MSc thesis: Transition pathway towards the circular economy for the construction sector

General research question
What does a circular economy for the Dutch construction sector look like, and how can we get there?

Background, context and relevance of the question:
The Dutch government has, together with several industrial sectors, the ambition to complete the transition to a circular economy by 2050. A crucial sector for achieving this ambition is the construction sector. In this project, you will work with the partners of Circle City, an industrial network where progressive contractors, project developers, municipalities and other parties in the construction sector are united to explore if and how this sector can actually fulfill the circular economy ambition.

Based on discussions with our partners, there are three initial materials we want to focus on: concrete, wood and PVC. Other materials, of course, are also possible if preferred by the IPG group. Our partners are looking for a transition path towards a circular building sector in 2050, with the following sub-questions:

1. Assess the current state-of-the-art in measuring circularity of products and building techniques (which methods are there and what are the strengths / weaknesses or overlap?)
2. Develop a light-weight method to quickly assess the circularity of a new product or enhancement of an existing product. For example, what scale is this product still circular and what happens if it is implemented worldwide? What is the least circular part of the product and where are the biggest impacts?
3. Describe some concrete innovations that make a circular building sector feasible, and apply the developed method of the above sub-question to these innovations.
4. Make explicit the obstacles to implement the above innovations in practice (keeping in mind that regulations such as quality standards are set by the lobbying of the incumbent parties).

This assignment is ideally suited for students who want to make a concrete contribution to the circular economy, and want experience with how you can influence a relatively conservative (but very important) sector like construction.

Type of work involved:
Interviews, data collection on current circular economy efforts, literature review, method development, scenario and/or roadmap development

Type of deliverable:
Report
Available data / reports and other relevant information sources:
There are quite a few existing reports and initiatives on this subject, all of which can be mined for data. Additionally, we are closely cooperating with several companies in the building sector that really want this project to succeed, so data can be obtained through those channels.

Other remarks
Although the concept of circular economy and the built environment is a topic that is worked on internationally, due to the fact that many documents on the building sector itself are in Dutch, this thesis is only feasible for Dutch speaking students.