



Strategic Positioning Analysis of the Italian Manufacturing Sector regarding Decarbonization Technologies

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Background & Objective

What does the NZIA need to succeed?

- The success of the Net Zero Industry Act (2024) depends on the ability of European industry to manufacture key decarbonisation technologies.
- Today, data on production capacity, supply chains and market positioning exist, but are fragmented and not integrated, limiting effective policy design.
- This study addresses this gap by building a structured evidence base on Italy's manufacturing capacity, combining firm-level and sectoral data to support industrial and energy-efficiency policies.

→ **From policy ambitions to real industrial capabilities.**

Heterogeneity across NZIA technologies

NZIA TECHNOLOGY	EU development	Italy development
Solar 	Medium	Low
Wind Power 	High	Medium
Batteries 	Medium	Low
Electrolysers 	Medium	Low
CCS 	Low	Low
Heat pumps 	High	High
Biogas 	Medium	Medium
Grid 	High	High

Qualitative assessment of manufacturing development levels (EU policy documents and sectoral industrial mappings)

- Manufacturing development varies across NZIA technologies depending on technological maturity, capital intensity and supply-chain complexity.
- Italy shows stronger manufacturing capacity in component-intensive technologies (e.g. heat pumps, grid technologies), while capacity remains limited in capital-intensive and upstream-dependent technologies (e.g. batteries, photovoltaics, electrolysers).

Analytical focus and data approach



WHAT

FOCUS

- Manufacturing capacity (not deployment)
- Value-chain positioning
- Firm-level constraints (materials, energy, skills, capital)



HOW

APPROACH

- National firm-level survey
- Disseminated via industrial associations (ANIE, ANIMA)
- Integrated with sectoral mapping (ATECO / AIDA)

Survey Design

Survey Design

54 questions divided in 6 sections:

- Firm profile (size, location, sector)
- Production capacity (technologies, products, specialization)
- Competitive positioning (strengths, exports, value chain role)
- Future perspectives (investments, barriers, 2030 outlook)
- Critical Raw Materials (relevance, supply risks, diversification)
- Energy consumption (costs, electricity share)

Examples of key questions

“Which of the following NZIA technologies is your company active in?” → Multiple choice

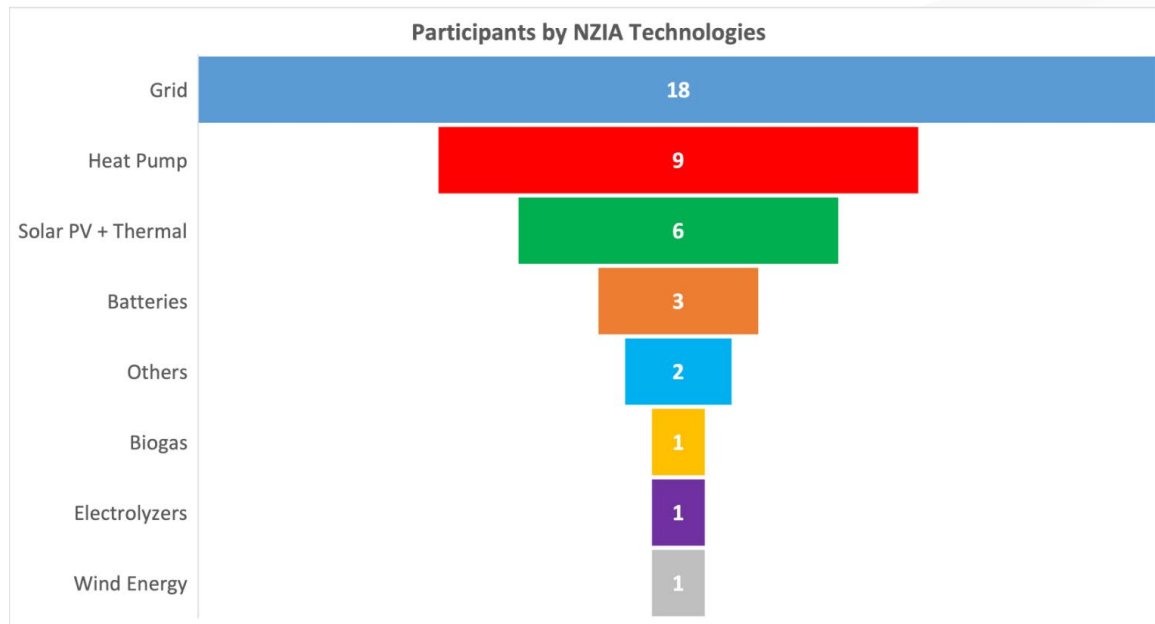
“Which of the following CRMs are relevant for your production?” → Multiple selection
“What share of your total energy consumption is electricity?” → Single choice, categorical scale

“On a scale from 1 to 10, how would you rate your company’s competitive positioning in its main market?” → Ordinal scale (1–10).



Explore the survey

Preliminary results (1)



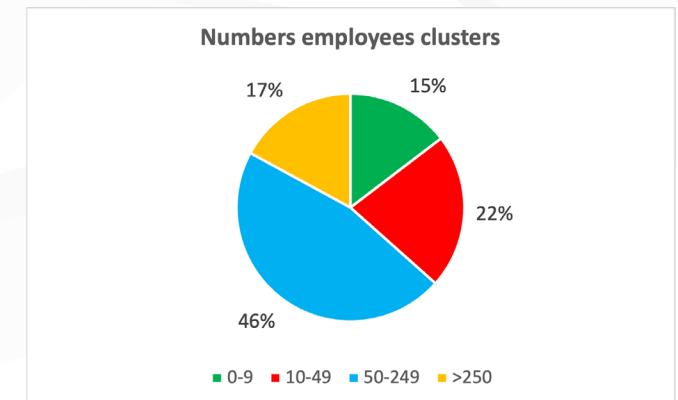
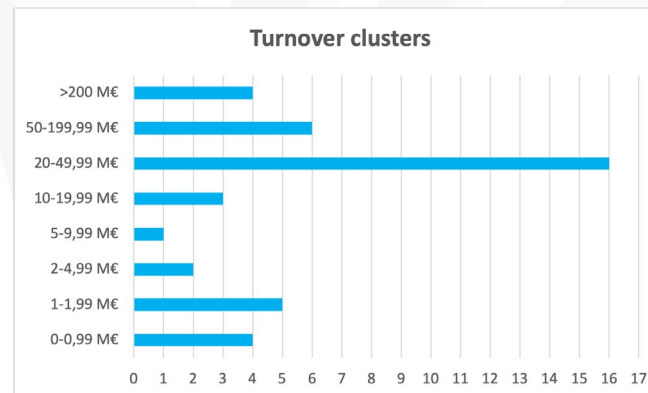
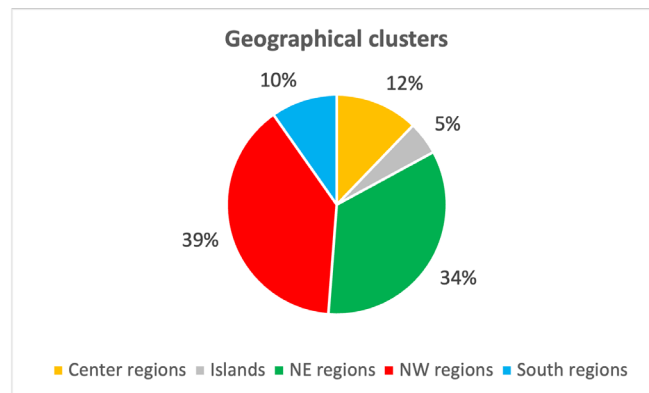
41 total answers



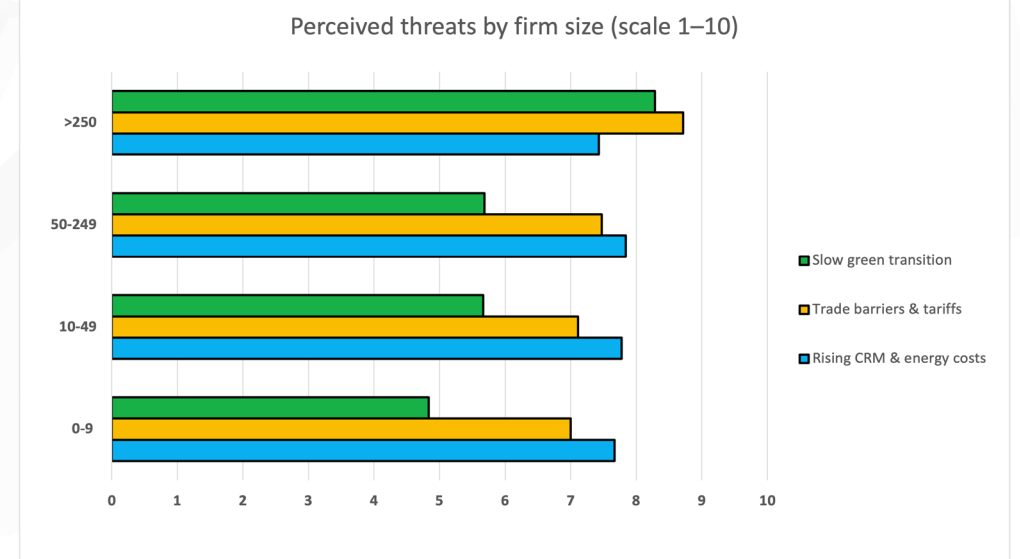
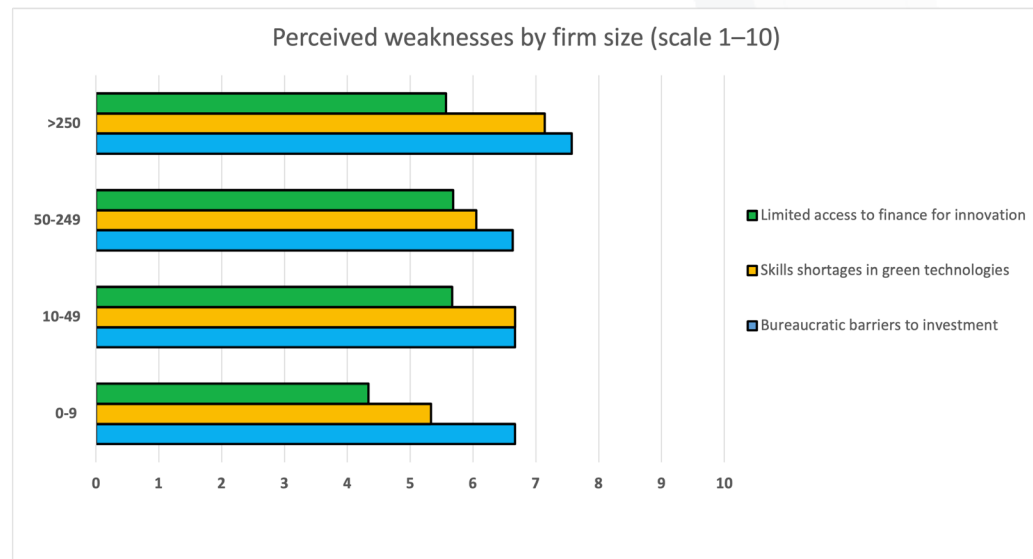
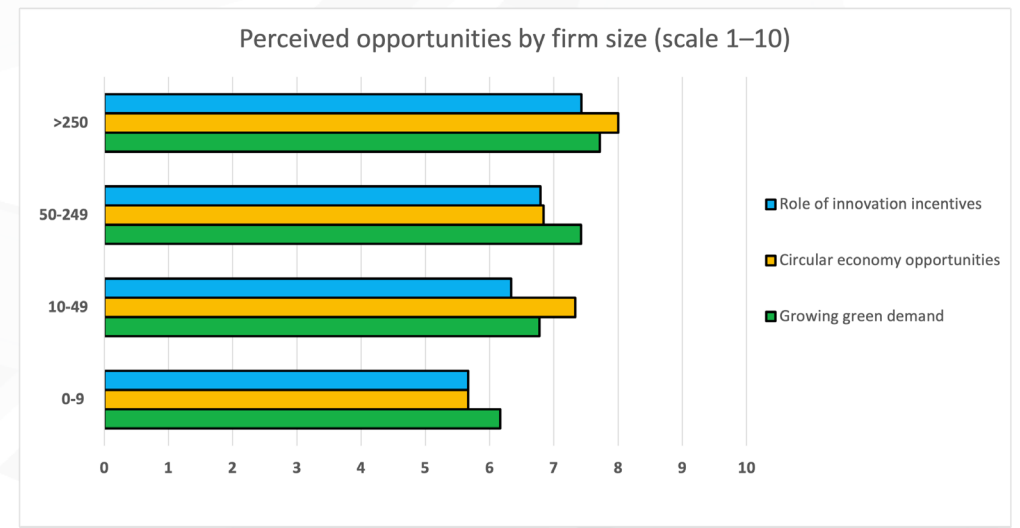
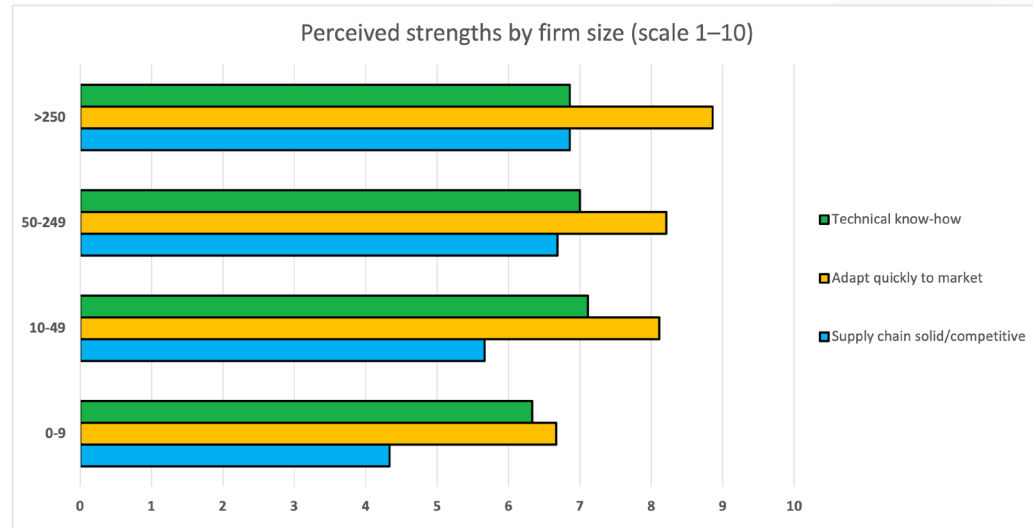
20 distinct ATECO codes



7 NZIA technologies represented



Preliminary results (2)



Key manufacturing bottlenecks

Capital intensity and investment risk

High upfront investment and long payback periods limit firms' willingness to scale production.

Dependence on Critical Raw Materials and components

Exposure to external suppliers increases costs, uncertainty and supply risks.

Skills and workforce availability

Shortages of specialised technical skills constrain expansion, especially for SMEs.

Energy costs and infrastructure constraints

Energy-intensive processes face cost volatility and grid-related limitations.

What this means for policy design

No one-size-fits-all policies

Heterogeneous technologies and bottlenecks require technology-specific and differentiated policy tools.

Align industrial, energy and raw materials policies

Manufacturing capacity depends on the joint effectiveness of industrial support, energy costs and CRM availability.

From targets to capabilities

NZIA implementation requires policies grounded in realistic assessments of existing industrial capacity and constraints

Conclusions & Contributions

Uneven and technology-specific

Manufacturing development across NZIA technologies reflects structural industrial differences, not temporary gaps.

Recurrent and binding

Capital intensity, critical raw materials, skills and energy costs jointly constrain scaling across value chains.

From targets to capabilities

Firm-level evidence supports capability-driven NZIA implementation, improving policy targeting and effectiveness.



Thank you

Questions & Discussions

Questo lavoro è stato finanziato dal Fondo di Ricerca per il Sistema Elettrico nell'ambito del Piano Triennale 2025-2027 (DM MASE n.388, 06-11-2024), in ottemperanza al DM 12 aprile 2024

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