Competition and Living Lab Platform

Current Project: EBC Annex 74

Karsten Voss

Competitions can be used to stimulate innovation and the next generation workforce, as well as to generate public visibility of sustainable architecture and building science. Living labs with building prototypes allow for valuable tangibility and testing of innovative ideas.

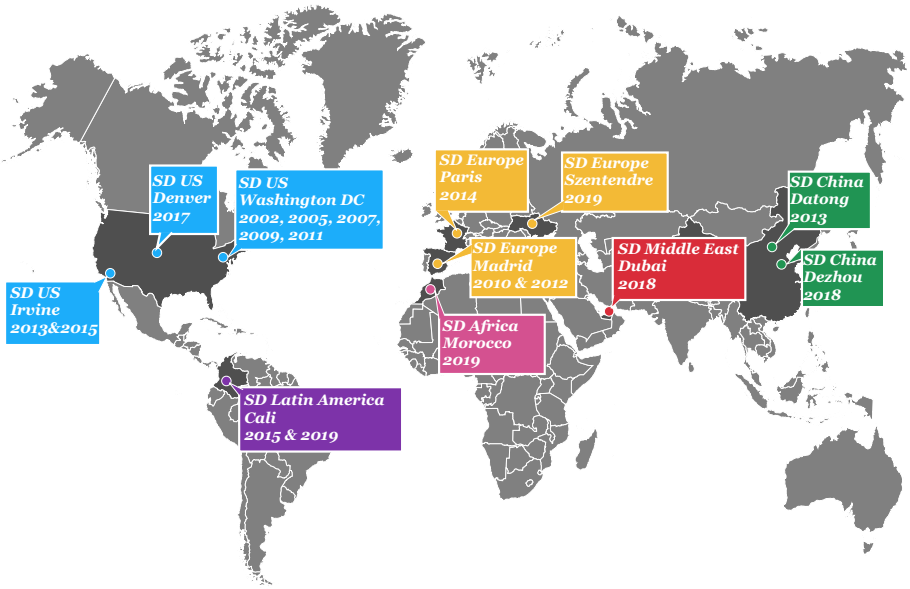
The starting point for the international EBC research project 'Annex 74: Competition and Living Lab Platform' is the success story of the Solar Decathlon. The Solar Decathlon is an international student competition based on an initiative of the U.S. Department of Energy started in 2000. In this competition, universities from all over the world design, build and operate solar-powered houses designed to meet the rules of ten contests, hence the name 'Decathlon'. It is the only student competition worldwide addressing the realization and performance assessment of buildings and not only the design. It is also a powerful, real-world experience for students to prepare for careers in clean energy and building design. During the competition's final phase, each interdisciplinary team assembles its house in a common Solar Village that lends itself to an engaging and inspiring public event. The final phase includes a public exhibition and a head-to-head competition that involves monitoring and judging across the ten contests.

Living Lab Low3 in Barcelona, Spain, is based on the competition entry of the Polytechnic University of Catalonia in the Solar Decathlon Europe 2010 competition. Solar Decathlon Europe is stewarded by the Energy Endeavour Foundation, who are contributing to EBC Annex 74.
Source: livinglab-low3.blogspot.de

Many of the experimental houses are studied as 'living labs' when transferred back to their home universities. Living labs are characterized by a user-centered testing, research and innovation approach. This format intensively stimulates research and education by supplying valuable experience, monitoring data and user feedback. The interdisciplinary approach stimulates integrated education crossing disciplines and faculties. The present project forms a think-tank with an initial focus on the education of the next generation of architects and engineers.

The project scope: exchange, evolution and education

In contrast to the competitions in the USA, Solar Decathlon events elsewhere have required new organizational structures for each competition. In this respect, the "Proclamation of Madrid" was agreed in 2010 by a group of Solar Decathlon Europe organizers and participants, who began discussions on the future evolution of the competition, with regard to its content and form. The process underlined that as a starting point for this evolution, an authorized international



The Solar Decathlon competitions held world wide: 13 competitions have been conducted up to 2017, with eight in the USA, three in Europe, one in China and one in Colombia. The United Arab Emirates and Morocco, both hot climates, will hold competitions in the near future.
Source: University Wuppertal

platform was required, linking worldwide activities and experiences.

In terms of form, content and financing, the evolution of the format of existing and future competitions can benefit from an information platform for exchange, thus ensuring continuity of know-how. This project forms the EBC-initiated platform, mapping and linking the competition and living lab experiences worldwide and working towards improving existing competition formats, as well as developing new ones. It intends to stimulate the technological knowledge, the scientific level and the architectural quality within future competitions and living labs based on the development of a systematic knowledge platform and on links to knowledge from previous and current activities in related IEA Technology Collaboration Programmes (TCPs). In turn, competitions and living labs provide potential new formats for dissemination activities in the TCPs.

Project structure and planned outcomes

The three-year project is structured as a knowledge platform focusing on the following cross-cutting aspects:

- Science and technology: To acquire a more solid connection with innovative architecture and research in building science, the project aims to develop a framework to collaborate with existing and future TCP projects and integrate these research endeavours into future competition concepts. Given that there is a trend towards monitoring the experimental houses for increasingly extended periods of time (as living labs), there are a variety of tests, monitoring protocols and sequences that may be implemented.
- Competitions and living labs: This will act as a 'think tank' for the creation of innovative and useful competition ideas, as well as living lab experiences. The goal is to learn from previous competitions and existing living labs to improve and influence the direction and content of further ones, and also to inform new competition formats and living labs initiatives around the world.
- Communication: Communication and dissemination are of major importance for the success of competitions. Experience underlines that it is not sufficient to simply act during the event duration, but to be regularly and consistently linked to the general public, energy policy stakeholders, and to the scientific community.

The project deliverables are planned as listed below:

- a Web-based competition knowledge platform,
- a technology and innovation evaluation report,
- a post-competition living lab scenarios report,
- monitoring and documentation templates,
- guides for competition rules, criteria and organization, and
- materials for education.

Further information

www.iea-ebc.org