

# Competition & Living Lab Platform

## ANNEX NUMBER 74

### Introduction

The Annex background 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 are challenged to design, build and operate solar powered houses. It is the only student competition worldwide addressing the realization and performance assessment of buildings and not the design only. During the competition’s final phase, each interdisciplinary team assembles its house in a common Solar Village. The final phase includes a public exhibition, monitoring and 10 contests, the reason why the competition was named a "Decathlon". Thirteen competitions have been conducted up to the end of 2017 with eight took place in the US, three in Europe, one in China and one in Columbia. With the United Emirates and Morocco, two countries in hot climates will held competitions in near future.

Many of the experimental houses are used as “living labs” when transferred back to the home university. 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 student projects support and stimulate an integrative education approach crossing disciplines and faculties.

Starting with the "Proclamation of Madrid" in 2010, a group made up of organizers and participants of the Solar Decathlon Europe began to discuss the evolution of the competition with regard to content and form. The process underlined that an authorized international platform is missing, linking the worldwide activities and experience as starting point for this evolution. Contrary to the competitions in the US, which are centrally managed by the DOE, the events in other places in the world have seen new organization for each competition. In many ways, in form, content and financially, the evolution of the existing competition formats as well as new competitions profit from exchange and a platform to ensure continuity of know-how.



Figure 1: For the first time snow at a Solar Decathlon competition site, Denver 2017. Source: E. Rodriguez-Ubinas

### Objectives

Annex 74 forms the IEA-EBC-based platform mapping and linking the competition and living lab experiences worldwide and working towards improving existing as well as developing new competition formats.

Annex 74 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 as well as the link to knowledge from previous and current IEA activities. Competitions and living labs introduce new formats for the row of dissemination activities in IEA TCPs.

Annex 74 is intended to be a think-tank with an initial focus on the education of the next generation of architects and engineers through the use of university-based competitions and living labs.

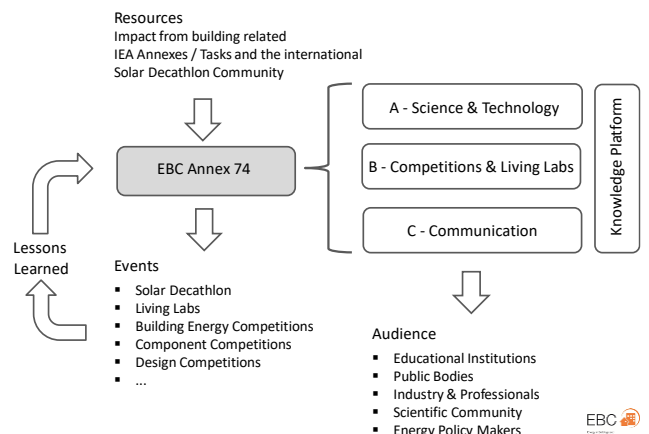


Figure 2: Structure of the Annex and general workflow

The work is structured in three subtask and the knowledge platform as a cross cutting issue.

### Subtask A: Science & Technology

The Solar Decathlon has spread over the different continents, and is now entering into a new stage. New competition formats are under discussion as well. To acquire a more solid connection with research, Annex 74 aims to develop a framework to collaborate with existing and future annex programs and integrate these research endeavors into future competition concepts. Given that there is a trend towards monitoring the houses for a more extended period of time, there are a variety of tests, monitoring protocols and sequences that may be implemented.

### Subtask B: Competitions & Living Labs

This subtask will act as the “think tank” for the creation of innovative and useful competitions as well as living lab experiences. This will mean stewarding the evolution of existing competition formats such as the Solar Decathlon and the creation, development and incorporation of new competitions. The goal of subtask B is to learn from previous competitions and existing living labs in order to take advantage from this know, and learn how to improve and influence the direction and content of next editions as well as new competition formats and living labs initiatives around the world, but not to administrate/organize future competition.

### Subtask C: Communication

Communication and dissemination are of major importance for the success of the competitions. Experience underlines that it is not sufficient to simply act during the event period, but to continuously and consistently be linked to the public, energy policy as well as the scientific community.

## Deliverables

- Web based Competition Knowledge Platform
- Technology & Innovation Evaluation Report
- Post Competition & Living Lab Scenarios Report
- Monitoring & Documentation Templates
- Guides for Rules, Criteria and Organization
- Education Material

## Progress

The Annex was approved based on the Annex text in November 2017 after a one year Annex definition phase. It starts its working phase in January 2018. The EC funded project “Solar Decathlon Europe Competitions – Analysis of the Results” runs in parallel to the Annex.

All experts involved bring a high level of expertise - e.g. from former participation in the Solar Decathlon or other competitions - to the subtask they manage and who undertake substantial research and development in the field of the subtask.

## Meetings

Two meeting took place in the Annex definition phase to develop the concept and define the work plan as well as the deliverables (Berlin, Denver). The first meeting in the working phase is scheduled for May 2018 in Hungary.

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### Project duration

2018 – 2020

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### Operating Agent(s)

Karsten Voss, Germany

Sergio Vega, Spain (vice)

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### Participating countries

Belgium, Germany, The Netherlands, Spain, United States

Observers:

Hungary, United Arab Emirates

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### Further information

[www.iea-ebc.org](http://www.iea-ebc.org)

[www.solardecathlon.gov](http://www.solardecathlon.gov)

[www.solardecathlon.eu](http://www.solardecathlon.eu)

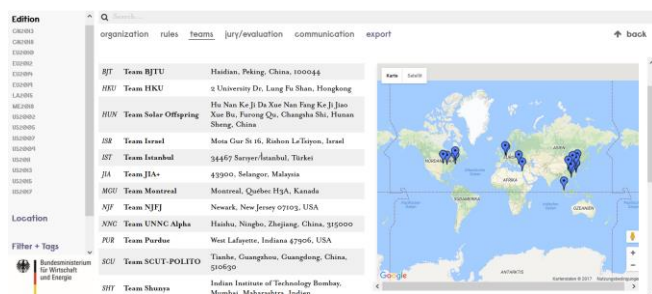


Figure 3: Initial image of the Knowledge Platform

Source: University Wuppertal