeney (1992))

Preliminary Results

Based on the preliminary analysis of the opinions for Polish and Swedish seniors, an inventory of 24 value-based objectives have been discerned. These are listed in the following ordered in decreasing level of frequency declared by interviewees:

- Enhance quality and accessibility of care service (fast access, availability of alternative services, competent personnel, efficient use of resources)
- Ensure ICT solutions' alignment with seniors' needs (easy to use, practical and personalized solutions)
- Enhance seniors' technical skills (sufficient knowledge, skills and confidence when using technology)
- Increase seniors' independence (be more self-reliant, be able to live independently and don't get lost)
- Ensure seniors' safety (create a sense of safety and security, e.g. to feel safe at home)
- Ensure ICT solutions' usefulness for family (e.g. reduce relatives' concerns and burden)
- Ensure ICT solutions' availability (offer solutions at an affordable price, subsidize solutions)
- Enhance quality of ICT solutions (develop tested and reliable technical solutions)
- Increase seniors' digital inclusion (involve seniors in the development and testing of new solutions)
- Minimize seniors' loneliness (prevent isolation and reduce feeling of loneliness by technology)
- Ensure ICT solutions' usefulness for carers (reduce carers' stress, provide information about the elderly)
- Develop adequate environment for technology use (create preconditions for digitalization, help seniors make informed decision about technology use)
- Ensure seniors' personal contact (ensure personal contact with people and enable social involvement)
- Improve communication with other people (e.g. create new possibilities for meeting with other people)
- Support seniors' daily activities (provide solutions supporting seniors in daily activities and entertainment)
- Ensure seniors' dignity (help not to feel as a burden, feel needed, be respected)
- Promote seniors' attitudes towards ICT solutions (e.g. help not to be afraid to use technology)
- Ensure seniors' privacy (be aware how solutions influence privacy, feel free at home, maintain privacy)
- Enable seniors' decision about technology use (seniors decide whether they want to use ICT solution)
- Increase seniors' health (solutions help seniors to be aware of and improve their health)
- Ensure sufficient support in using ICT solutions (provide user manuals and tools for support)
- Increase seniors' activity (help develop oneself at older age and be active)
- Increase seniors' social inclusion (prevent social exclusion, reduce fear of social isolation by ICT use)
- Foster country's development (new companies producing ICT solutions may emerge)

Discussion and Conclusion

In the VFT approach, value-based objectives can be divided into means and high level (fundamental) objectives. At this stage of research, we have not performed this classification; however, we can see that several identified objectives are more general, high-level objectives, such as Ensure seniors' safety, Minimize seniors' loneliness, and Increase seniors' independence. At the same time, there are objectives which are means to achieve the high-level objectives, such as Enhance seniors' technical skills, Improve communication with other people, and Support seniors' daily activities. Our preliminary objectives are based on 15 interviews in each country, in the future research we plan to stabilize the objectives' labeling and achieve data saturation by gathering new interviews. We also plan to incorporate the COVID-related considerations and perform the categorization into means and fundamental objectives. The final stage of the research process is to formulate a means-ends network of objectives which would capture the interrelations among the concepts/objectives and would help us in the formulation of best practices and implications for managers and policy makers.

Value-based objectives discovered during the analysis suggest the need for a coordinated action across sectors supporting health and well-being and improving coherence and sustainability between sectoral policies. For instance, the objective to increase seniors' digital inclusion can be supported by involving seniors in the development and testing of new solutions. Doing this we realize other objectives such as Ensure ICT solutions' alignment with seniors' needs and Increase seniors' independence, which contribute to seniors' empowerment and support development of the ICT sector, fostering country's development.

Our cross-country analysis indicated a number of similar objectives emphasized by Polish and Swedish seniors. In the future research we would like to investigate both similarities and differences across countries in order to formulate recommendations for policy makers. This should help in devising tailor-made policy responses to ageing at national, regional and local level. With this respect, our preliminary findings suggest that due to differences in health care systems organization and the level of digitalization,

Polish seniors expect ICT solutions to support their daily and health-related needs, while Swedish older adults would also like to use ICT for entertainment.

The application of the VFT approach to investigate values of older adults, presented in the current paper, can be helpful in devising bottom-up policies addressing the main stakeholders' needs. This approach should help policy makers to avoid a narrow technology-driven focus and support coordinated actions across sectors addressing challenges of an ageing society.

Acknowledgements

This work was funded by the Ministry of Science and Higher Education within "Regional Initiative of Excellence" Programme for 2019-2022. Project no.: 021/RID/2018/19. Total financing: 11897131,40 PLN.

REFERENCES

European Commission. 2021. *Green Paper on Ageing*, Brussels: European Commission.

European Commission. 2017. "The 2018 Ageing Report. Underlying Assumptions and Projection Methodologies," *European Economy Institutional Paper* (065).

Frennert, S. 2019a. "Hitting a moving target: digital transformation and welfare technology in Swedish municipal eldercare," *Disability and Rehabilitation: Assistive Technology* (16:1), pp. 103-111.

Frennert, S. 2019b. "Lost in digitalization? Municipality employment of welfare technologies," *Disability and Rehabilitation: Assistive Technology* (14:6), pp. 635-642.

Greenhalgh, T., Maylor, H., Shaw, S., Wherton, J., Papoutsi, C., Betton, V., Nelissen, N., Gremyr, A., Rushforth, A., Koshkouei, M., and Taylor, J. 2020. "The NASSS-CAT Tools for Understanding, Guiding, Monitoring, and Researching Technology Implementation Projects in Health and Social Care: Protocol for an Evaluation Study in Real-World Settings," *JMIR research protocols* (9:5), pp. 1-12.

Gregory, R., and Keeney, R.L. 1994. "Creating policy alternatives using stakeholder values," *Management Science* (40:8), pp. 1035–1048.

Keeney, R.L. 1992. *Value-Focused Thinking*, Cambridge, MA: Harvard University Press.

Klimczuk, A. 2016. "Comparative analysis of national and regional models of the silver economy in the European Union," *International Journal of Ageing and Later Life*, (10:2), pp. 31-59.

Kolkowska, E., Nöu, A.A., Sjölinder, M., and Scandurra, I. 2017. "To capture the diverse needs of welfare technology stakeholders–evaluation of a value matrix," in *International Conference on Human Aspects of IT for the Aged Population*. Springer, Cham, pp. 404-419.

Nordin, S., Sturge, J., Ayoub, M., Jones, A., McKee, K., Dahlberg, L., Meijering, L., and Elf, M. 2021. "The Role of Information and Communication Technology (ICT) for Older Adults' Decision-Making Related to Health, and Health and Social Care Services in Daily Life-A Scoping Review," *International Journal of Environmental Research and Public Health* (19:1), pp. 1-18.

Rigby, M., Koch, S., Keeling, D., Hill, P., Alonso, A., Maeckelberghe, E. 2013. *Developing a New Understanding of Enabling Health and Wellbeing in Europe: Harmonising Health and Social Care Delivery and Informatics Support to Ensure Holistic Care*, Strasbourg, France: European Science Foundation.

Robbins, T.D., Lim Choi Keung, S.N., and Arvanitis, T.N. 2018. "E-health for active ageing: A systematic review," *Maturitas* (114), pp. 34-40.

Scott, R.E., and Mars, M. 2013. "Principles and framework for eHealth strategy development," *Journal of Medical Internet Research*, 15(7), e155.

Sheikh, A. et al. 2021. "Health information technology and digital innovation for national learning health and care systems," *The Lancet Digital Health*, (3), pp. e383-e396.

Soja, E. 2017. "Information and Communication Technology in Active and Healthy Ageing: Exploring Risks from Multi-generation Perspective," *Information Systems Management* (34:4),pp. 320-332.

Soja, E., Soja, P., Kolkowska, E., and Kirikova, M. 2019. "Supporting Active and Healthy Ageing by ICT Solutions", in *SIGSAND/PLAIS 2019. LNBIP, vol. 359*, S. Wrycza and J. Maślankowski (eds.), pp. 48-61.

WHO. 2020. *Assessing governance for health and well-being: operationalizing whole-of-government approaches* (https://www.euro.who.int/__data/assets/pdf_file/0008/469133/Governance-for-health-and-well-being-technical-paper.pdf).