



H₂FC European Infrastructure Project

Research Opportunities to Focus on Scientific- and Technical Bottlenecks

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9th -11th September 2013

5th INTERNATIONAL CONFERENCE ON HYDROGEN SAFETY

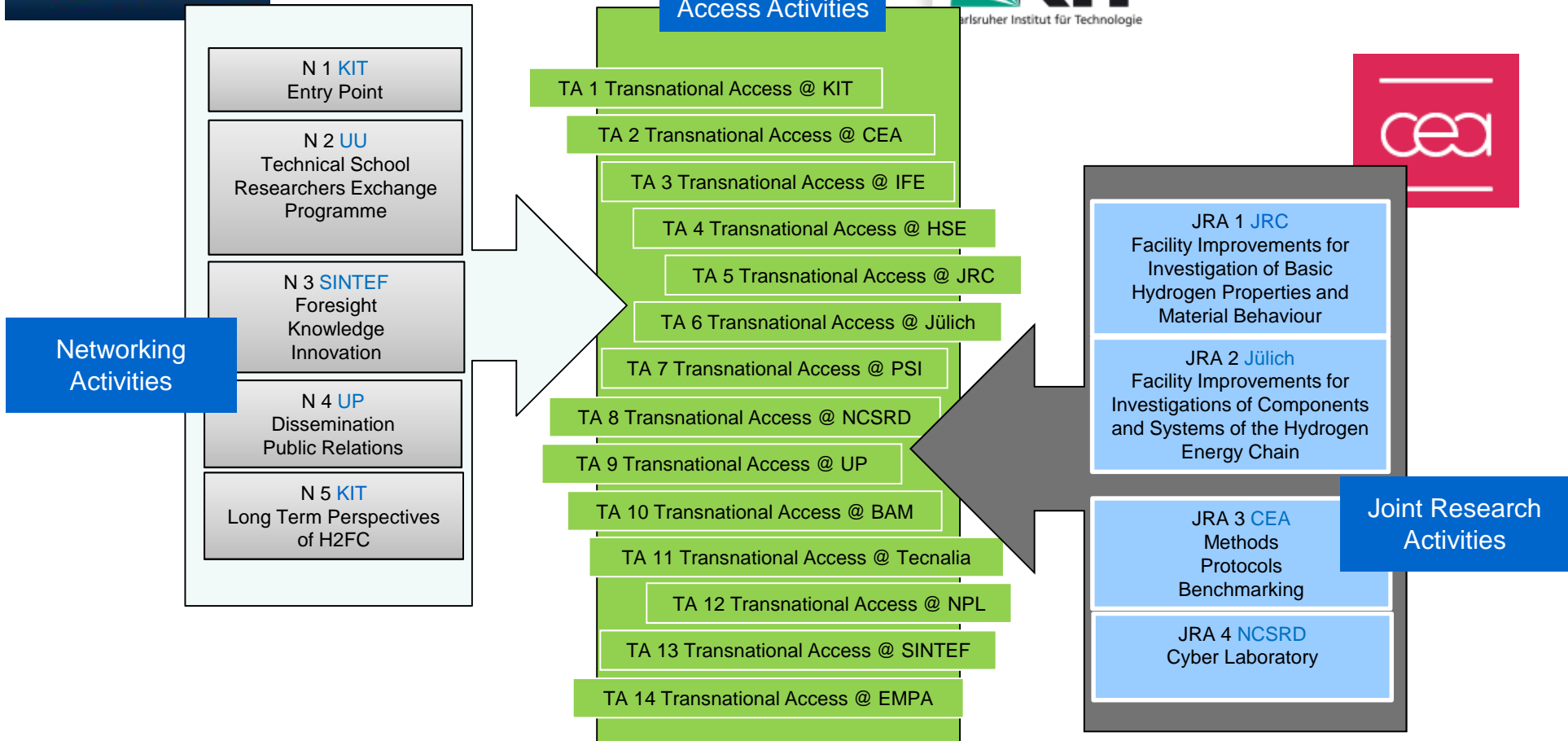
Brussels (***Belgium***)

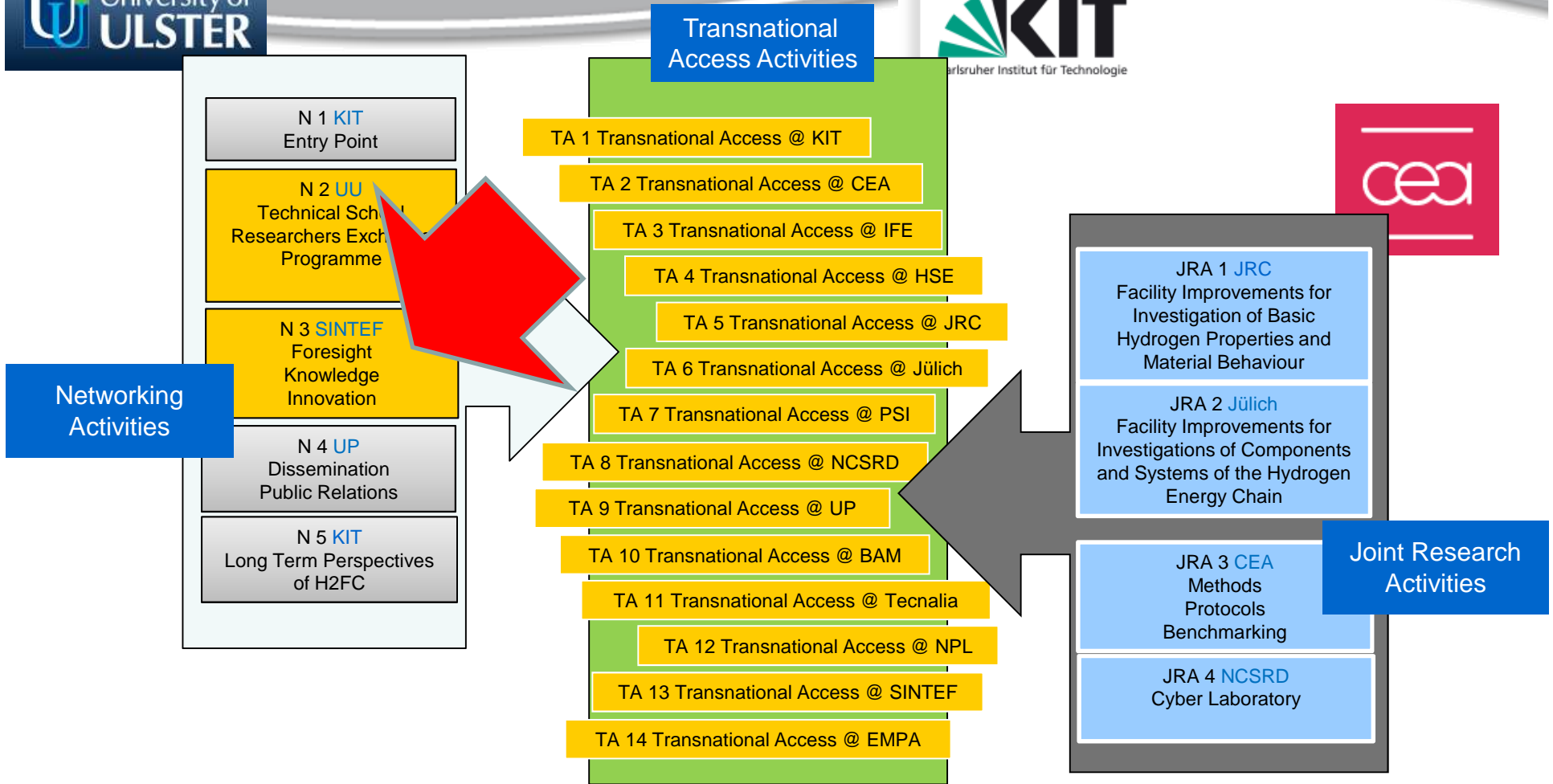
The European Strategy Forum on Research Infrastructures (ESFRI) recognizes in its roadmap for Research Infrastructures that “*in the near future hydrogen, as an energy carrier derived from various other fuels, and fuel cells as energy transformers, are expected to come into a major role for mobility but also for different other mobile and stationary applications*” |1|.

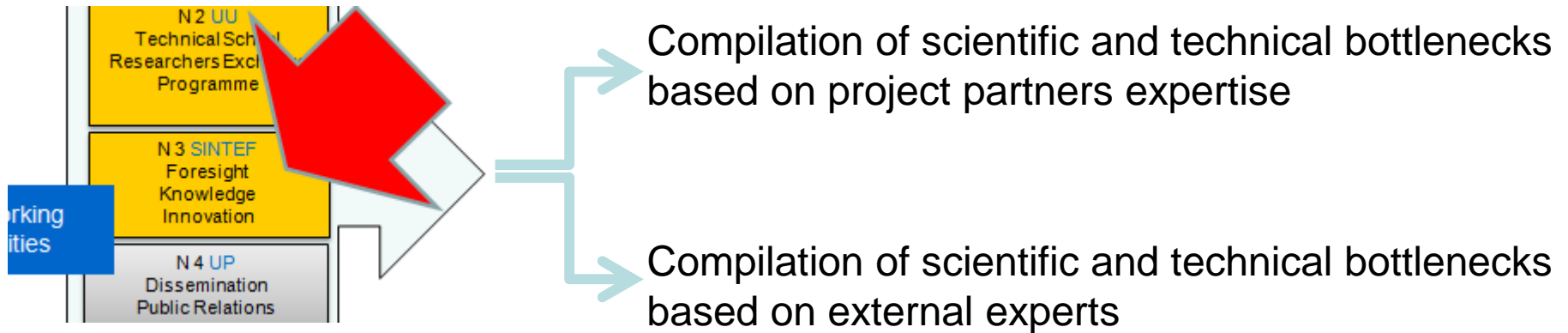
|1| ESFRI, European Road Map for Research Infrastructures (Report 2006)

The European Strategy Forum on Research Infrastructures (ESFRI) recognizes in its roadmap for Research Infrastructures that *“in the near future hydrogen, as an energy carrier derived from various other fuels, and fuel cells as energy transformers, are expected to come into a major role for mobility but also for different other mobile and stationary applications”* [1].

Also no concrete aims were defined at that time, we are far behind to comply this ideal conception!







ROME workshop
(16th -17th October 2013)

Discussion forum
(continuously)



Compilation of Different View



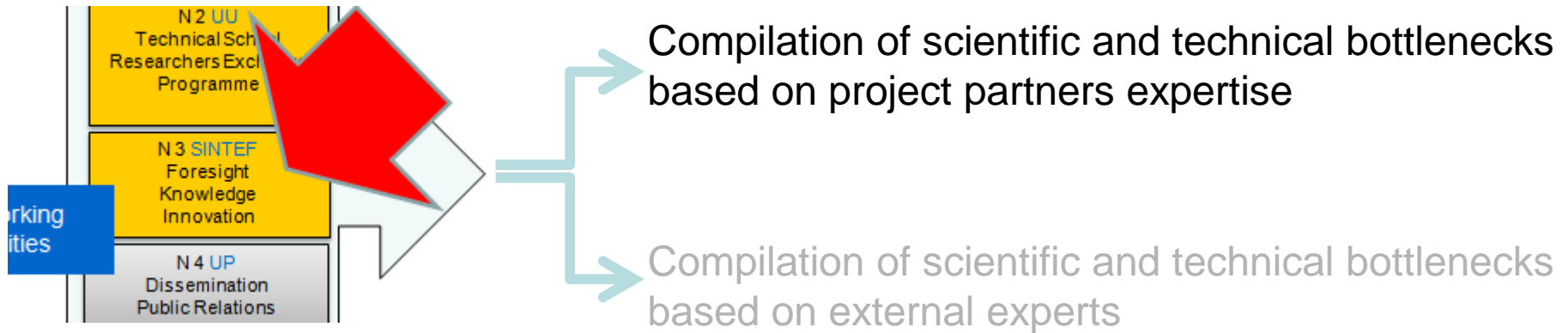
Main objectives

European Scientific Community

European Industry

Pool of information about lacks, bottlenecks and key aspects in hydrogen technologies and fuel cells





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COMMISSION

Community Research



KIT
Karlsruher Institut für Technologie



CAPACITIES



Materials Science & Technology



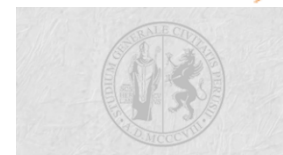
Pro-Science



PAUL SCHERRER INSTITUT



Agenzia nazionale per le nuove tecnologie, l'energia
e lo sviluppo economico sostenibile



UNIVERSITA' DEGLI STUDI DI PERUGIA



Main topics of analysis (scientific bottlenecks)

- Hydrogen production (including purification)
- Hydrogen storage and distribution (materials and systems)
- Hydrogen end-use / systems
- Cross-cutting issues

Sub topics: technology defined as key aspects

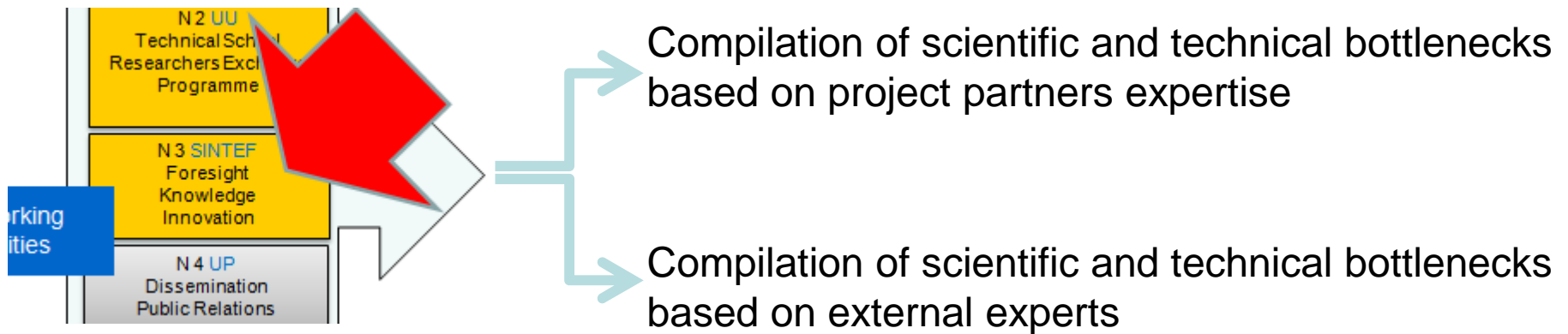
- Main materials challenges
- Limiting cost factors
- Limitations in characterization/modelling tools
- Main system challenges
- Main safety issues
- Main market challenges
- Other challenges

Analysis of the scientific bottlenecks for commercialization of H₂&FC technologies confirms, that the H₂FC European Infrastructure project is positioned on the following key issues:

- Test harmonisation and protocols
- Accelerated tests development
- Mechanisms understanding and modelling thanks to advanced characterisation, including in situ characterisation
- Safety issues

- Amount of experimental work (results) decreases (lacks)
- Amount of simulation and modelling increases and became included in most technological topics
- Experimental results are needed for verification of modelling and simulation
- Harmonisation in general but especially standards

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Activities


H2FC Discussion Forum

Feel free to ask a question to our hydrogen and fuel cells expert team. Simply press the green button "Ask a Question":

     [Ask a Question](#)

 [General \(standard\)](#) - 0 discussions

 [Hydrogen](#) - 0 discussions

 [Fuel Cells](#) - 0 discussions

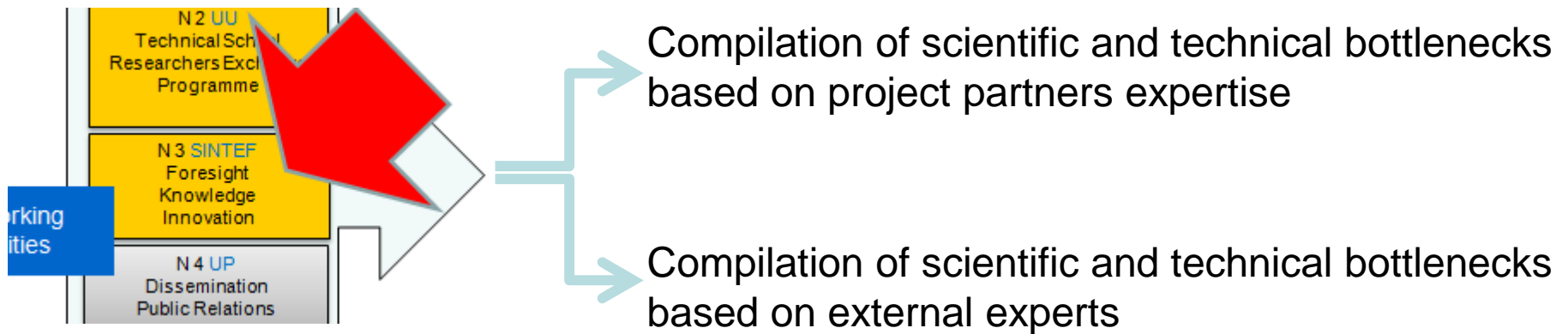
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H₂FC



European Infrastructure

FIRST ANNOUNCEMENT

European annual research progress review meeting 2013

HYDROGEN AND FUEL CELL SCIENCE AND ENGINEERING - NATIONAL STATUS

Organized by the FP7 H2FC
European Infrastructure project
(www.h2fc.eu) and EERA JP FCs
& H2 ([www.eera-set.eu/index.
php?index=31](http://www.eera-set.eu/index.php?index=31))



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Rome | October 16 • 17 | 2013

Who should attend?

Scientists from academia, research organisations, industry, and project managers.

Annual review 2013 sessions

- Hydrogen safety
- Hydrogen production
- Hydrogen storage
- Fuel cells

Each session will be accomplished by round table discussions led by an expert panel.

Event secretariat:

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Organizing committee Chairs:

Olaf Jedicke, KIT (Germany)
Angelo Moreno, ENEA (Italy)

Organizing committee Members:

Vladimir Molkov, UU (United Kingdom)
Anders Ødegård, SINTEF (Norway)
Florence Lefebvre-Joud, CEA (France)
Pierre Boillat, PSI (Swiss)
Ulrich Schmidtchen, BAM (Germany)
Chiara Barchiesi, UNIPG (Italy)



H₂FC

EUROPEAN RESEARCH INFRASTRUCTURE



Network of Excellence funded under FP6

NANOHy

Collaborative Project funded under FP7

SUSANA

Under negotiation with FCH-JU



Many thanks for your attention



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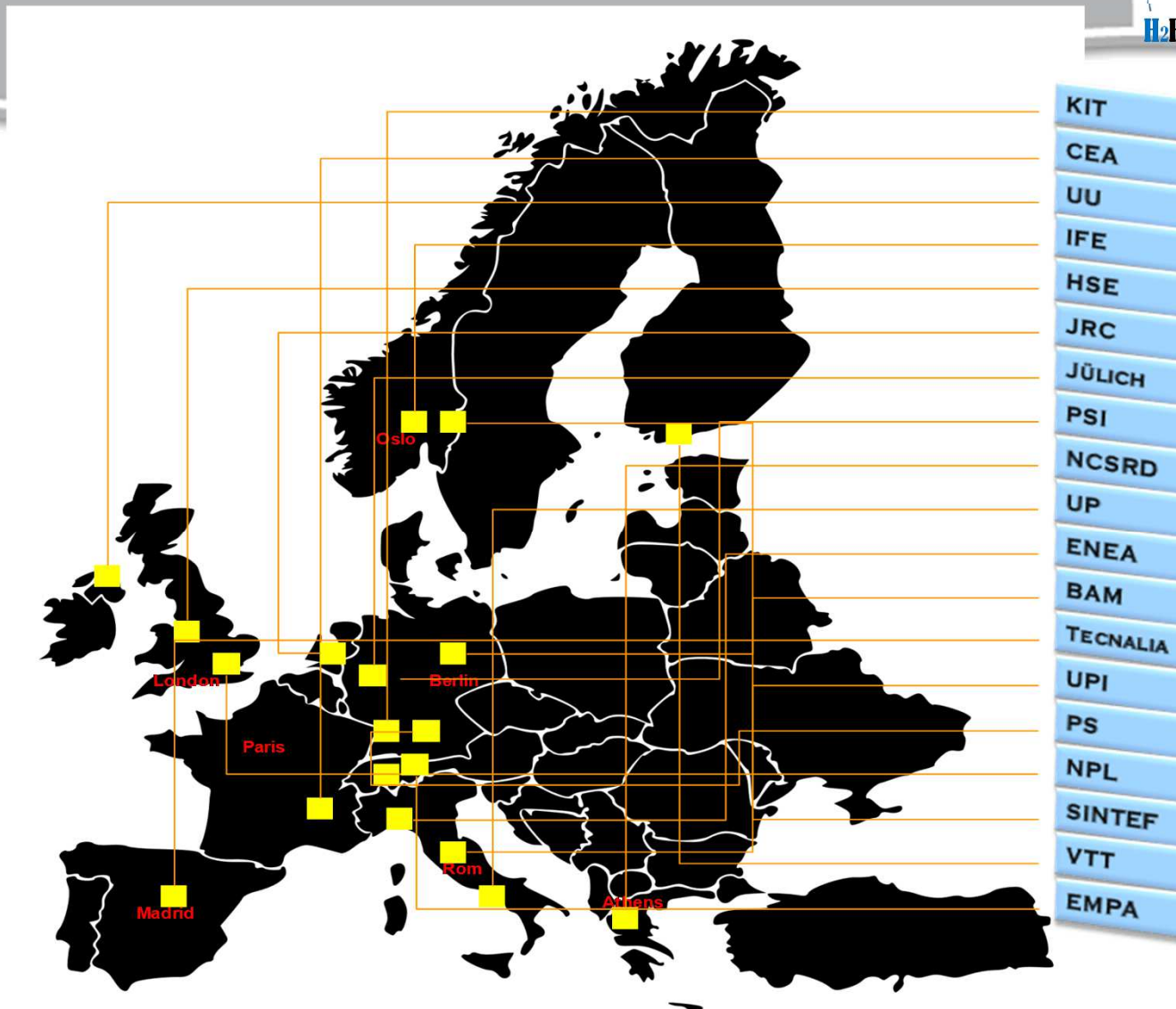
Integrating European Infrastructure to support science and development of Hydrogen- and Fuel Cell Technologies towards European Strategy for Sustainable, Competitive and Secure Energy

48 months duration (starting 1st November 2011 – 31 October 2015)

19 European beneficiaries

10.3 Mio € overall project budget

8 Mio € European Commission's contribution to the project



H₂FC European Infrastructure Focus

1. Support research and development concerning fuel cells and hydrogen (*practical part*)
2. Collect the knowledge about scientific and technical bottlenecks regarding fuel cells and hydrogen applications (*theoretical part*)
3. Distribution of information and knowledge (*educational part*)
4. To arrange an additional information platform to share knowledge (*sustaining part*)

Needs to get highlighted: **H₂FC** European Infrastructure offer research infrastructures to external users, free of access costs!

H₂FC European Infrastructure Project

1. Support research and development concerning fuel cells and hydrogen (*practical part*)

Results arising from more than 150 – 200 single projects (published)

2. Collect the knowledge about scientific and technical bottlenecks regarding fuel cells and hydrogen applications (*theoretical part*)

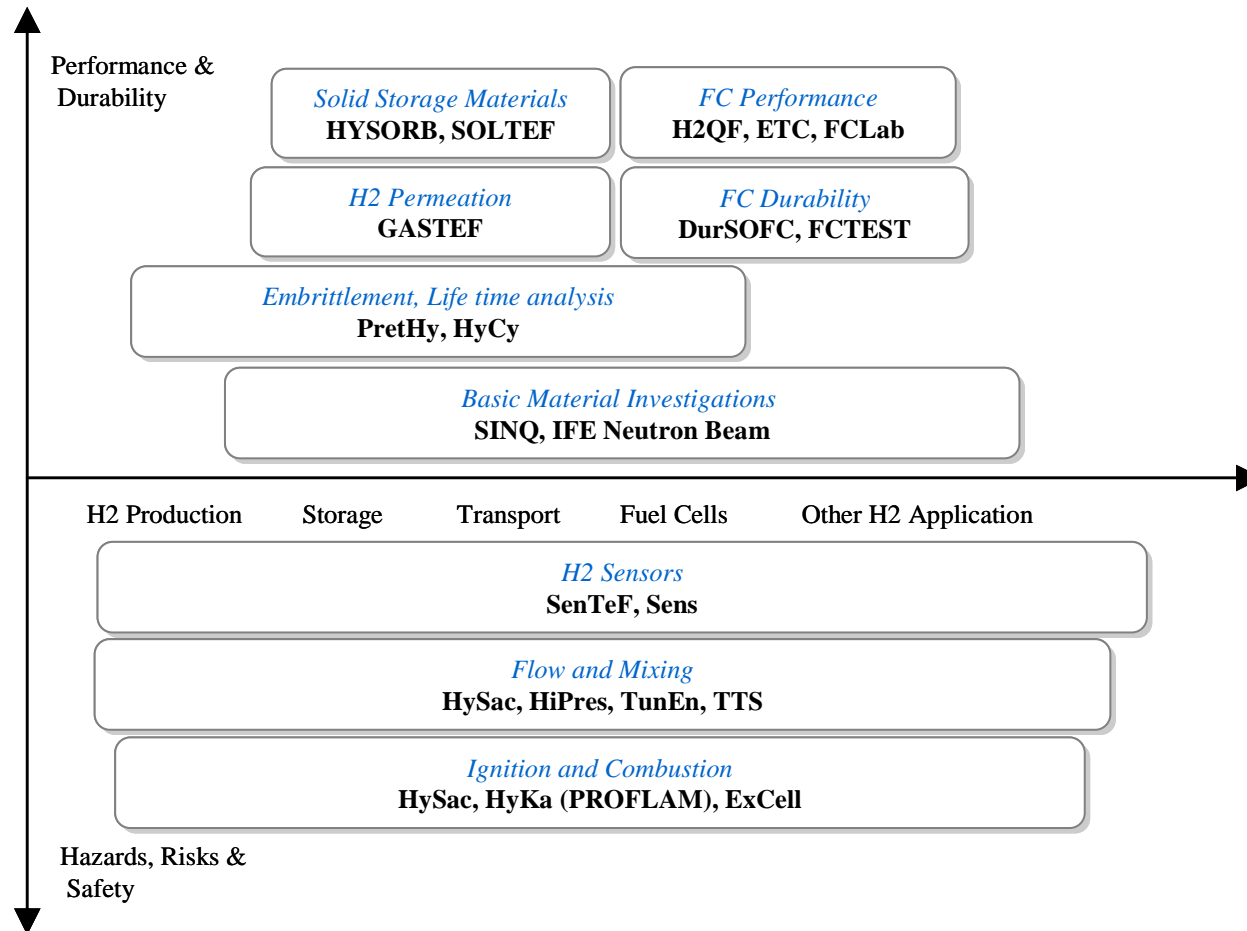
To inform and guide EC, FCH-JU, Funding Agencies and Stakeholders about necessities

3. Distribution of information and knowledge (*educational part*)

To share and spread experts knowledge and to educate scientists and engineers

4. To arrange an additional information platform to share knowledge (*sustaining part*)

To inform stakeholders continuously about news at research infrastructures through a Journal concerning research infrastructures (FC-H₂), cyber laboratory



Provider	Scientific segment (summary)	Estimated number of projects
14	Installation book (downloadable)	180
	Installation costs (operating costs within 42 months)	29.750.000€

Budget Distribution

