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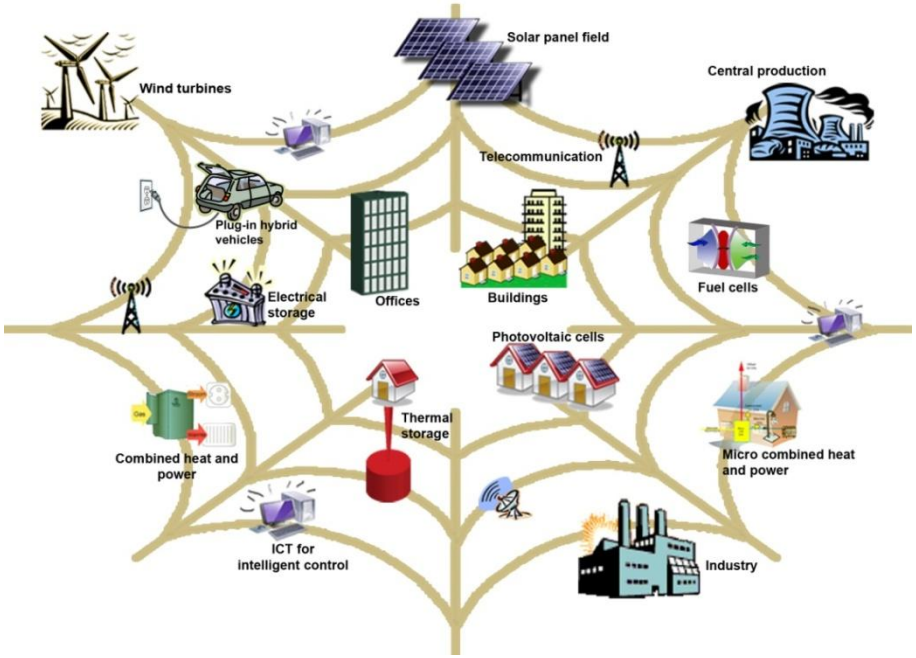

Defining a Strategy for Energy Storage

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Starting Point

- Definition of meaning of energy storage
- Demand for future research activities
- Demand for new structures

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Status Quo – Technical Aspects

Buildings

- Decrease fossil energy demand
- Increase overall energy efficiency

Industry

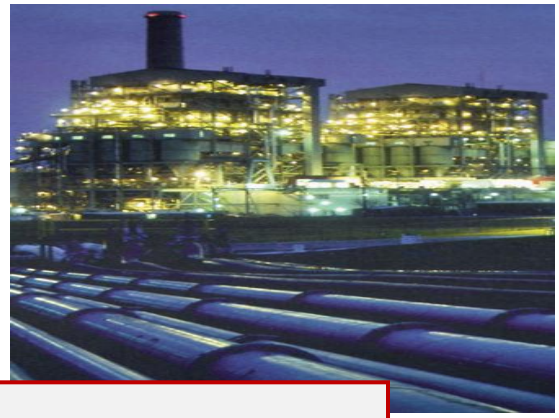
- Increase efficiency of all processes
- Reduce fossil fuel demand

Transport

- Minimize fossil fuel demand
- Increase of electrification

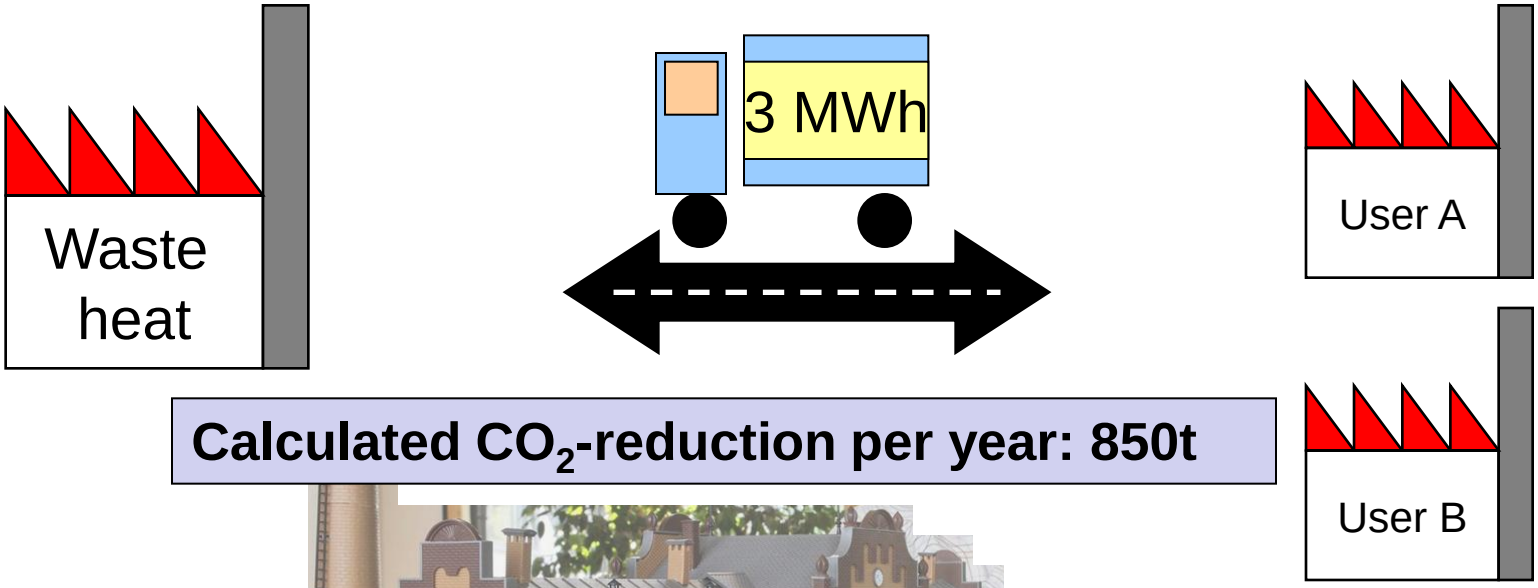
Energy storages are a key-technology even if there is a variety of different systems and applications

Energy storage – different perspectives



- Optimal solution is not only a technical question
- Superior criterias are necessary

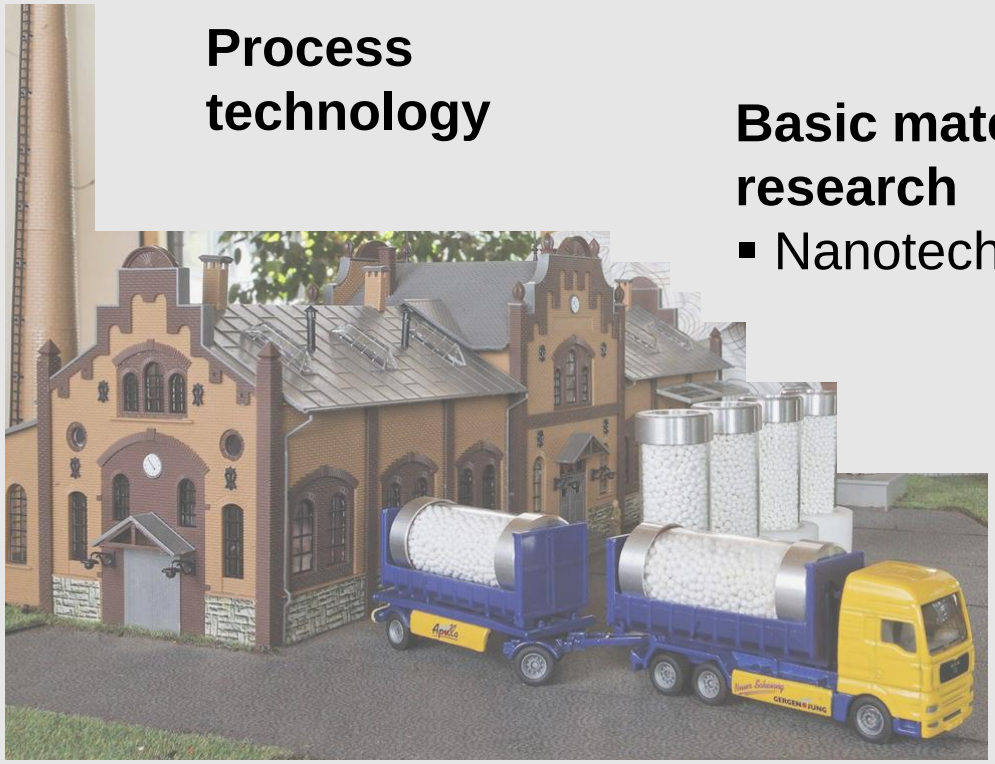
Energy Storage – simple idea …



Calculated CO_2-reduction per year: 850t

Even niche applications offer high energy saving potential

… but complex business:



Process technology

Basic material research
- Nanotechnology

Applied science

Mechanical engineering

Mathematics
- Modeling

to solve technical problems …

… and to achieve dissemination!

Needs:

- **to develop economic solution**
- **to convince industry**
- **to achieve social acceptance**
- **to convince policy makers**

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Technical Description …

- Characterise the storage material and system
- Characterise the system/process and the boundary conditions
- Identify RaD-demand and potential

Standardized templates and system approach

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… together with Economic Analysis

- Identify cost-relevant parameters
- Develop best-case storage systems for different applications
- Calculate benefit in comparison to standard-solutions

System solutions with well-known sensitifity of parameters concerning scientific progress and costs

Social Acceptance

- Analyze social milieus and people´s approach to identify most suitable pilot installation for different sectors (building, industry, transport)
- Realize demonstration objects in combination with competence centers to involve people
- Integrate results and examples in any kind of education

Different Cutting-edge milieus as preconditions for a corporate consensus

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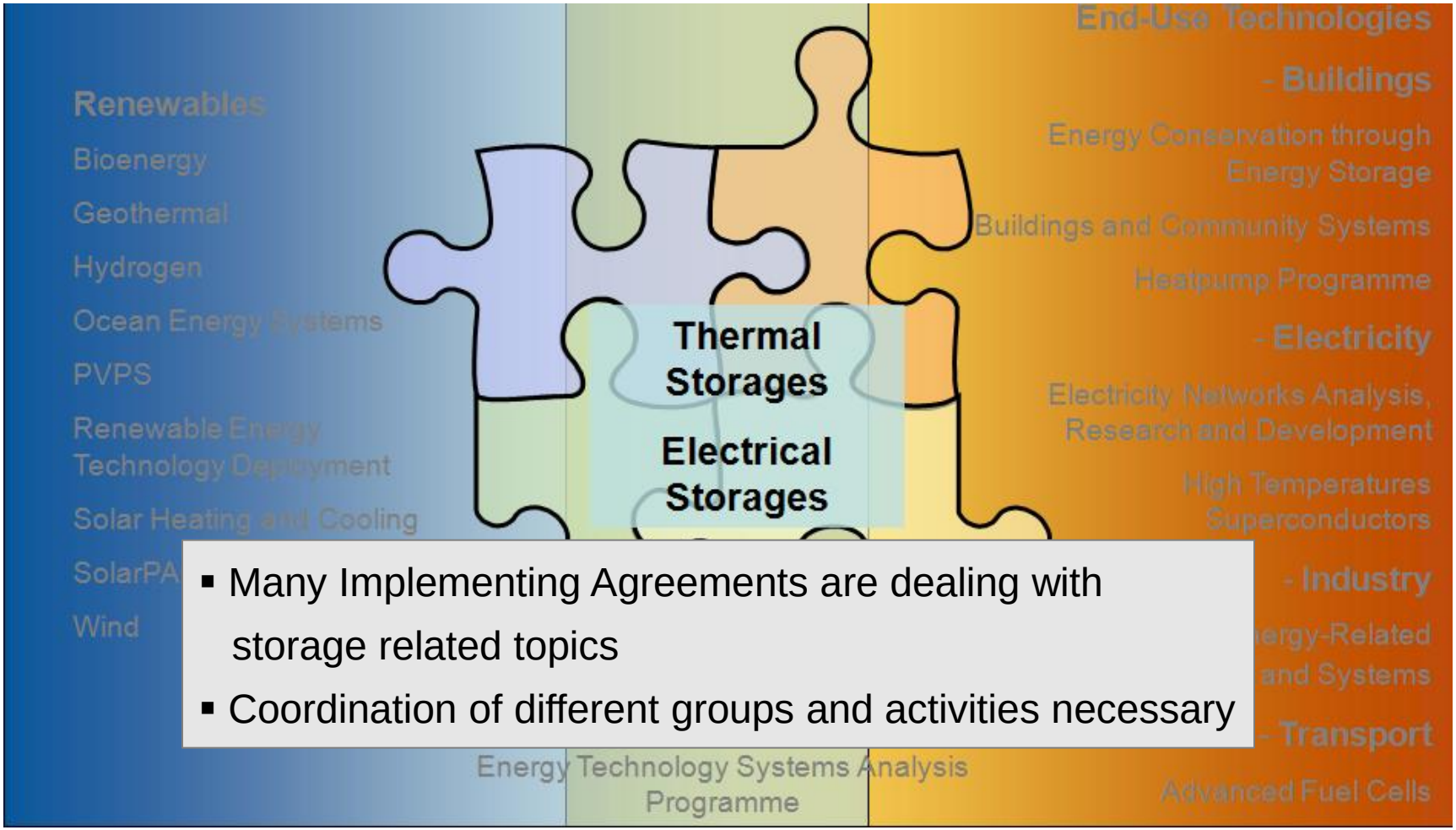
Final Results

- Success stories that are suitable to convince industry/investors
- Success stories and people´s acceptance influence policy makers

Pilot installations have multiplier effects

How to reach this goal – starting point



- Many Implementing Agreements are dealing with storage related topics
- Coordination of different groups and activities necessary

Actions and Results

Administrative Aspects

- Two Workshops have been organized from ECES to get to know the different views on energy storage and the demand for the different technologies
  (in Bad Tölz in 2009 and 2010)

- Coordination Activities should be separated from IA-level to increase general meaning and acceptance
- Storage Coordination Group can´t be linked to one Working Party
- Administrative Overhead should be as low as possible

Needs for the Future – Scientific Demand

- Workshops to bring together experts from different disciplines/IAs on a

  (Relevant points: Templates for storage characterisation,

  Expectations to future material research, …)
- Workshops for experts from economic and natural science

  (Relevant Points: Cost calculation and prediction for new storage systems,

  Amortisation times, …
- Workshops for experts from social, economic and natural science

  (Relevant Points: Identification of cutting-edge groups,

  Identification of pilot-installations and campaigns

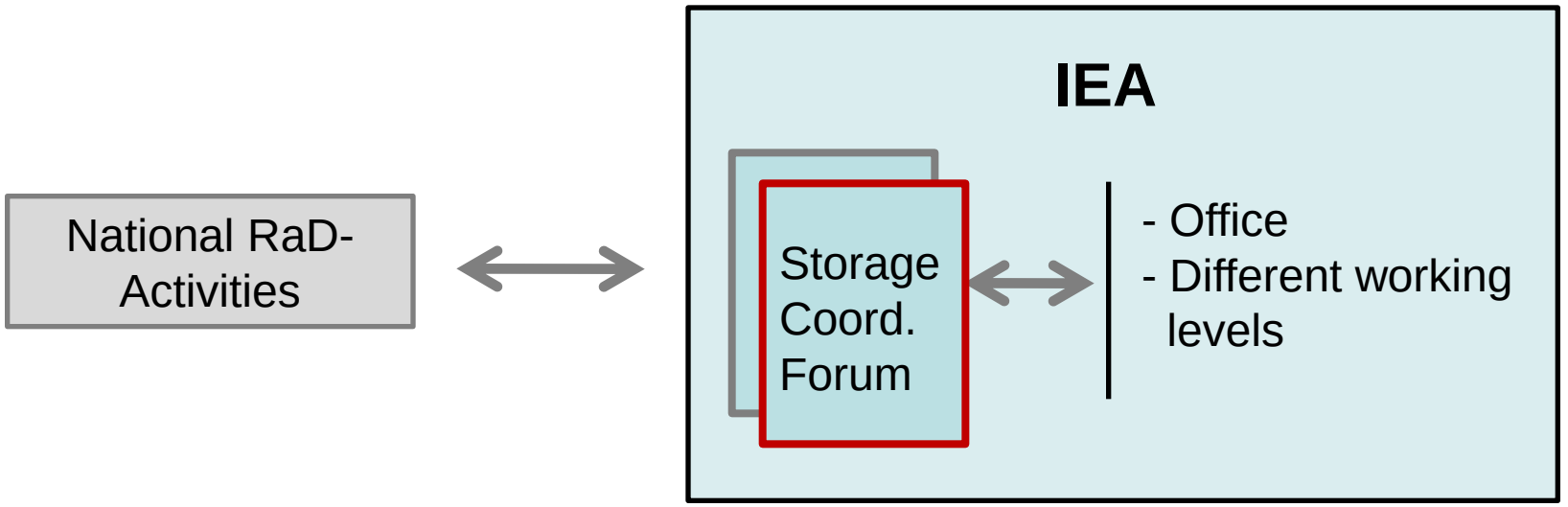
Storage Coordination Forum is the mediator and head of this process on an expert level

Needs for the Future - Implemention

- Conference to bring together scientists, industry and policy makers
- Disseminate the results for all target groups
- Prepare realisation of demonstration projects
- Continue the dialogue at the Technology platform to realize best-practice projects

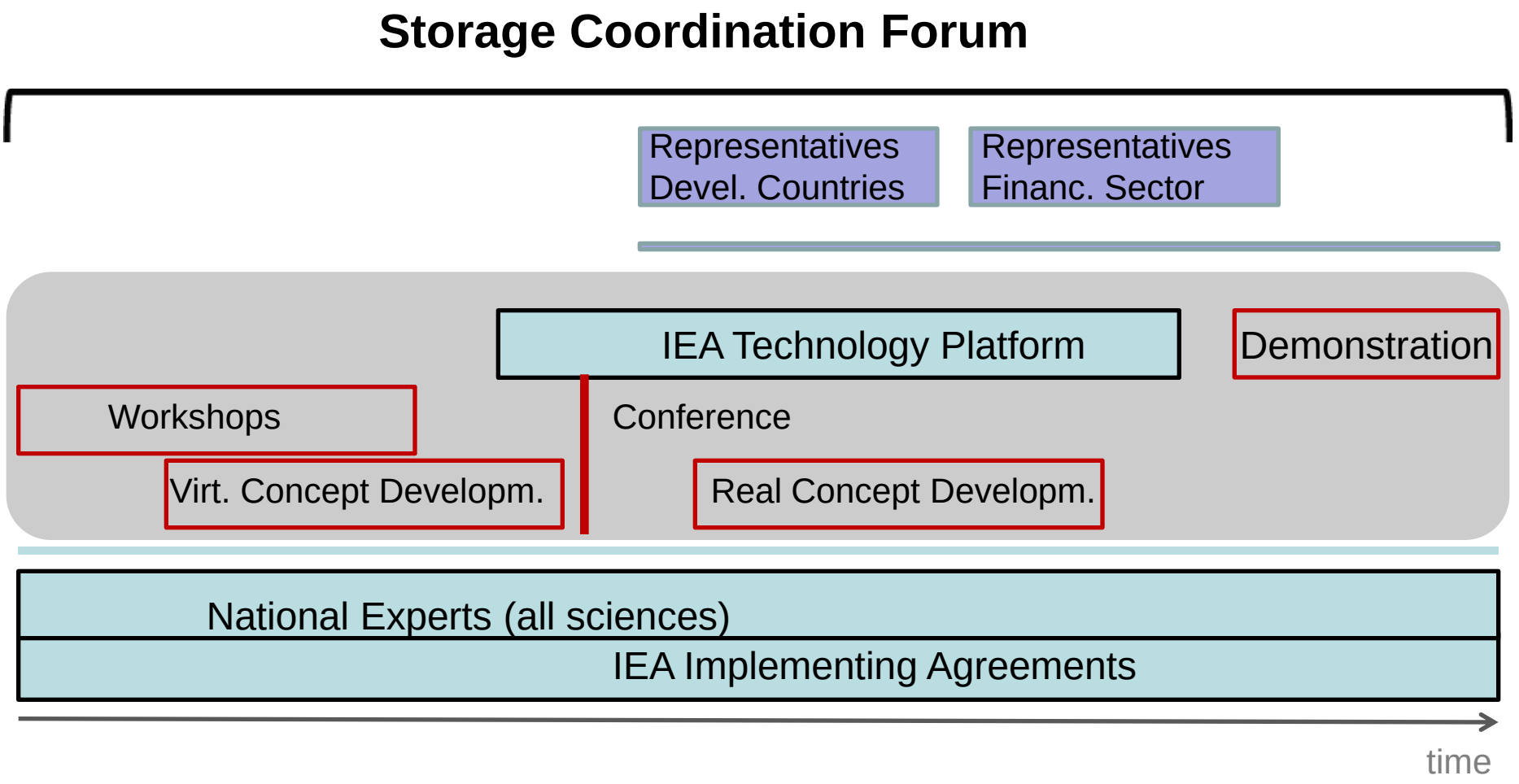
Storage Coordination Forum is the mediator between the different target groups and the scientists

Standing of the Storage Coordination Forum



- **Identification of relevant actors and disciplines**
- **Mediation of exchange on working level**
- **Extracting results to CERT/ other groups**

View on the Storage Coordination Activities

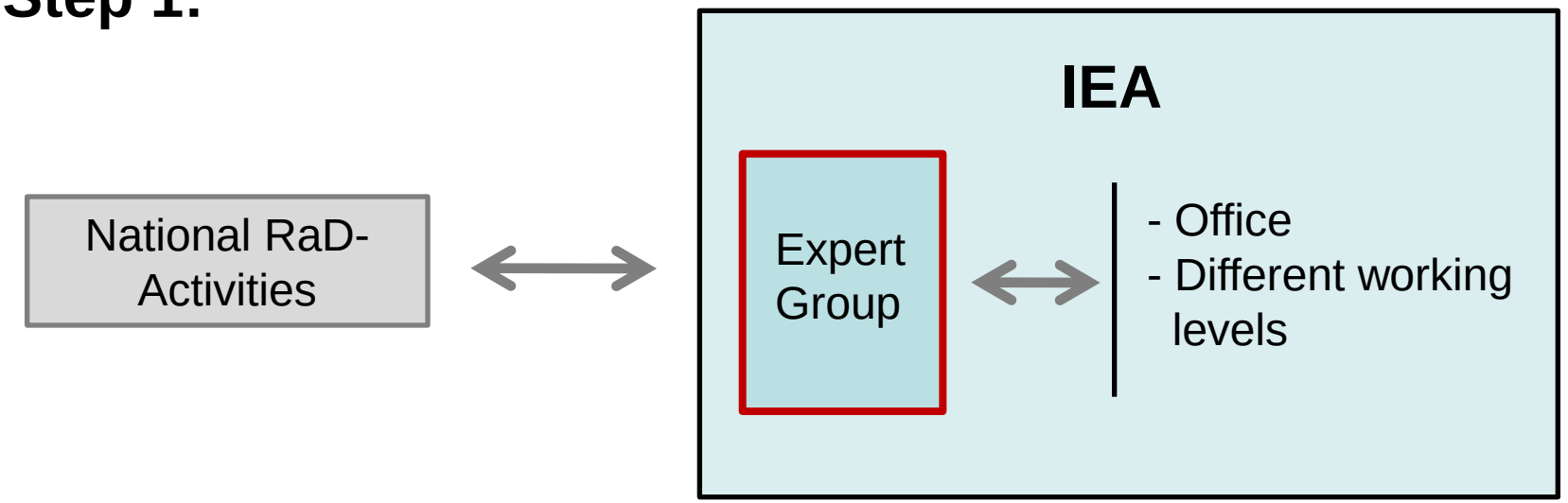


Summary

- Further improvement of storage-related systems addresses basic and applied research activities
- Economic questions and matters of public acceptance are as important as natural science activities
- Exchange between all these relevant groups has to be established and coordinated
- Dissemination of storage-related systems efforts moderated dialogue between IEA member countries, non-member countries, scientists, financial sector and policy makers

Who is responsible for the different steps

Step 1:



Identification of key-topics with high priority for CO2-reduction