

A sociotechnical framework for the design of collaborative services

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This study was motivated by the lack of design knowledge in the area of systems design for collaborative services. It introduces a framework for developing service design goals and strategies to foster collaboration within a community, starting from an understanding of its collaboration network. Network analysis and an interview are used to understand collaboration, and a co-design workshop is used to generate design strategies to foster these relations. For validation, the framework is applied to a community enterprise in South Korea. This paper discusses: the meaning of a sociotechnical approach to collaborative service design; the challenges of co-creating sustainable solutions when empathy cannot be established with users; and the implication of the framework for service design in a sharing economy.

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Collaborative services are services that people jointly produce to fulfil their unmet needs by using peer-to-peer and collaborative relationships (Jegou & Manzini, 2008). When the social form created by these people is bound by a sense of community, it is called a collaborative community (Baek, Meroni, & Manzini, 2015). Some collaborative services that address social issues and produce relational goods such as trust, attention, and care are social innovations: they contribute to sustainability and resilience of society because they are known to reinforce social cohesion, thereby creating a positive impact on society (Manzini, 2007; Meroni & Sangiorgi, 2011). An example of a collaborative service is a community enterprise called Bibijeong Restaurant in South Korea. It was launched by three elderly women and a business consultant in 2009 with the aim of reinvigorating the local community and the economy it is embedded in. In a small village inhabited by an aging population, the traditional cuisine and the cooking know-how of the elderly people were identified as a valuable resource and a restaurant was started which now attracts 40 000 people per year. The restaurant is run by the community and re-invests its profit in community

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building. It has also created jobs for retired people, attracted new residents, especially young people in search of job opportunities, and inspired other initiatives such as a winery, cafe, theatre, and local farming (Park & Lee, 2013).

By definition, collaborative communities produce two essential outcomes: *collaborative services* that address their own problems and *collaboration networks* of engaged actors (Baek & Manzini, 2012). These outcomes are mutually dependent because collaboration networks are necessary to generate collaborative services and in turn the implementation of these services can further enrich the networks. This positive interdependency between collaborative services and collaboration networks is called the virtuous circle of a collaborative community (Figure 1) and leads to the proposition that a collaborative community is a sociotechnical system (Baek et al., 2015). According to sociotechnical systems studies, a human organisation is an integration of two heterogeneous but mutually supportive systems that can be manipulated to influence the performance of the organisation: a social system in which the members form relationships through activities, and a technical system where they perform a series of tasks related to specific goals. These systems are interdependent and their integration leads to higher productivity and wellbeing in the organisation (Trist, 1981). A collaborative community, too, comprises social and technical systems: the former being people and their collaboration networks, and the latter their transformation of resources in hand into social and operational values. The optimised integration of the two subsystems leads to higher productivity on the part of the collaborative community.

While existing service design literature focuses on the design of technical systems (e.g. design of service concepts, processes, and interfaces), the design of social systems (e.g. fostering social relationships in a direction relevant to the design goals through design interventions) has been relatively ignored. This is partly due to the view that human relations are known to be contingent and spontaneous in nature, and hence cannot be anticipated or designed (Cipolla, 2008; Fischer & Herrmann, 2011; Luhmann, 1995). Service encounters, which occur when people interact and exchange values, are hence the subject to be designed for (Meroni & Sangiorgi, 2011). This view, as Snelders, Garde-Perik, and Secomandi (2014) claim, is contrasted by a more deterministic one that considers services as a predefined process and service encounters in themselves as the subject to be planned and designed (for instance Shostack, 1977; Ramaswamy, 1996).

We posit that the social system can be analysed, designed for, and assessed with appropriate sociotechnical interventions. This position is further supported by several social network studies: sociotechnical interventions transform the social networks of a virtual community (Haythornthwaite, 2002), foster trust within a local community (Kavanaugh, 1999), and enhance social

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