

DESIGN AND TECHNOLOGY. PEOPLE, ENVIRONMENT, SYSTEMS

DECOS HUB/DAD - Systemic Design for the Sustainable Transformation of the Construction Sector

Funded By	Decos Hub S.r.l. [Piva/CF:13253130010] Dipartimento DAD
Supervisor	BARBERO SILVIA - silvia.barbero@polito.it
Contact	
Context of the research activity	In a context characterized by high environmental impact, complex and fragmented supply chains, this research aims to develop innovative models to a more sustainable construction sector. Through the case study of Decos Hub, an aggregation of companies active in the construction supply chain, the research explores circular economy scenarios and integrated management strategies, with the goal of defining a framework capable of supporting the transition toward a resilient construction ecosystem.
Objectives	<p>The main objective of the research is to develop a methodological and operational framework, grounded in Systemic Design, to support the sustainable transition of companies in the construction sector, with a specific focus on the Piedmont context.</p> <p>The research aims to:</p> <ul style="list-style-type: none"> - Critically analyze the construction sector at the local level, identifying strengths and critical issues in relation to environmental, social, and economic sustainability. Particular attention will be given to supply chains, material flows, and resource management models. - Map stakeholders at different levels (micro, meso, macro) in order to understand collaborative dynamics and identify synergies among companies, public bodies, local communities, and research institutions. - Study and prototype systemic and circular strategies for material regeneration, optimization of logistics processes, and waste reduction, transforming constraints and by-products into resources and shared value. - Develop diagnostic and monitoring tools, including systemic maps and performance indicators, to measure the impact of the actions undertaken on the sustainability of the overall system. <p>The project will use the case study of Decos Hub, a network of companies operating in the distribution of construction materials and ecological waste management in Piedmont Region, as a living laboratory to test systemic innovation methodologies. Through direct observation and collaboration with the involved companies, it will be possible to identify replicable models that</p>

enhance sustainability and competitiveness across the entire sector.

Expected outputs include:

- a Holistic Assessment, serving as a strategic tool for companies and policymakers;
- guidelines for the implementation of integrated sustainable strategies, aligned with the European Green Deal and the National Strategy for Sustainable Development;
- proposals for cultural and organizational innovation, aimed at promoting a shift in decision-making paradigms and business models;
- a quantitative and qualitative impact assessment, based on KPIs such as reduction of environmental footprint, activation of inter-company synergies, and adoption of circular practices.

The PhD candidate should have a visiting period abroad for at least 6 months in a destination to be agreed with academic and company supervisors (preferably during the second year).

Skills and competencies for the development of the activity

The PhD candidate is expected to have an interdisciplinary background with a solid foundation in design for sustainability and a strong interest in applying systemic approaches to complexity. Required skills include process mapping and analysis, strategic design, and the management of collaborative research projects involving companies and stakeholders. The candidate must be able to conduct both qualitative and quantitative analyses.