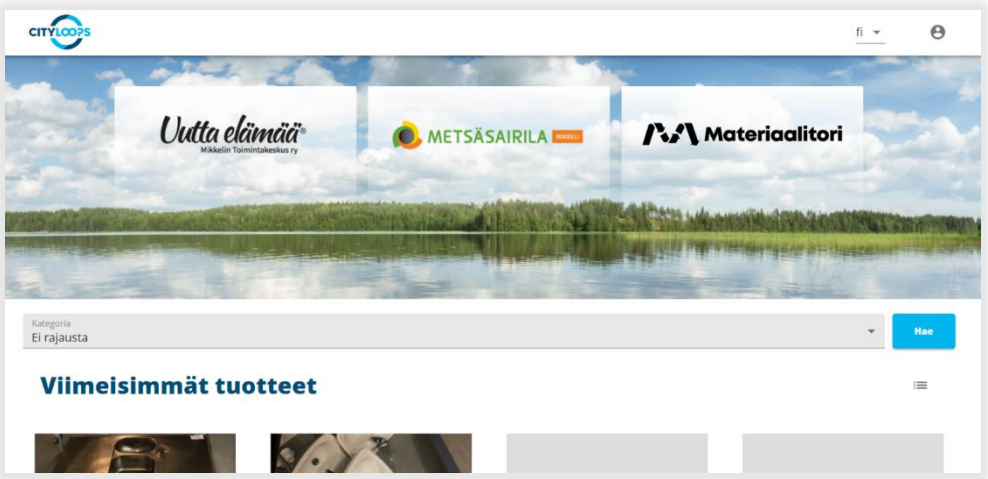
Databank & Digital Marketplace for Recovered Construction Materials

CDW



Description

The databank combines and stores data from the 3D scanning tool (using drone imaging), also allowing the data to be included on the marketplace of construction materials (CDW) from demolition sites around the city of Mikkeli. The purpose of the databank tool is to centralise and display the relevant information on recovered CDW in an organised and accessible manner, such that on the marketplace supply and demand can be matched and the secondary materials can be reused instead of primary materials.

The databank (DB) stores information on materials such as volume, location, date available, material composition and basic characteristics. The databank keeps all the gathered data (including drone photographs, 3D models, documents, etc.). This data about material stocks is then fed into the digital marketplace. The digital marketplace (DMP) also holds information about volume, price and general quality of several material categories – but it is differentiated as a web platform to facilitate the exchange of materials between (external) parties. In the marketplace, currently available materials are listed, with the opportunity for entities seeking such materials to search for them or solicit what they need.

Keywords:

- #Handling CDW
- #Flow tracking
- #Data collection
- #Coordination

Complementary tools:

- 3D modelling tool for tracking the flows of on-site CDW, Pre-demolition screening and Selective demolition procedure, Material passport

Target users:

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- Local governments (e.g. departments of buildings & infrastructure, urban development and environment)
- Local waste management company Metsäsairila and local operational centre Toimintakeskus, which take the fittings, furniture and equipment from public buildings before demolition
- In the later phase, also businesses (e.g. construction and demolition contractors, architects)
- Private citizens as buyers of listed material, also as sellers also if they are willing to use it

Format:

- Databank: databank application in Finnish for local use
- Digital Marketplace: Website with User Interfaces for PC, mobile and tablet, in Finnish for use in South East Finland
- Report explaining methodology and functional considerations in English

Development

The databank is an adapted version of a previously developed databank application by XAMK. The adaptation includes changing the user interface and the database schema to reflect the needs of CDW data storage. The development of the new databank will also require refactoring depreciated code for compatibility with security updates.

To develop the digital marketplace, first Miksei Mikkeli got relevant construction value chain stakeholders together to determine the purpose and functional characteristics needed. Then they tendered and contracted a developer to program the online platform, including integration with the material databank. Finally, the marketplace efforts were coordinated with other similar national initiatives in Finland (*https://materiaalitori.fi*), and efforts were made to increase awareness of the marketplace to encourage its use by others.

Barriers:

The new deployment of the databank application required software component updating and reconfigurations and changes to the database structure. Finding ways to automate and standardise data entry is important to limit labour.

For the digital marketplace, some actors initially questioned the need for a regional one, considering ongoing development of a marketplace at a national level for recycling CDW. Mikkeli appealed to the fact that this is a local experiment, that this marketplace would include only material and equipment from the construction and demolition sector, and that it was necessary to test the data transfer from the 3D tool to the databank to the marketplace. It was also stressed, that a market place must be developed on the conditions of the local stakeholders in order to get them to use it.

The allocated budget for the marketplace seems to be too small for the comprehensive development of website as desired. Therefore, the solution must be adjusted to the budget and additional features, such as a news section or chatbot-service, had to be left out.

Considering marketplace demand, Miksei expects it may be challenging for the buyers to find the platform. To address this, they are using social media and organising local workshops where we are able to introduce the marketplace. Likewise with supply, Miksei tries to solve this by spreading information in workshops, seminars and on social media. Private meetings with potential sellers would

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also be useful. They are expecting to get enough material offers on the market place in the next year from the planned demolitions, but understand additional effort may be required to find many more sellers after the demonstration.

Deployment

In CityLoops, **Mikkeli** will demolish 2 public buildings, and plans to selectively dismantle materials to be documented in the databank and listed for sale on the marketplace. Miksei will continue promotion of the platform in parallel, to encourage more buyers and sellers to make use of the marketplace as well. Mikkeli's digital marketplace: *https://kiertoon.fi*

Replication

Other cities can read the report documenting the tool development to learn about how Mikkeli launched a local construction materials reselling marketplace, and how this was integrated with digital tools that keep data on material quantity and characteristics.

Developed by

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