

Interprofessional future workshops as a method towards anticipating a future flexible energy system

Abstract

Within the field of environmental communication, it is common to distinguish between top-down and bottom-up processes. Whereas top-down processes are seen as driven by powerful governmental or institutional bodies, bottom-up processes are associated with citizen driven efforts. This paper, however, departs from that dichotomy by focusing on *professionals* as drivers of change towards green transition, thereby taking what has been termed a *middle out approach* (Janda & Parag, 2013). The professionals of relevance for green transition are employed in both the public and private sector, for instance as energy consultants, communication managers, or craftsmen with expertise on energy saving. They often interact with other professionals, citizens and political players, and can be viewed as *intermediaries* between citizens and governments (Kivimaa & Martiskainen, 2018). The professionals have no legislative power and work within the framework of political decisions made by others. However, instead of viewing them as simply carrying out or implementing political decisions, they should be seen as having a more substantial influence on green energy transition process. This calls for development of new methods which can facilitate future innovative ideas based on current professional expertise as well as dialogical exchange across professional backgrounds.

This paper presents a method to make central professional actors within the district heating sector discuss future ideas on how to use residential buildings as flexibility generators in the system. The method is inspired by the *Future Workshop* approach suggested by Junk and Müllert (1987) and Lauttamäki (2014), but has been adjusted to address specific technical questions and participation from professionals rather than citizens. The method seeks to facilitate inter-professional sharing of experiences and perspectives, including discussions on potentials, challenges and visions for a future intermittent energy system. Key professional actors involved in the testing of the method were representatives from municipalities, utilities, housing associations, private companies, technology developers etc. While anticipation is nothing new to many of these actors in the form of technical modelling and simulation, the current use of future workshops offers a more holistic approach which allows the participants to co-articulate a diversity of anticipatory forms such as societal visions, business models, and technological arrangements. The key output is not primarily future scenarios for action, but rather an insight into the complexity of problem understandings related to these future scenarios.

This paper reports on three future workshops conducted at three different places in Denmark and include both method discussion and presentation of preliminary findings. The future workshops were structured in three different phases. In the first phase, the professionals were asked to individually brainstorm on key actors needed to realize an integration of buildings into a future intermittent energy system. The identified actors were then mapped out on concentric circles, to prioritize their im-

portance between high and low. The professionals were asked to attach small post-it notes to each of the actors about what they see as a central challenge for the specific actor in relation to the theme discussed. Phase two followed the same steps as phase one, but focused on the needs for technologies and infrastructures. Based on the mappings in phase one and two, the actors were asked in phase three to identify the most important challenges, as well as to create drawings of future ideal solutions to these challenges.

Choosing Future Workshops as a research method, we are interested in surfacing, identifying and visualizing the professionals' many different interests and perceptions of the challenge, and combine these into collective visions. To assist such work, we have made use of mapping techniques and visualization techniques inspired from practices of participatory innovation (Buur & Matthews, 2008; Buur & Larsen, 2010) and participatory design (Sanders & Stappers, 2008; Simonsen & Robertsen, 2013). Those fields have a long tradition for using artefacts as means to engage many different actors in future innovations. The concentric circles and actor cards serve as mediating artefacts between the professionals' different knowledge and perception, and are thus important for both representation of prior knowledge and learnings, as well as negotiation and construction of new meaning (Vygotsky, 1986; Cole & Engeström, 1993). In particular, mapping techniques prove valuable as a way to help participants simplify complex and abstract knowledge by putting it into spatial terms (Roos, 2006). In the workshops, the mapping allows the participants to see a broader representation of actors at the same time, as well as to move these around as a way to negotiate both their relations and importance. The insights gained from this does not just lie in the finalized mapping, but the collective mapping itself encourage participants to argue and justify different perspectives and priorities when an actor is placed. As such, the tangible materials are used to scaffold social interaction in the Future Workshops, as well as to provide common ground for communication between the professionals.

Based on findings from the three workshops, the paper will reflect on strengths, weaknesses and potentials of using the Future Workshop approach as a way to engage professionals in anticipating a future flexible energy system. Focus will be on the ways in which the specific Future Workshop as a communication format mediates the participants' identification and common prioritization of key actors and their agency in an intermittent energy systems. This includes the mediational role of the material design of the workshops and the interactional staging in successive phases.

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