

Nordic Networks for Circular Construction

Barriers and Possibilities

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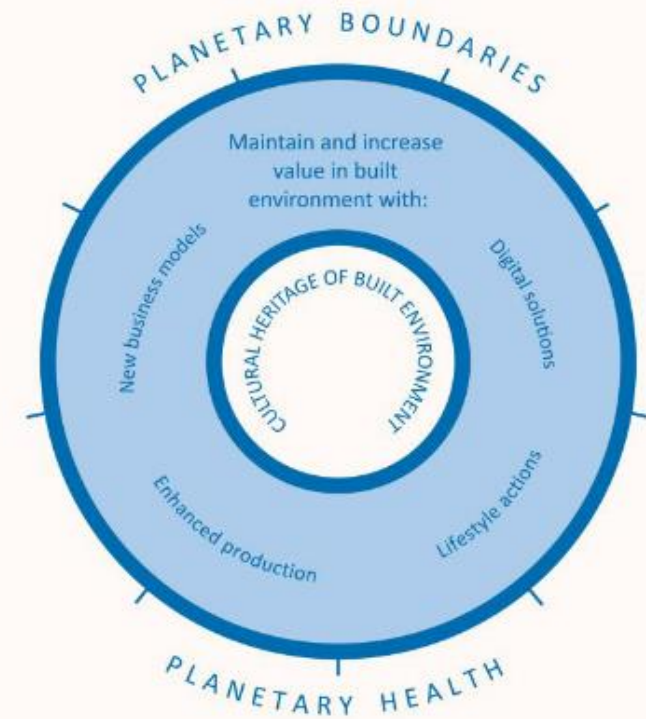


Nordic Networks for Circular Construction

Part of Finland's chairmanship of the Nordic Council of Ministers.

Aims at accelerating the implementation of the best practices of circular economy in the Nordic construction sector.

Other work packages with different key tasks (metrics, culture, collaboration platform, national fora).





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- State of circular construction in the Nordic countries.
- Identification of barriers and possibilities.

Report is currently being reviewed before publication in spring 2023.

Project approach

- Literature review
- Thirty deep-dive interviews with key experts in the Nordic countries
- Survey of Circular Construction stakeholders

	DK	FI	IS	NO	SE	Other	Total
Developers / building owners	5	2	4	3	5	2	21
Architects, engineers, consultants	26	5	7	10	17	2	67
Contractor and builder	7	5	5	3	5	-	25
Construction product manufacturer	5	10	4	-	4	2	25
Demolition expert	4	1	-	-	1	-	6
National and local authorities	1	4	9	1	5	3	23
Research and innovation	1	2	3	-	3	5	14
Non-governmental Orgs	5	2	4	3	1	2	17
Other	11	5	5	7	10	1	39
Total	65	36	41	27	51	17	237

Results

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Initial reflections...

Lack of experience at all points in the value chain.

Circularity not regularly requested in construction projects.

Circular approaches are currently more expensive (in both time and money!) than linear construction/ demolition.

No standardised methods for calculating and communicating the potential benefits of circular construction.

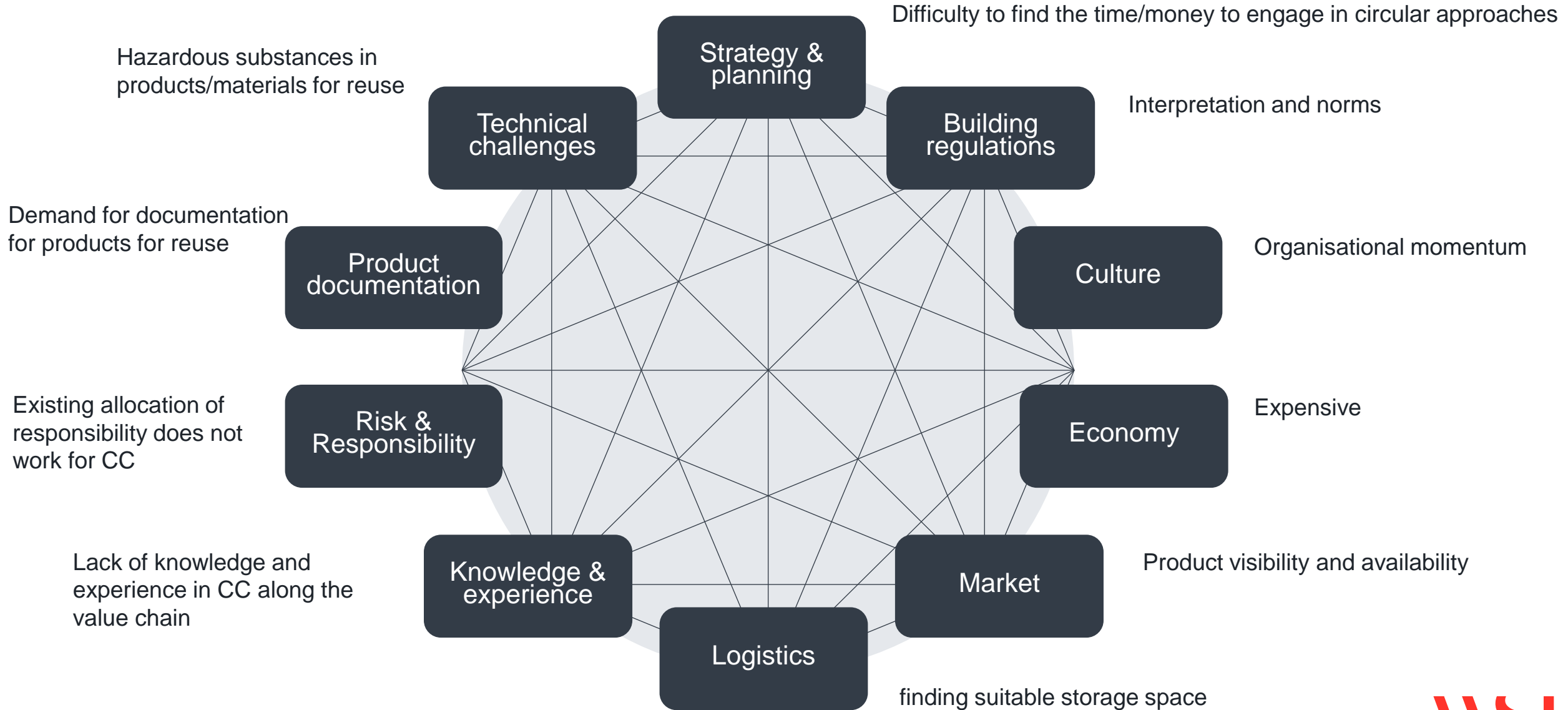
Complexity of circular construction practices – technical, logistic, and organizational matters.

Lack of unified standards and methods for product certification and documentation.

Technical challenges related to working with reused products.



Barriers

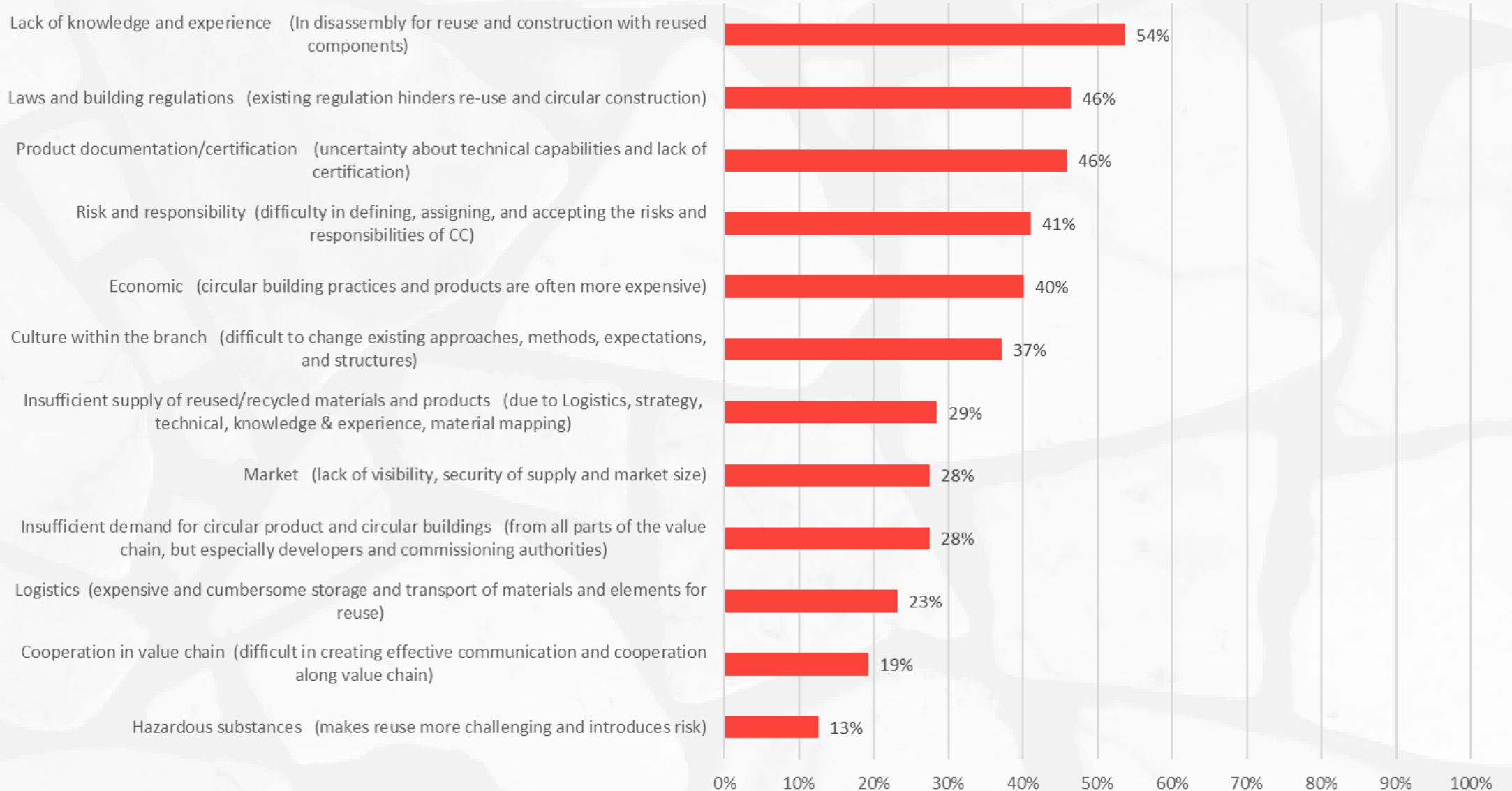


Survey Results

	DK	FI	IS	NO	SE	Other	Total
Risk and responsibility	36	10	6	13	12	7	84
Product documentation/ certification	36	8	11	17	12	11	95
Market	9	12	14	11	6	4	56
Cooperation in value chain	7	8	13	5	6	1	40
Laws and building regulations	26	16	18	9	20	7	96
Culture within the branch	19	11	15	7	18	6	76
Logistics	9	4	10	11	13	1	48
Economic	22	14	8	13	17	9	83
Insufficient demand for circular product and circular buildings	13	15	12	3	7	6	56
Insufficient supply of reused/recycled materials and products	16	5	17	8	12	1	59
Lack of knowledge and experience	26	16	25	14	22	7	110
Hazardous substances	9	5	3	1	6	2	26

Survey Results

What are the most important barriers preventing Circular Construction.



Comparing survey and interviews

Top two barriers in...

Finland

Interviews:

- Building regulations
- Hazardous substances

Survey:

- Building regulations
- Lack of knowledge & experience

Denmark

Interviews:

- Risk allocation
- Economic

Survey:

- Risk allocation
- Product documentation

Iceland

Interviews:

- Lack of knowledge & experience
- Technical

Survey:

- Building regulations
- Lack of knowledge & experience

Norway

Interviews:

- Product Documentation
- Logistics

Survey:

- Product Documentation
- Lack of knowledge & experience

Sweden

Interviews:

- Strategy & planning
- Market

Survey:

- Building regulations
- Lack of knowledge & experience



Barrier 1: Lack of knowledge & experience

Barrier

Actors along the value chain do not have sufficient knowledge or experience of the methods, processes or routines required for Circular Construction

Solutions

- Pilot projects
- Networks
- Knowledge centres
- Educational materials
- Case studies
- Public procurement
- Closer cooperation along the value chain



Barrier 2: Building regulations

Barrier

The implementation of building regulations is geared toward building with new products and materials. The current system is ill-equipped to encompass reused products.

Solutions

- Guidelines for both authorities and contractors.
- Revision of building regulations to better accommodate reuse.
- Mandatory material mapping.
- Public procurement.



Barrier 3: Product documentation

Barrier

Reused products and materials lack the robust documentation demanded by the construction industry.

For example: material passports, CE-labelling, EPDs etc.

Solutions

- Developing re-certification routines
- Working with EU to integrate reuse into existing certification processes
- Transferable warranty/guarantee
- Non-critical application



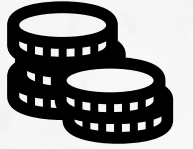
Barrier 4: Risk/responsibility allocation

Barrier

Existing allocation of risk/responsibility is insufficient for the circular use of building products.

Solutions

- New forms of cooperation and dialog along value chain
- New roles in product sourcing
- Standard contracts that reflect these new norms.
- Public procurement



Barrier 5: Economy

Barrier

Circular construction is more expensive than construction with new products and materials. This is primarily because of the additional time required to engage in circular processes along the value chain.

Solutions

- Lowering / removing VAT on circular processes/products
- Enforcing existing waste regulations
- Carbon tax
- Targeted financial support
- Taxes/fees on virgin products/materials
- Focus on induced benefits
- Public procurement



Barrier 6: Culture


Barrier

The construction industry is culturally and institutionally risk averse (some would say conservative), and Circular Construction is an undesired interruption.

Solutions


- Fit circular construction practices into existing practices and routines.
- Integrate circular construction more deeply into existing (environmental) certification systems
- Education, networking and knowledge centres.
- Pilot projects with broad range of actors.

Reccomendations




Continue to develop and support pilot, demonstration and flagship projects.

This makes it easier to begin working with Circular construction, to create new knowledge and get the message out to the sector as a whole.



Develop standard methods and routines for circular construction processes.


Selective demolition; material and product testing; material mapping; construction with reused products; public procurement; project planning; etc.



Integrate a circular approach from the very start of a construction project.

Circular construction is often applied as an afterthought. It is essential that circularity is there from the start – even before the decision has been taken to build anything! This includes designing for deconstruction and flexibility, modularity and reuse.

Reccomendations




Enforce mandatory, pre-demolition material mapping of the resources in buildings

This will provide a much more comprehensive bank of useful material and support a growing market for reuse in new buildings.




Use public spending power to drive circular construction

Public procurement should be used to actively drive demand for circular construction. This will help increase knowledge and experience within the industry and create a more robust market.



Investigate potential financial instruments that make circular approaches and materials more economically competitive.

For example, the implementation of a carbon tax, taxes on (specific) raw materials, increased waste costs, etc.



Include a reuse target for construction waste in waste regulations.

This would help drive the supply of materials for reuse and focus both the industry and the public authorities on working with circular construction.

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Future

Progress is being made to implement CC but it is slow. The multitude of challenges makes the current linear paradigm an easier choice.

A systemic transformation is required, which demands changes on multiple places at the same time. The entire value chain – from owners to architects to construction and demolition companies – need to more thoroughly engage with Circular Construction.

Construction using circular practices is possible!



Thank You



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