



Senseable Stockholm Lab.

Senseable Stockholm Lab - Kista Initiative

Call for proposals July 2022

Background

The Kista area in the north of Stockholm was planned in 1965 and developed as the final addition to the larger Järva area between 1975 and 1980. The business area on the one side of the subway line has a traditional focus on ICT and is the home of several corporate headquarters, regional and national offices of large corporations, such as Ericsson and IBM, and hosts two leading universities as well as several research institutes. Today, Kista is on the verge of beginning a journey of development, moving from an ICT cluster to an integrated innovation district with a stronger focus on impact and a tech innovation system, at the forefront of developing new sustainable solutions. Kista is also a fast-growing urban area with several major development projects, making the former business area a more mixed urban environment. The addition of new workplaces, retail and around 8000 new housing units to the existing urban fabric makes Kista one of the largest city development projects in the Nordic countries, with investments worth approximately 20 billion SEK.

The Senseable Stockholm Lab and the Kista initiative

The Senseable Stockholm Lab (SSL), inaugurated in March 2019, is a collaboration between KTH, MIT, the City of Stockholm and the Stockholm Chamber of Commerce with further financial support from Newsec AB. The vision of Senseable Stockholm Lab is to perform challenge-driven research and to develop new knowledge, methods and tools that increase the understanding of the natural and built environment of cities, in order to create a sustainable urban experience that helps and enables people, institutions, nature and infrastructure to interact and connect.

The three thematic areas for research that have been identified to meet the aims described above are:

- Sensing the city – sensing data related to the city's environment
- Intelligent city resilience, security and privacy – sensing social interactions via data exchange
- Governance with AI and Big Data

In the SSL-Kista Initiative, the Senseable Stockholm Lab joins forces with Kista Science City with the aim to start a new era of research and education on digitalization and sustainable urban solutions in Kista; combining the cutting-edge research on cities, IoT and AI of the Senseable Stockholm Lab with the deep knowledge of the world-leading companies in the Kista ecosystem.

The SSL-Kista Initiative is twofold:

- The SSL will focus selected, current and future SSL projects, on Kista, using the area as a testbed and specifically developing use cases focused on Kista.
- The SSL will create a digital testbed, a joint data repository, making urban data available for research, education and business development.

The process for the application is described below.

Scope

In focus for this call is the following challenge:

How to produce a geographical GHG budget tool as a decision support system to visualize different actions to reach the City of Stockholm's climate goals. The tool shall provide new ways to increase accuracy and calculate the most relevant GHG emissions from activities in the Kista area including emissions from private consumption and urban development.

Description: The overall target for the City of Stockholm is to become fossil fuel free and climate positive in 2040. Recently the city of Stockholm was selected as one of 100 Climate-neutral and Smart Cities by 2030 in Europe by the European Commission and Kista is one of the pilot areas for this transition. Currently CO₂ emissions in Stockholm are calculated according to the Paris agreement and the GHG protocol (scope 1 and 2, and to some extent 3). In addition, the city has set a goal to reduce the consumption-based emissions from the city's own operations with a focus on construction, food and air travel. In 2022, the Swedish government has set a goal for the total consumption based emissions, and this goal is important to consider also on a city level. Today emissions from construction and private consumption is not visible in the climate budget and most of the CO₂ emissions estimations are done by macro-sectors (e.g. buildings, mobility and industry) and predictions are done with models that use average data.

To get a holistic view of the total relevant emissions in an area there is a need also to incorporate emissions from private consumptions as well as emissions emitted in the city development processes (i.e. LCA, Life Cycle Assessments). In order to support policy decisions towards decarbonization, paving the way for Kista as a PED (Positive Energy District), we are looking for new techniques that produce higher level of granularity in understanding on how much CO₂ is emitted by actions within the Kista area. This could be done in real time, and with high citizen engagement. Possible solutions for reduction such as potentials for local energy production, storage and distribution and circular investments should also be addressed to prioritize actions and facilitate the transition to a climate positive future.

How to apply

All Senseable Stockholm Lab project are collaboratively conducted by a team of researchers from both KTH and MIT. At least one PI¹ is required from each side, and the lead PI from MIT must be from MIT Senseable City Lab. Active involvement/participation from the City of Stockholm is also a requirement.

¹ The following positions/titles/roles are eligible as KTH lead PIs in the proposal: Assistant Professor, Associate Professor, Full Professor, Permanent full-time Researcher ("tillsvidareanställning"). All with a PhD degree and 80% employment or more at KTH.

Requests for information and collaborations can be addressed to the following contact points: for MIT Umberto Fugiglando umbertof@mit.edu, for the City of Stockholm Lukas Ljungqvist lukas.ljungqvist@stockholm.se and for KTH Anne Håkansson annehak@kth.se

There is a two-step process for applying to this call for proposal: executive summary submission, and full proposal submission.

1. Executive summary

Prepare an Executive summary, maximum 2 pages, covering:

- a) Project scope (what you aim to achieve, why and how),
- b) Total budget estimation (the maximum funding from SSL is 3 million SEK per project; the budget should be split between KTH and MIT, not necessarily in equal parts),
- c) Estimated length of the project (maximum 1 year, option to renew/extend with new budget application),
- d) Suggested partnerships with other researchers, companies or organizations (if applicable),
- e) How the project addresses one of the challenges described by the City of Stockholm, including a paragraph describing
 - i. How the methods and results in the project proposal are relevant to combat the challenges in urban development,
 - ii. How the methods and results can aid in improving urban planning and development methods and how the results can be implemented,
 - iii. How the project methods and results can lead to more knowledge-based decision-making in the strategic urban planning process,
 - iv. How tools, models, algorithms etc. produced in the project can be used during and after the project period,
 - v. How new research-based knowledge will contribute to the city and its inhabitants and how long-term implementation of project methods and results in the city of Stockholm organization will be made possible.
- f) Names and short resumes of the PIs (resume do not contribute to the 2-page length limit).

Send the Executive summary in PDF to senseablestockholmlab@kth.se by the deadline reported below.

While it is advisable that the executive summary includes a team with PIs from both MIT and KTH, applications with PIs from only one university will be reviewed anyway, provided that they are willing to extend the team to PIs of the second university in the Full proposal preparation (see below).

2. Full proposal

Executive summaries will be reviewed and evaluated by the SSL coordination group and presented to the SSL Steering Committee. Selected executive summaries will be invited to submit Full proposals, detailing the project in a template that will be provided. The SSL coordination group will help the selected teams to scope the proposal, and will get the teams in touch with City of Stockholm officials for discussing the project in order to involve the City in the project definition. The SSL coordination group reserves the right to advice teams from different Executive summaries to join forces in a joint Full proposal, or to modify their project scope.

Submitted Full proposals will be reviewed by the Steering Committee for final approval.

Important dates

- **Submission deadline for Executive summary:** September 20th 2022
- **Notification of evaluation of Executive summary:** October 5th 2022
- **Full proposal deadline:** November 5th 2022
- **Expected start of projects:** November 15th 2022