Dreams and Realities of Welfare Technologies

CHARLOTTE HÖGBERG

Department of Technology and Society, Lund University

IN REVIEW

The Imaginaries and Politics of Welfare Technology: Renegotiating Elder Care through Technology for an Ageing Population

PhD dissertation by Maria Arnelid
Linköping University, 2025.

PHD-NOTICE

In Nordic public discourse, the demographic shift of an ageing population and declining birth rates is a recurring figure, raising concerns about the future welfare economy, with fewer taxpayers and a sparse workforce to provide care for the older citizens. Technology is often portrayed as a saviour and a solution to this impending challenge. Such imaginaries play a central role in Maria Arnelid's dissertation, *The Imaginaries and Politics of Welfare Technology: Renegotiating Elder Care through Technology for an Aging Population*. Will technology save us when the demographic shift hits, when we do not have enough staff or resources to provide care for the increasing number of elderly citizens? Arnelid's work explores these questions, honing in on the imaginaries, ideas, policy discussions and practices surrounding welfare technology—technological innovations designed to support welfare services and organizations. Specifically, Arnelid examines how these imaginaries envision technology as a means to improve, or at least sustain, the quality of elder care in the face of demographic pressures.

The aim of the dissertation is to show how sociotechnical and robotic imaginaries of welfare technology inform and relate to the decision-making practices of municipal care organizations and robotics research. It further explores how these imaginaries and associated decisions contribute to the renegotiation of ideals and practices surrounding care and care work. Theoretically, the study develops an analytical framework grounded in the concepts of sociotechnical imaginaries and care. By engaging with sociotechnical imaginaries and, more specifically, the lens of robotic imaginaries, Arnelid seeks to illuminate the visions of desirable and undesirable futures, as well as norms and values intersecting with technological development and innovation. That analytical lens is combined with a theoretical understanding of care and care work from Science and Technology Studies and feminist theories of fragmentation, (de)valuations and sociopolitical conditions of care practices.

Two complementary studies make up the empirical foundation of the dissertation, combining close collaboration in robotic development with interviews with key decision-makers. The first study involves in-depth, semi-structured interviews with Swedish municipal officials occupying various roles in the testing and implementation of technologies within elderly care services. Drawing on this material, Arnelid develops two analytical chapters. The first examines imaginaries of welfare technology as a solution to the challenges posed by an aging population. This analysis focuses primarily on two technologies: medicine dispensers and remote digital camera monitoring systems. The analysis shows a fragmentation of care, where some caring tasks are devalued, such as nightly visits, and ideas about care recipients' independence and technology as a way to avoid being interrupted by care staff. Here, rural and urban areas have different conditions and valuations, e.g. factors such as distance to and from home care visits. The second chapter deals with the projects of welfare technology. This shows the interviewees experiences and perspectives on political investments in technology, frequently in the form of initiating projects. Often, only few of these end up as useful implementations in care work. Still, they are represented as investments in the future promises of technology as a solution.

The second empirical study adopts an ethnographic approach to examine the development of a social robot designed as a conversational partner for elderly care. This study attends to the imaginaries and practices within the field of Human-Robot Interaction (HRI), encompassing research, robot development, and testing. The case focuses on the Furhat robot, which is a humanoid with a head and neck, used as a prototype to evaluate a conversational agent intended for deployment in elder care homes. The research was conducted through a collaborative approach, involving participation in study design, robot testing, and co-authorship of project publications. The findings are presented in two analytical chapters. The first focuses on the development phase and the imaginaries surrounding the conversational partner-robot. It examines what is considered essential for successful interaction, including the use of agile methods such

as the Scrum framework, iterative sprints, and the creation of personas representing user needs and preferences. These practices serve as mechanisms for incorporating implicit stakeholder perspectives into design processes, revealing imaginaries of smooth conversation and companionship as central aspirations. The second chapter analyses the testing of the Furhat robot in elder care homes through a 'Wizard-of-Oz methodology', which is a common approach in HRI research. In this setup, the robot's responses and movements are controlled by a human operator rather than functioning autonomously, enabling controlled experiments on human-robot interaction prior to full automation. While widely used, this method has been critiqued for its potentially deceptive nature, raising questions about authenticity and user expectations in early-stage testing.

The thesis identifies two dominant imaginaries for welfare technologies of elder care; First, a socio-technical imaginary as a solution to manage an ageing population, built on an undesirable future of an increase in the elderly demographic and a decrease in budgets and staff. This legitimizes technology as cost-saving and an opportunist economization of care, while also emphasizing the desirability of ideals of independent and remote care. Second, an imaginary of a robotic conversation partner, both driven by the crisis accounts of an ageing population and elder care in need of technical solutions, and, more emphatically, by scholarly curiosity about robots as companions to mend issues of loneliness and depression and the promise of smooth conversations, that is, robots as autonomous caregivers. An important contribution of this dissertation is the exploration of the tension between these imaginaries, with their different priorities, as well as between the visions of technology as welfare saviour and the reality in which these dreams of technology are largely yet to materialize. This is shown by projects that run to an end without lasting impacts, robots that do not live up to people's expectations and are still unable to operate on their own.

The dissertation engages with previous work on how technologies reconfigure practices (Suchman, 2007), such as by fragmentation of care into tasks that can be delegated to care and potentially also are seen as devalued. It advances the research on sociotechnical imaginaries and shows how they play out specifically in Nordic welfare states. In contrast to the more mundane medicine dispenser and remote monitoring of sleeping care recipients, the dissertation provides an important contribution to how 'robotic imaginaries' (Rhee, 2018) take form within the practice of robot development and testing. It offers a particular addition and expansion of the ideas and realities of robots as care givers, but maybe even more the work needed to care for robots (Lipp, 2023), specifically with regards to the promises of conversation robots as solving the problem of loneliness and as able to replace human attendance. Moreover, Arnelid attends to technological and research failure, in the caring act of not moving forward with further testing of the Furhat as conversation partner, when faced with the risk of frightening observation participants. This is a contrast to the often-portrayed inevitability of technology as the solution to care. Overall, Arnelid does a great job in showing the different kinds of work behind the sociotechnical imaginaries, both in terms of political decision-making, project investment, management and work, as well as the maintenance of robots and wizarding of robot testing.

The main strength of Arnelid's work is the connection between political visions, on national and municipal levels, the close encounter with technological development infused with imaginaries; the field of human-robot-interaction and the tensions between imaginaries of technologies as solutions to welfare problems and the realities of technological work and project-based investments. Arnelid eloquently bring the sociotechnical and robotic imaginaries and the politics of the imagined future of elder care together in the exploration of welfare technologies. Potentially, more attention could have been on how technology shapes new choreographies of care (Law, 2010). Whilst the fragmentation of care is very well discussed, what the delegations of care more precisely

entail in detailed tasks and in terms of hybridities of care, agencies and actions could have been teased out even more. In addition, how the imaginaries contribute to gendered aspects of robots and welfare technology for elder care. However, this implies areas where more research is needed. Overall, the dissertation is a timely, eloquent, and important contribution to the fields of feminist technoscience and Science and Technology Studies, bringing to the fore the particularities of welfare states elder care, its visions of technological solutions and the tensions within current materializations of welfare technologies.

LITERATURE

Law, John (2010). Care and killing : Tensions in Veterinary Practice. In A. Mol, I. Moser, & J. Pols (Eds.), *Care in practice : on tinkering in clinics, homes and farms* (pp. 57-72). Bielefeld: Transcript.

Lipp, Benjamin (2023) 'Caring for robots: How care comes to matter in human-machine interfacing', *Social Studies of Science*, 53(5), pp. 660–685. https://doi.org/10.1177/03063127221081446.

Rhee, Jennifer (2018) *The Robotic Imaginary: The Human and the Price of Dehumanized Labor*. Minnesota: University of Minnesota Press.

Suchman, Lucy (2007) *Human-Machine Reconfigurations: Plans and Situated Actions.* 2nd edn. Cambridge: Cambridge University Press.