KTH LIVE-IN LAB
RESEARCH & DEVELOPMENT

BACKGROUND

Sweden's population is growing, and as a result, plenty more buildings need to be built. But the question is - how do we make sure that these buildings are constructed in a smart and sustainable way? How do we convince decision-makers at every level – from politicians and officials, to project-developers and entrepreneurs – to invest in new resource-efficient technology, rather than options that will lead to a waste of resources?

In order to enable this change, and to fulfil the environmental and energy goals, it is crucial for us to demonstrate - that new technology actually works! And that installing it is economically viable. In order to do that, we need to test the technology within current systems - with real users in real buildings. New technology is already being tested in ordinary buildings, but the testing process can take between 10 and 25 years to complete, depending on how often the buildings are renovated. It's now essential to increase the test frequency, standardise the way testing is carried out, and facilitate cooperation between different parties.

THE SOLUTION:

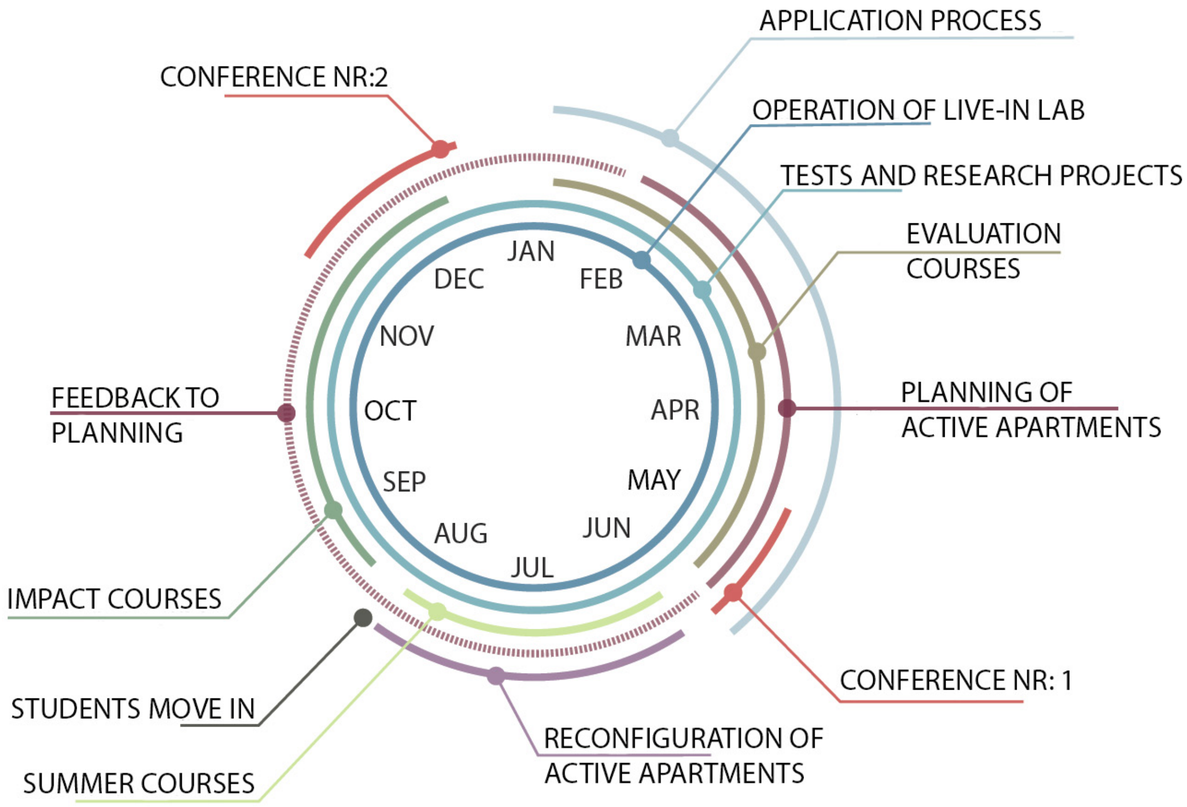
This is way why we established KTH Live-In Lab - a platform of multiple testbeds that is designed to accelerate innovation! Here we have advanced test infrastructure, including everything from technical systems and databases, to building users and operators. Here the new technology can be tested, developed and standardised in a whole range of contexts; from innovative apartments, to classrooms and hotels. The purpose is to accelerate the rate of innovation to make smart, sustainable buildings a reality within reach!

COLLABORATION

The testing is carried out as a series of projects. And most of these projects involve a collaboration between academia, industry and society. Each project forms part of a big picture. The results of one being used to optimise the rest, like a series of interlocking cog wheels, each cog will fit into the teeth of the others to optimize the whole process. For example, projects focused on boosting the efficiency of ventilation and heating cannot be optimised without projects on building automation and behaviour being carried out. These in turn cannot reach their full potential without projects on data storage, the processing of information and AI being carried out.

It's essential that we establish and use buildings in line with the resources available to us. Technology that performs better – both from the property owner and society – is an asset to everyone concerned! We have the testbeds, the competence required, and through our partnerships with industry, we can make the necessary funding available. All we need now is you, your commitment and your vision – and together we can enable the smart, sustainable buildings of the future!

Yearly cycle

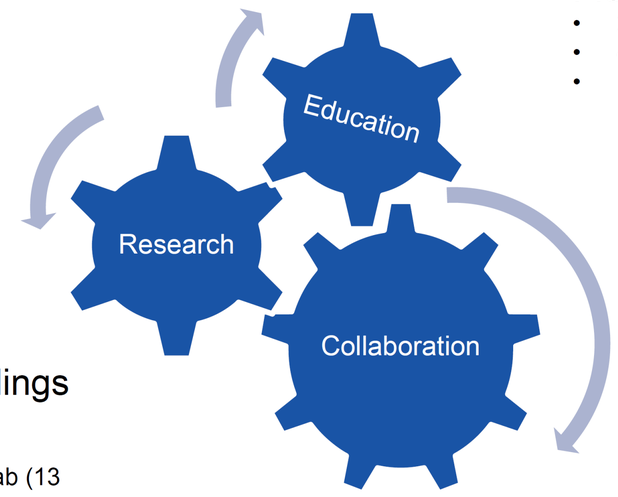


Collaboration between projects

Gray water recycling and waste water heat recovery
- 12 KTH-researchers
- 8 Companies
- 1 municipality

Allergen-free indoor environments
- 3 KTH-researchers
- 4 KI-researchers
- 1 Company
- 2 students

Flexible apartments
- 2 KTH-researchers
- 4 companies
- 1 course



Sustainable Co-Living
- 3 KTH-researchers
- 2 KI-researchers
- 2 SU-researchers
- 1 LU-researchers
- 1 UU-researchers

GDPR och smart buildings
- 4 KTH-researchers
- 2 SU-researchers
- 2 companies + HSB Living Lab (13 companies + Chalmers)

Database och Big Data
- 4 KTH-researchers
- 4 comapnies
- 1 kurs

PROJECT EXAMPLE

Ensuring sustainability and equality of water and energy systems during actor-driven disruptive innovation

1. The start-up company Graytec applies to use the testbed through the homepage. Purpose to test gray water cleaning and heat recovery.
2. KTH Live-In Lab connects the company with relevant researchers.
3. Company and researcher forms a team of twelve researchers, eight companies and one municipality,
4. Team applies for funding to test the technology but also to investigate system effects of colder waste water, lower water usage and better heat recovery/lower energy usage. Both in buildings but also on city level.
5. Successful application due to flexible infrastructure and collaboration model.

USING THE TEST INFRASTRUCTURE

Use KTH Live-In Lab as a testbed for innovative Cleantech / Construction technology, or conduct parts, or all, of your research at KTH Live-In Lab. We offer working space, space for your necessary installations as well as infrastructure and the context needed to conduct research & tests in a real-life setting. Through tests projects / commissioned research we can together verify and optimize technologies and methods in actual working conditions.

SUBMIT YOUR IDEA,
www.liveinlab.kth.se

Do you want to get involved?
Join KTH Live-In Lab

For more information, visit www.liveinlab.kth.se