

Hydrogen Flagship Project H₂Giga: Serial Production of Electrolysers

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H₂Giga

H₂Giga is dedicated to R&D on industrialization and scale-up of water electrolysis – a precondition to make green hydrogen available on gigawatt scale.



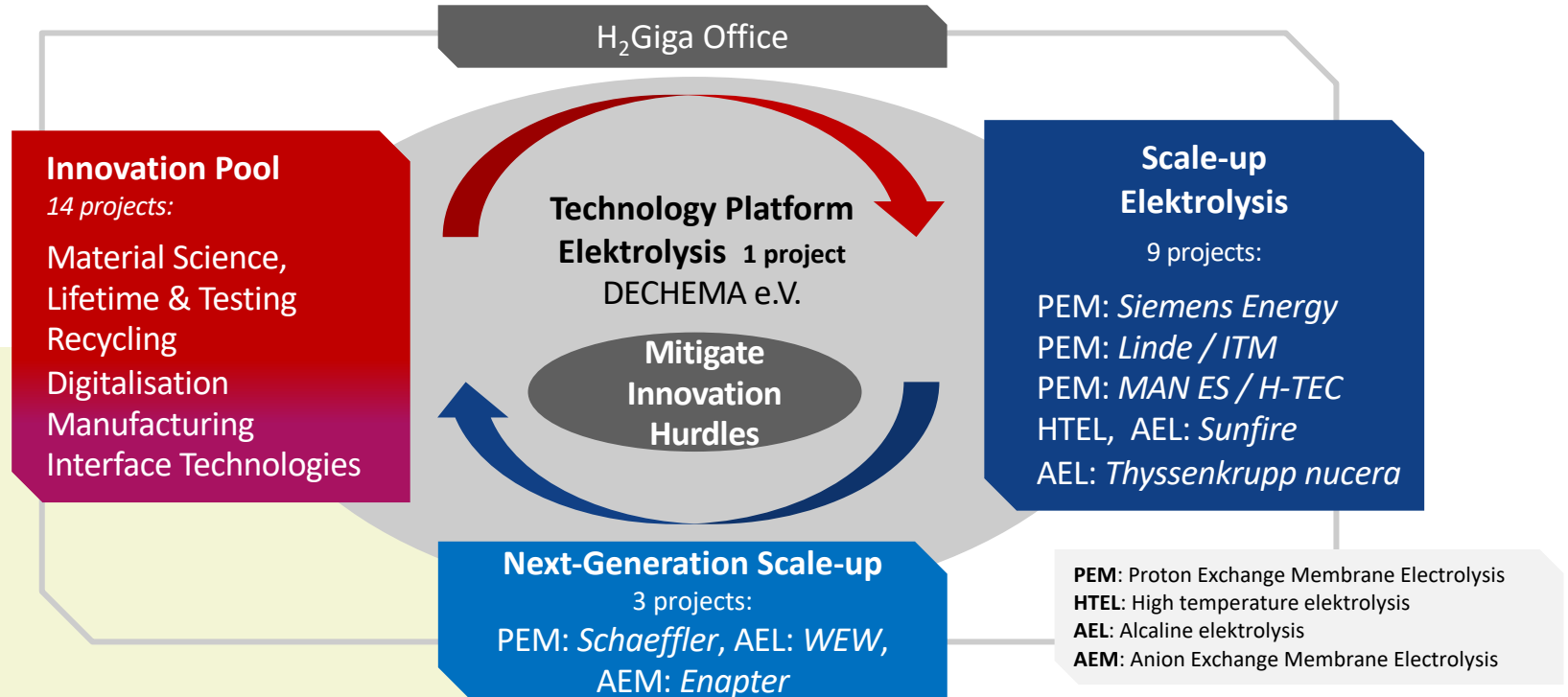
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H₂Giga at a Glance (as of 09/2022)

- ▭ **Participants:**
 - ▭ 27 joint projects (independent)
 - ▭ Approx. 120 partners
 - ▭ Partners from industry, SME's, start-ups, universities, research centres
 - ▭ One joint project is ‚Technology Platform Electrolysis‘ = networking project in H₂Giga, coordinated by DECHEMA e.V.
 - ▭ Hydrogen Flagship Projects are still open for new, matching joint projects or partners

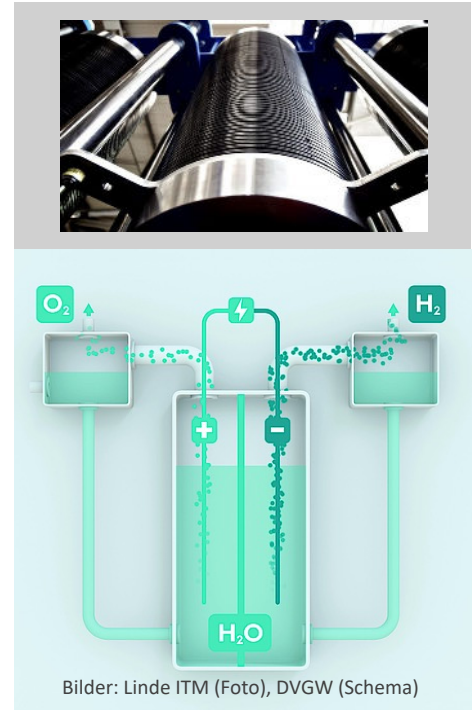
- ▭ **Duration:** 4 years; from 4/2021 to 3/2025 (exceptions: to 9/2025)
- ▭ **Funding:** ca. 450 Mio. €

Structure of Flagship Project H₂Giga



State of the Art and Project Goals

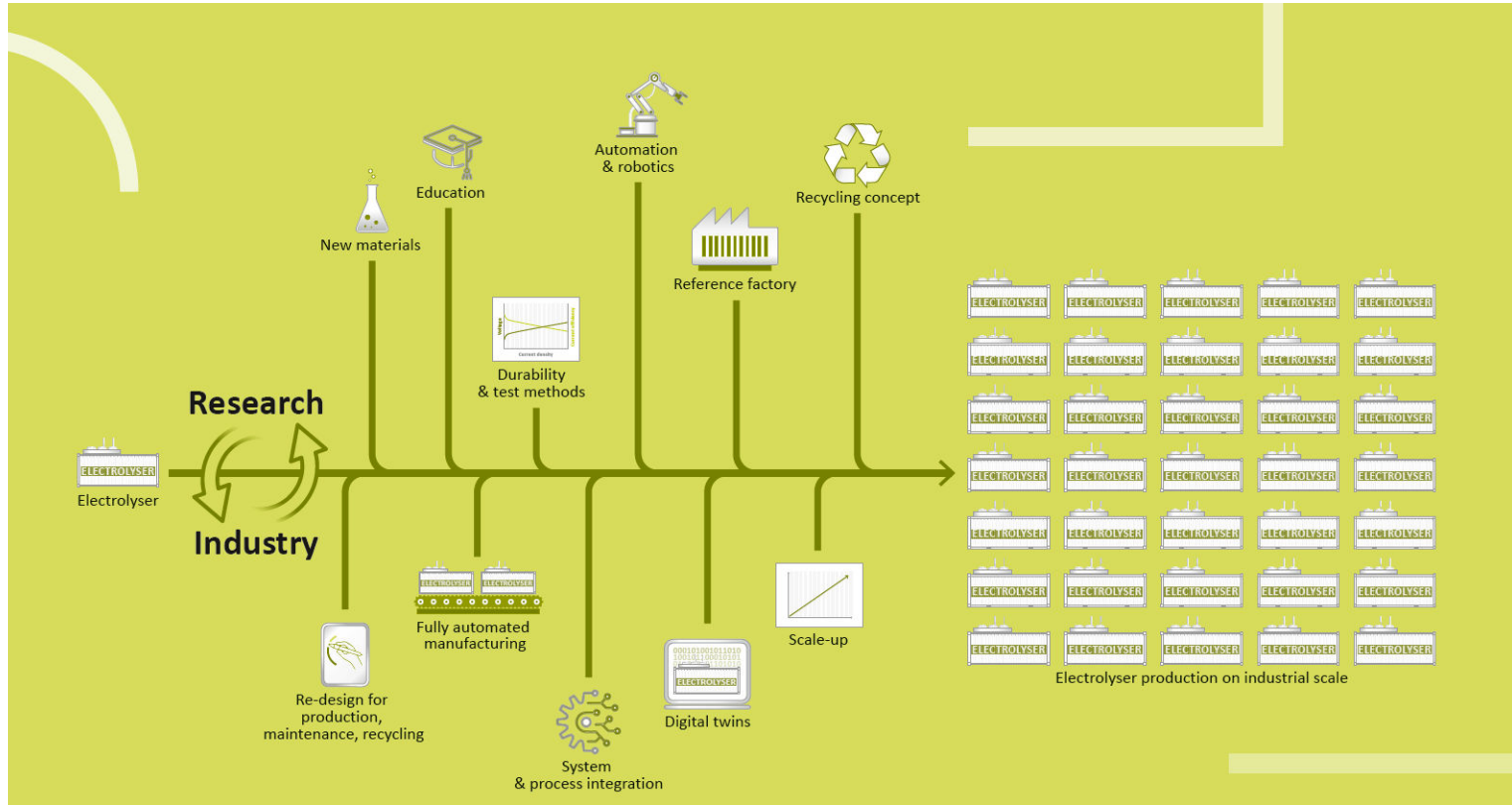
- Electrolysers are a mature technology, however ...
- For our mid-term needs of green hydrogen the capacity of electrolysers is far too low (> factor 50)
- Today crucial steps of electrolyser production contain hand processes, are not automated, causing low throughput, compromised consistency, high cost
- → **H₂Giga develops technologies enabling production of electrolysers on an industrial scale**



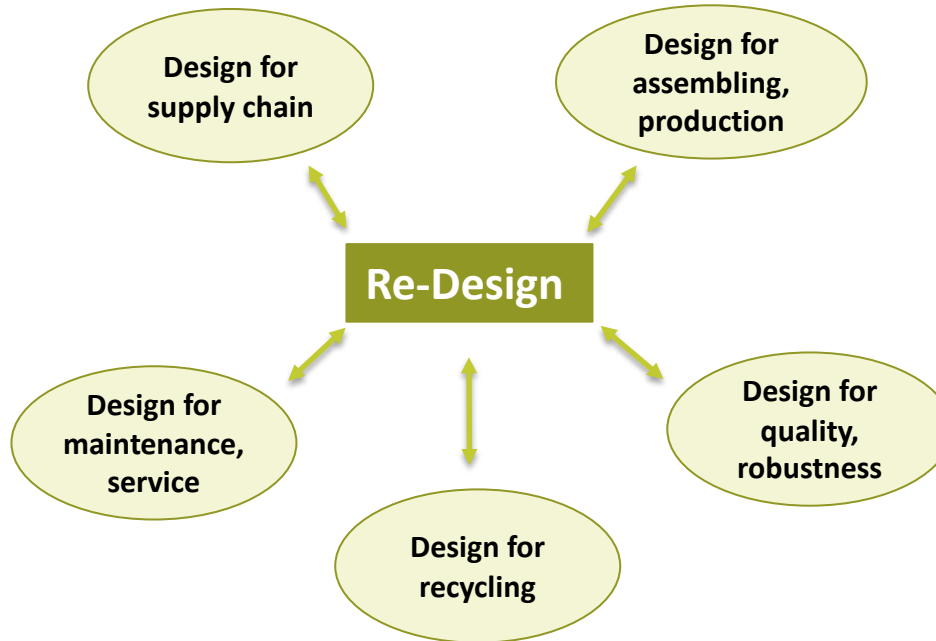
Platform for Manufacturers, Suppliers and Research Partners

- **Goal:** Develop technologies for industrialization and scale-up of water electrolysis to achieve gigawatt scales / year installed electrolysers

- **R&D topics in the 27 H₂Giga joint projects:**
 - Design for production
 - Manufacturing & robotics
 - Digitalization, digital twin
 - Material development
 - Lifetime & cell testing
 - Recycling
 - Regulatory, standardization
 - Training
 - Interaction Industry & Research
 - Communications, PR
 - Technology Roadmap for industrialization of water electrolysis



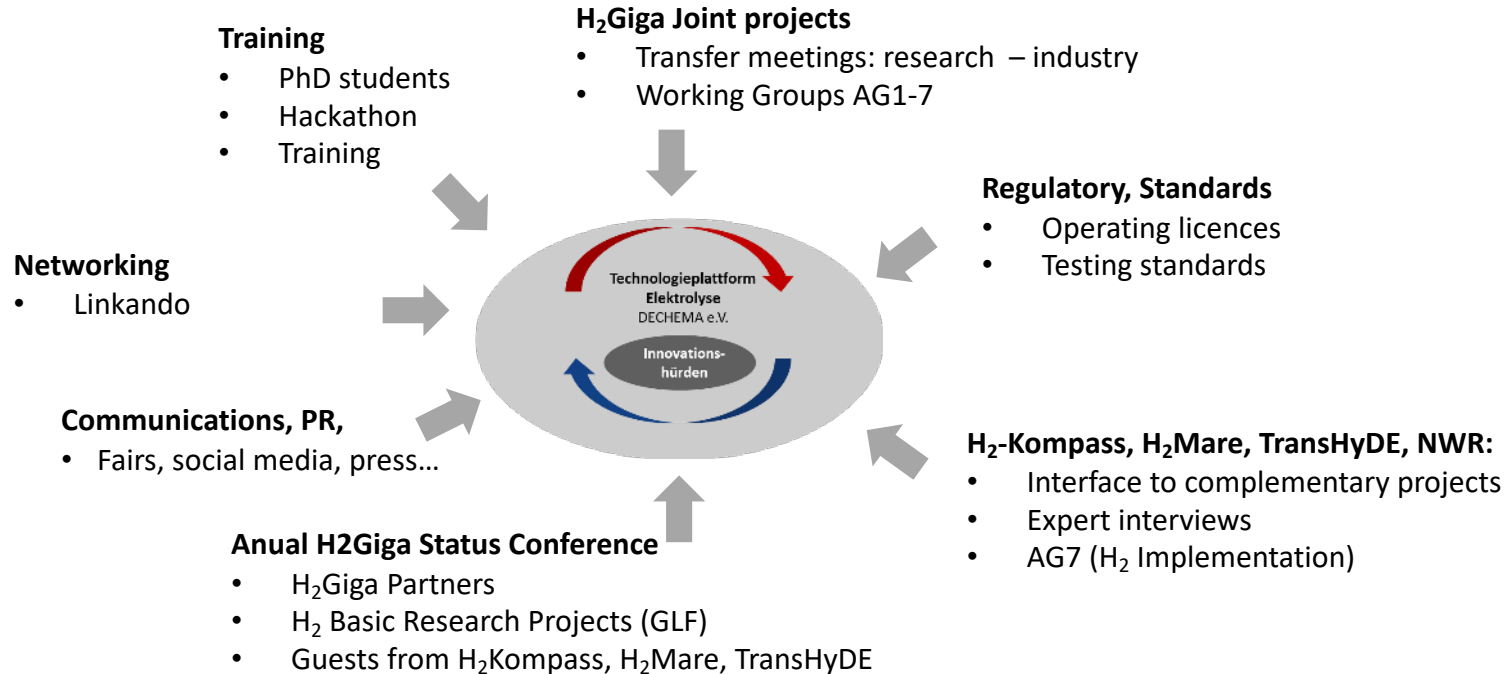
Re-Design of Core Components: *Design for Production*



Examples für Manufacturing & Robotics

- Technologies for automated assembling of MEA, stack
- Modular and scaleable of pilot plant
- Plant Engineering, design basis
- Continuous quality monitoring and documentation
- Develop and utilize digital twin of product and plant

H₂Giga Network: Technology Platform Electrolysis *)



*) examples, not complete

Thank you for your attention!

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