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

Authors


* VDI Technologiezentrum, Duesseldorf, Germany
** IDEA Consult, Brussels, Belgium
*** European Commission, Joint Research Center, Seville, Spain

Contact: Norbert Malanowski, malanowski@vdi.de
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
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
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
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
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
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
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
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
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
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