



NATIONAL ENERGY EFFICIENCY CONFERENCE 2018

Campuses as the vanguard of efficiency
IEA EBC ANNEX 74 Competition & Living Lab Platform

University Competitions and Living Labs. An opportunity to foster
energy efficiency and sustainability in the next generation

EBC



Energy in Buildings and
Communities Programme



POLITÉCNICA

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Universidad Politécnica de Madrid
Sydney, November 2018

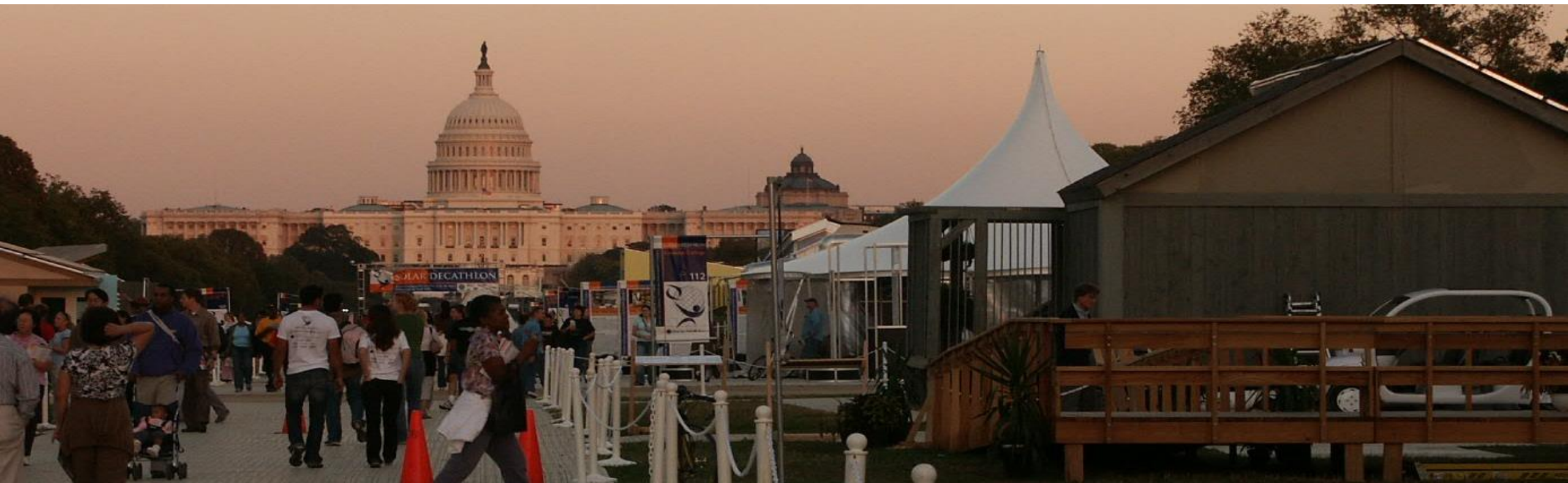


University Competitions and Living Labs. An opportunity to foster energy efficiency and sustainability in the next generation

- .- SOLAR DECATHLON
- .- SOLAR DECATHLON EUROPE + 10 ACTION
- .- BALANCE – EDUCATION AND AWARENESS POTENTIAL
- .- COMPETITION AND LIVING LABS PLATFORM
- .- IEA EBC ANNEX 74
- .- CONCLUSIONS

US SOLAR DECATHLON

The SOLAR DECATHLON Competition is organized by the U.S. Department of Energy for universities from all over USA to design and build a self-sufficient home, grid-connected, using solar energy as the only energy source, and equipped with technologies that permit maximum energy efficiency.



US SOLAR DECATHLON

The final phase of the U.S. Solar Decathlon consists of assembling the houses on the National Mall in Washington D.C., where the “Solar Village” is located. The houses are open to the public, while undergoing the ten contests which is why the competition is named Decathlon, to demonstrate their self-sufficiency and energy efficiency.



- MAIN OBJECTIVES OF U.S. SOLAR DECATHLON:**
- Demonstrate innovative clean-energy solutions
 - Show consumers the potential of solar-powered living
 - Develop a well-trained workforce dedicated to green technologies



UPM COMMITMENT

As part of the UPM Commitment with sustainability and energy efficiency, and highly supported by the Spanish government , UPM has participated in three editions of the SOLAR DECATHLON COMPETITION: 2005 – 2007 - 2009.



UPM Magic Box, 2005



UPM Casa Solar, 2007



UPM Casa Black&White ,2009

US SOLAR DECATHLON



sd europe
SOLAR DECATHLON

SOLAR DECATHLON EUROPE COMPETITION:

Madrid, 2010-2012



OBJECTIVES OF THE SOLAR DECATHLON EUROPE

1. TO GENERATE knowledge on the industrialization and sustainability of the houses, bringing about suitable scientific benefits as well as the dissemination of the knowledge, and **transfer to professionals and industry**

2. TO TAKE ADVENTAGE OF SOCIAL INTEREST AND HIGH MEDIA IMPACT TO MAKE students, professionals, and the general public aware of environmental and sustainability issues, especially in the responsible use of energy and natural resources, promoting the use of the renewable energies, improving energy efficiency,...



SOLAR DECATHLON EUROPE

Architecture	Architecture	120	200
	Engineering & Construction	80	
Energy	Energy Efficiency	100	220
	Electrical Energy Balance	120	
Comfort	Comfort Conditions	120	240
	House Functioning	120	
Social Economic	Communication & Social Awareness	80	160
	Industrialization & Market Viability	80	
Strategic	Innovation	80	180
	Sustainability	100	

10ACTION project



The European Project 10ACTION uses the values which boost the SDEurope Competition to raise awareness in European society to achieve the objectives of EU energy policy. These values encourage a responsible use of energy, greater energy efficiency, improvement in sustainability and usage of renewable energies in housing design.



10ACTION consists on a set of activities designed and adapted to five different target groups: children, teenagers, university students, professionals of the building sector and general public.



European partners of 10ACTION



Institutional collaborators of SDEurope: Infrastructures Ministry of Spain - Technical University of Madrid - US Solar Decathlon and Department of Energy - European Union - City Council of Madrid - Institute for the Diversification and Energy Saving of Spain. **Sponsors of SDEurope:** Saint Gobain - Schneider Electrics - FCC Citizen Services - Rockwool - Kömerling.

The Solar Decathlon Europe Competition is an international university competition in which each participating university builds a solar & energy sustainable house using market tested technologies. www.sdeurope.org



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Actions to Increase Energy Awareness and Sustainable Behaviour in European Citizens
www.10action.eu

FOR A
**SUSTAINABLE
FUTURE**



ten act10n

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EUROPE**

SOLAR DECATHLON EUROPE 2010, MADRID



LUMEN HOUSE (USA) - WINNER 2010

SOLAR DECATHLON EUROPE 2012, MADRID



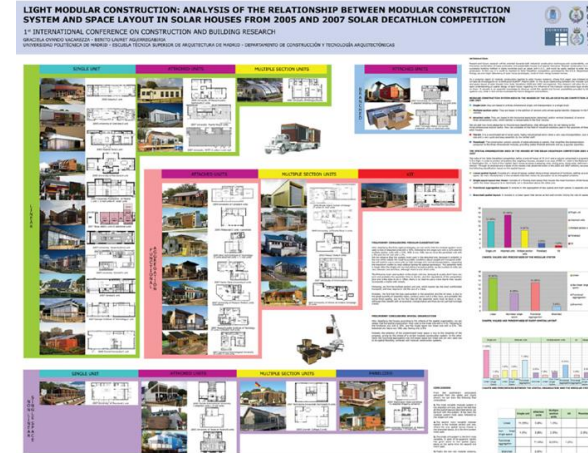
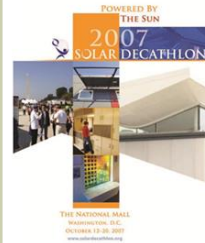
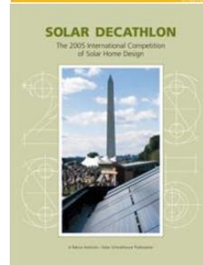
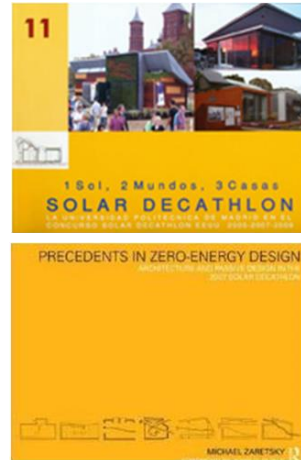
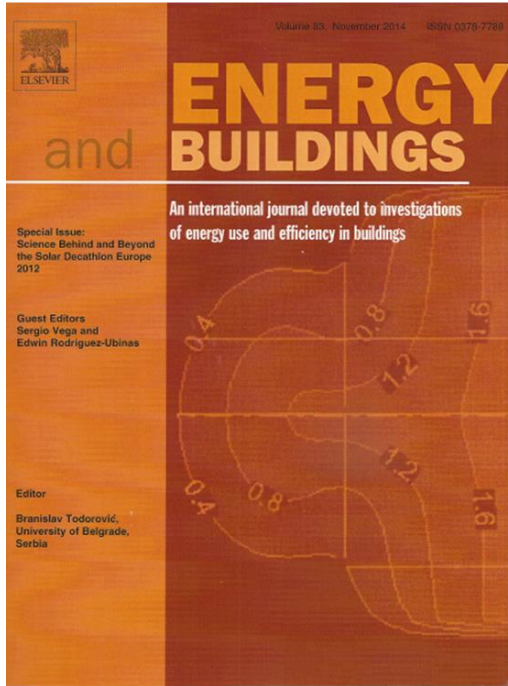
CANOPEA (France) - WINNER 2012

SOLAR DECATHLON EUROPE 2014 VERSAILLES

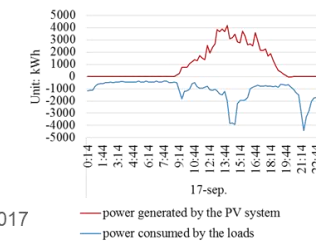


ROMA III (Italy) - WINNER 2014

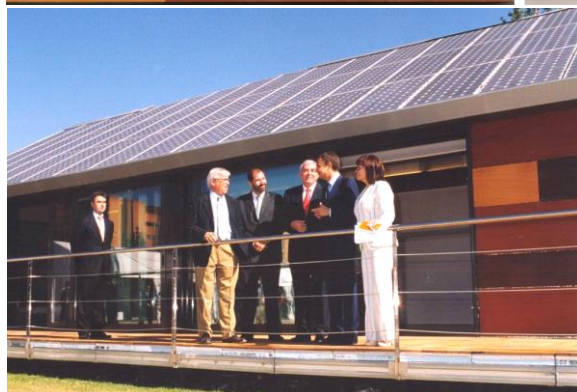
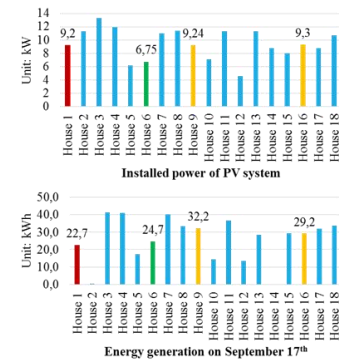
SDE & 10ACTION BALANCE



Graciela Ovando Doctoral thesis 2015



Li Yehong Doctoral thesis 2017



SDE & 10ACTION IN FIGURES

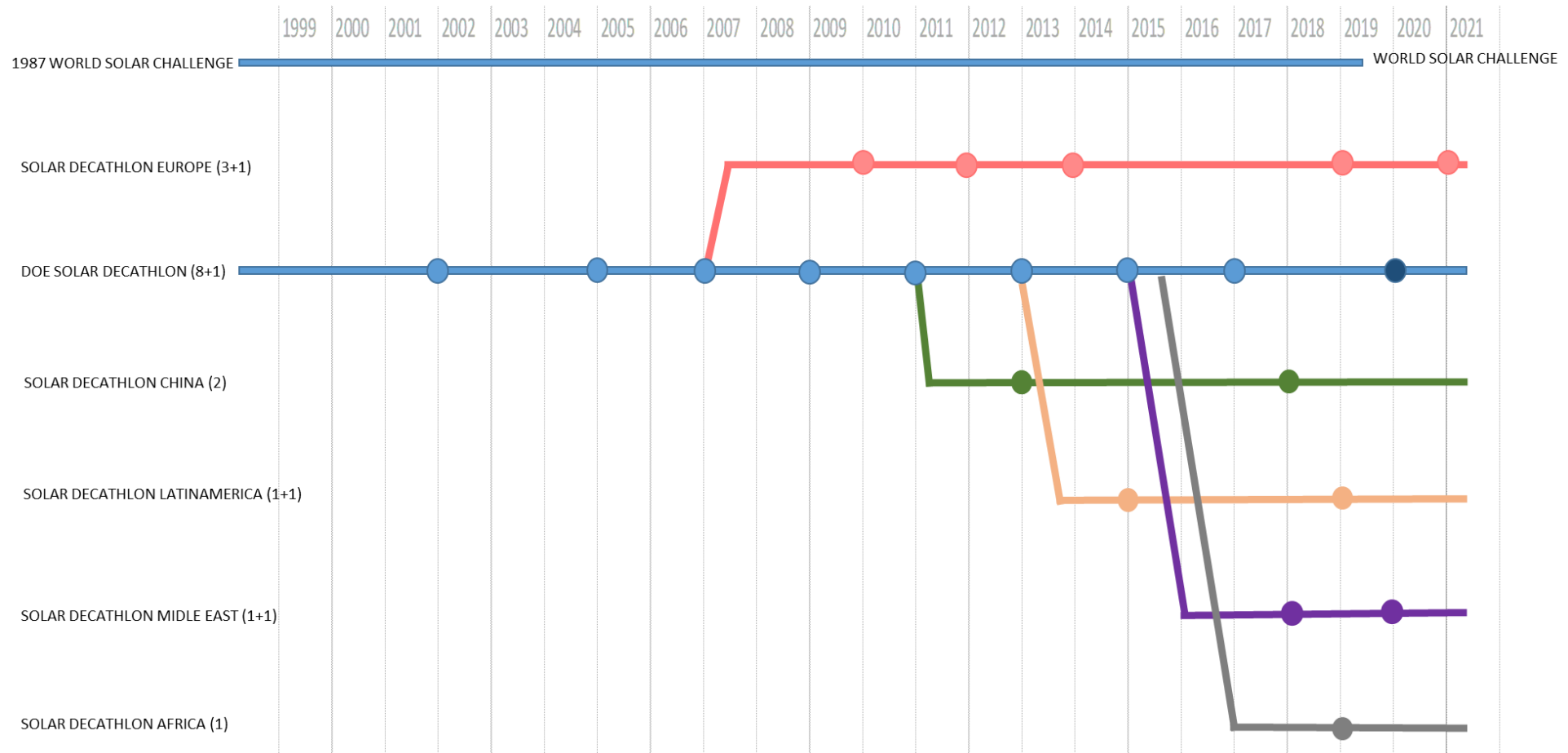
- public & private institutions taking part from 34 collaborating countries
- 60 Universities participating out of 100 university applicants (among 800 universities contacted)
- More than 600 researchers and PhD Students collaborating with the teams
- 3.500 Volunteers working with the SD Europe and in the 10ACTION activities
- more than 25.000 children and youths taking part in activities
- 7.000 university students taking part in workshops and courses in the SD Europe and 10ACTION activities
- 25.000 professionals from 12 EU member countries
- significant scientific output (books, papers, PhDs, patents)
- Over 680.000 people participating in SD Europe and 10ACTION activities
- Estimated over 700 Million individuals reached through activities and media



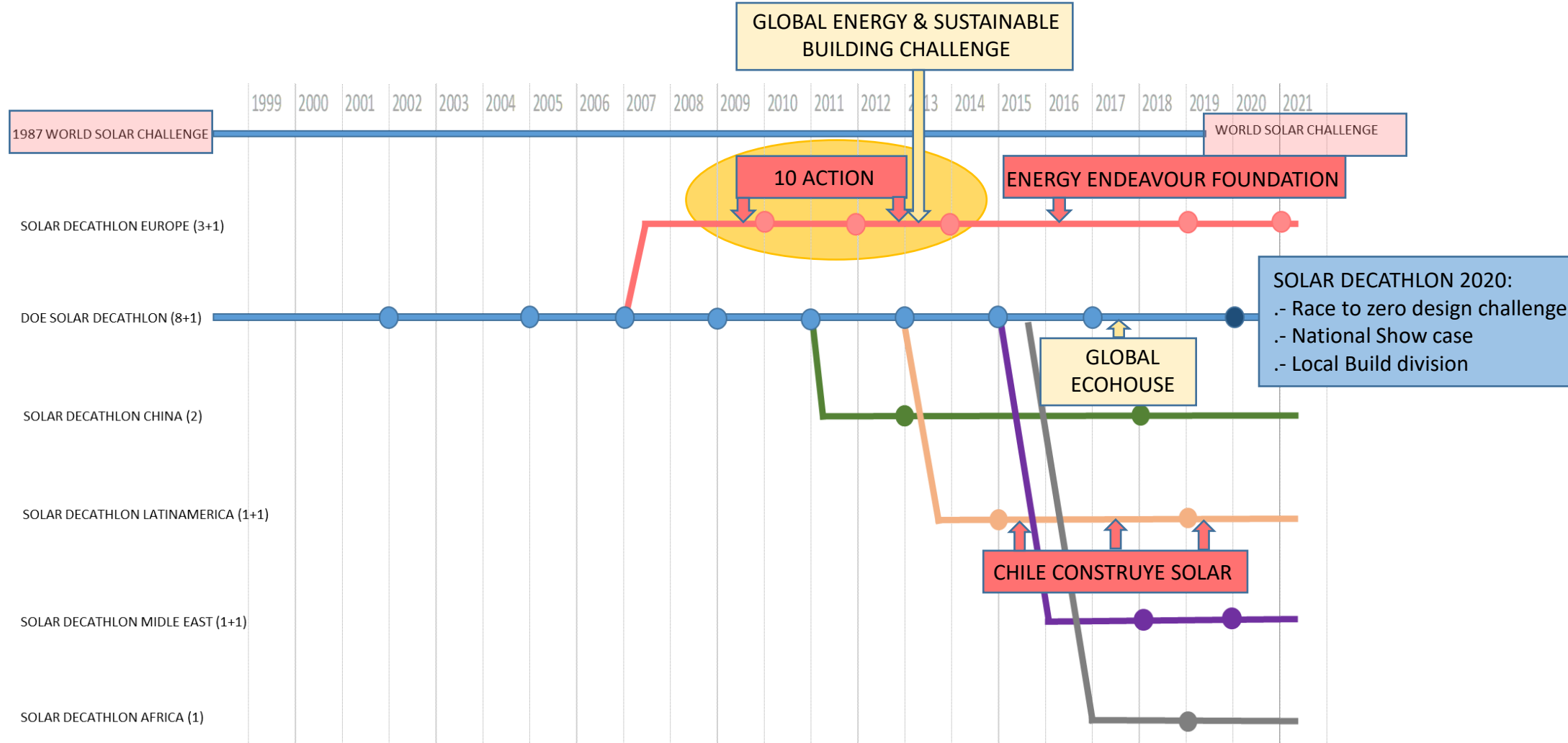
Solar Decathlon Europe was awarded by European Commission in 2011



There have been 15 Solar Decathlon Competitions around the world, and 5 more ongoing...



There have been 14 Solar Decathlon Competitions around the world, and 6 more ongoing... plus many other initiatives



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INFO

ANALYSIS &
DISCUSSION

REPORTS

How can we take advantage of this wealth of experience?

How can we take advantage of the dynamism and creativity of university students to improve energy efficiency and sustainability?

Do you imagine where we could get by applying these ideas and these experiences in every university?

How? bringing together the whole experience, gathering the existing info, analyzing the lessons learnt, enriching, improving, committing...

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DISCUSSION

REPORTS

COMPETITION AND LIVING LABS PLATFORM

Building Energy Competition & Living Lab Knowledge Platform

Login

Solar Decathlon

Africa

Asia

Europe

Latin America

Middle East

United States

Info

Search...

This knowledge platform is a major activity to secure the information, experiences and data from building energy competitions such as the Solar Decathlon and living labs worldwide. It adds to the Solar Decathlon US information system (<http://solardecathlon.gov>)

The work on the platform is part of Annex 74 (<http://annex74.iea-ebc.org>) of the Energy in Buildings & Communities Programme of the International Energy Agency. The platform is based on a content management system and the use of standardized fact sheets to structure, filter and transfer information. All buildings of the competitions and living labs are detailed, documented and linked to an interactive map with the connected universities. The knowledge platform also serves as the central storage space for all competition documents, such as project manuals, drawings, publications, communications initiatives, pictures, reports, evaluations, scorings as well as detailed monitoring data.

This work is funded by the German Federal Ministry of Economic Affairs and Energy and assisted by intensive information exchange with the organizers from the past events in Europe.

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Supported by:



on the basis of a decision

Africa

Solar Decathlon Africa 2019

Morocco

Asia

Solar Decathlon China 2013

Datong

Solar Decathlon China 2018

Dezhou

Europe

Solar Decathlon Europe 2010

Madrid

Solar Decathlon Europe 2012

Madrid

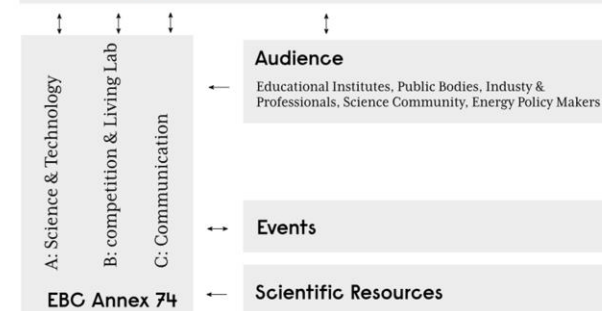
Solar Decathlon Europe 2014

Versailles

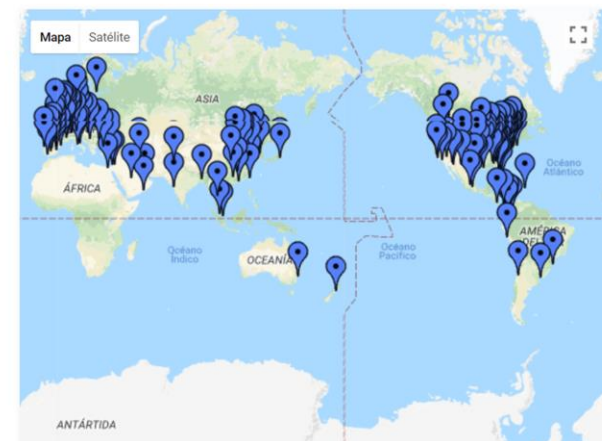
Solar Decathlon Europe 2019

Szentendre

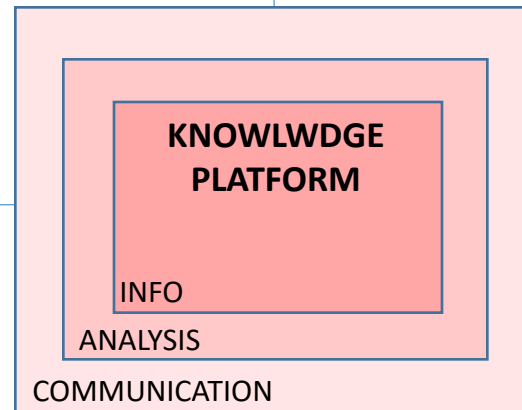
Knowledge Platform - Context

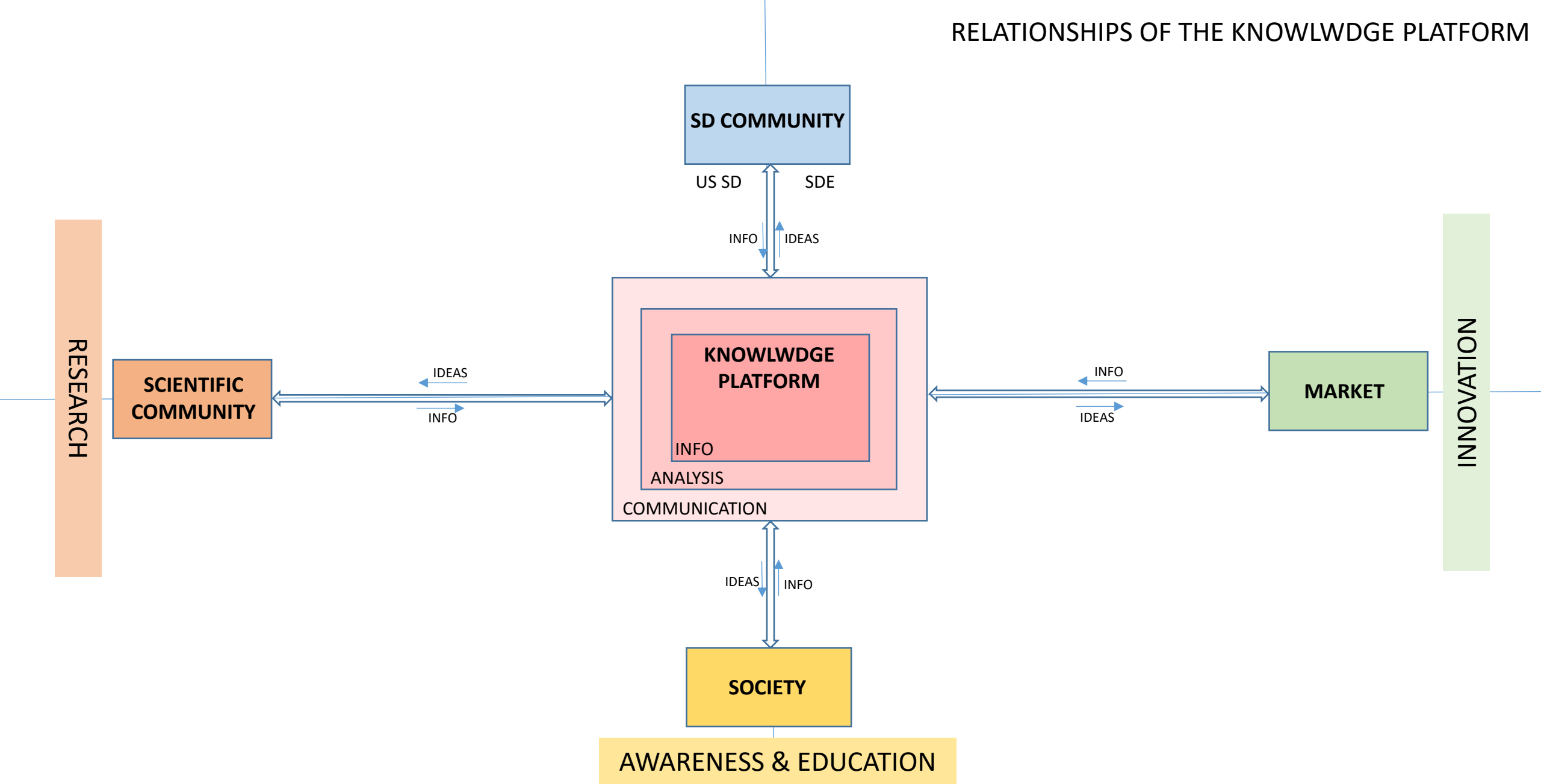


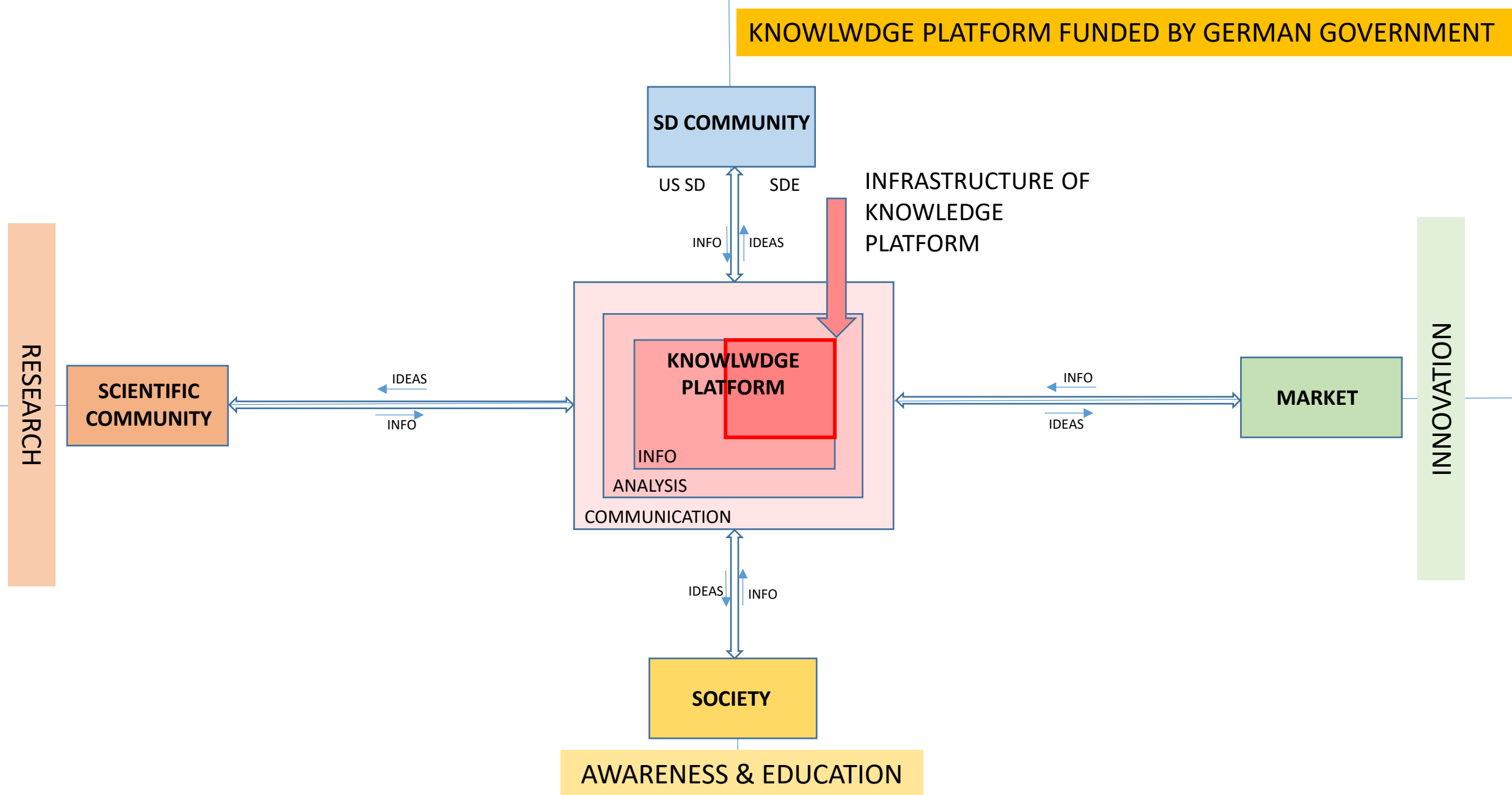
Location

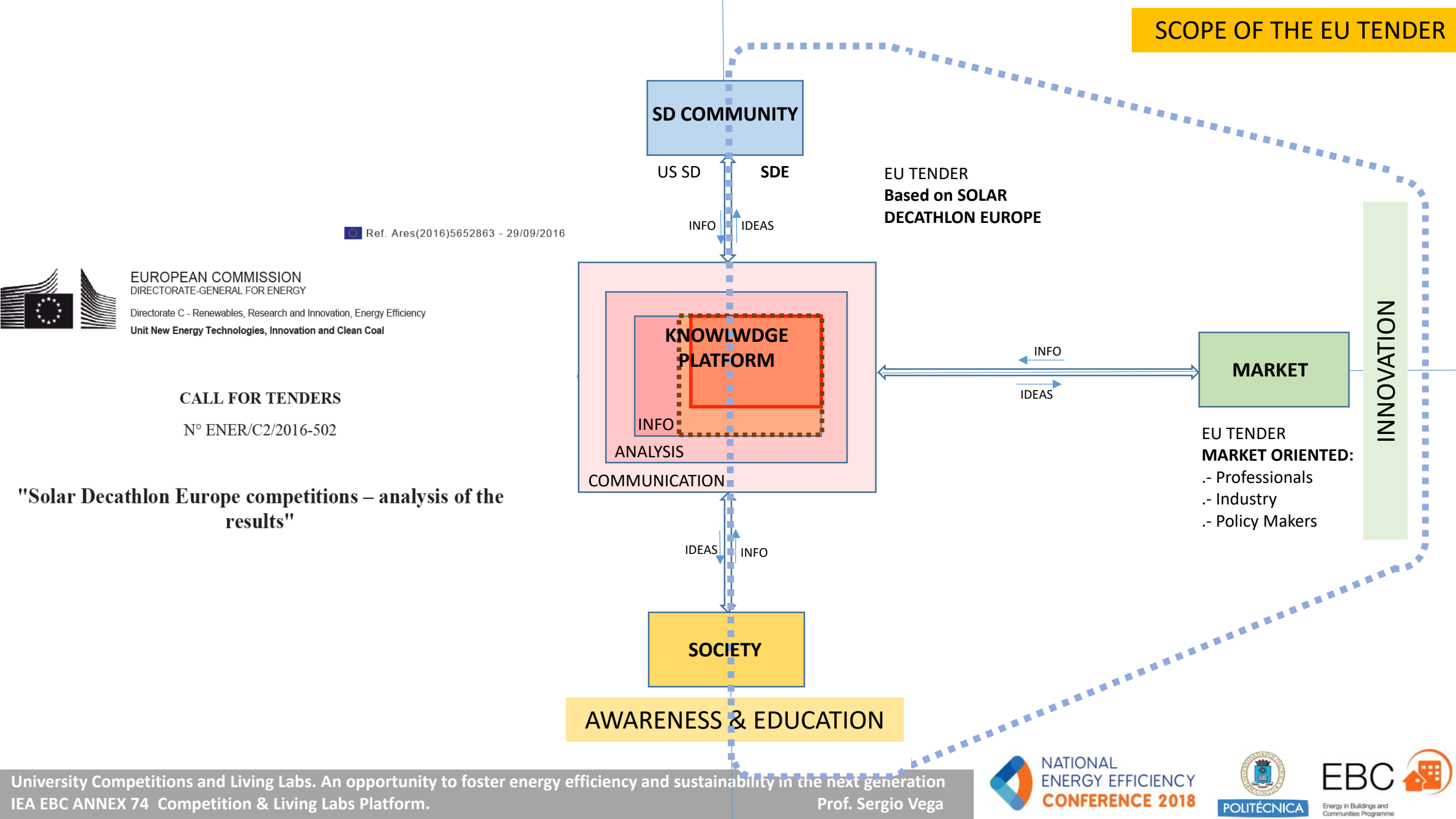


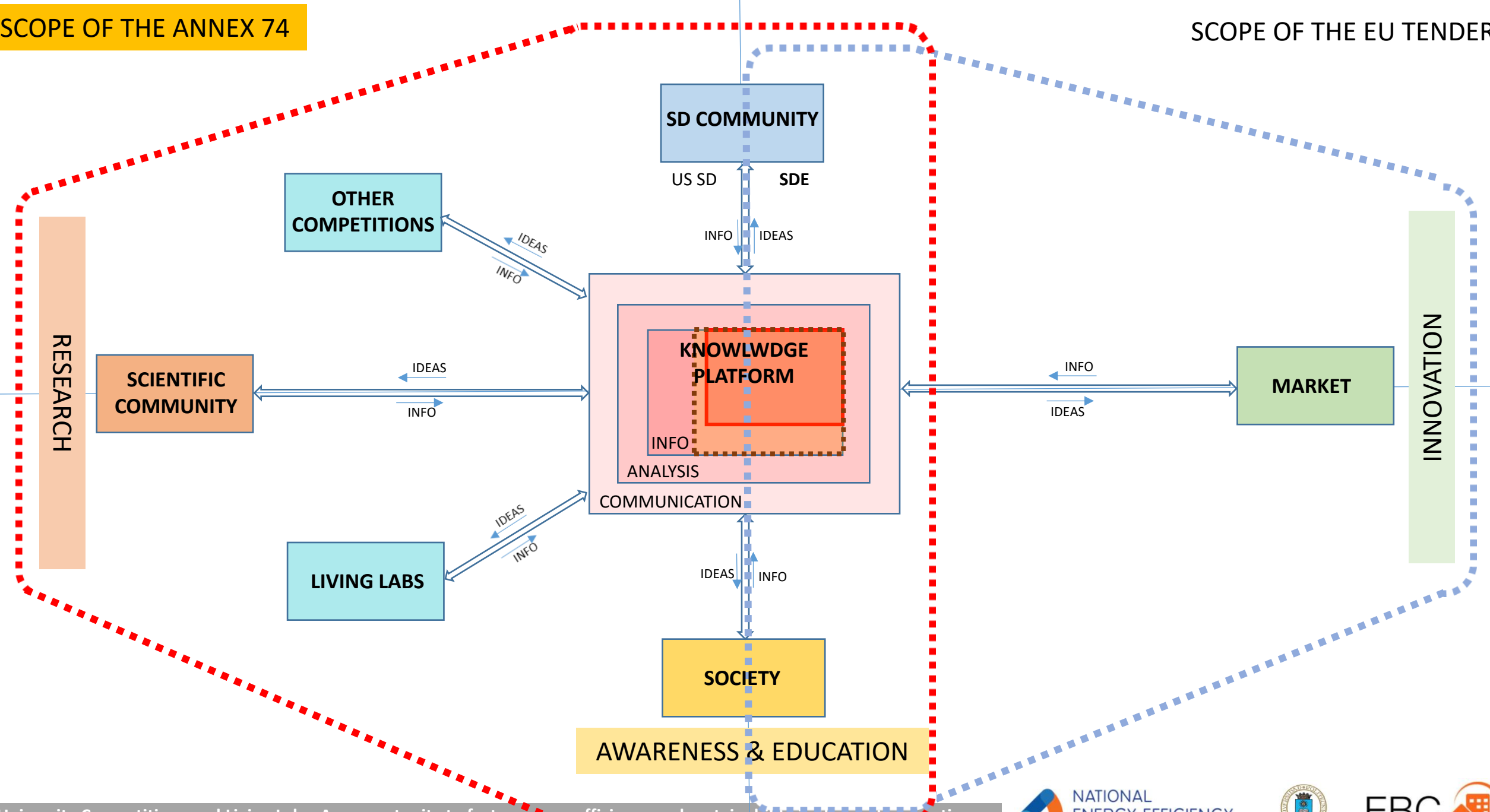
AREAS OF DEVELOPMENT OF THE KNOWLWDGE PLATFORM







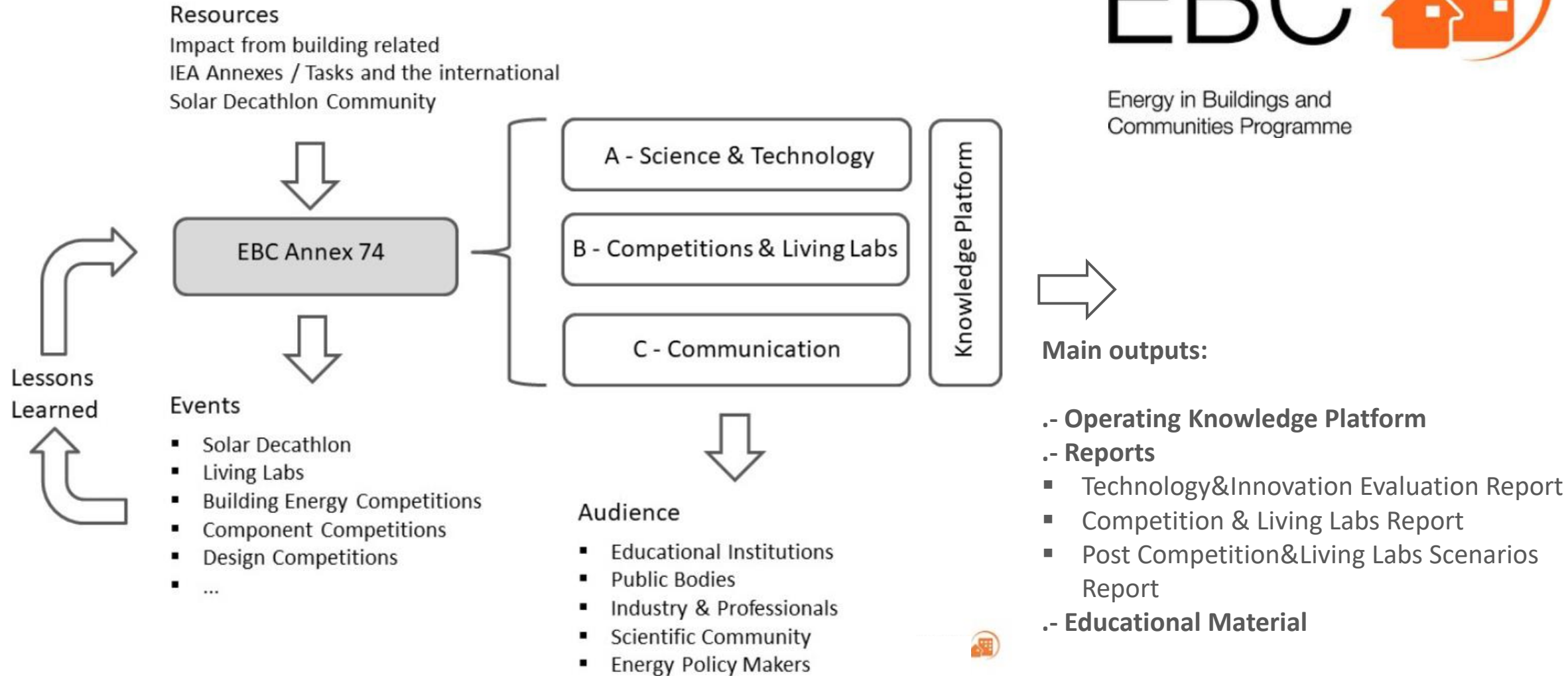




IEA EBC ANNEX 74 Competition & Living Labs Platform



Energy in Buildings and
Communities Programme



University Competitions and Living Labs.
An opportunity to foster energy efficiency and sustainability in the next generation

Main CONCLUSIONS:

- Mobilize the **creativity and dynamism of university students through University Competitions and Living Labs** generates wonderful opportunities to
 - generate **new knowledge** and demonstrate innovative clean-energy solutions
 - get university **students committed**
 - make students, professionals, people,... **aware about energy efficiency and sustainability**
 - develop a **well-trained workforce** dedicated to green technologies
- The Competition & Living labs platform **gathers the full experience of these Competitions and Living Labs** and joint together the info not only of **technical data and performance of the houses**, but also the **key drivers, performance, and lessons learnt** from the organization teams.
- **IEA EBC ANNEX 74 Competition & Living Lab Platform**, further than making the **full info and experiences available** to the scientific community, industry, professionals, and general public, develops a **critical analysis of the gathered info**, and from **expert discussions** will produce reports with **conclusions, recommendations, and lessons learnt** from these experiences to **improve new initiatives to foster energy efficiency and sustainability in the next generation**



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"Ingeniamos el futuro"

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Join the challenge
Thank you

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