

## Masterthesis

At the Chair of Business Administration in the research group: „Project and Resource Management in the built environment” the following final thesis is offered:

### Prediction of multi sectoral fiber-reinforced plastic (FRP) waste within the EU until 2040

#### Background

Due to their special material properties, fiber-reinforced plastic (FRP) composites like Glass fiber reinforced plastic (GFRP) and Carbon fiber reinforced plastic (CFRP) have a broad and growing fields of application. At the end of the use phase, the handling of FRP poses a great challenge. Circular economy (CE) attracts more and more attention as a sustainable and resource efficient waste or rather resource management system. The introduction and the investment in new circular FRP waste management systems and technologies depend on many factors like e.g. attractive business models and highly efficient FRP waste management plants and logistics. One of the biggest challenges is to predict and secure the quantity and quality of intake FRP waste to justify the investment in large and highly efficient waste treatment plants.

#### Contents of the work

The aim of this work is to investigate different FRP industries regarding their expected amount of major FRP waste streams within the EU until the year 2040. Based on production or waste statistics and different End of Life (EoL) scenarios, multiple life cycles of reused, repurposed and recycled FRP should be taken into account within the dynamic waste prediction. To model different and multiple use scenarios of reused, repurposed and recycled FRP, upcoming disruptive innovations in technology and other assumptions based on previous investigations, literature research and expert interviews needs to be considered.

#### Requirements

Good English language skills as well as computer program skills to create a Waste Stream Model e.g. Sankey diagram, are required. Special programming skills are an advantage, but not mandatory. The offer is mainly aimed at students of industrial engineering, but also at students of other disciplines. The final thesis is offered in English language.

#### Contact

M. Sc. Simon Steffl, [simon.steffl@kit.edu](mailto:simon.steffl@kit.edu), +49 721 608 44581

