

Agent-based models for acceptable smart systems

The city of The Hague has set out the ambition to become climate neutral in 2030. Within the city's Smart City program, an area within Scheveningen has been dedicated to serve as a living lab for digital innovations that solve complex societal problems. Together with local stakeholders, a number of use cases on the nexus of energy transition and digitization/smart city have been defined, such as smart charging, local microgrids, and public energy points.

A difficulty with the deployment of smart systems are the serious ethical concerns related to their use, for example related to privacy, security and reliability. As a result, their deployment and success are not secured. A 'navigation strategy' is currently being developed by the city, which includes a component on how to determine the impact of such systems on values. This 'navigation strategy' will be used as a leading document to set up the municipality's Smart Energy Program.

Agent-based modelling, combined with the scenario discovery technique, can be used to evaluate the impact of different systems on values. A model already exists and has been used for a case of city district heating in another district in The Hague. This model could be adapted and applied to cases of digitization in Scheveningen.

We are looking for Master students who want to conduct a Master Thesis research using agent-based models and are interested in addressing this challenge. Project outputs consists of policy recommendations on how to better enhance societal values in the different cases for the area of Scheveningen, as well as propositions on how the approach could be used on a systematic basis. The master thesis project will be performed in close collaboration with project partners of the living lab. A financial compensation for this internship is provided by the city. The student will also be part of the TPM Energy Transition Lab Master Thesis Circle.

For more information about the project and discuss master thesis opportunities, please contact Tristan de Wildt (T.E.deWildt@tudelft.nl) and/or Emile Chappin (E.J.L.Chappin@tudelft.nl).

Start Date: End 2020 – Begin 2021

Location: TPM or municipal offices of The Hague

Requirements: Having a background in and affinity with agent-based modelling is required for this project.

Theme: Agent-based modelling, Moral values

Program: COSEM, EPA, SET

Methods: Agent-based modelling, Exploratory Modelling and Analysis

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