



FCH JU Stakeholders Forum

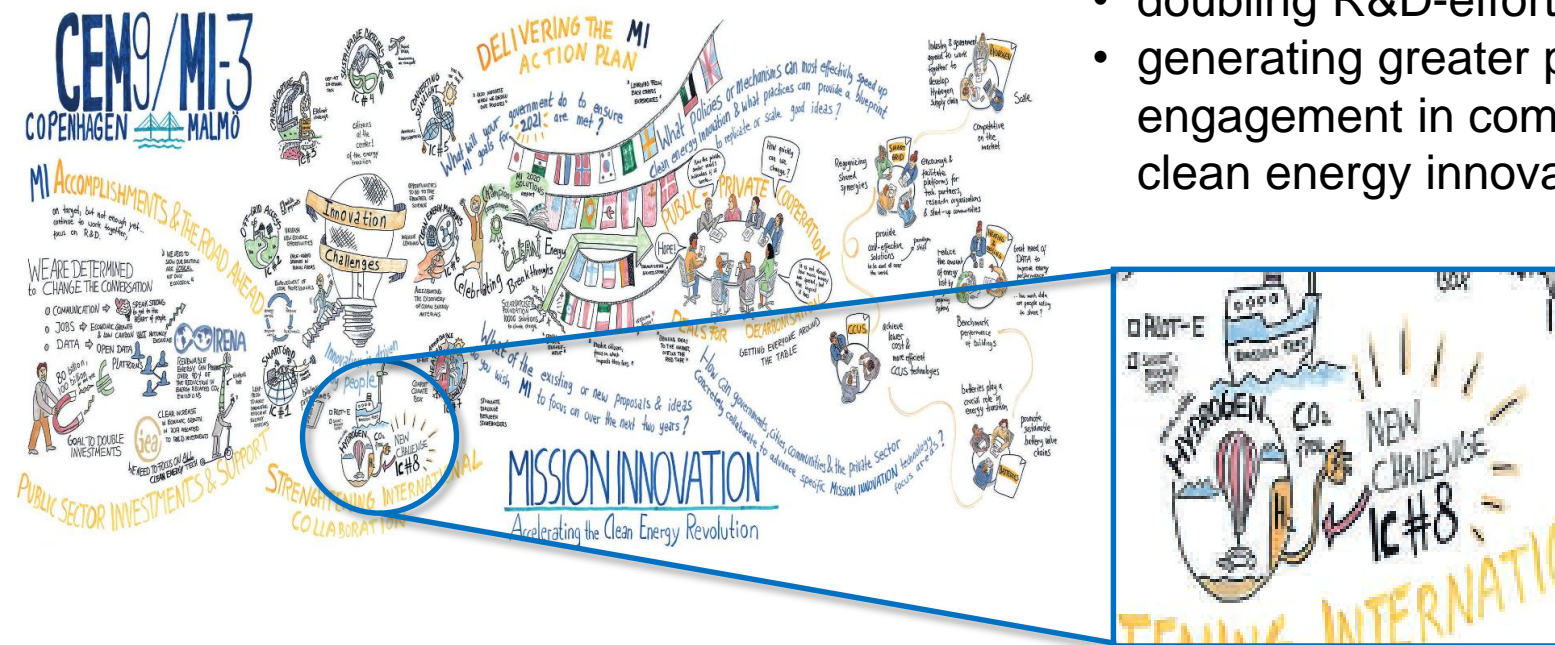
European Hydrogen Economy in a worldwide context

Brussels, 16th November 2018

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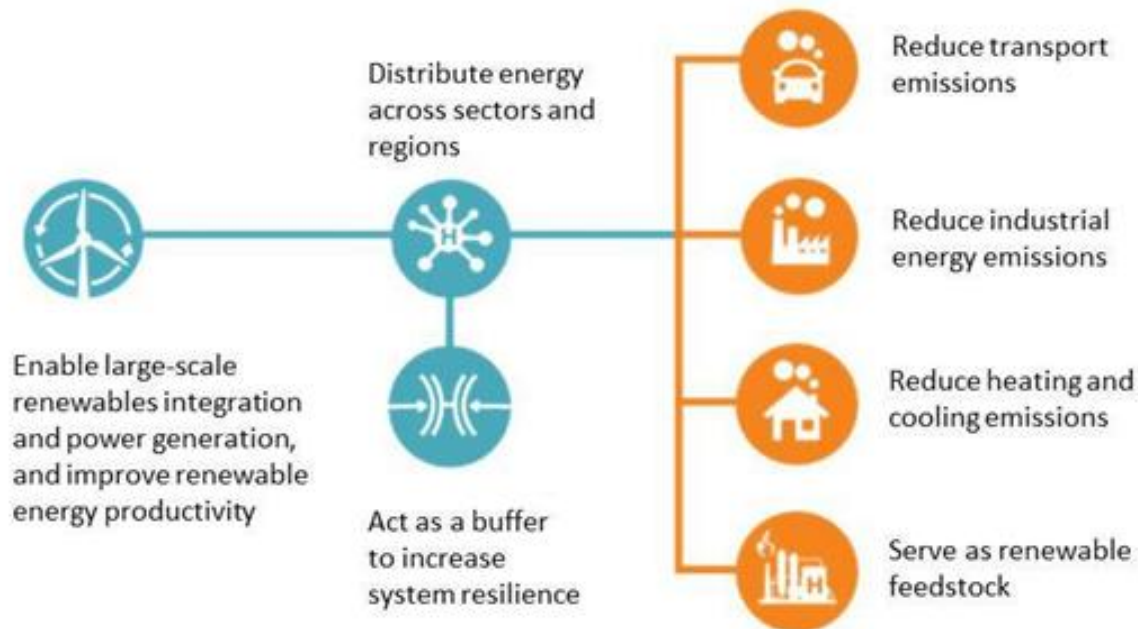
- 23 countries plus EU
- formed in 2015 to accelerate the transition to clean energy
- doubling R&D-efforts by 2020
- generating greater private sector engagement in commercializing clean energy innovation



MI-3
(Malmö, 23-24 May 2018)
**launched the
Renewable
and Clean
Hydrogen
Challenge
(IC#8)**

<http://mission-innovation.net/wp-content/uploads/2018/08/Post-card-MI3.pdf>

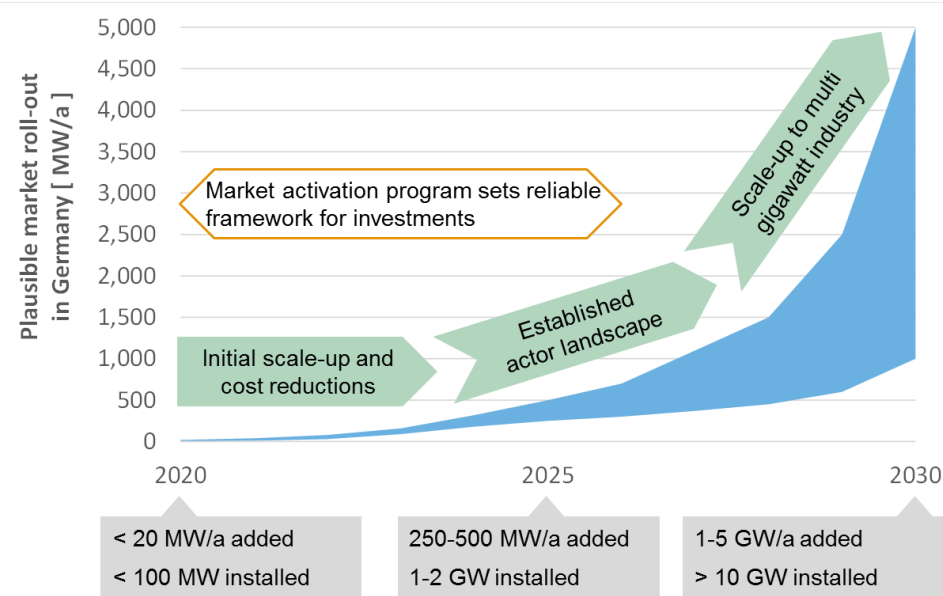
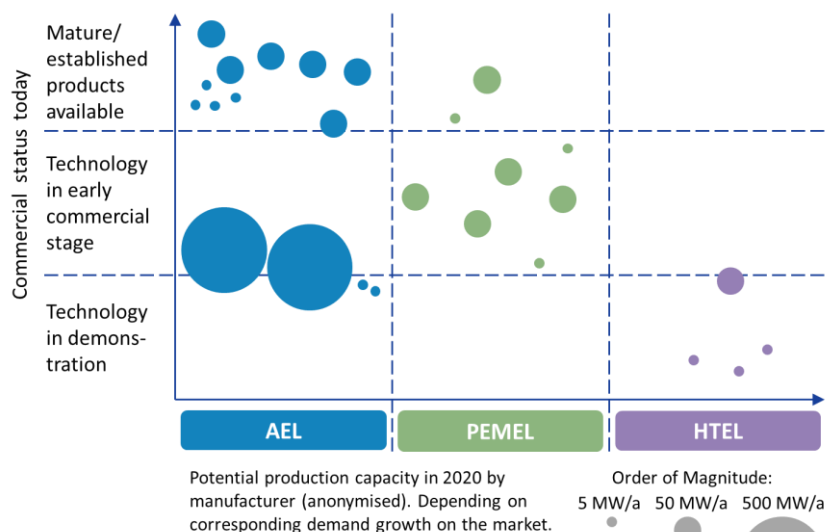
Hydrogen technology is a key part of the energy transition



<http://mission-innovation.net/our-work/innovation-challenges/hydrogen-challenge/>

Water electrolysis is a key technology for decarbonization

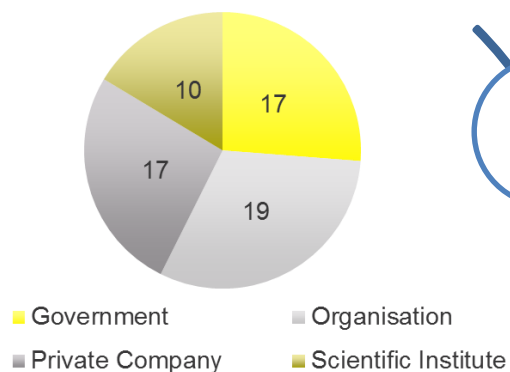
Technology is available – next step is scaling up production volume



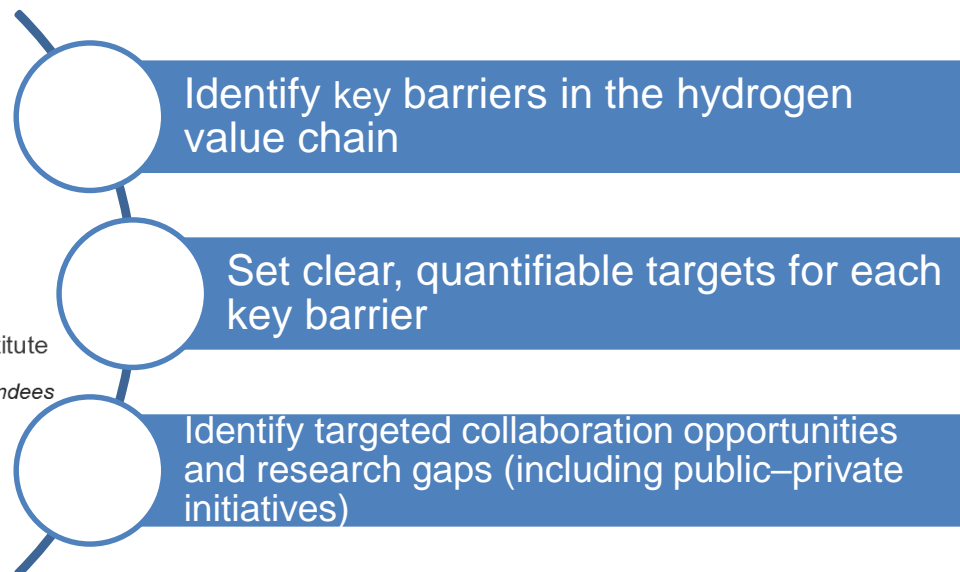
Deep Dive Workshop, Oct. 17-18, 2018, Berlin

63 Attendees
13 Countries
6 workshops

Form of organisation



* Absolute numbers of attendees



Governmental representatives from:

Australia, Austria, Canada, Chile, France, Germany, India, Japan, Netherlands Norway, UK and the EU

Workshop attendees from:



Key Messages from the Workshop:

Short-term opportunities exist to reduce CO₂-emissions in industrial processes (e.g. ammonia production, refinery processes) depending on country specific conditions (energy prices, CO₂-regimes, investment schemes, etc.)

Longer-term perspective for large scale renewable and clean hydrogen production depending on further cost reduction via economies of scale and appropriate policy frameworks:

- hydrogen in an integrated energy system (power, heat and transportation)
- hydrogen in CO₂-intensive industry processes (e.g. steel)

Due to higher cost of innovative solutions with renewable and clean hydrogen compared to incumbent systems the main challenge is to manage the transition towards industry and energy relevant volumes (production capacity, system integration):

- public interest: achieve climate change targets
- private interest: unlock business opportunities

The next step is to scale up from MW to GW.

Identified focus areas

‘Innovation’ covers the full spectrum along the value chain from basic and applied R&D to measures for market activation. Industrial integration combining technology, business models, market design and system operation is a key element of the innovation process.

The Renewable and Clean Hydrogen Challenge of Mission Innovation has the ambition to enable cross-border

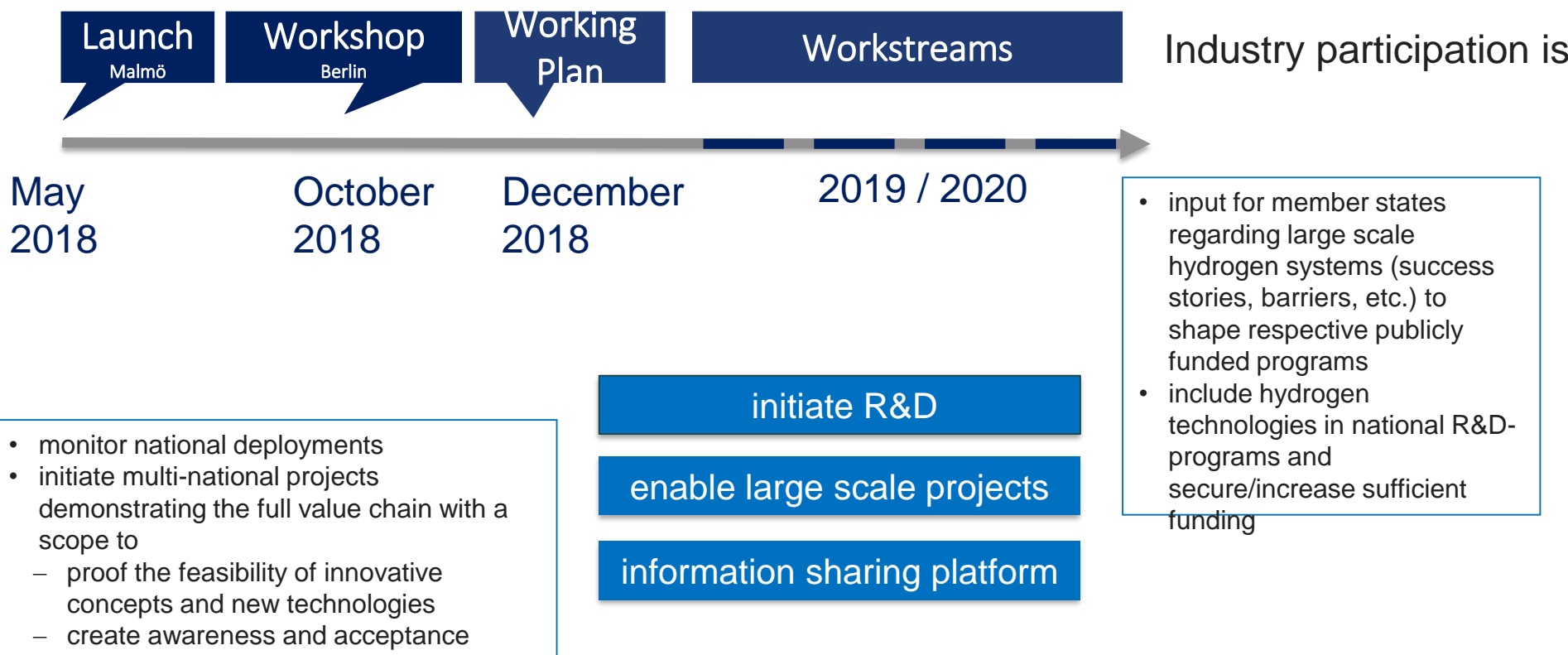
1. Research and Development activities

2. Large scale demonstration along the full value chain including hydrogen production, distribution and usage

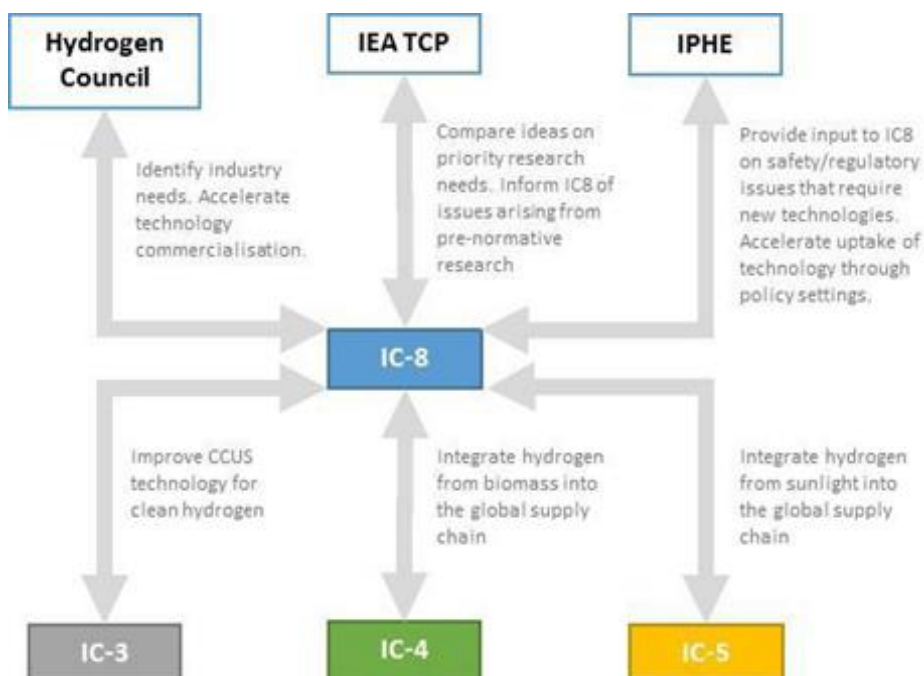
International information sharing leveraging existing structures and organizations creates awareness, increases visibility accelerates deployment.

Timeline for the Innovation Challenge #8

Mission Innovation is set up until 2020



International information sharing



A global hydrogen alliance¹⁾ could provide a platform for a high-level public-private dialogue, increasing the awareness regarding the potential impact of hydrogen in the context of global CO₂-reduction targets.

Existing international organizations can support this global dialogue by providing networks, expertise and analysis:

- **IPHE** – intergovernmental exchange on policies and international standards
- **IEA TCPs** – academia and industry participation providing technical expertise (studies and research networks)
- **MI H2 Challenge** – government, academia and industry participation to accelerate deployment based on targeted R&D

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