



04. An Interdisciplinary Approach to Circularity

Implementing circular practices in a construction clients' organisation

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Progress towards a circular construction sector is slow. The good news is that many circular pilots and frontrunner projects are realised. But how do we get to more significant change?

Implementing circularity in this sector involves many stakeholders at different scales. Scholars point out that although technical and regulatory challenges still exist, organisational challenges need more attention. In different studies, we see that *adopting a circular ambition without fundamentally looking at one's organisation, will not lead to structural change*. Sustainability inherently means that you include the costs and benefits affecting 'others' in your business model whether it's humans, plants or animals. If organisations are not adapting:

1. *Lessons from collaborative projects are not 'brought home'.* This might even damage the relationship with other stakeholders.
2. *Temporary programs or pilots will not lead to structural change,* as traditional understanding, processes and financial standards will hinder circular strategies.
3. *Circularity will stay something new, difficult or extra.*
4. *Internal frontrunners will get exhausted.*

The case of the TU Delft Campus real estate department

We studied processes and projects of the TU Delft Campus real estate department to better understand what structural barriers on different organisational levels can be observed. The campus is an interesting case because TU Delft -acting as both owner and developer- can oversee the whole lifespan of a larger portfolio.

In 2022 the TU Delft adopted the 2030 ambition to make all actions on and from the campus part of the circular economy. A campus-wide sustainability program started, accompanied by a financial injection. A sustainability program was formed within the real estate department too. Furthermore, project teams are assisted by sustainability coaches.

In the last two years, many steps can be observed, like:

- Working together with contractors to renovate office floors as circularly as possible within the limited available time, knowledge and budget.
- Purchasing circular furniture.
- Setting up an internal marketplace for the re-use of furniture and building components.
- Developing KPIs for building projects, process guidelines for project teams, and cost



Circularity for Educators

figures to include circularity in every project.

The main drivers for applying circular strategies in projects were:

- high ambitions,
- personal motivation,
- early project consideration of circularity,
- working closely together with contractors,
- the help of the extra budgets.

A review of the results so far

Nevertheless, the gap to the 2030 goals is large. Most circular endeavours in the TU Delft Campus focussed on the mid-R-ladder strategies, and mainly on the tactical and operational level. Realising these strategies is complex because of the many involved stakeholders and their ingrained habits and interests in a relatively conservative and risk-avoiding sector.

The experience of these projects has shown that there still exist several *structural barriers* on different organisational levels. For example:

- *A measurable goal definition was lacking.* This makes it difficult to effectively steer towards the ambition of the parent organisation.
- *High R-ladder strategies* such as refuse and rethink, *were mainly applied per project and were not considered on the strategic portfolio level* where they can have the most impact.
- *The overall spatial plan is not integral enough* to assess the trade-offs and synergies and *to determine priorities per project.*
- *Insights, tooling, and knowledge that link operations to the strategy level are not thoroughly implemented or lacking. Like:*
 - o *Monitoring and forward dashboarding are*

only done to some extent per project.

o The overall financial framework is based on linear economic and financing principles. *Tooling for circular accounting and decision-making*, like internal CO2 taxation, *is not fully adopted yet or is still being explored* like end-of-life value, CO2 budgets and CO2 certificates.

o *Knowledge and skills need further development.* People applying this tooling in projects seem to not be fully familiar with them yet, and decision-makers are not always steering on these criteria yet.

Both temporary sustainability programs are currently transitioning to the line organisation. Aligning mindsets, standards and all processes with the set ambitions is essential to make further progress. Besides looking inward, larger construction clients like TU Delft can also use their procurement role and they can address necessary external changes like regulations in the public debate.