

Graduation Plan for AE students

Studio

Name of studio: Architectural Engineering

Teachers: Roel van de Pas (design tutor), David Peck (research tutor)

Argumentations of choice of the studio

I started with a fascination for the use of emerging technologies like Big Data and Blockchain in architecture and wanted to dive into this topic. The studio of Architectural Engineering was the best fit because of their 'motto': "if technology is the answer, what's the question?" I believe that technologies like Big Data and Blockchain could be more integrated in architecture than it is now and therefore I would like to see what possibilities for architecture can be found utilizing Blockchain technology. In other words: if Blockchain is the answer, what's the question?

Title

Accelerating the CE transition utilizing blockchain technology

Graduation Project

Problem Statement

The speed of change in society should be matched by all industries, including the built environment. To achieve this, new ways of thinking and dealing with problems are needed. A transition from a linear to a circular economy (CE) is defined as one of the changes needed especially in the Built Environment. Emerging technologies from other industries like Big Data and Blockchain are often described to disrupt all industries and create new ways of working. Therefore these technologies might help make the transition to CE within the built environment possible.

The start-up company Circularise, supported by the EU and YES!Delft is developing a blockchain-platform to stimulate a circular economy by offering the possibility to anonymously communicate with other stakeholders in a value chain. They focus on user electronics sector but are looking for ways to expand their platform to the built environment. It is yet unclear how their proposed technology will be of impact for the built environment.

The marine area in Amsterdam is an inner city context where the municipality is looking for innovative solutions both in technology and in program. The innovation potential of Amsterdam and The Netherlands should be showcased. The program and the building should be temporary. Therefore a need is defined to create a temporary and innovative building with a program that stimulates innovative solutions for the CE transition.

Objective

This graduation seeks to accelerate the CE transition by designing a showcase building where the use of emerging technologies like Blockchain is used to create a circular and temporary building. The graduation has the intention to explore the possibilities of Blockchain technology for the entire value chain within the built environment sector and to show the impact of these possibilities on architectural design.

Overall design question

How can a temporary, circular building be designed that utilizes and showcases the use of emerging technologies like Blockchain, enhances the Marineterrein and stimulate the transition towards a circular economy within the field of the built environment?

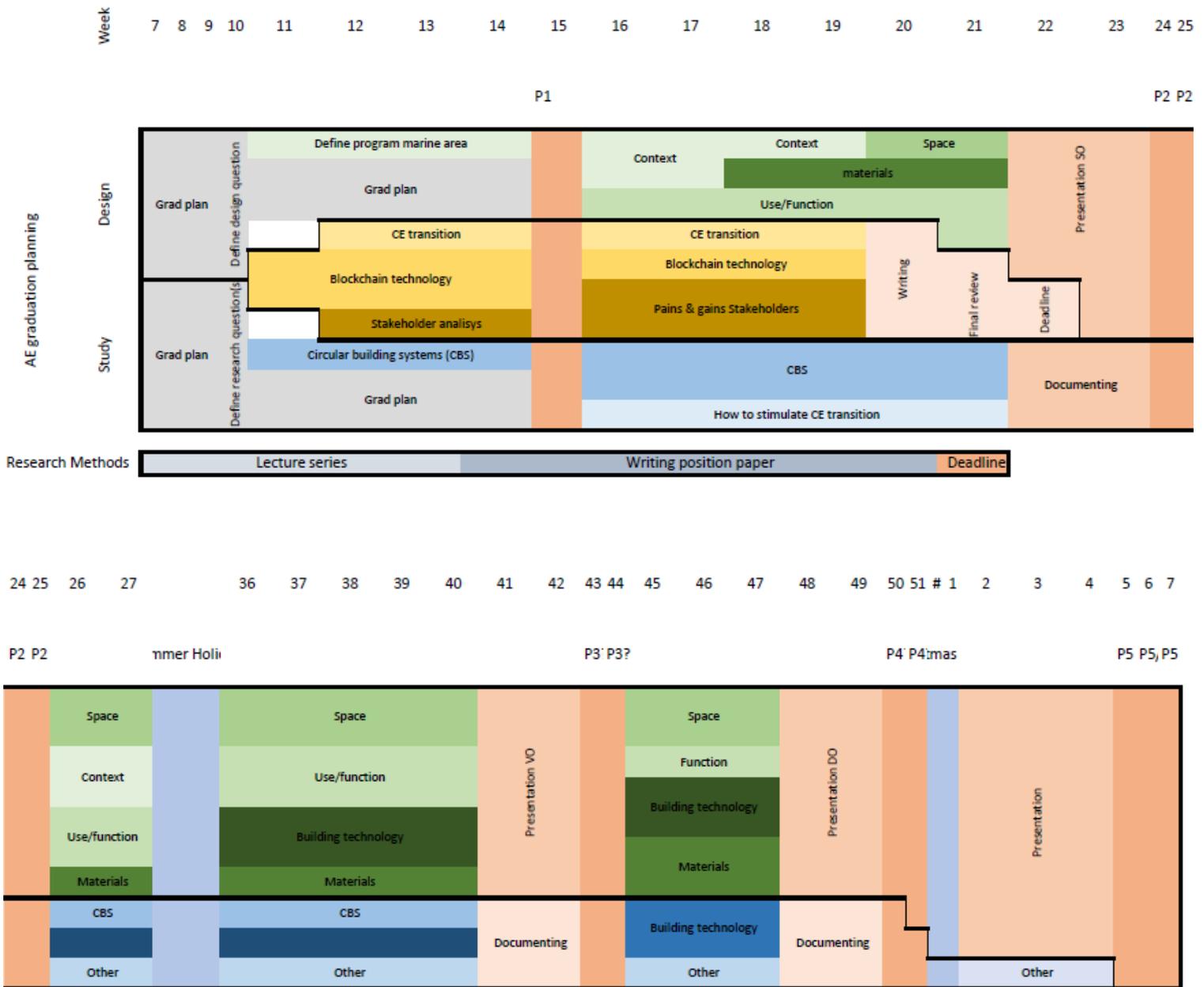
Thematic Research Question

How can Circularise's Blockchain technology be utilized within the built environment to stimulate the transition towards a circular economy?

Sub questions

- How does Circularise's Blockchain technology work – literature and workshop
 - Which problems can be identified within the transition to CE within the built environment where Blockchain technology could be of use? Literature, interviews
 - Which stakeholders can be identified within the life cycle of a circular building? Literature, interviews, stakeholder analysis
 - What information do the stakeholders need from other stakeholders? Interviews, literature
- Methodologies**
- Literature study: into Blockchain technology, transitions towards CE, the stakeholders in the built environment
 - Qualitative research: interviews: what are the problems of the transition towards CE, how could blockchain be of use? What information do they need from the other stakeholders? What information cannot be shared with others?
 - Case-study: into circular buildings, into stakeholders within a specific case and the information they need from other stakeholders
 - Research by design: what intervention enhances the marineterrain? Designing a possible future: how will Blockchain technology change architectural design?

Planning



Relevance

I believe this graduation can aid the transition towards a circular economy by showing the possibilities of integrating emerging technologies (Blockchain) into architectural design. This exploration aims to have a dual effect. Firstly the findings will help speed up the difficult transition towards the circular economy by exploring the possibilities of the Blockchain technology within the field of the Built environment. Secondly it will show how cross industry innovation can help tackle the enormous challenges that the world faces.

Literature

Literatuurlijst

Circular Economy

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