Innovation landscape of the water sector

Infrastructure systems, such as water, energy, and transport, are the building blocks of our society. Beyond providing critical societal services, they also bring stability and predictability to society at large. However, at times when more fundamental change is required, this stability becomes problematic. Due to growing concerns with resource depletion, loss of biodiversity, and climate change, the conventional way of providing these services is being questioned. Instead, there is a growing demand for new and more innovative ways of providing these services (Markard et al., 2012; Köhler et al., 2019).

The water sector is a typical example of a mature and stable infrastructure sector. The physical water systems consist of assets such as treatment plants, pump stations, and thousands of kilometres of water pipes. The systems often go far back and have slowly expanded over the years, resulting in large and complex systems. The sector consists of a number of actors, where the water utilities have a central role as operators of the physical systems. Hence, the utilities have a strong impact on the development of the sector at large and are often seen as 'gate-keepers' to novelty to the sector (Lieberherr and Truffer, 2015; Smith et al., 2005). However, as shown by previous studies, many water utilities suffer from an 'innovation deficit' and are often stuck in old ways of working (Kiparsky et al., 2013; 2016). How is novelty introduced and diffused within the sector?

The purpose of this thesis is to investigate the innovation landscape of the Swedish water sector. As emphasised by previous studies, we may have to pay closer attention to network effects to understand how novelty is introduced within the sector (cf. Kiparsky et al., 2016; Lieberherr and Truffer, 2015). The study departs from the perspective of water utilities and is conducted in a Swedish context. The study will, among others, include interviews with representatives from the sector and an extensive literature review of the topic.

This master thesis is done as part of the research programme Mistra InfraMaint and allows the students to work closely with highly topical research. Mistra InfraMaint focuses on how opportunities provided by digitalisation can be used to improve the operation and maintenance of infrastructure systems. The programme studies how municipal processes and organisations can be developed to meet the large needs for infrastructure investments that the Swedish society is facing today. Mistra InfraMaint started in 2018 and consists of approximately 20 research projects. This master thesis is done in collaboration with project 2.1 *System logics and alignment of business models in smart maintenance of infrastructure*.

Practical information:

- Expected deliverables: Completed master thesis and presentation to the partners of Mistra InfraMaint.
- Compensation: The work is compensated when the thesis is finished.
- Application: Recruitment process is ongoing. For application, send an email to Amelie with a short description of your research interest within this topic.

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