

# Helsinki sees potential in the circular economy

**We want to play our part in leading the way in finding solutions to global challenges: climate change, biodiversity loss and overconsumption of natural resources.**

- Helsinki has been actively working on development and testing platforms to generate new sustainable innovations. We have also been systematically developing our procurement to be more sustainable.
- The City of Helsinki's Roadmap for Circular and Sharing Economy and the Carbon-neutral Helsinki 2030 Objective.
- In spring 2021, the Circular Economy Cluster Programme, funded by the City of Helsinki, was launched with the aim of developing circular economy business
- Construction offers the greatest potential for emissions reductions and business



# Boosting the circular economy in construction

The circular economy is the best way to reduce emissions during construction and to curb the over-consumption of natural resources. The circular economy in construction also has great business potential.

The City of Helsinki's Circular Economy Cluster Program promotes circular economy business by bringing together operators in the construction sector.

Achieving a circular economy requires the whole sector to contribute, but there is a shortage of know-how. That is why we need experimentation with new things, research-based information and the sharing of lessons learned.

The cluster supports practical experiments and cooperation between operators. It resolves bottlenecks hindering circular economy by increasing different construction operators' understanding of each other's needs.





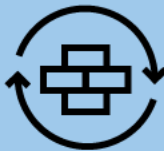
### **Designing for the circular economy**

Utilisation of existing building stock, flexible conversion and material-efficient design



### **Extending the life cycle**

Maintenance, repair and change of use of buildings



### **Reuse of materials and building components**

Utilisation of demolished materials in construction projects



### **Dismantling intact**

Identifying and dismantling materials for reuse

## **Helsinki's circular economy cluster program is involved in all stages of the circular economy in construction**

The cluster develops tools, provides trainings, launches pilots and provides information to update procurement criteria.

A close-up photograph of a vibrant green leaf, likely from a plant, covered in numerous small, glistening water droplets. The leaf's veins are clearly visible, and the background is dark and out of focus. In the top right corner, there is a logo for 'KIERIVÄ' with a circular graphic element, and below it, a white-bordered box containing the text 'Helsinki' and 'Helsingfors' stacked vertically.

KIERIVÄ

Helsinki  
Helsingfors

Reuse of windows – Current situation and  
future solutions



# Kierivä Oy

Kierivä's mission is to help companies and other organizations develop their operations and make the world more responsible.

We at Kierivä offer our circular economy and sustainability expertise to support this journey.

- We find the new business opportunities related to circular economy together with our customers
- We consult widely in various environmental matters
- We help communicate and influence as well as achieve concrete targets
- We help to get started with sustainability and develop operations further
- We lead and consult on sustainability reporting projects
- We offer training and coaching services, including various online trainings

# How can we find ways to reuse windows?

By developing methods for window repair, reuse, and recycling, the circular economy can be promoted.

Reuse requires consideration of extending the lifespan and enhancing the features of windows during their renewal.

Several factors affect the reusability

- original features of the window
- technical conditions
- remaining lifespan
- costs
- schedule
- common attitudes

The reuse of windows has not been extensively studied even there is a massive amount of demolition material.

Identified key stakeholders:

Window manufacturers

Property owners

Architects and other designers

Material utilizers

Window repairers, film manufacturers,  
equipment manufacturers

# Gathering the perspectives of different stakeholders in the window lifecycle

## 1. Finding and contacting key stakeholders, May 2023

### **Participants:**

37 different stakeholders

### **Theme:**

Interview study either by phone conversation or via email

### **Objective:**

To gather the perspectives of key stakeholders on reuse and identify additional stakeholders participating in further development

## 2. Group interviews, August 2023

### **Participants:**

15 stakeholders from different groups, 3 interviews

### **Theme:**

Role and activity of the stakeholders in recycling and/or reuse, current situation and future solutions

### **Objective:**

Value chain and current situation for the reuse of windows and flat glass

## 3. Workshop, End of August 2023

### **Participants:**

Representatives of different stakeholders across the entire value chain

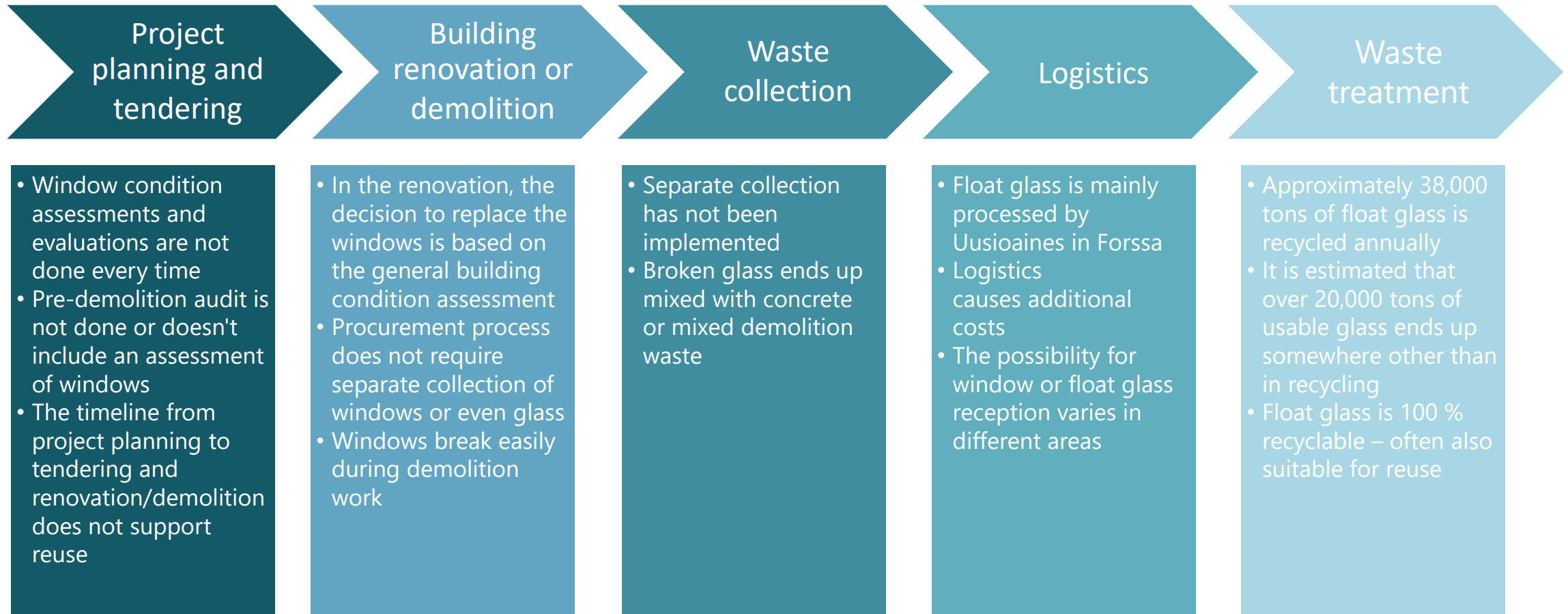
### **Theme:**

Identifying the possibilities and solutions for reuse

### **Objective:**

Finding new solutions for the reuse of windows and flat glass

# Value chain does not include reuse at the moment. There is also more potential for recycling.





# Window reuse at the moment according to the interviews

## Opportunities for reuse at the moment

- Modular spaces
- Interior windows
- Canopies
- Sound barriers
- Glass walls
- Space dividers
- Glazing
- Retreat spaces
- Decorative items
- Furniture

## Prerequisites (what is needed)

- Responsibilities and warranty issues
- Reasonable pricing
- Product acceptability
- Standards and instructions
- Product banks and marketplaces
- New technologies
- Intermediate storage and logistics
- Dimensioning issues
- Intended use
- Expertise and knowledge
- Procurements process changes

# Obstacles for successful reuse

## Obstacles

- Mistrust and old attitudes
- Characteristics of old windows
- Possible damages
- Technical requirements
- Energy efficiency
- High costs
- Dismantling methods
- Identification
- General difficulty
- Technological problems

Are the obstacles  
real barriers  
or just prejudices?

# Pre-evaluation for reuse potential of old windows

Case: City of Helsinki's circular economy cluster

Technical properties,  
continued life cycle  
and reuse potential



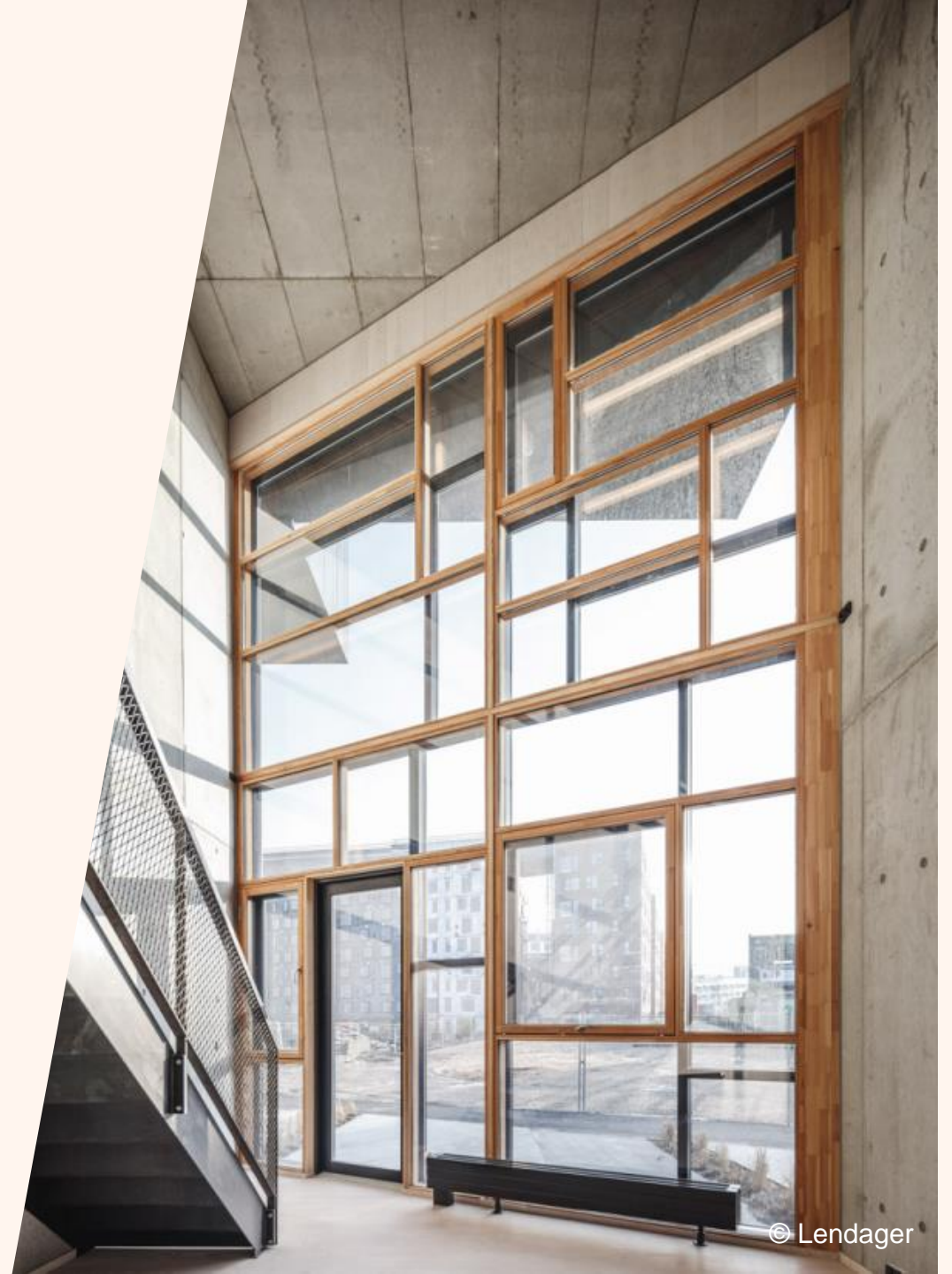
# Technical pre-evaluation by IdeaStructura

- ▬ Mapping the technical properties, operational realities and reuse potential from the point of view of a structural design company
- ▬ Literature review and professional experience collected
- ▬ Final product: a guide for
  - ▬ recognising windows of different eras,
  - ▬ how to inspect and evaluate windows for reuse,
  - ▬ how to prepare for reusing windows from technical & legislation perspective



# Thermal windows and reuse

- ▴ Practically all new windows installed in Finland are double glazed thermal windows since 1990's
- ▴ Rule of thumb: the newer the window, more likely it can be reused in new buildings
  - ▴ Newer windows with good u-values and appropriate documentation the easiest to reuse
  - ▴ Older double glazed thermal windows can be fitting for less challenging conditions in less heated spaces
- ▴ Double glazed thermal windows have been successfully applied as facades





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