

Making the Circular Built Environment a Reality:

A Call for Collaboration

**Dissolving borders in the transition towards a
circular built environment**

1 Down-cycling, thus the loss of material quality in the recycling route, is common practice.

Moderators: Olga Ioannou and Alex Wandl

Several cases of materials that are usually downcycled were originally identified like: glass, PVC, dry wall materials, HVAC components, wood chips, bricks, and concrete.

There are many reasons why this happens:

- a. The internal architecture of the materials/ components: in many cases it is not possible to separate the different materials within a product/omponent (think of lamination in glass panes, use of glue in OSB panels, plastering, etc) and recycle or engage in any of the R strategies related to prolonging products' life span.
- b. By extension, lack of plug in, modular logic in buildings or building components
- c. Lack of norms and regulations
- d. Existence of long-term policy lock-ins such as incineration
- e. Lack of incentives for adopting higher up the ladder R strategies
- f. Budgetary limitations as buying new is usually cheaper
- g. Consumer behavioural biases: reframing-rebranding is difficult for reclaimed materials
- h. Intergenerational gap: younger generations are more likely to engage in such practices than older ones
- i. Lack of skills/labour for any R strategy from recycling to reuse
- j. Laziness
- k. Lack of communication of relative/ understandable information

Possible ways of mitigating this/ Value changes necessary:

- a. Framing materials as resources
- b. Prioritize use of bio-based and even better, natural materials
- c. Ban composites!
- d. Do proper maintenance
- e. Employ life-cycle thinking: prioritize reuse instead of recycling
- f. Establish care (ethics)
- g. Develop new business models (like product as a service)
- h. Create tax for CO2 emissions
- i. Increase tax for raw materials extraction/use
- j. Evolve standards

2 Integration of and synergies between value chains remain underexplored.

Moderators: Magdalena Zabek and Bob Geldermans

Although both countries have their advantages and disadvantages regarding the implementation of 'Circularity', poignant – **cultural – differences** were discussed in this context, starting from a general lack of integrated approaches in Belgium, whereas this seems less the case in the Netherlands. This was linked to the **willingness to innovate** and **communicate about it**, which is not that common in Belgium. That being said, both countries struggle with hurdles concerning **trust, transparency, risk (aversion)** and a related **emphasis on competition rather than collaboration**.

The challenges within the circular built environment are various, encompassing issues that **range from individual attitudes to systemic barriers**. One significant problem lies in the recreation of **value concerning willingness, time investment, and reputation persistence**. The absence of a comprehensive approach reinforces this issue, as stakeholders frequently function in **isolated and disconnected ways**, preventing the development of a holistic perspective. A noticeable obstacle is the scarcity of willingness for innovation, hindering progress towards circular practices. Despite the apparent environmental crisis, there is a reluctance to make a substantial shift towards the preservation of natural resources, revealing a gap in **understanding the urgency of the situation**.

The **organizational structure of the system** further intensifies these issues. Variances between countries, such as the difference in orientation towards result between Belgium and the Netherlands, highlight the need for a standardized approach. Within the value chains, uncertainties contribute to **risk aversion**, particularly among architects who are encouraged to take more risks. A potential solution involves distributing responsibility for risks among various stakeholders, forming a collaborative approach to risk management. Additionally, unifying European legislation, especially regarding the **certification and testing of reused products**, is essential to streamline processes and reduce the financial burden on stakeholders. A critical aspect of addressing these challenges is recognizing the **gaps in knowledge and education** among stakeholders. Architects, being the initiators of circular value chains, require comprehensive education on circularity, beginning at schools and universities. This educational gap extends to a lack of guidelines on circular construction methods,

emphasizing the need for a standardized approach. **The competitive nature** of the sector further hinders open communication and knowledge sharing, pointing to the necessity for improved collaboration and communication skills among stakeholders.

In adapting to these challenges, a holistic approach is necessary. **Education should extend beyond technical aspects and include economic training** for architects, fostering a better understanding of the circular economy. Obviously, cultural shifts are not established in universities alone, but it would be a good place to start implementing it with concrete incentives. One of them being the fact that in Belgium, overall **liability lies with the architect**, and not a whole team. This underscores the need for interdisciplinary building teams ('bouwteam') throughout projects, with decision-making power as well as responsibilities. To establish integrated value networks, an 'invisible hand' may be required for **nudging stakeholders** to influence appropriate – systemic – mechanisms.

Encouraging **open communication**, fostering innovation, and **unifying legislative frameworks** are crucial steps towards building a circular built environment. **But currently, legislation offers insufficient support** or sometimes it downright **de-incentivizes 'circular solution' routes**. Shortcuts for applying innovative materials in – pilot and large scale – should be made possible. Pilot projects can serve as catalysts for change, putting circular practices on the agenda and showcasing their feasibility.

Furthermore, value chains around reclaimed materials were discussed in detail and several concrete solution routes were suggested:

- **Work with proxy data** and well-informed estimations as much as possible, to avoid overly complicated and costly testing trajectories.
- Avoid reinventing the wheel by **sharing information on testing** infrastructure and results.
- Create 'bouw-teams' and **challenge traditional planning trajectories**: e.g. more time needed for selective deconstruction and testing of reclaimed materials.

3

Indicators of Circular economy in Buildings and housing : Aspects are measured poorly, Data are missing on building material compositions, and 'end-of-service' processes and impacts of buildings and housing on society.

Facilitators: M. Rinke, T. Dounas | Transcription: T. Dounas

Defining the core of the problem:

- Narrow concept or view by each stakeholder
- ignorance by clients or specialist
- You don't know what you don't know (awareness of existing data etc)
- Legislation: balance with safety
- Clear data certificates harmonization across EU
- Lack of definition in reusable passports
- Too many labels, passports, comparisons standards -
- Not having a good process to digital support (for example BIM) urban mining.
- Knowledge loss of past practices, i.e reinventing the wheel
- Insurance & Guarantee and certification (lack there of for circular components)
- Loans for circular economies processes
- Uncertainty / not competitive cost and pricing
- Ownership of data vs material vs production

How should values change:

- We need new Incentives and disincentives to make circularity in AEC work
- /Get rid of green washing
- Adopt adaptability and modular thinking in both design and construction
- Lack of information for clients- we need "manuals of use"
- Connect stakeholders across the lifecycle of the project
- Data about components contribute to the Value of the asset
- Improved tender mechanisms to enable circularity
- Learn from Energy labels,
- Provide better tax incentives
- We need an Eu Taxonomy of circularity data
- Making visible, externalizing negative effects of not using circularity

What do I do to overcome the hindrance?

- Learn from what happened with Energy optimization / improvements
- Look to imitate exemplars on the city level, Copenhagen / Paris (TD note: unsure whether these are accurate)
- Create Digital Twins of a circular economy to track lifecycle
- Students: Push boundaries, create progressive thinking solutions
- Demand a "no demolition" mandate from city authorities
- Balance of Democracy vs Technocracy
- Need more flexible regulations, regulations designed for a circular economy.
- Create comprehensive, certain vision and culture of the future.
- reinforce local economies - build local and simple
- produce data for reducing emissions through material upcycling
- Researcher: collaborative processes = inform + inspire.
- Create easy to use tender templates for municipalities and local authorities that support circularity.
- improve circular material specifications

4 The current focus on material flows and sustainable strategies is too limited, and not attuned to fundamental shifts in economic thinking at the heart of the CE concept.

Moderators: *Esther Van Damme and Karlijn Kokhuis*

Synopsis

The transition to a circular economy is perceived as complex, expensive and one of many sustainable transitions we have to solve. The group identified several underlying causes for the slow change. Firstly, in our current society, the (im)material values of the existing and re-use are monetarised and neither are externalities. Secondly, a culture and economy of individualism and short-term-ism focused on profits and growth disincentivises circular choices for individuals/dwellers, building clients and developers. Thirdly, our present regulatory framework focuses on safety, total risk avoidance and norms and hinders the adoption of innovations and prevents finding optimal solutions. To work on fundamental change, the group suggests embedding circularity in education, reshaping our tax system, (building) norms and regulations, and shifting towards shared risks, longer term involvement of developers and transfer of ownership in the building sector.

What we notice in practice

- Sustainability transitions bring more complexity instead of less
- Siloed policies and reductionist and consecutive approaches
- Standardisation of elements / modularity (Also linked to the current economic way of mass production where scale brings more profit)
- Re-use is too expensive. How do we get to affordability and how to find the right price?
- Too many rules, too many regulations to support experiments
- New built is still cheaper than upgrade of existing

Root causes (hindrances)

- People don't value and don't want to buy re-use
- Emotional / cultural value is not calculated
- The culture of short term thinking prevails
- Individualism
- There is no definition of what is more or less circular (makes green washing easy)
- Traditional bidding process without early involvement of the contractor
- Safety became the most important factor in our society – causing risk avoidance and many rules that do not fit well with circular strategies and personal agency
- Well-being and agency of the users is not considered, there is only one generic idea of comfort
- Insurance does not approve re-use
- The cost of waste is not integrated in the market price
- **The system of debt and interest and the creation of money demands continues growth**

- **Economic growth is contradictory with re-using and using less**
- **A circular economy that does not want to change the current economic system will be only focused on material flows and sustainable strategies** within the growth model and will not fundamentally change towards a system within the planetary boundaries.

Actions/strategies to connect barriers and root causes:

- New accounting framework that internalises environmental externalities
- Education - where should we learn about circularity? We need a wider range of professionals and also consumers/citizens with a different mindset. Architects, consumers, accountants, lawyers, bankers, risk specialists
- How can we change current power dynamics from the parties that drive continuous growth and interest to other stakeholders on this planet (citizens, animals, ecosystems?)
- **Politics and policy makers: Aligning transition strategies of energy, circular economy and economics/ecology** in order to not act problem by problem and transition by transition and to reduce complexity and overwhelmingness for citizens/businesses/society.
- **There are different parallel solutions** that should all be given space to emerge and be explored.
- Changing the tax system. Labour = expensive, Resources = cheap, this is a tax choice
- Pilot projects are experiments with shared risk
- Shared liability of contractors and architect, with legal flexibility, just like in the Netherlands (Experiment wetgeving)
- Changing business models with incentives to optimise instead of use more like heat as a service: but therefore we have to find creative regulatory/insurance solutions with people with a circular mindset: what is part of the property? (onroerend goed door vastvrijzen "pandwet" en recht van opstal) right of superficies
- Technical tender file for demolition which specifies a circular approach: this has a legal value
- Certifying against greenwashing, like CO2 neutral or TOTEM 2030
- There must be a different answer to the question what are we building for? Designing the change from focus on more and more luxurious living to quality of living and community spirit, bringing opportunities for living with less resource use.
- Conservation of existing building stock is the most circular: the most circular materials are those which aren't used
- **Circularity can be part of a urban plan or vision, for example with the maximum travel distance of building materials**
- Introducing a wider spread refund system
- **Rethinking the norms according to required material usage and making the (safety, health etc) norms follow the innovations** in order to achieve the overall more sustainable solutions **instead of the other way around as it is now.**
- Ownership transition in order to include lifespan and end of life into the developers/client's scope: The professional client should not only develop: either go for shared ownership of exploitation in extra company
- Business model should benefit all the stakeholders
- The value of a building is a perceived value and we can work on what is perceived as valuable such as historical/monumental value, sense of place, comfort
- Loans for bio-based buildings (not only energy efficient)

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