

**Joint Center for Housing Studies
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Placing the Home in Context: Scale, Audience, Levels, Time, and Equity

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Abstract

How can digitalization help, or hinder, the wellbeing of older people who want to age in the community rather than in an institution? Responding to two papers—by Jennifer Molinsky, Samara Scheckler, Bailey Hu; and Carlos Martín—I point to five common themes: scale, audience, levels of automation, time, and equity. These issues demonstrate the complex landscape of digitalization, even when focusing on the home.

The Home in Context

How can new digital technologies help achieve larger social goals related to incorporating energy efficiency and supporting an aging population? How much additional help is the digitalization of information as opposed to other computerized technologies? The papers by Martín and Molinsky et al. grapple with these issues.

For the past few years, I've been working with an interdisciplinary group at Harvard examining what we call social technologies for global aging. In particular, I've been examining how technologies can help people as they age in place, with an emphasis on the area beyond the home: devices in neighborhood and city domains largely help mobility and safety for older people, but they can also address issues of social connectedness and physical and mental health. Such devices include pedestrian crossing signals, mobility and delivery robots, vehicle technologies, smart street furniture, outdoor audio enhancement, environmental monitors, smart canes, and digital outdoor gyms, among many others. Of course, it is not just a matter of devices: software apps, web sites, and networks also help connect older people to resources and each other.

So it was with great interest that I read these papers that focus on the scale of the home and the services it needs. They cover a lot of ground in terms of technologies, populations, and places, but I was struck by common themes and some larger questions related to five issues: scale, audience, levels of automation, time, and equity. These are important because the digital technology landscape is complex, and what is true of one part of it may not be true of another.

The Digital and Digitalized Landscape of the Home

Scale is perhaps the most straightforward of the common themes. These papers talk about technologies that operate at a variety of scales. These include the nested scales of the person, home, and neighborhood. However, there are also larger or more context-dependent scales of attention, such as that of the energy system or social service area. Technologies can also link scales—extending sociability beyond the home on one hand or invading privacy on the other.

This relates directly to **audience or purpose**: whom the technologies are for. The papers mention individuals, residents or users, building owners, caregivers, policy makers, and system operators. Many of the concerns Carlos Martín raises in his work on energy systems relate to conflicts between audiences. A resident might do well enough with a basic programmable thermostat, but

energy system operators and policy makers might want more centralized control to manage system loads.

I was also struck by the related issue of the **levels of automation and networking** in the devices and systems mentioned, even if they are all computerized in some way. Many digital or computerized devices do not necessarily provide information beyond the home. Some items just have local automation; for example, an old-style programmable thermostat that's only connected to the furnace, a sensor light, or an old-style remote-control television. This provides convenience to the user but not the benefits or costs of being part of a network. Others, like an emergency call button pendant linked to a specific call center, connect to a service provider. This extends information beyond the home, but only in specific situations when emergency help is needed. Still others are integrated with the internet, providing added levels of individual convenience on one hand and wider control and management for system operators on the other. As Martín points out with an example that compares a programmable thermostat with a smart or networked one, these don't necessarily add much in terms of energy efficiency. The point here is that there can be quite a bit of automation around the home, not all of which is networked, and networks that are in place may be quite limited in terms of the information they can provide.

This issue of levels of automation led me to reflect further on the issue of **time**. Buildings are in place a long time, and digital technologies roll out more quickly than new buildings do. In one home, there may be systems and devices from many periods—a programmable thermostat operating a furnace, interconnected alarm systems that do not communicate beyond the home, a smart speaker for operating lighting, a different smart speaker with video for calling a family member, a wireless and internet-connected solar hot water, a net-metered photovoltaics system connected to a different network, a pendant emergency call, and so on. Few homes will have all their systems upgraded to the newest technologies, and homes are full of old technologies. Some are only intended to be used for a short period of time. Monlinsky et al. provide the example of hospital-in-the-home, which is a relatively short-term upgrading to hospital levels of care and related technologies. This contrasts with the longer-term changes to the home for energy efficiency in Martín's paper. The built environment sticks around, and technologies change, raising a new version of the question, "what time is this place?"¹

The issue leads directly to concerns about **equity**, which is a major focus of both papers. They make it clear that one's economic situation matters, and some people miss out. Perhaps there could be

¹ Kevin Lynch, *What Time Is This Place?* (Cambridge: MIT Press, 1972).

some leapfrogging in terms of technologies for homes that have lagged. Certainly, the challenge of equity remains a core issue to address.

The physical home is the setting for many daily activities, the setting for many meaningful relationships and memories, and an important economic cost or asset over time. Issues of scale, audience, levels of automation, time, and equity provide some major dimensions of this landscape. The interplay of these issues represents one of the reasons the technological landscape is so complex, even when it just focuses on the home.

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