Innovative Public Procurement (IPP)
Implications and potential for Zero-Emission Neighborhood (ZEN) projects

Hasan A. M. Hamdan, PhD Candidate (hasan.a.hamdan@ntnu.no)
Luitzen de Boer, Professor
Department of Industrial Economics and Technology Management (IØT), NTNU

ZEB+ conference, 7th November 2019
Background and problem statement

- Cities and urban areas, though 3% of the planet's surface, produce around 75% of carbon emissions (UNDP, 2018).

- The increasing trend towards using dialogue with suppliers in the public procurement process deserves attention in regards to the impact on sustainable neighbourhood projects and comparison to end-user engagement activities.

- This warrants exploring in greater depth the potential of innovative public procurement (IPP) in reducing complexity in sustainable neighbourhood (SN) and Zero-Emission Neighbourhood (ZEN) projects.

“How can we conceptualize the potential of innovative public procurement (IPP) and in particular pre-tender market dialogue, for mitigating the added project complexity in SN (and ZEN) projects?”
Key concepts and relevant literature

- A complex system can be defined as “a large number of parts that interact in a nonsimple way” (Simon, 1962).

- Complexity in SN projects are conceptualized in terms of 1) structural complexity and 2) uncertainty (Williams, 1999; Davies & Mackenzie, 2014).

- Public procurement is considered a powerful tool that potentially enables national and local authorities to achieve sustainable development goals while procuring necessary products and services.

- Dialogue-based procurement, as a branch of the IPP process, empowers public institutions to procure unconventionally in order to meet unmet needs (Edquist & Zabala, 2012; Obwegeser & Müller, 2018).

- The rationales to conduct a dialogue with suppliers during the pre-tender stage in public procurement as the following: needs mapping, improving requirements and specs, supply market access, market visibility, and market link creation (Alhola & Nissinen, 2018; Torvatn & De Boer, 2017; Pelkonen & Valovirta, 2015; Edquist & Zabala, 2012; Edler & Georghiou, 2007).
Methodology

- Literature review + illustrative case study:
  - Definition of project complexity and IPP
  - The case study was employed to further analyse the sources of complexity and assess the potential value of dialogue with suppliers.

- The case study, Ydalir project, is an ongoing pilot project in Norway, and part of The Research Centre on Zero-Emission Neighborhoods in Smart Cities (ZEN Centre). The project aims to establish a new neighborhood with high ambitions in regards to energy demand and emissions.

![Analytical framework diagram]

Figure 1. Analytical framework.
Discussion

- Upfront complexity increase for overall decrease?

Figure 2. The impact of pre-tender market dialogue on ZEN project complexity
Conclusions and future research

- We described four main sources of project complexity in ZEN projects: physical complexity, organizational complexity, internal uncertainty, and external uncertainty.
- Innovative public procurement (IPP) is shown to be an attractive governance tool that could potentially manage some of the project complexity in ZEN projects.
- Future research should explore in-depth case studies of IPP with dialogue practices, in order to measure the impact on complexity.
- We encourage practitioners and scholars to address the issue of complexity in the context of SN as it may assist in uncovering new challenges.