The unfolding, assemblage, and governance mechanisms of sustainable smart city transitions

Summary

The Academy of Architecture and Urban Studies at Tallinn University of Technology (TalTech) invites applicants for a 4-year PhD position in the field of Urban Innovation and Smart City Development. The PhD candidate is expected to apply qualitative research methods to develop new insights into the unfolding, assemblage, and governance mechanisms of sustainable smart city transitions. This PhD position is full-time and fully funded. Funding for this PhD Project is provided by the Horizon 2020 European project FinEst Twins (Funded under: H2020-EU.4a, Overall value: €32 million, Duration: 2019-2026). The PhD position is part of this prestigious European project, which aims at establishing a new multidisciplinary Smart City Center of Excellence in Estonia and is the result of a joint venture between Tallinn University of Technology (Estonia), Aalto University (Finland), and Forum Virium Helsinki (Finland). Hosted at TalTech, the Smart City Center of Excellence will boost smart city research and translate scientific results into real-life innovations, by supporting the design, experimentation, and scale up of user-driven smart city solutions to urban challenges. In order to achieve this aim, the Center will mobilize all leading smart city actors and stakeholders in Estonia and facilitate the establishment of innovation partnerships with the counterparts from the Helsinki region, in an effort to capitalize on the scientific research, innovation and entrepreneurship potential of the Finnish-Estonian macro region. The Center will also establish solid collaborations with existing world-leading smart city centers. The four-year PhD position at TalTech will make it possible to conduct research under the supervision of experienced professors and researchers working in the field of smart city transitions. The proposed project is highly international, and the successful candidate will have the possibility to engage with a broad network of leading universities and research centers which are already collaborating with the supervisory team. These collaborations include representatives of Massachusetts Institute of Technology, University College London, City University of Hong Kong, The University of Edinburgh and Erasmus University Rotterdam, just to name a few.

Research field:	Building and Civil Engineering and Architecture
Supervisor:	Luca Mora
Availability:	This position is available.
Offered by:	School of Engineering Department of Civil Engineering and Architecture
Application deadline:	Applications are accepted between May 03, 2021 00:00 and May 31, 2021 23:59 (Europe/Zurich)

Description

Smart city development exposes the coevolutionary nature of technology and society, as well as the systemic character of innovation. Bringing new technologies into society is not sufficient to improve urban sustainability. For this goal to be achieved, a sociotechnical transition path must be created through complementary actions, whose cumulative effects make it possible to replace a stabilized technological trajectory with a new configuration that works. During this transformation process, that we call *smart city transition*, the sociotechnical systems of an urban environment are subject to multi-dimensional changes which enable the introduction of smart city technologies into the built environment. These changes set in motion a dynamic learning environment, on-site experimentation with sociotechnical innovations for smart cities, institutional reconfiguration processes, and other complementary changes which support the wider adoption of smart city technologies and make it possible to solve issues of technical and social adaptation.

A few academic studies have attempted to offer an overall understanding of smart city transitions and their development process, but their overall theoretical and practical contribution demonstrates that research in this knowledge area remains at a preliminary stage. First, existing conceptualization processes tend to build on little or no empirical evidence, and they tend to rely upon an excessive level of abstraction, which does not align with real life conditions. Second, the proposed theorizing fails to offer a systemic view of smart city transitions and struggle to recognize that urban transformations should be treated as problems of organized complexity, because they push urban sociotechnical systems toward a new state. As a result, not all the change dimensions that sociotechnical transitions involve

and not all the necessary levels of analysis are taken into proper account, as well as the pivotal role played by both exogenous and endogenous factors. In addition, causal agency and mechanisms are not theorized. Third, the theoretical assumptions underpinning the frameworks currently available tend to neglect widely accepted theoretical assertions incorporated in broader academic debates related to system innovation and transition management.

To help overcome this critical knowledge gap, the PhD Project will investigate the unfolding, assemblage, and governance mechanisms of sustainable smart city transitions and the sociotechnical developments which characterize this complex transformation process. By connecting theorizing in smart city research, transition management and system innovation studies, human geography, spatial planning, and critical urban scholarship, this PhD Project will help develop an evidence-based interpretation of how smart city transitions should be conceptualized and enacted and what patterns, regularities (or differences) and stylized mechanisms surface when comparing smart city transition practices around the world.

Examples of relevant questions that the proposed PhD Project could focus attention on are reported below. However, the list is far from being exhaustive and can be freely expanded:

- What key performance indicators should be assembled to evaluate smart city transitions and the approach to urban sustainability that these digital transformations promote?
- What metrics should be used to assess any sociotechnical development and the attributes they seek to cultivate in sustaining urban sustainability?
- What are the cultural, financial, and institutional barriers to smart city transitions and what should be done in order to overcome the limitations they generate?
- What business models should be adopted to build a platform of ICT solutions for urban sustainability that is inclusive, safe and resilient?
- What are the activities and phases to be considered when designing and implementing strategies for enabling smart city transitions?
- How can privacy concerns and controversy arising from the development of smart city transitions be detected and managed?
- What are the dynamics of the governance systems regulating the development of smart city transitions as ecosystems of digital innovations for urban sustainability and wealth creation?

Responsibilities and tasks

The PhD candidate shall produce new insights into the unfolding, assemblage, and governance mechanisms of sustainable smart city transitions by adopting a qualitative research design. Examples of data collection and processing techniques that could be considered in the framework of the study include, but are not limited to, interviews, surveys, focus groups, participant observation, computer-based content analysis techniques for thematic coding and clustering. The research activity shall be theoretically grounded. The PhD candidate shall be responsible for identifying and connecting the relevant theoretical backgrounds and for ensuring that satisfying theoretical and practical contributions are produced through the research process. In addition, the PhD candidate shall be responsible for selecting the most appropriate tools and methods for conducting the research activity and detailing the design of the research project. The PhD candidate is also expected to disseminate the results of his/her research activity by producing journal articles and through the participation to research seminars, conferences, and lectures.

Requirements

The applicants are required to fulfil the following requirements:

- A university degree (M.Sc.) in disciplines related to urban studies and/or architecture. Given the interdisciplinarity of the proposed project, consideration will also be given to applicants whose degrees are related to anthropology, business and management, development studies, economics, human geography, international relations, psychology, public administration, and sociology. We strongly encourage applications from candidates familiar with the above-mentioned qualitative research methods and techniques. Previous experience in the use of qualitative data analysis software (such as Atlas.ti, Leximancer, QDA Miner or others) would be appreciated. Prior contributions or interests related to smart city research and experience in mixed methods are not fundamental requirements, but they would be appreciated.

- Proven ability to carry out independent research and to work as a part of a broader team. In addition, the PhD candidate is required to have a strong interest in the presentation and publication of scientific results in high-quality scholarly journals.
- Good command of the English language (speaking and writing).

The successful PhD candidate is expected to work full time for a duration of 4 years as a part of the Academy of Architecture and Urban Studies.

The PhD candidate is also required to fulfil the requirements of Tallinn University of Technology PhD Program. Additional funds will be provided for research trainings, conferences and international mobility.

To get more information or to apply online, visit https://taltech.glowbase.com/positions/211 or scan the the code on the left with your smartphone.