

## Digital innovations in the public sector: The case of critical infrastructures

Digital innovations in the public sector are crucial to enhance the quality of services provided to citizens and ensure efficient yet resilient operations. However, public organizations often lack the necessary capabilities and incentives to implement innovations (Kiparsky et al, 2016).

The case of water utilities in Sweden is particularly interesting. All municipalities in Sweden are responsible for providing critical services, including clean water to end customers. The utilities operate as local natural monopolies, while their profit-seeking activities are heavily regulated. Since municipalities often have a scarce R&D budget, water utilities also commonly rely on external actors for driving innovation efforts (Siachou et al, 2021). Moreover, there is a considerable variation in organizational capabilities, resources and contextual conditions, e.g. based on the number of residents, geographical conditions, etc. Consequently, understanding (and, potentially, facilitating) the uptake of digital innovations requires the development of deep understanding of specific water utilities' organizational contexts.

Hence, the purpose of this master thesis is to understand barriers and enablers for implementing digital innovations in Swedish water utilities. The expected research strategy is an in-depth single case study, aiming to capture specific pre-requisites of a certain municipality (e.g., a typical or a particularly important case) as well as their implications. A comparative case study can also be considered. The applicable data collection methods include semi-structured interviews, document analysis, and, if applicable, observations.

This master thesis is done in collaboration with the project "2B Barriers and enabling factors for digitalization in the Swedish water sector". The project is a part of the research programme Mistra InfraMaint, focusing on how opportunities provided by digitalization can be used to improve the operation and maintenance of infrastructure systems in Sweden.

**How to apply:** Send an email to [maxim.miterev@indek.kth.se](mailto:maxim.miterev@indek.kth.se) with your CV and a short description of your research interest within this topic.

### What we offer:

- Engaged, active, and competent supervision because of the links to the ongoing research project.
  - Primary supervisor: Maxim Miterev, PhD, Assistant Professor in Industrial Management. [Google Scholar profile](#). Other experts can be consulted if needed
- Help with getting access to relevant organizations in Sweden for data collection and networking
- Help with subsequent publication of the results, in case we find joint interests

### What we expect:

- Expected deliverables: Completed master thesis and presentation to the partners of Mistra InfraMaint
- High quality empirical work (e.g., interviews) and an extensive literature review
- Transparency in data collection/joint access to the data, subject to agreement.

**References:**

Kiparsky, M., Thompson, B. H., Binz, C., Sedlak, D. L., Tummers, L., & Truffer, B. (2016). Barriers to innovation in urban wastewater utilities: attitudes of managers in California. *Environmental management*, 57, 1204-1216.

Siachou, E., Vrontis, D., & Trichina, E. (2021). Can traditional organizations be digitally transformed by themselves? The moderating role of absorptive capacity and strategic interdependence. *Journal of Business Research*, 124, 408-421.