Politecnico di Torino

Honors Thesis

Master's degree Science in Architecture Construction City

Abstract

The transition processes towards circular models. From European policies to the ECO3R territorial ecosystem: stakeholder analysis and experiments for the Circular Design Polito Lab in Cambiano.

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July 2026

This thesis explores the concept of the circular economy as a systemic process generated through the interaction between theoretical frameworks, regulatory instruments, operational practices, and the territorial dimension. The research investigates the conditions that support the transition from linear development models to circular ones, focusing on their application within the ECO3R ecosystem through the case of the Circular Design Polito Lab, a research infrastructure developed by the Polytechnic University of Turin in collaboration with the Municipality of Cambiano within the framework of the INFRA+ call.

The work also stems from the experience gained through the UROP (Undergraduate Research Opportunities Program), a program dedicated to university research activities, which contributed to defining the methodological approach of the thesis and to deepening the investigation into circularity, territorial systems, and material supply chains.

The thesis research adopts an integrated approach that combines theoretical analysis, the study of European and national regulatory frameworks, observation of case studies, material flow analysis, and qualitative interviews with the stakeholders involved. In particular, the study proposes an ecosystemic interpretation of circularity, understood as a network of relationships among actors, infrastructures, and resources capable of fostering the diffusion of circular practices.

The thesis is structured into three sections: the first defines the theoretical and regulatory framework and introduces a mapping of the actors involved; the second examines material systems and supply chains in the construction sector, with a focus on processes of recovery, reuse, and resource valorization; finally, the third section is dedicated to the development of the Circular Design Polito Lab as a space for research and applied experimentation, included in the IR CIST research infrastructure in the INFRA+ call of the Piedmont region.

The contribution of the research lies in analyzing the ways in which circular economy strategies and practices can be implemented and expanded within the ecosystem, also through comparison with national and international experiences. From this perspective, the Circular Design Polito Lab is interpreted as a device capable of connecting research, territory, and material supply chains, highlighting how the transition toward circular models depends on the integration of theoretical, regulatory, and operational dimensions within complex relational systems.

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