

The applicability of PNRR projects: burdens and honours of Industrial Symbiosis



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Introduction

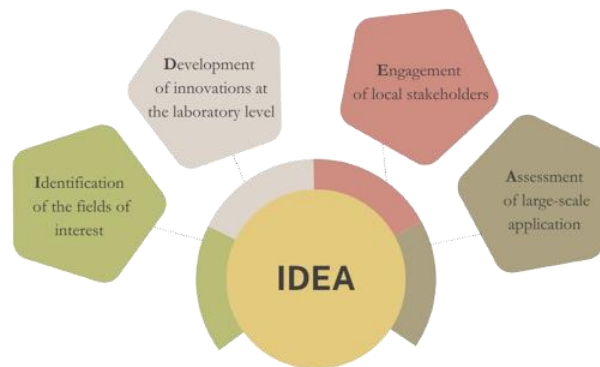
Under the NGEU umbrella the Italian PNRR is funding projects to enhance a sustainable path for the economic recovery. PNRR projects should therefore be embedded in the territory, engage local stakeholders and improve the regional economy. Within this context, Digital and

Sustainable North-West (**NODES**) seeks to create a regional innovation ecosystem. The Spoke 2 flagship project is **GR**een processes for **I**ndustrial **P**roductions and cost-effective effluents valorisation (**GRIP**). It aims at developing innovative transformation platforms

applicable both to upstream and downstream industrial processes. GRIP is structured into eight RMs, of which six are dedicated to the development of conversion techniques for specific residue streams, whilst the remaining attempt to integrate such results by adopting a systematic approach, considering the involvement of public entities in value creation (RM8) and combining the different transformation platforms through Industrial Symbiosis (IS) (RM6). RM6 has to create a framework system with twofold objectives: i) to valorise GRIP results and ii) to demonstrate the feasibility of applying and replicate them.

Methodology

IS, involving the recirculation of productive residues between different companies, is envisioned as the proper tool for the integrated implementation of GRIP processing platforms. The IDEA methodology has been developed to enable academic innovation to be embedded in the territory.



1. Regional sectoral analysis and related analysis of existing IS practices in these sectors;
2. Development of conversion technologies for the relevant residue streams;
3. Identification of local producers, intermediaries, and users through a Chamber of Commerce survey using NACE codes;
4. Integrated assessment that considers legal constraints, market opportunities (CBA), economic incentives, environmental preferability (LCA), and social acceptability.

Results

Five relevant productive sectors have been identified: mining and quarrying, agrifood, plastic and textile, wastewater, and CO₂. A total of 72 distinct NACE codes associated to the sectors involved by the GRIP platforms were identified, allowing for the detection of 1752 companies within the NODES territory. These companies are currently under engagement to foster IS and GRIP technologies implementation.

Conclusions

The IDEA methodology allows to combine theoretical and laboratory research with practical industrial implementation. Developing technological innovation is pointless if it remains within the boundaries of academia. IS, if properly designed and facilitated, can effectively anchor academic innovation to the territorial industrial system.

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