HYDROGEN (H_2)
VANGUARD INITIATIVE

NextGen Electrolyser Systems and Key Components Manufacturing via an ecosystem approach

VI HYDROGEN PILOT SUMMIT

Provincie Noord-Brabant

BOM
Catalyzing Change

October 26th 2026, Brussels

SBRA
Slovenian Business & Research Association

LE2C
LOMBARDY ENERGY CLEANTECH CLUSTER

MAŁOPOLSKA
INNOVATIVE

SRIP CIRCULAR ECONOMY

NL / Brabant Development Agency (BOM) - a sustainable Brabant economy

BOM
Foreign Investments

Supporting foreign companies

BOM
International Trade

Doing business abroad

BOM
Brabant Ventures

Investing in start- and scaleups

BOM
Renewable Energy

Creating an energy project

BOM
Ecosystems development

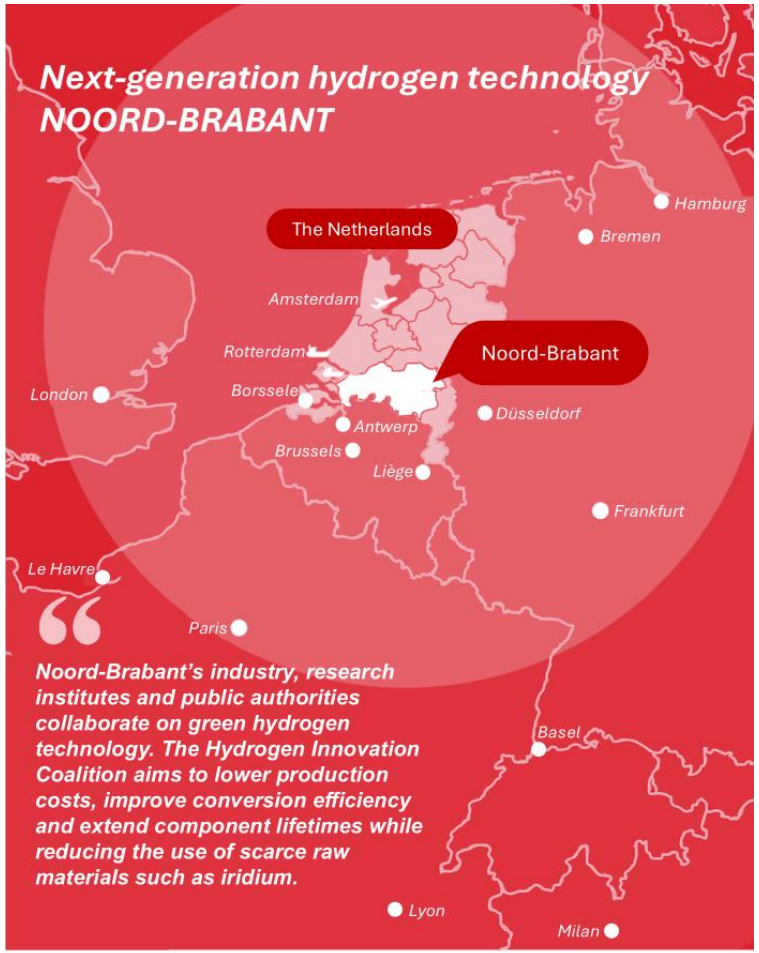
Innovating together

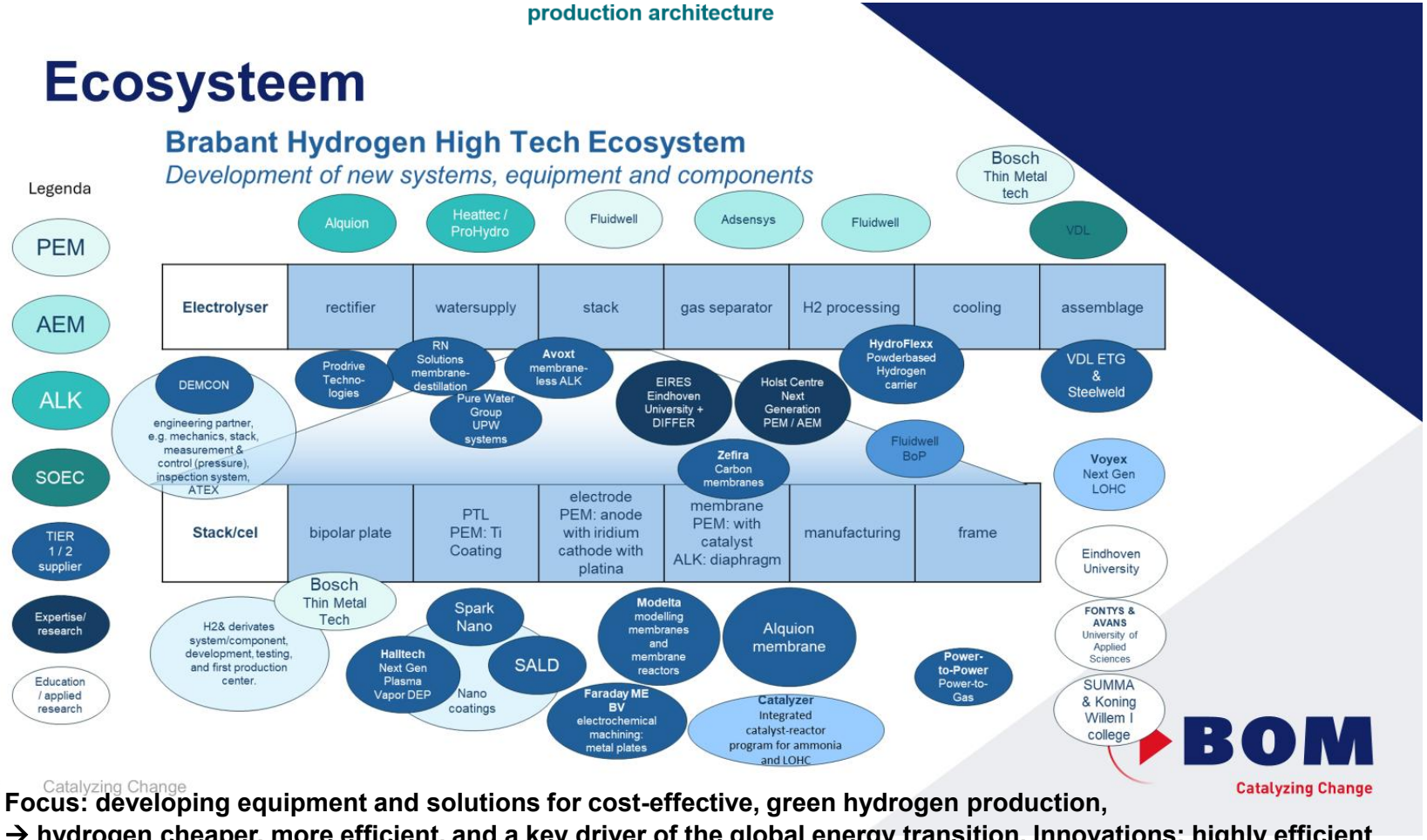


High impact growth in Brabant

NL Brabant Ecosystem 2026

- **Hydrogen production must be cheaper and more efficient;** the price of the alternative energy source or holder in cooperation with the lost efficiency are the most important factors for the success of the hydrogen transition.
- **Reducing the use of scarce raw materials** and increasing the lifespan of components by applying thin film technology (S-ALD) to electrolyzers, membranes and other components.
- Development of new generation electrolyzers/ components to fit **within the existing production architecture**





Focus: developing equipment and solutions for cost-effective, green hydrogen production,
→ hydrogen cheaper, more efficient, and a key driver of the global energy transition. Innovations: highly efficient electrolysers, components with long lifetimes, and designs
→ minimize the use of rare earth metals like iridium,
+ fitting seamlessly into existing production systems.

Provincie Noord-Brabant BRABANT BUSINESS REGION BOM Catalyzing Change

Provincie Noord-Brabant

The Innovation Coalition: Hydrogen

Our partners



Examples



SiC Rectifier (important part of elektrolyzer that does the power electronics; power input, conversion, current to water/membrane etc) from ProDrive

Til it works Campus

P2X test center Tilburg

Pitch: Tilburg Test Technology for a CO_2 neutral future



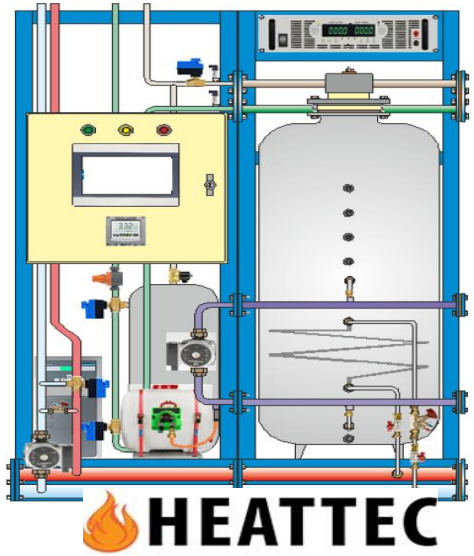


Membrane distillation; salty water → UPW



Spatial ALD tool (application of nano coatings to a surface; works atmospherically) from SALD





BLEND: **Hydrogen Fieldlab and Talent development**

TU/e EINDHOVEN UNIVERSITY OF TECHNOLOGY
Dr. Ir T. de Groot

avans university of applied sciences
Lector J. Doomernik
Lector S. Mohammadi

SUMMA Automotive
truckcollege
R. Akkerman

Fontys UNIVERSITY OF APPLIED SCIENCES
Lector P. Thune

Co-Creatie & opleiden professionals:

AVOXT, BOSCH, RWE, RIFT, DENS, Witteveen+Bos, MAC, VDL, TRUCKLAND, CFG, MAN, Louwman, NEDIM, oostendorp, VOLVO, RENAULT TRUCKS, beukersgroep.com, ASV, Driessen, VAN DEN UDENHOUT, NEFKENS, Hekkert, VR, HEDIN, CONTECH

1. Blended LLO, mede via remote energiesystemen:
   - Electrolyser (PEM + Alk)
   - Fuel cell
   - Elektrische aanstuursystemen in voertuigen
   - IJzerpoedersysteem





2. Realiseren van een learning community met fysieke leer- en demonstratieplaatsen te Eindhoven, Helmond en Breda



Inclusief werkplaatsen voor interdisciplinaire studententeams (MBO-HBO-WO)

SOLID, TEAM ENERGY, Rotterdam, SHIFT | the future of hydrogen

Proposal for collaboration

- B2B projects
  - Crossing border joint business projects and public funding
  - Business matchmaking

- K2K projects
  - No rare earth metals/PFAS, industrialized production, low energy consumption
- G2G projects
  - Cooperation between governmental bodies to simply and support more business between NL and Polish/Slovenian/Slowak/Spanish/… companies; develop more trade

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Provincie Noord-Brabant

BOM Catalysing Change

HYDROGEN (H_2) VANGUARD INITIATIVE

Provincie Noord-Brabant

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CARL DORTMANS - TEAM INTERNATIONAL AFFAIRS



Subjects

- Energy: Solar, hydrogen, batteries
- High Tech Materials and Systems (HTSM), incl. semicon
- Colleague Iris Schoones on Life Sciences & Health (LSH)
- German-speaking Europe (Germany and Switzerland)
- Connecting Brabant's innovations with businesses, research and knowledge institutions and educational organizations
- Advancing cooperation in the focus areas through administrative and governmental networks
- Focus areas; North Rhine-Westphalia (NRW), Baden-Württemberg, Bavaria, Saxony, and Thuringia.



Provincie Noord-Brabant

INTERNATIONAL COLLABORATION REGIONS

Europe



Belgium & France
- Belgium / Flanders
- France (Hauts-De-France, Auvergne-Rhône-Alpes, Île-De-France, Bretagne)

Central Europe
- Germany (Baden-Württemberg, Bavaria, Saxony, North Rhine Westphalia)
- Austria
- Switzerland

Northern Europe
- Nordics (Sweden, Denmark)

East & Southeast Asia



East Asia
- Japan
- Jiangsu (China)
- South-Korea

Southeast Asia
- Singapore
- Malaysia**
- Vietnam**

**Reactive

Rest of the world



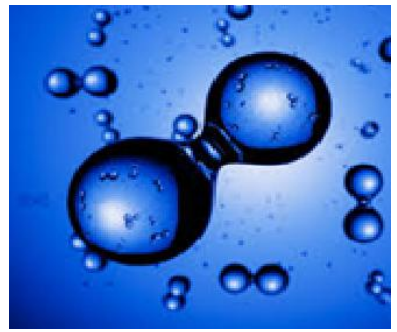
Rest of the world
- United Kingdom**
- United States of America**
- Canada**

**Reactive

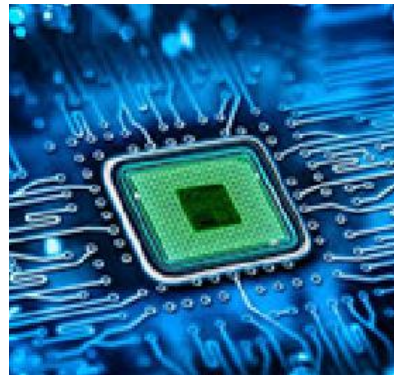
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SHOWCASE PROJECTS

- **Hydrogen**
  - IC H_2
  - Cooperation with Baden-Württemberg, Saxony,
  - Holst Centre - ZSW collaboration
  - Memorandum of Understanding (MoU) with Saxony
- **Semiconductors**
  - Exchange and cooperation with Silicon Saxony and Bavarian Chip Alliance
  - Collaboration with Swissmem Semicon
- **Industry 4.0**
  - Research cooperation TU/e – Fraunhofer IPA and ISI
  - University of Erlangen, München and Reutlingen
  - Breda Robotics collaboration







Provincie Noord-Brabant



Provincie Noord-Brabant

Noord-Brabant



- 2.5 million inhabitants
- Surface area: 5.081 km2
- Gross regional product 2020 → 120 billion

Provincie Noord-Brabant

Noord-Brabant



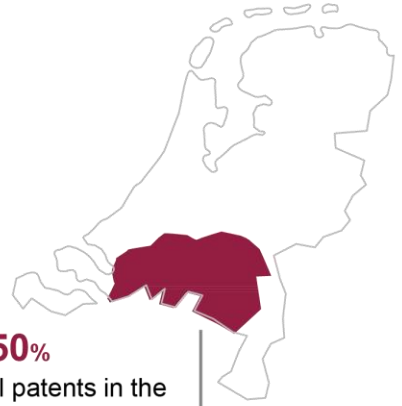
- European innovation leader
- Top sectors: high tech, agrifood, health, smart manufacturing industry, bio-based industry
- Over 2/3 of all Dutch ICT and health patents, and over 1/3 of the nano tech and bio-tech patents are held in Brabant.

Provincie Noord-Brabant

Brabant: Innovation leader

#1

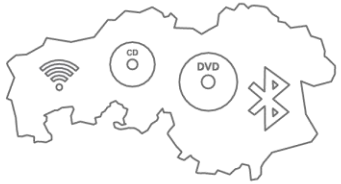
R&D SPENDING



> 50%
of all patents in the Netherlands are submitted in Brabant

BRABANT
high performing region in design applications

WE INVENTED



WiFi, CD, DVD and bluetooth

EINDHOVEN
#9 Global Talent Competitiveness Index 2017

WORLD ECONOMIC FORUM

Source: CBS 2016, European Innovation Scoreboard 2017, EOB 2017

Provincie Noord-Brabant

PROVINCIAL GOVERNMENT

- Physical Planning
- Culture
- Energy
- Economy
- Environment, nature
- Mobility
- Contacts with the State and Brussels

Provincie Noord-Brabant

KEY TO SUCCESS

Enterprises



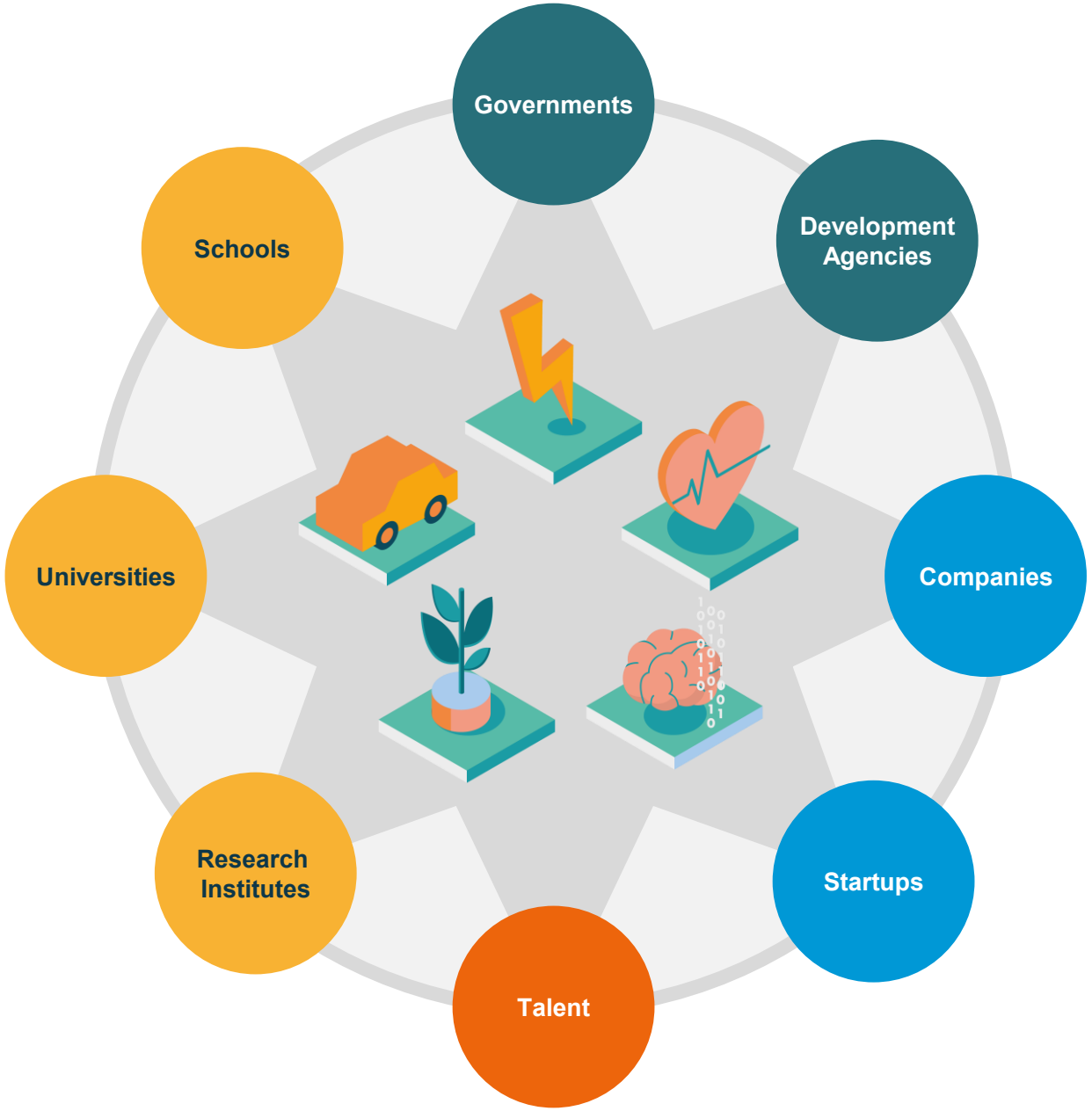
Provincial and municipal Government

Education
Research institutes & organisations

Provincie Noord-Brabant

The Provincial Government:

"Connecting companies, governments & research institutes to create new innovative solutions together"



Provincie Noord-Brabant

Brabant – Innovation Coalitions

Our **Innovation Coalitions** for **Societal Challenges**



1. Energy Transition

- Batteries
- Solar
- Nuclear
- Hydrogen
- Smart Mobility

2. From Linear to Circular Economy (Resource Transition)

- Circular Semicon
- Fiber Strategy

3. Food Chains in Harmony with Environment and Climate

- Scale Up Plant
- Plantbased Biotech

4. Healthy Aging in an Aging Society

- Regenerative Medicine
- MedTech
- Life Sciences

5. Safe and Resilient in Both Physical and Digital Environments

- AI, Data & IT
- Defence (dual-use)
- Cybersecurity

Key Technologies

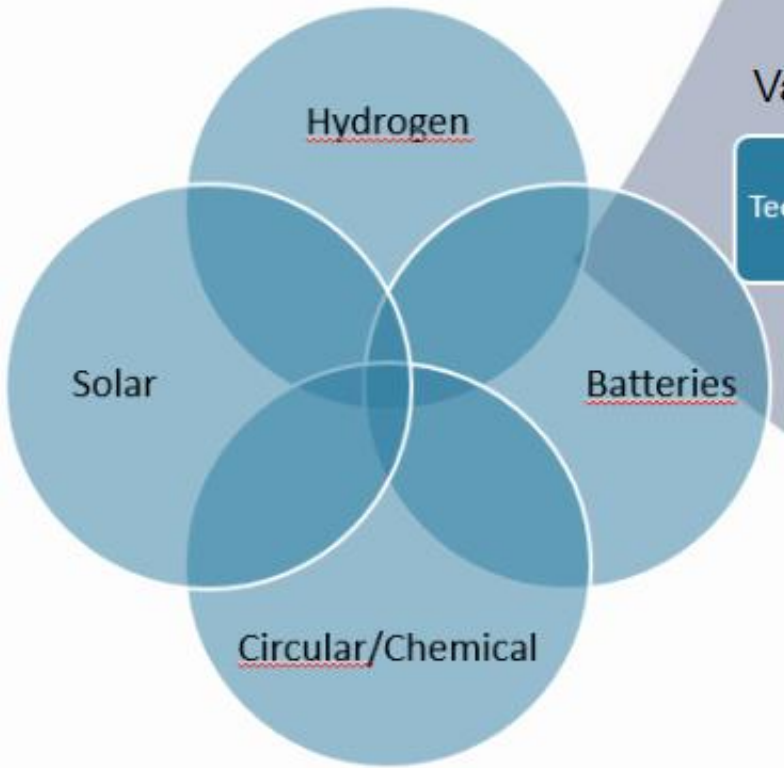
- AI
- Photonics
- Quantum

- Big Science (?)

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Innovation Coalitions



Value chain development

- Technology (development)
- Applications (realise)
- Market uptake, also international (commercialise)

Signalise → Turn into projects → Organise funding → Bring to market

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INTERNATIONALISATION ACTIVITIES

Incoming and outgoing high-level governmental visits

Incoming and outgoing fact-finding missions

Participation in trade fairs and exhibitions

Organization of thematic networking events (seminars and webinars)

Information sessions

Grant consultancy

Participation in (European) networks and coalitions

Cooperation agreements in Memorandum of Understanding.

Provincie Noord-Brabant

We don’t do this alone

Cooperation

Provincie Noord-Brabant

- Innovation
- Trade
- Governance
- Invest
- Policies
- Ecosystem building

Brabantse Ontwikkelings Maatschappij

BOM

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