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Published online: 16 Aug 2023.

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A 5-day codesign sprint to improve housing decisions of older adults: lessons learned from Sweden and the Netherlands

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ABSTRACT

The use of codesign methods is becoming increasingly common practice to involve and engage research participants in health research. Through codesign, end-users and stakeholders can contribute their own perspectives and experiences to solve a common problem. This article describes how a 5-day codesign sprint can be used to find solutions to improve housing decisions of older adults. Based on case studies in Sweden and the Netherlands, we identified similarities, differences, and patterns across the two contexts. By sharing methodological experiences across projects, opportunities are created for other researchers to build on the method and to integrate a creative process into traditional health research methods. We conclude that a 5-day codesign sprint can effectively and efficiently engage older adults and people with dementia in creative housing decision solutions, and we provide recommendations for future codesign sprint projects.

Introduction

The present study describes how a 5-day codesign sprint process can engage various stakeholder groups, such as older adults and people with dementia, in finding solutions to improve housing decisions illustrated by reference to two case studies conducted in Sweden and the Netherlands. The process is part of a multiphase and transdisciplinary international research project established among researchers in Canada, Sweden and the Netherlands. The COORDINATEs (teChnology tO suppORt DecIsioNmaking about Aging aT homE) project aimed at developing technology to support ageing at home. Evidence on how to conduct a 5-day design sprint in research projects with different stakeholders is still limited, and to our knowledge, this method has not been used to develop prototypes of housing decision solutions for older adults.

Older adults tend to remain at home and in the community, even when they face poor health conditions and need care and support (World Health Organization, 2017). Housing design that meets the wide heterogeneity of older adults has attracted considerable attention in recent years (World Health Organization, 2023), and by creating demand for more choices, a greater range of housing options can be obtained (HCA, 2009). The quality of housing becomes increasingly important with age, and environmental features such as sufficient space, adequate light, sound and ventilation, and proximity to services and amenities can support older adults with changing physical and cognitive abilities and enable ageing in place (HCA, 2009; Mulliner et al., 2020). Although many older adults want to age in place, available information and support for planning

future housing is limited (Granbom et al., 2020). Additionally, there is a shortage of suitable and affordable housing in several countries (Wetzstein, 2017).

Given the prevalence of ageing in place policies, housing decisions in later life are more critical than ever. However, older adults are often excluded from active participation in the development and design of healthcare services and housing, despite being the target group for the developed solutions (Lindsay et al., 2012; Mannheim et al., 2019). This claim applies to decisions regarding housing and whether older adults can remain in their current homes (Garvelink et al., 2016). Housing decision-making is complex and involves balancing several factors (Roy et al., 2018), such as older adults' values, preferences, health status, and physical environment with the life situations of their relatives (Garvelink et al., 2016). Moreover, technology can support older adults' ability to remain in the home environment despite increasing levels of frail health (Christophorou et al., 2016) and can empower them to participate in daily life decisions (Nordin et al., 2021). Traditionally, professional planners and designers often develop age-related products and services as ready-made solutions to support older adults, who are typically passive users (Essén & Östlund, 2011; Merkel & Kucharski, 2019).

Codesign concepts and perspectives

Active engagement in knowledge generation is essential to ensure that research is effective and minimises the risk of research waste (Greenhalgh et al., 2016; Locock & Boaz, 2019). In this area, various concepts such as coproduction, cocreation, and codesign are often used synonymously. Coproduction is anchored in both the public sector and service management (Osborne et al., 2016) and can be defined as relationships between professional service providers and users, all of whom contribute significant resources (Bovaird, 2007). Cocreation has its roots in the business sector but has gained increased popularity in the public sector (Brandsen et al., 2018) and covers any kind of creative action where two or more people are involved (Sanders & Stappers, 2008). Different codesign concepts are framed by design thinking, a person-centred and user-driven development process to cocreate solutions based on user collaboration (Sanz et al., 2021). Codesign reflects a shift of perspective where the experiences and needs of the users are essential, rather than making assumptions about what might be beneficial to them (Donetto et al., 2015; Sanders & Stappers, 2008). Hence, it is critical to engage diverse groups such as people with lived experience, people who deliver a service or product and other stakeholders (Moll et al., 2020; Mulvale et al., 2019).

Recently, codesign has become more prevalent in health and social care to enhance the participation of older adults and people with cognitive disabilities (Masterson et al., 2022; Travers et al., 2022; Wang et al., 2019). This is a progressive step since such populations are often marginalised and excluded from research and societal development; therefore, it is essential to ensure that their voices are heard (Taylor et al., 2012; Walsh et al., 2017).

Codesign methods

Codesign methods vary in the frequency and intensity of involvement, from occasional user contributions to daily involvement, and from being consultative in nature to intensive collaboration and power-sharing throughout the process (Slattery et al., 2020). There are a number of design methods that can be tailored to the research question and the stakeholder group. One example is the research circle which involves multiple meetings or 'circles' where participants engage in a facilitated dialogue, sharing their experiences, knowledge, and insights to generate ideas and develop solutions (Härnsten, 1994). Through this method, there is an emphasis on building relationships and trust among participants by creating a supportive and inclusive environment for creative work over an extended period (Essén & Östlund, 2011; Härnsten, 1994; Östlund, 2008). Another method identified as the best practice for promoting user engagement is the 5-day design sprint. It originates from the technology industry to guide start-up companies in making decisions

Table 1. Overview of the two case studies.

Country	HMW statement	Codesign team	Participants	Setting/Date
Sweden	How might we optimise the housing decision process for older adults?	Facilitators Researchers Representatives of technology and business development	Older adults Healthcare professionals Technology and architectural professionals	Online/ February 2021
The Netherlands	How might we optimise the housing decision process for people living with dementia?	Facilitators Researchers	People with dementia Healthcare professionals Caregivers Community volunteers	In-person and online/ October – November 2021

without large time or financial costs (Knapp et al., 2016). The sprint involves a cross-functional team working intensively for five consecutive days to identify a problem, generate ideas, create a prototype, and test it with potential users (Jake-Schoffman & McVay, 2021; Knapp et al., 2016). It offers a promising way to engage stakeholders and develop innovative solutions to complex problems by applying a clear structure and tools to guide the team through each process step.

Although the research circle method and the 5-day sprint are similar in that they facilitate collaborative problem-solving and innovation, approach and time commitment differ. Research circles tend to be a more extended, participatory approach emphasising relationship-building and cocreation (Härnsten, 1994). In contrast, the sprint is a rapid prototyping method that prioritises speed and efficiency to quickly develop and test new ideas (Knapp et al., 2016). Our reason for focusing on a 5-day sprint is the lack of evidence about how this method can be applied in the context of older people housing and a lack of understanding of how different stakeholder groups can be involved in such a process. In light of the gaps in current research, the aim of this study is to demonstrate how a 5-day codesign sprint process can engage various stakeholder groups, such as older adults and people with dementia, in finding solutions to improve housing decisions.

The COORDINATEs codesign processes

To develop and test a prototype of a housing decision solution for older adults, teams from two countries used the 5-day codesign sprint. Both teams referred to 'How Might We (HMW) statements' during the codesign project (Table 1). With the help of such statements, the user can imagine factors that could achieve the goal in question and can be encouraged to think about situational factors that are conducive to change (Thompson & Schonthal, 2020). The interdisciplinary teams included Swedish researchers with expertise in healthcare and architecture, while the Dutch researchers had expertise in health geography and housing. However, these researchers did not have experience in design research; therefore, three researchers, including two researchers from Sweden (ME and SN) and one researcher from the Netherlands (JS), were trained by design thinking companies in codesign methodology and facilitation. Despite participating in formal codesign training, the researchers concluded that the training provided was limited (less than a full week of course material), therefore it was decided to hire experienced independent codesign companies to facilitate the design sprints in the countries.

The 5-day codesign sprint day by day

A 5-day design sprint was applied to stimulate ideas without having to create a complete product or service. We followed the traditional method described by Knapp et al. (2016) involving problem

Table 2. Overview of the 5-day sprint.

	Day 1 Map	Day 2 Sketch	Day 3 Decide	Day 4 Prototype	Day 5 Test
Sweden	Kick-off – information. Discovering user needs by reference to personas and other documents. Identification of the problem	Viewing the problem in a larger context Idea generation Considering ideas and possible solutions.	Gathering insights regarding needs and continuing to work with ideas and solutions in a more focused format	Designing and building prototypes of proposed solutions	Testing solutions with users in the target group. Summarising the week.
The Netherlands	Kick off – information Discovering user needs by reference to stakeholder interviews Identification of the problem	Benchmarking Idea generation Considering ideas and possible solutions	Gathering insights regarding needs and continuing to work with ideas and solutions in a more focused format	Designing and building prototypes of proposed solutions Testing solutions with stakeholders	Discussing points of relevance Identifying the next step Summarising the week

identification, idea generation, prototype creation and user tests in just five days. This approach made it possible to focus on each phase of the process. Although the 5-day codesign process was carried out in both countries, the target populations and engagement methods differed slightly (see Tables 1 and 2).

The case study in Sweden

Several months before the study, the researchers and representatives of technology and business development began planning the codesign process in collaboration with the codesign company, Compare (https://www.compare.se/). The company in question has previously worked on developing digital welfare services focusing on the older population.

Older adults were recruited from pensioner organisations, dementia associations, and the research team's network. Healthcare staff were recruited via managers of elderly care, and technology developers were recruited via contact with a local innovation company. In addition, recruitment was conducted via online advertising. There were no previous or ongoing relationships between the researchers and the study participants. Due to the pandemic, the design sprint was conducted entirely online, and before the sprint, participants could access instructions, documents, schedules, and links to virtual rooms.

During the sprint, the participants were divided into smaller working groups mixed in composition to include different stakeholders. All meetings were held via Zoom with breakout rooms for each group; these rooms were open all day. Each day, the participants received a 'package' containing information regarding the day's assignments, aids, knowledge materials, literature tips, links, and contact information. Participants were also offered digital tools such as Miro and PowerPoint to make the sprint easy and accessible. To trigger participants' commitment to the needs of older adults with poor health, fictional characters (personas) were created to represent the different types of potential users of the products and services. Facts pertaining to the older persons' housing situations, welfare technology, digitalisation, and health and care needs were also compiled in a document. To make it possible for some healthcare staff to participate, wages were paid for the week they were absent from work. No other participants received financial compensation. However, all participants received a diploma as a token of appreciation.

The case study in the Netherlands

Similar to the Swedish case study, several preparatory meetings were held with project researchers and a codesign company, Koos Service Design (koosservicedesign.com). Industrial design engineers mainly staffed this company; some had experience exploring healthcare topics and conducting codesign projects with people with dementia. The project researchers were responsible for project planning, recruitment, and providing information material, while the design team was responsible for facilitating the design sprint activities and compiling the results.

To establish the relevance of the HMW statement, a brief online stakeholder survey was conducted several months before the codesign sprint. Five stakeholders with experience providing dementia care answered the open-ended questions. They shared their experiences and challenges in making housing decisions with and for people with dementia. The survey and subsequent discussions identified many challenges in finding housing options for people diagnosed with dementia. For example, after being diagnosed with dementia, individuals and their caregivers often receive a printed list of accommodation options from their physician or specialist and are left to fend for themselves while navigating the complex housing system. The researchers associated with the COORDINATEs project summarised the survey results and shared them with the codesign team alongside publications and materials intended to provide a regional context for the problem that the codesign process would explore.

The first day of the design sprint was arranged in drop-in community services for people with dementia, a familiar environment for the older persons who participated. This setting allowed the ideas generated during the sprint to be developed in a context-specific environment. Additionally, stakeholders were recruited for the design sprint via contacts in the project researchers' network of experienced experts (people with dementia and their informal caregivers) and stakeholders familiar with dementia care. Similar to the Swedish study, there were no previous or ongoing relationships between the researchers and the participants. For the design sprint, the codesign staff were paid, and the older adults and stakeholders received a token of appreciation.

Data analysis

A qualitative inductive thematic analysis was used to identify patterns and themes within the data (Braun & Clarke, 2006). To cluster emerging themes, we started by reading through the notes from the 5-day sprint and exploring patterns or recurring ideas. Then we coded the data, assigning labels to segments that captured the essence of what was in the notes. Similar codes were grouped together as part of creating broader themes. This process involved the analysis of similarities and differences between codes and organising them into overarching themes that captured the main ideas in the data. Initially, the first author took the lead of the data analysis which was characterised by an iterative process that consistently moved back and forth between original data, codes and themes. Discussions were held among the researchers in the two teams and any discrepancies in the data analyses were investigated until consensus was reached. All researchers had previous experience with research in this field and with thematic analysis.

Ethical considerations

The ethical principles for medical research involving human subjects issued by the World Medical Association (WMA) Declaration of Helsinki were followed (World Medical Association, 2013). The Ethics Review Authority approved the study in Sweden (Dnr 2020–05324), and the Research Ethics Committee (REC) at the Faculty of Spatial Sciences, University of Groningen approved the study in the Netherlands.

Cross-reflections on the codesign process

Based on shared experiences conducting the codesign process, five categories of reflections were identified 'Fostering creativity, commitment and knowledge exchange'; 'Defining roles and responsibilities on the teams'; 'Level of engagement'; 'Relying on designers' expertise'; and 'Expectation management'. This process generated prototypes and these results will be shared in a future publication.

Fostering creativity, commitment, and knowledge exchange

In both countries, the codesign sprint fostered creativity, commitment, and knowledge exchange among the participants. The older adults and stakeholders succeeded in engaging in the process and producing creative prototypes for making housing decisions of older adults over a short period. The codesign approach helped capture diverse perspectives and opinions valuable for prototype development, and we identified this approach as a new way of engaging participants and working together.

The codesign facilitators played a beneficial role in guiding the groups in creating prototypes for making housing decisions of older adults creatively and efficiently. They created a positive and inclusive atmosphere, ensuring that all participants could make their voices heard both online and in face-to-face meetings. Participants of a variety of ages and levels of digital literacy reported positive experiences during the online design sprint and no participants dropped out of the design sprint. The transdisciplinary approach allowed researchers to gain practical experience with an interactive method that required different skills and mindsets than traditional research methods. For instance, some older people in the Swedish design sprint had little computer experience before participation but experienced the online design sprint positively. In both cases, the design sprint resulted in knowledge exchange among participants, which affected their confidence.

Defining roles and responsibilities on the team

The roles and responsibilities of the researchers, older adults, stakeholders, and design companies differed between the two teams. In the Swedish case, the roles and responsibilities were clarified at an early stage, and close collaborations took place among all persons both before and during the design sprint. The codesign facilitators emphasised the importance of understanding the research question and the target group, which was essential for creating the necessary conditions for a creative design process featuring different stakeholder groups. In the Netherlands, the Dutch researchers conducted the exploratory survey independently and the codesign company was involved at a later point, and the researchers identified the necessity of spending more time preparing the design sprint with the codesign company. Common to both countries' teams, however, was a shared understanding of the problem that underpinned the codesign process.

Level of engagement

There were differences between the two cases in terms of the participants' levels of engagement. In Sweden, the organising team supported the group's work and facilitated the group's engagement in the task throughout the week. By giving the participants one 'package' per day, they were not overwhelmed due to receiving all information simultaneously. Each group planned their day and developed schedules that suited the group members. People in the groups occasionally needed to leave the sessions for various reasons. For example, some older adults had relatives with dementia, and some of the professionals had work-related commitments during the week. At the end of each day, the organising team gathered all the groups to provide an opportunity for questions and reflections and to prepare for the next phase.

In the Netherlands, day one of the sprint was conducted in a familiar location for the participants that provided a safe, friendly environment to support participant engagement. Participants were given a one-page summary of the research project and contact information for the research team. After the design sprint week, the researchers organised a debriefing meeting with the stakeholders who participated in testing the prototypes on day four.

Relying on designers' expertise

In both cases, the value of relying on professional designers' expertise to facilitate the codesign process became apparent. The designers' continuous support and experience using different tools and exercises were essential to engage the group as well as a prerequisite for the sprint. During the sprint, situations arose in which the groups experienced frustration, and the design facilitator could then help the group progress. For instance, at the beginning of the Swedish sprint, the participants were eager to find solutions instead of exploring users' needs. Tools such as journey maps represent a way to focus on the task of understanding the users' needs in more depth. With the main challenge in focus, i.e. optimising housing decisions of older adults, journey mapping was a means to visualise and describe different steps that the user takes, their feelings and interactions along the way, and to identify situations where the user requires more support.

Expectation management

The sprint made the different expectations and interests of the stakeholder groups visible. The older adults expressed pride and satisfaction with the results and wanted their expertise and ideas to be developed and used further. Some participants also noted that they wished to patent their ideas if the prototype was to be further developed and commericalised. For researchers, the focus was instead on creating new knowledge. During the process, it became apparent that the researchers' role in codesign and their responsibility for developing products that were ready for the market was vague. In addition, the financial budget of the study did not allow further development and testing of the prototypes with a larger group of users. Questions such as the following were raised: where does research end, and where do innovations and solutions begin?

Discussion

The critical contribution of our research is the demonstrated benefits of using a short yet intensive design sprint over five days and highlighting the potential of involving older adults and persons with dementia in creative housing decision solutions. Health researchers continue to explore the use of codesign methods to gain insight into experiences and perceptions of research participants. These methods tend to be less time intensive and formal compared to traditional social science and humanities methods. The 5-day sprint method was originally designed to guide solutions through identify a problem, generate ideas, create a prototype, and test it with potential users (Knapp et al., 2016), and our study has shown that the method successfully engaged stakeholders in two countries to develop innovative solutions to housing decision-making.

The present study adds to the growing literature on applying the design sprint methodology to healthcare research (Salim et al., 2021). For instance, previous studies have used this method to develop a web-based diabetes dashboard (Martinez et al., 2018) and digital support for patient weight management (Jake-Schoffman & McVay, 2021). Our study demonstrated that even within a short timeframe, we could foster creativity, commitment and knowledge exchange among participants and develop prototypes for digital solutions to housing decision-making issues. The design process was structured to make each day productive, and it featured rapid progress in terms of the work and ideas generated by the multistakeholder groups. This is consistent with the literature, which suggests that short, focused codesign sprints can lead to effective project outcomes

(Mendonça de Sá Araújo et al., 2019). Although a longer-term research circle methodology has been applied to develop web-based housing counselling services for later life (Granbom et al., 2020), we found that the 5-day sprint can be a beneficial approach, especially when engaging older adults who may have health issues that make it difficult to commit to a longer process.

Some challenges also emerged during the sprint. For example, participants experienced frustration at the beginning of the week when they tried to generate solutions instead of examining user needs. This frustration may be related to participants' unfamiliarity with codesign as a way of working. The method requires one to be comfortable with the unknown, and discovery is a central part of the creative process. Participants must dare to trust the process without knowing the outcome (Davis, 2010; Kolko, 2013). We addressed such challenges in our case studies by using different tools that enabled the participants to keep their focus on the problem rather than on solutions. Journey maps, personas and visualisations are well-known tools used in codesign projects to help explore issues with different stakeholder groups and support creativity (Heiss & Kokshagina, 2021).

Our initial judgement that the research group did not have sufficient training in codesign methodology was proven correct, and the collaboration with professional designers was essential to ensure a successful codesign sprint. The codesign companies brought valuable expertise, but could not have conducted the design sprint without the researchers' problem formulation and subject matter expertise. This collaborative approach was a win-win situation, and it highlights the importance of researchers and codesign experts working together to achieve successful outcomes in codesign projects. This finding is confirmed by recent literature, highlighting that facilitators play a significant role in supporting participants in codesign projects (Lindblom et al., 2021; Trischler et al., 2019). However, it is rare for researchers in social and healthcare sciences to take a back seat and rely on others to take care of the process at hand. If researchers use codesign in their projects, they should be well versed in the methodology and acquire in-depth skills and experience working with the target group using codesign methods. This claim is in line with previous research highlighting the fact that the effectiveness of such an approach is highly dependent on the specific context and on the attitudes and skills of as well as the relationships between the users and researchers involved in the research process (Miller et al., 2017). Furthermore, collaboration between researchers and codesigners can be challenging because of difficulties about transcending the researchers' discourse. These difficulties may be related to the language, concepts, and norms necessary to understand the research problem, which require efforts to overcome differences among stakeholders with their own languages and cultures (Pirinen, 2016).

Our process generated prototypes, and some participants had expectations for further development of these products. However, it can be challenging for researchers to proceed with product development and testing. To address these challenges, it is recommended that researchers engage in entrepreneurship training to acquire the necessary skills to move prototypes towards commercialisation. Collaboration with industry partners can also be beneficial, as they may have the expertise and resources needed. Researchers should consider seeking out funding sources that account for the long-term maintenance and technical updates required after the grant period (Arigo et al., 2019). Additionally, more attention needs to be paid to the dissemination and implementation of codesigned products to ensure that they significantly impact public health.

Although the participants were proud of what they had achieved, it is debatable whether engaging adults in this process for such an intensive period and building such a level of rapport for one research activity is ethically justifiable. At the end of the sprint, participants asked questions concerning the next steps and whether the prototypes could be put to practical use. It has been noted that participants in cocreative processes develop an emotional bond with the result, a phenomenon known as ownership. Such ownership is evoked when the participants' input and contributions are expressed in the outcome (van Rijn & Stappers, 2008; Wang et al., 2006), i.e. in the prototypes associated with our study. Therefore, more emphasis should be placed on the task of thinking through the continuation of the project at an early stage. Additionally, concrete participant

expectations should be made clear at the beginning of the process (Pirinen, 2016). Mey and van Hoven (2019) raised similar challenges and highlighted the importance of considering different stages of the research process concerning empowerment, knowledge production and resource investment. To avoid conflict and disappointment for all involved, these authors suggested that researchers should continuously ask themselves what's in it for whom? Therefore, a citizen science approach could be more appropriate where participants assist in all stages of the scientific process, from problem choice, research design, and methodological approaches to the dissemination of results (Bonney et al., 2009).

Our codesign approach encouraged participants to test ideas and to reflect on what works in a safe environment. Therefore, it was essential to maintain a positive and inclusive atmosphere to allow participants to reflect jointly on issues and challenges related to the project. Previous studies have also emphasised the importance of creating a positive climate to produce solutions that respond to stakeholder needs (Lindblom et al., 2021; Pallesen et al., 2020). Again, the facilitators are essential in empowering the participants and supporting them when they express their views (Steen et al., 2011). Although it was valuable to offer opportunities for reflection within the groups, it would also be interesting to focus on reflections at the individual level in future projects. For instance, codesigning with people with dementia can offer space for individual reflection, such as improving their own lives and systems (Treadaway et al., 2019; Wang et al., 2019).

Previous studies on codesign have highlighted the risk of unequal power relationships among stakeholders and the challenges associated with ensuring that everyone is involved in the project and that all voices are heard (Lindblom et al., 2021; Ramos et al., 2020; Sumner et al., 2021). Although we did not notice any power imbalances, this issue may represent a hidden problem. Therefore, it is essential to understand such power relations, especially when the process involves people with poor health and cognitive impairments. Moll et al. (2020) have emphasised that codesign is fundamentally a relational process that involves ensuring that inequalities are not perpetuated. As researchers, we have great influence during the design process, and it is our responsibility to constantly reflect on issues of power and privilege.

The design sprint was intense and required time and effort from the participants. For older adults who may have such time, it can be tiring to participate in group work for an entire day due to health issues or caring for relatives. Previous studies have also highlighted the impacts of people's health conditions, needs and capabilities on their participation in codesign projects (Ramos et al., 2020; Sumner et al., 2021). In contrast, for some older adults, a codesign activity can be a valuable disruption to their daily routines. Thus, older persons cannot be viewed as a homogeneous group; rather, they exhibit significant variations in terms of their needs, abilities, and conditions. For people who work full-time, this process can instead entail other challenges, e.g. the need to set aside time for an entire week. Managers are not always willing to let their staff participate in codesign projects during working hours, and limited support from management is a significant barrier in this context (Ramos et al., 2020). Although there were differences between the two cases in terms of participants' levels of engagement, the sprint was characterised by flexibility and adaptation to the stakeholder needs to enable them to participate.

In our cases, we paid some of the professionals who participated. Recently, the fact that users' input must be valued more highly, and adequate compensation should be given to participants in codesign activities has been emphasised (Bragge, 2022). These claims are linked to the question of responsibility for the problem at hand, i.e. housing in later life. No one actor is responsible for this issue, and it is difficult for stakeholders and their organisations to take joint responsibility. We must share responsibility and involve citizens from the beginning regarding important issues in society. One way of accomplishing this goal could be to incorporate research participation into organisations where citizens are expected to contribute and be involved in projects. Such an approach can increase the chances of finding successful housing solutions of older people.

Although codesign research has become very popular and several companies have emerged in this context, it might be difficult for other disciplines to choose an appropriate entrepreneur or method. Additionally, as in our cases, hiring such a company can be costly, although

economic conditions differed between the two countries in question. In Sweden, the costs were lower due to a previously established public-private partnership, whereas in the Netherlands, a commercial fee was necessary. One way of solving the problem could be for codesign companies and researchers to seek funds jointly or to collaborate with an academic institution specialising in codesign education.

A final remark is that our findings reflect the contexts of the two cases, which limits transferability to other situations. However, a detailed description of the research process was provided to enable readers to assess whether our findings are transferable to other contexts or settings (Shenton, 2004).

Conclusion

In conclusion, these two case studies demonstrate that a 5-day codesign sprint can effectively and efficiently engage stakeholders including older adults and people with dementia in identifying creative solutions to problems. Where there is no one-size-fits-all approach to codesign sprints, it is essential to share knowledge across projects to build on integrating design methods into more traditional health research methods. Active participation in research has been adopted in several countries using a variety of approaches such as participatory research, coproduction, and codesign. However, it is debated how these methods relate to each other and what counts as meaningful engagement. To further advance codesign sprint projects, we recommend the following:

- Create a panel of citizen scientists who are familiar with the codesign sprint project to be engaged in future projects as they have developed skills and self-confidence using this method.
- Collaborate with academic institutions specialising in design education
- Invite codesign companies to participate in research projects from the project's beginning and serve as coapplicants for funding.
- Clarify the different roles of the persons involved in the process: Who is responsible for prototype development after the codesign sprint? Who is responsible for this work? Can we bring in technology companies from the start? If revenue is generated from the design, who benefits?

By implementing these recommendations, we can continue integrate codesign sprint projects into other disciplines and create more innovative solutions to real-world problems.

Acknowledgement

Disclosure statement

Funding

Notes on contributors

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