DESIGN AND TECHNOLOGY. PEOPLE, SYSTEMS, ENVIRONMENT

PNRR - Systemic design methodologies for a circular and sustainable Made in Italy

Funded By	MINISTERO DELL'UNIVERSITA' E DELLA RICERCA [P.iva/CF:97429780584] Politecnico di TORINO [P.iva/CF:00518460019]

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Context of the research activity	This PhD research aims to contribute to the activities proposed within a PNRR founding called "PE11_3A-ITALY, Made in Italy circolare e sostenibile", in which the proposed Extended Partnership (PE) focuses on three "A" of Made in Italy (A1 – Fashion & Accessories, A2 – Furniture, A3 – Automation & Mechatronic. Within this framework, this PhD research will use the Systemic Design methodologies and tools to respond to some of the challenges proposed, as it can play a key role in the development of circular models to increase the sustainability and the resilience of industrial value chains. Progetto finanziato nell'ambito del PNRR - PNRR M4C2, Investimento 1.3 - Avviso n. 341 del 15/03/2022 - PE0000004 3A-ITALY Made in Italy circolare e sostenibile - E13C22001900001

	Made in Italy products are internationally acknowledged for the quality of their design and technical characteristics. However, to respond to the challenges our current era is facing (i.e. climate change, biodiversity loss, the creation of resilient socio-technical systems) it is imperative to change the way we produce and consume. The overall goal is to minimize resource waste and emissions, optimize resource consumption and enhance sustainable and circular economy. Italy has major expertise in four main industries, namely Fashion (A1), Furniture (A2), Automation (A3) and Food (A4). By including A1, A2, and A3 industries, it is possible to address approximately 48% of the National Value Added, contributing to enhance the economic and productive transition to Circular Economy. In this scenario, the national PNRR founding is accelerating this transition, by fostering cross-sectoral collaborations and research / technology transfer between research institutions and industries.

Objectives	In this context, Systemic Design provides the theoretical and methodological tools to develop new circular models and to increase sustainability and resilience of industrial ecosystems. For this reasons, it has been included in the Extended Partnership (PE). Indeed, following the Systemic Design approach, people and resources of a territory are linked so that the output of a productive system becomes the input for another one. Through the integration of technologies and strategies, as well as the knowledge of the local context, this research will enhance the strategic and hidden assets of a territory, aiming to create resilient socio-technical systems. This enables new local dynamics in which waste is the input of new processes, generating relevant impacts from an environmental, socio-cultural and economic point of view and contributing to ecologic transition, sustainable resource management, innovation and new job creation. The research will be carried out in close relationship with companies and other involved stakeholders within the Fashion, Furniture, and Automation industries, fostering an applied approach based on the analysis of real value chains and promoting connections and technology transfer between academia and productive systems. In addition, the research will develop practical guidelines to support a design-led innovation within the Fashion, Furniture, and Automation industries and achieve tangible changes in the short, medium and long term.

Skills and competencies for the development of the activity	- Deep knowledge of the Systemic Design approach and methodology; - Ability to develop a Holistic Diagnosis of a given productive process and its territorial context, analyzing complex flows of energy, matter and information; - Previous experience in the study and definition of strategies, also from a technical point of view, for the valorization of outputs deriving from production processes; - Knowledge and previous experiences of collaboration (i.e. involvement in pilot or applied projects) with companies in at least one of the following sectors: Fashion, Furniture, or Automation industries; - Fluent English skills and basic understanding of Italian