

# CONCORDi 2021

Industrial innovation for competitive sustainability

22 - 25 November 2021

Virtual conference



Co-organised with



# 1 The potential of European Industrial Companies regarding Europe's Green Deal

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8<sup>th</sup> European Conference on Corporate R&D and Innovation

Monday 22<sup>nd</sup> - Thursday 25<sup>th</sup> November 2021

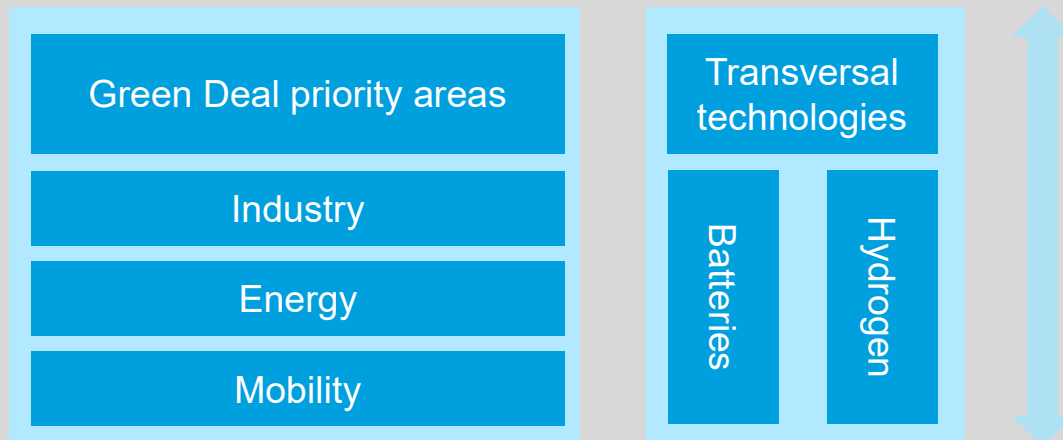
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## Background

- European Green Deal as ambitious ongoing process
  - achieving carbon neutrality by 2050
  - simultaneously ensuring job security
- Key roles in achieving the Green Deal
  - competitive position regarding R&D&I is crucial
  - organization in Global Innovation Network (GINs) is beneficial





## Object of research

- Three Green Deal priority areas (GDPA)
  - large effect on Green Deal objectives
  - high level of innovation
  - positioned within Strategic Value Chains (SVC)
- Two transversal technologies
  - high potential to accelerate decarbonisation

## Quantitative approach

Patent Analysis

Publications  
Analysis

Micro-Data  
Analysis

Macro-Data  
Analysis

Textmining



Identification of GINs

Expert Interviews

Case Studies

## Qualitative approach

## Methodological approach

- Systematic mix-methods approach
- Quantitative analysis
  - description of **R&D&I competitiveness** within each GDPA
  - **identification** of relevant stakeholders
    - input for identification of GINs
- Qualitative approach
  - Supplementing quantitative results with insights from case studies

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## Selected quantitative results – mobility sector

- Decarbonization of the mobility sector is crucial
  - in 2017, in the EU-28 it accounts for
    - high Value Added – 5 % GVA
    - high employment – 2.6 million people
    - high emission rate – 25 % of all GHG emissions
- Approach:
  - evaluating competitiveness in terms of R&D&I on input and output level
  - identification of relevant stakeholders

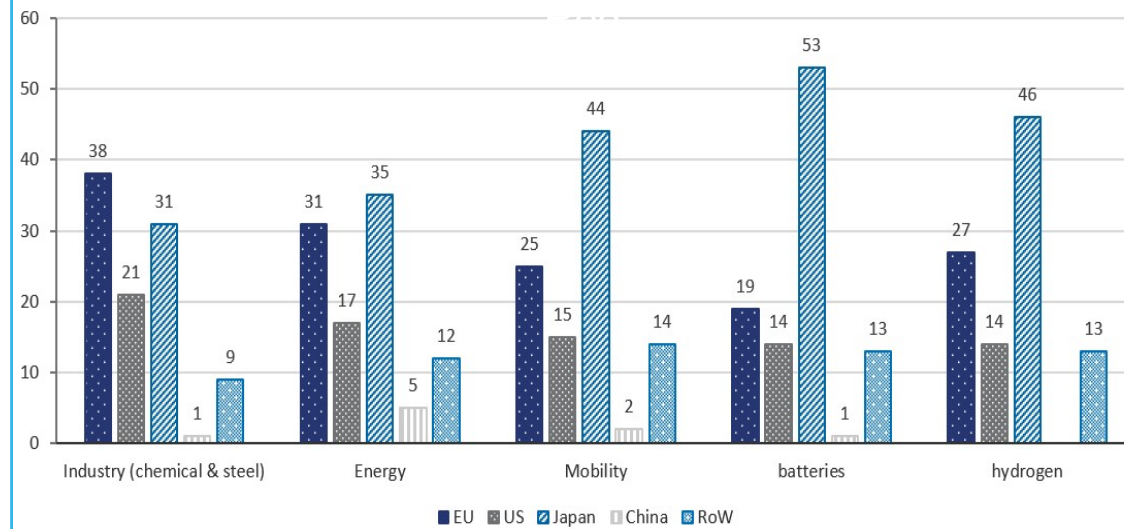


# Patent Analysis

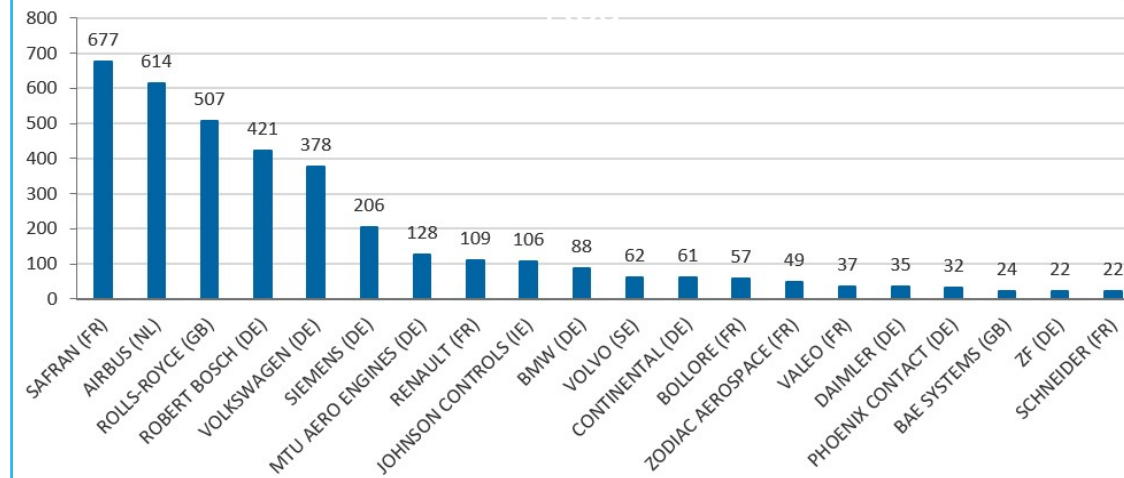
**PATSTAT** database provided by EPO. OECD-classification of green patents.

- Regional distribution
  - close to 50 % of top patenting companies in Japan
  - EU-28 accounts for ¼
  - China displays limited patent activity
- Identification of stakeholders
  - few outstanding actors
  - regional clustering in western Europe

Regional distribution of top 100-patenting companies, mobility sector



Stakeholders with high activity in green patenting, mobility sector



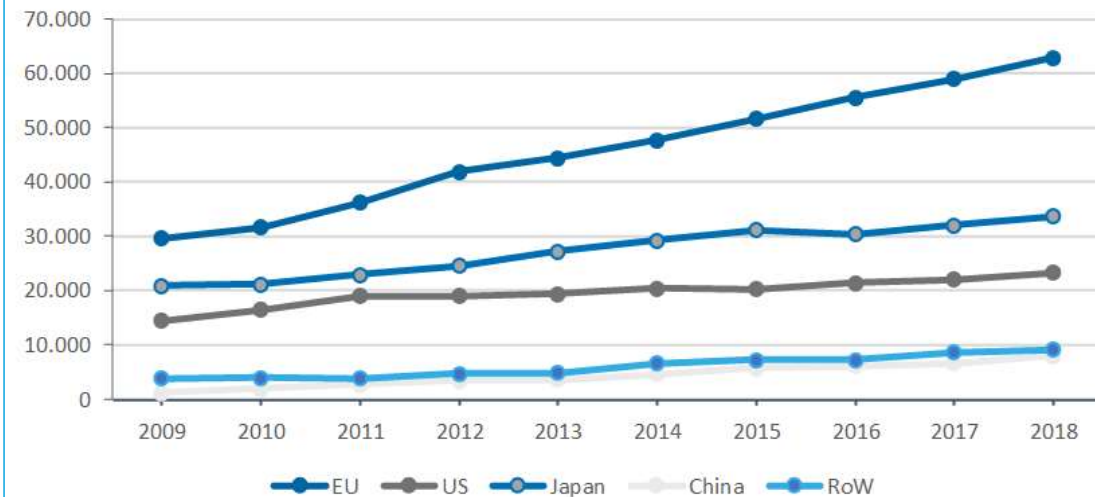


# Macro-Data Analysis

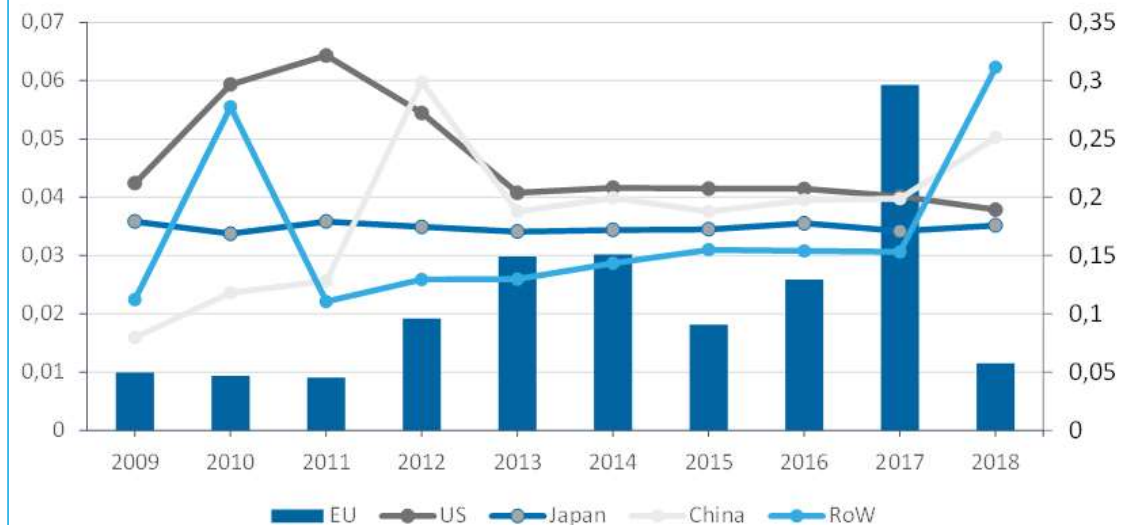
**2019 EU Industrial R&D investment scoreboard.** Covering top-2500 R&D Investors (90% of R&D investments) worldwide.

- Analysis of headquarters
  - 31% based in EU-28
  - 1/5 each in US and Japan
- Total R&D investment
  - EU-28 well positioned, high growth
  - high growth rates in China
- R&D intensity
  - EU-28 (displayed on right axis) well positioned

Total R&D investment by region, mobility sector (in EUR Mio.)



R&D intensity by region, mobility sector (shares)



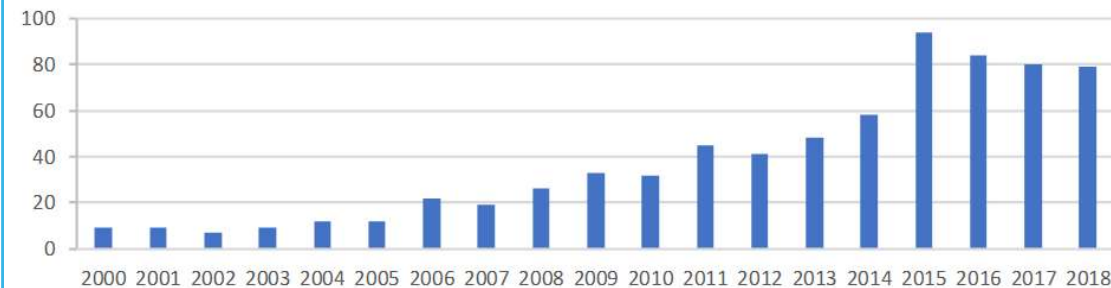


# Micro-Data Analysis

**Crunchbase** database, covering data on funding rounds and investment, focus on start-ups in technological sectors.

- Temporal development
  - nr. of foundations increased by factor 9 (2000-2018)
  - mobility sector represents growing market
- Distribution of private equity funding
  - centrally located in the US and China
  - Japanese and EU start-ups receive significantly less

Number of foundations of innovative tech companies, mobility sector



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## R&D&I competitiveness

- EU well positioned in **mobility sector** w.r.t. R&D investments, the US and China displaying high private equity funding in innovative technologies
- Leading investments in **industrial sector** in Japan, US firms dominant in **energy sector**
- **EU actors already focussing on alternative energy solutions**, China and RoW displaying increasing efforts in conventional solutions



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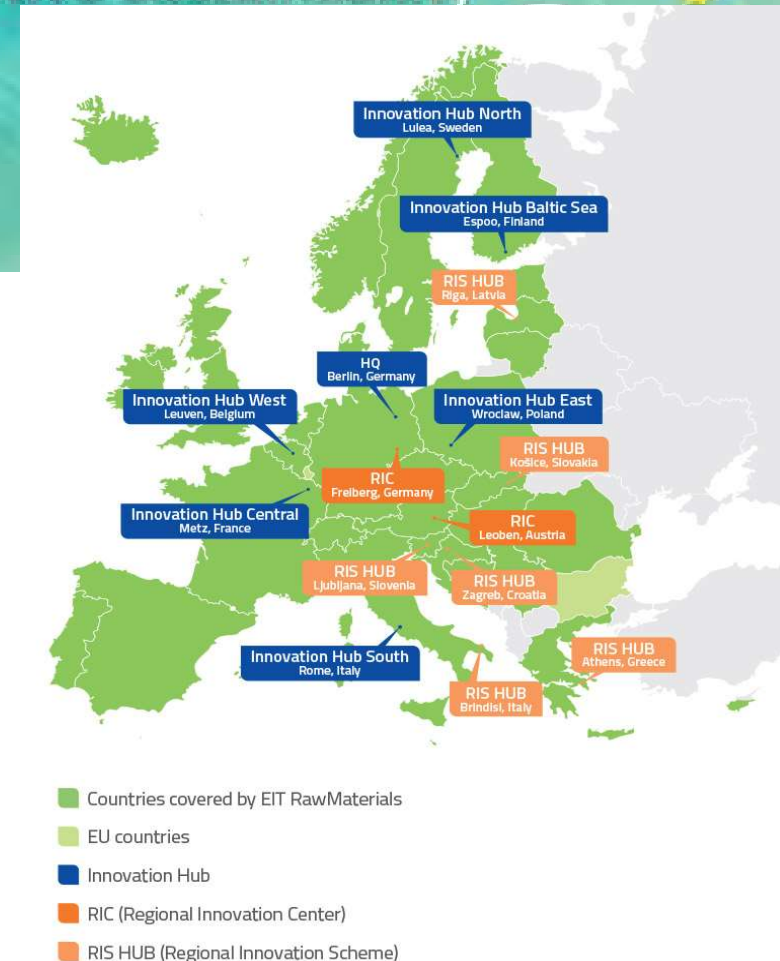
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## Example of a GIN from the case studies - Industry

### EIT Raw Materials

- Pan European Network
- Six regionally organised innovation hubs
- Each with topical focus based on regional expertise,
- E.g. Innovation Hub CLC Baltic Sea excels in design and manufacturing of tools, machinery and equipment as well as in metals processing and modelling



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## Key insights – Case studies

- Being organized in a GIN is beneficial across all areas
    - promotion of **synergies**
    - diverse **skill set**
    - (investment) **risk reduction**
    - provide input **into policy making**
- organizational structure and experimental character **encourage innovation activities**



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## Conclusion

- EU already on the path towards a successful transformation
    - **EU has strong position** within GDPAs
    - but non-EU actors conquer for technological leadership
  - regulatory framework is key for sustainable and competitive European Industry
    - current **policy contexts enables** transformation
    - but **speed and agility of policies** must improve
- EU can strengthen experimental basis by mixing policy instruments
- **'three in one'**-approach: regulations, economic and financial instruments, soft instruments



# Keep in touch



EU Science Hub: [ec.europa.eu/jrc](http://ec.europa.eu/jrc)



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