

Masterarbeit

Am Lehrstuhl für Betriebswirtschaftslehre ist in der Arbeitsgruppe Projekt- und Ressourcenmanagement in der bebauten Umwelt eine Abschlussarbeit zu folgendem Thema zu vergeben:

Lifecycle and cost assessment of innovative biobased construction materials and products

Data science and analysis

■ Background

Climate change demands for greenhouse gas reduction or mitigation and multiple energy and resource efficiency actions. However, it needs to be assessed, if and how new materials and products really contribute to (inter)national sustainability goals and to climate goals in particular. Also, it is necessary to assess the associated cost to discuss and decide on favorable framework conditions for their usage.

■ Content of the work

Aim of the thesis is the **data collection and assessment of new materials and products for the construction** industry. The assessment should focus on the lifecycle assessment (LCA) method and the material-flow cost accounting method (MFCA) or similar methods with their main outcomes of CO₂e emissions, primary energy demand, carbon efficiency and cost. For the required data collection, a revision of relevant literature has to be performed, as well as expert interviews with fellow researchers and associated industry partners. Furthermore, the assessment includes the comparison with traditional/alternative materials and products to provide a sound decision support. The LCA analysis should be performed in openLCA or Gabi software. The cost assessment can be done via MS Excel or program code in Python, Java, or Matlab. The calculations should be done for a case study product and can be associated with a market study or an optimization. This work is related to current research projects in the research group with focus on industrial ecology, resource management in value chains and circular economy.

■ Requirements

This thesis is suitable for students in industrial engineering, civil engineering, architecture and similar fields. Intrinsic motivation, proactiveness and affinity to numbers are helpful. You will be able to enhance your knowledge on new, sustainable materials and circular economy and you will gain proficiency in techno-economic assessments and LCA software.

■ Beginn / Dauer

Ab sofort 6 Monate.

■ Ansprechpartner

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