# Fuel Cells & Hydrogen Research in Europe
# Hydrogen as Enabler for a Zero-Emission Society

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10 YEARS | FUEL CELLS AND HYDROGEN JOINT UNDERTAKING

# Collaboration between research and industry is key to make ideas become a reality

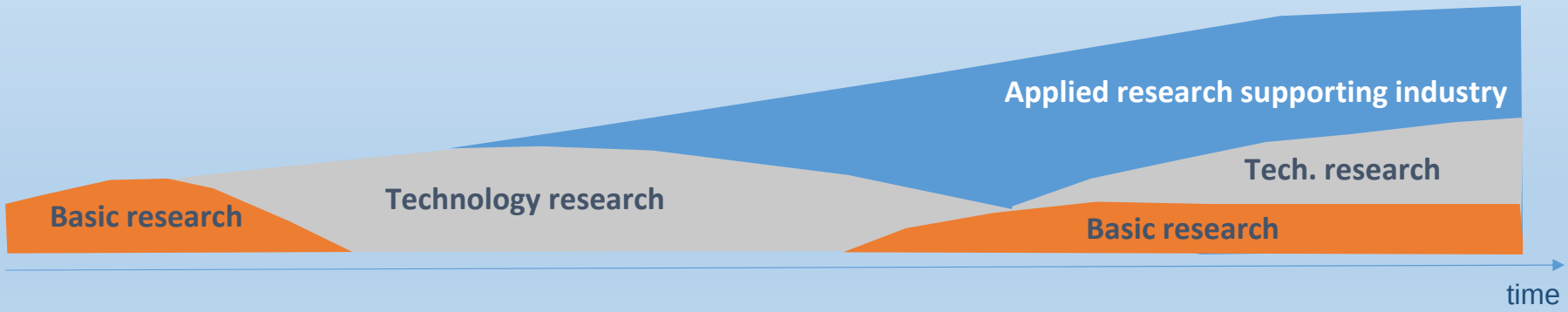
Hydrogen Europe Research

Definition of a business case | Large scale validation | Committed deployment | Market take-off

Getting core technology to the point where the “known” equipment meets the needs of viable business models and the main investments can begin.

Improving the business case.

This research work will increase as the potential profitability of the sector is demonstrated.




Research is needed all along the value chain

# 1. By building a European R&D community in FCH technologies

Hydrogen Europe Research

an exceptionally well-structured, well-identified research grouping through the association Hydrogen Europe Research providing competence, capacity, capability, continuity



68 full members
from 18 members states

Virtual Competence Centres in European FCH R&D

# 2. By establishing common objectives leading to a competitive Europe in Fuel Cells and H2 technologies

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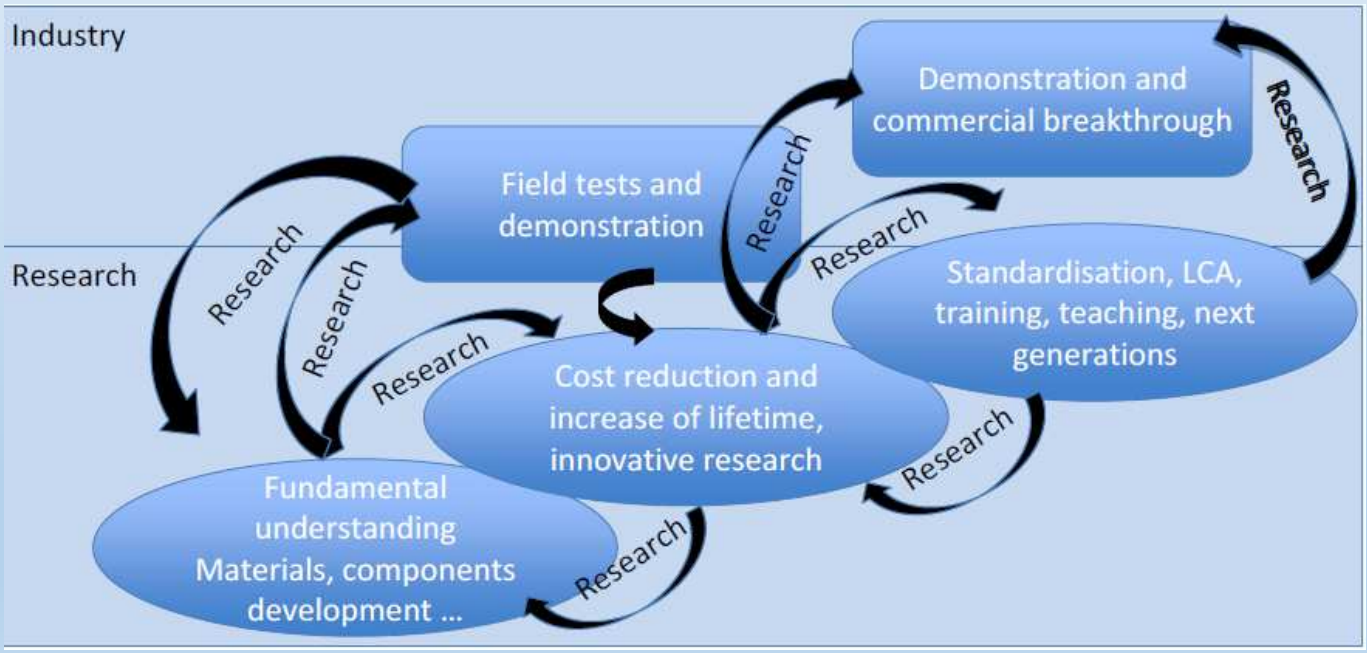
- Common understanding between industrial, research and political perspectives
  - Clear and detailed industrial guidance
  - Research challenges clearly defined
  - Complementary capabilities, no overlap or gaps

- Clear, quantified and focused objectives
  - Multiannual work plan (MAWP) with Key Performance Indicators (KPIs)
  - Annual work plan (AWP)
  - Both established in an open process

# 3. By intensifying research and industry collaboration

- Better alignment of research efforts with industry needs
- Facilitate pursuit of successful project outcomes enabling to shorten the time to market



# Role of the Research in FCH beyond 2020

- Europe can be a **major manufacturer of components and systems** in the global competition, mastering security and safety of products for EU citizens in areas such as hydrogen and fuel cells.

- To succeed, technological research centres (RTOs) and universities have to:

  - **be positioned at the forefront of innovation**, combining technological and financial resources with the mission of safeguarding the welfare of EU citizens.

  - continue and even enhance the **close collaboration with the European industry**, in particular through collaborative projects in a strong and coordinated ecosystem.

# EU research positioned at the forefront of innovation

## Contribute to keep European industry at the forefront of innovation

- Prepare the next generation of innovations, products and services **by developing breakthrough science and technologies** (TRL 1-3)
- **Address critical technical barriers** to foster Hydrogen & Fuel Cells technologies to achieve commercialization by the implementation of a strong industrial base to ensure a clear European value chain in the sector (TRL 3-6).
  EU must fight to keep the control of the production of key critical components of products within Europe starting with some pilot lines.
- **Educate and train** engineers, technicians and operators to ensure highly qualified jobs the European Hydrogen and Fuel Cells industry will need.

# Conclusions

- FCH JU, as a Public Private Partnership instrument, has allowed to structure a strong ecosystem of 110 companies and 68 R&D centres to deliver impactful innovations in the field of Hydrogen and Fuel Cell technologies.
- EU is indeed a leader in electrolysers, refilling stations, hydrogen buses and hydrogen trains to name only a few applications.
- However, it is crucial to prepare the next generation of innovations, products and services for EU **in parallel to** establishing a strong European industrial supply chain in this field in order to remain in the global competition.
- **Hydrogen Europe Research** hereby strongly recommends:
  - To continue investing on hydrogen and fuel cells in FP9
  - To support breakthroughs and next generation commercialisation of products. Therefore, IPPP must widen the TRL coverage from TRL 3-6 to 1-6 in order to secure a sustainable EU industrial supply chain


# Hydrogen as enabler for a zero-emission society