EveryCycle

Citizen Empowerment for a
Circular Textiles Sector in Amsterdam

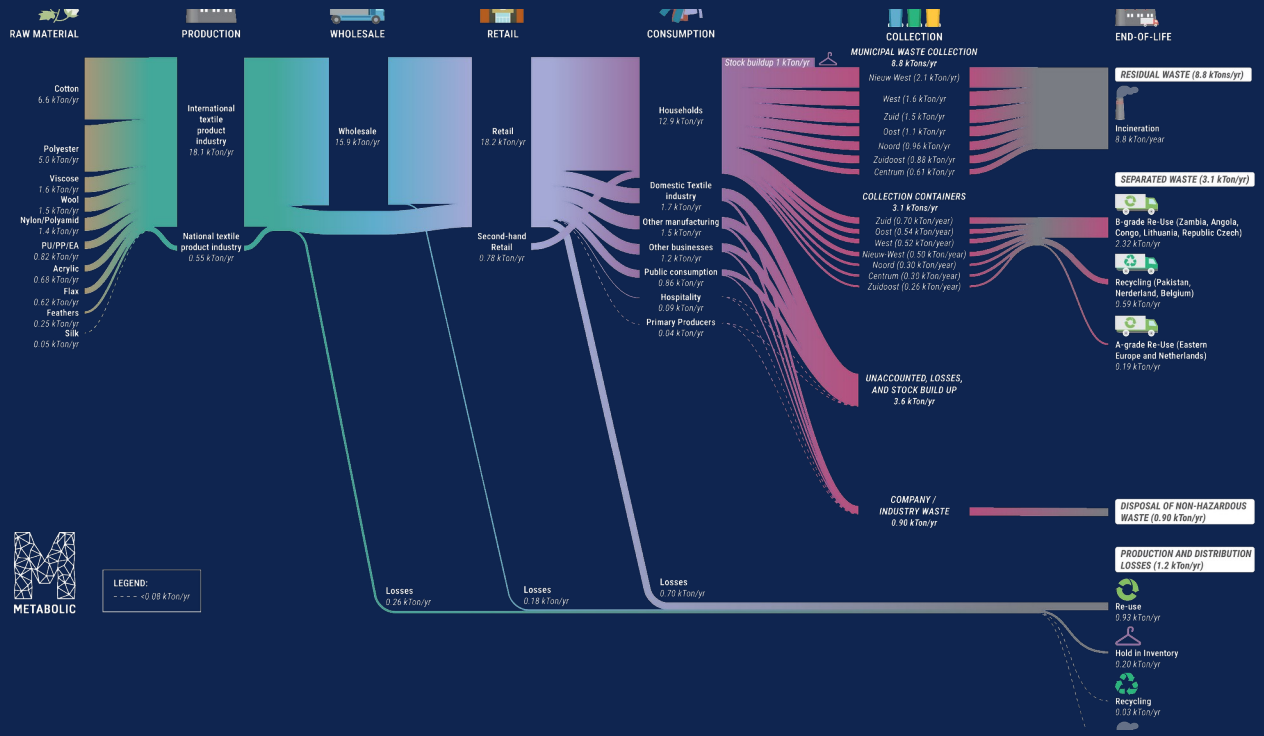
DisCO

Valueflows

The Challenge

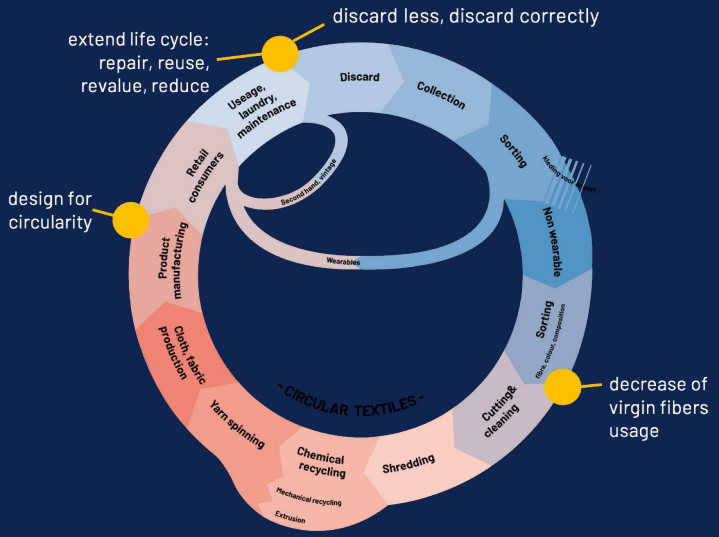
Textiles is a critical and polluting industry since the Industrial Revolution – each year, 14,000 tonnes of textiles are thrown away in Amsterdam alone.

The linear make-take-waste model is the industry's default. The vast majority of textiles discarded within the city end up incinerated together with regular waste.



Amsterdam’s Ambition

The City of Amsterdam is rethinking the lifecycle of textiles in collaboration with citizens and other stakeholders.



The Amsterdam REFLOW challenge is to transform its textile sector from linear to circular by increasing the volume of collected textiles and bringing them back into local loops and supply newly produced products within the city out of recycled resources (and thus create business opportunities).

Starting from the material dimension, we tackle the challenges by developing digital technologies that can engage citizens in better disposal and collection practices.

Engaging Citizens

INSIGHTS

Municipality research has identified:

- Citizens don’t know how to address their textile waste correctly. There is a lack of clarity how the system works and what are the processing steps behind it.
- Overall citizens distrust the City’s collecting, sorting and recycling system.

CITIZEN ENGAGEMENT

The city wants to create an **awareness campaign** focused on:

- **Increasing the collection of home textiles waste** at city level by informing and engaging citizens
- **Extending the life cycle of textiles** through redistribution, reuse and repair

Sustainable Development Goals (SDGs) Impacted

Our Goal

Amsterdam's **Citizen Involvement Campaign** aims to incentivize and increase citizen engagement in recycling of textiles and textile products in Amsterdam, to:

- Redirect textile waste into the Amsterdam second hand market
- Decrease primary textiles consumption
- Enable discarding less, discarding correctly

Although it is being developed to eventually be integrated into the REFLOW application, it also can be deployed as a stand-along application.

A little story.....

The Amsterdam pilot team has chosen one user story to focus on, involving value accreditation of citizen textile donations.

Other possibilities for example...

Another user story that the pilot team in Amsterdam would like to implement is to facilitate sharing of equipment among many organizations in the textile circular economy, by exposing when various pieces of equipment are available for use by others. Or to facilitate different organizations joining to invest in shared equipment that can be scheduled by all, with opportunity to repay the investments over time using income from use of the equipment.

This user story also builds on the REFLOW project, and would make use of the value calculation configurations that were created for the citizen donation application.

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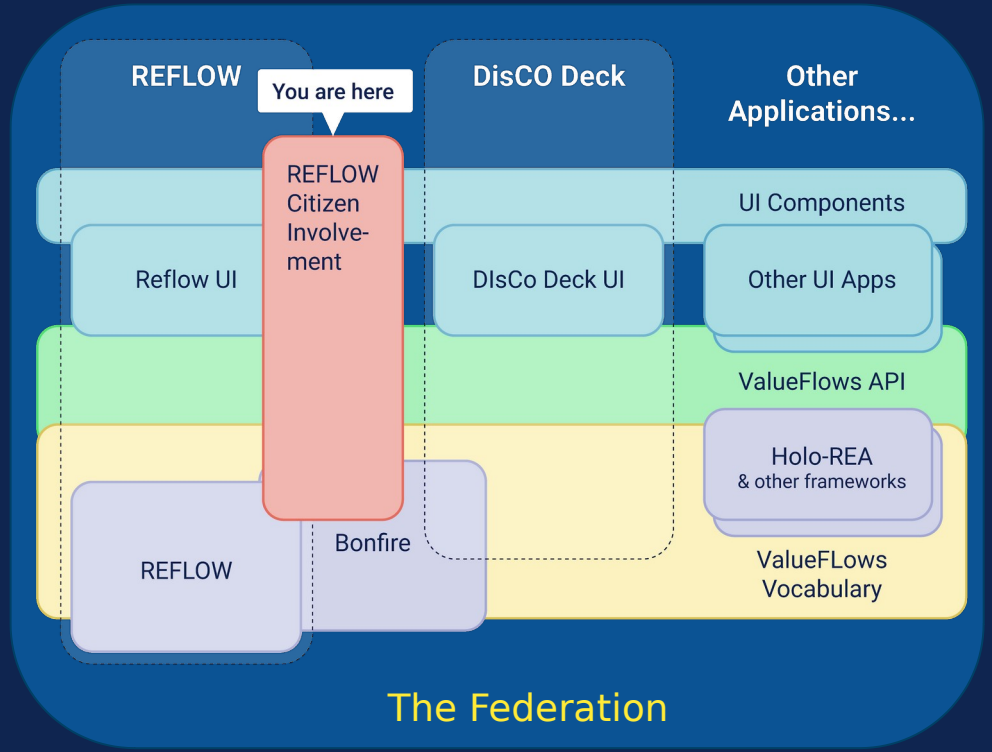
Software Ecosystem

This project enhances the REFLOW application.

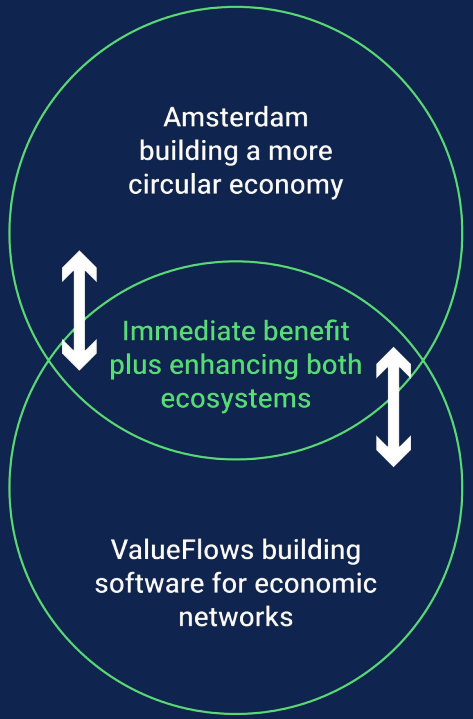
This project uses an existing open source software ecosystem and contributes a new component back to the ecosystem, helping it grow so that others can benefit also.

It also allows people to participate in a federated social network that now has more than 4 million users.



Benefits of a software ecosystem

- There is a lot of code written already that we can use, lots of lessons learned, and access to people for consultation.
- When it became clear that the original proposal did not fit well with the user needs, the project was able to pivot to something that did, by shifting which parts of the ecosystem are involved.



DisCO Valueflows

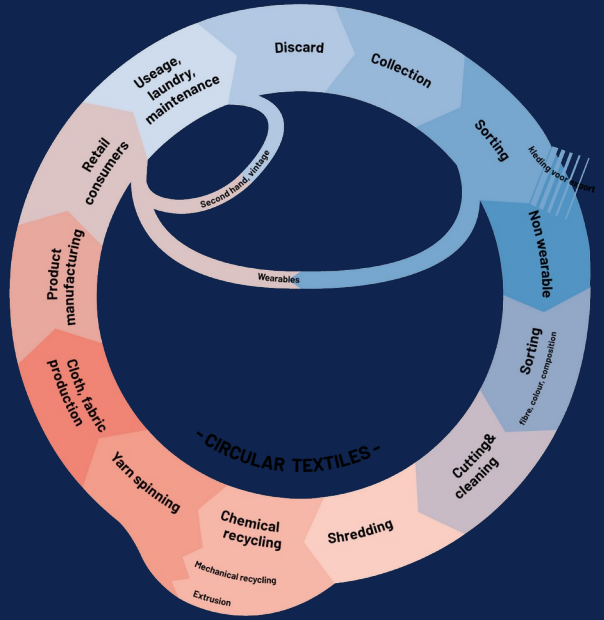
Valueflows

Here again is the Amsterdam goal for a circular textile economy. It documents a set of high level resource flows through the different kinds of processes used in the textile industry.

The Valueflows model also reflects resource flows, at any level from operational to analytical.

Every resource flow on that diagram can be represented in software by a Valueflows message. And all of the flows will be recorded on a distributed ledger so citizens can track and trace every movement of the textiles in Amsterdam, backwards and forwards, where they came from, and where they went.

If I donated some textiles, what happened to them? If I purchased some clothing, where did it come from? The



DisCO Valueflows

Reflow / EveryCycle DLT

Many distributed ledgers only account for crypto-currencies like Bitcoin.

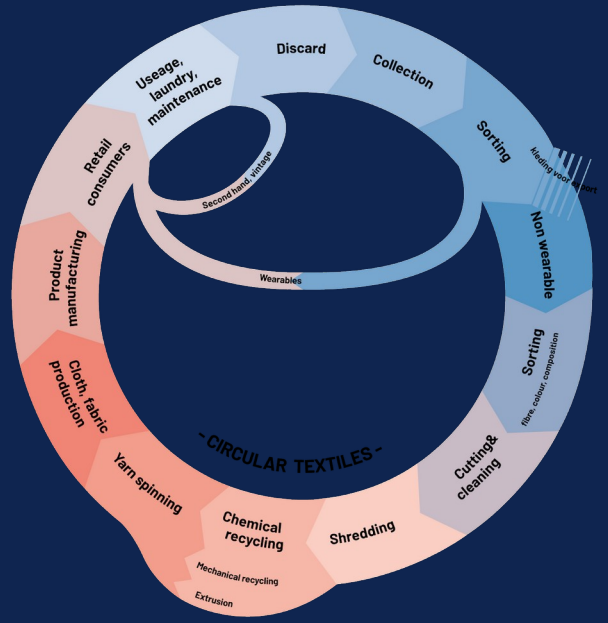
Using Valueflows, the distributed ledger can account for all resources circulating in the circular economy.

In the Amsterdam circular economy pilot project, that's textiles and related used goods like shoes.

In Vejle, Denmark, that's plastics. In Milan, that's food.

In other pilots https://reflowproject.eu/pilots/ , other resources.

They can all be tracked in a Reflow/EveryCycle DLT.



DisCO Valueflows

Commitment to open source

We are enthusiastically committed to open source. Our standard practice is that all of our code is published as it is written and tested, from the beginning of every project.

It is part of our mission to help build the software commons, especially the software infrastructure needed to support distributed networked groups working on the economic changes that will be required for planetary survival.

Working in the open source software community is very productive.

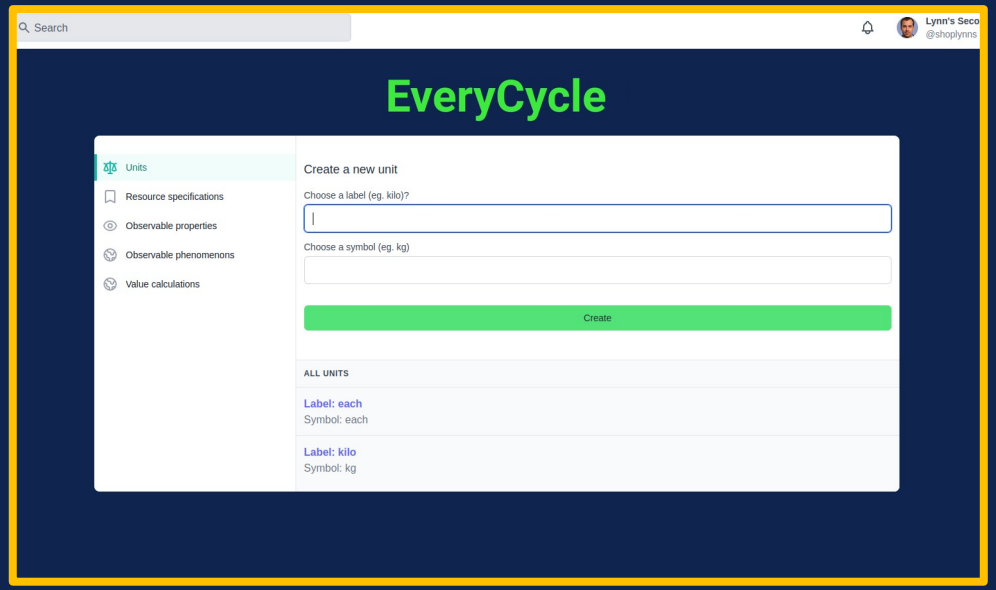
- Developers willingly help each other across projects
- There is a lot of software available to use, fork, and learn from

The proof of concept software

There will be 4 separate applications created when this story is complete:

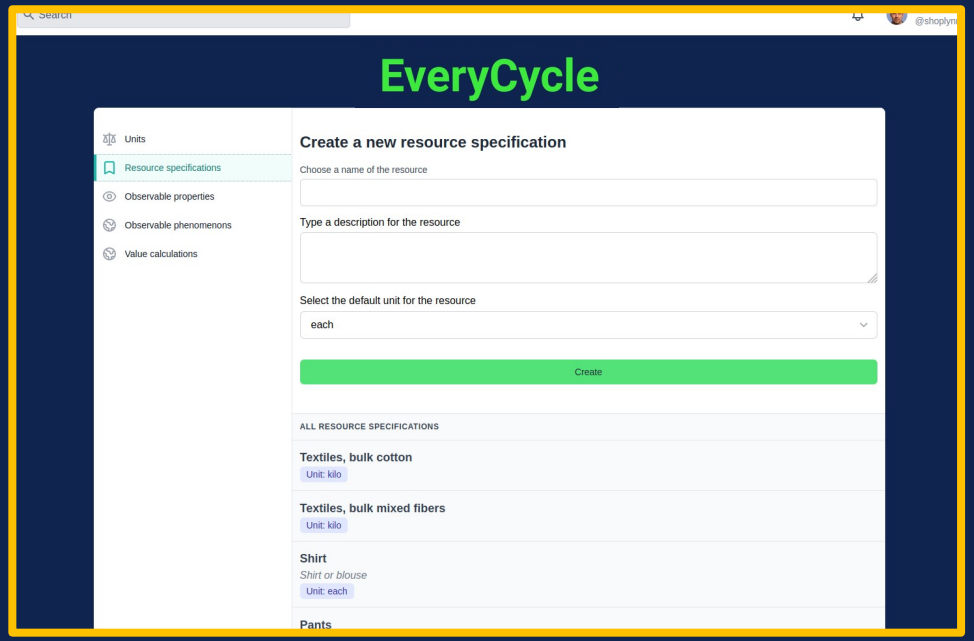
- Configuration, done by administrators of the program (mostly complete)
- Informational map open on the web with information for citizens: drop-off sites for used textiles, and local businesses who accept tokens (partially complete)
- Donations, done by workers at drop-off sites
  - Recording of donations and calculation of tokens (complete as a proof of concept)
  - Transfer of the tokens to the citizens, either electronically or physically (not part of the proof of concept)
- Recording of acceptance of tokens in payment for goods and services, used by local businesses (not part of the proof of concept)

Configuration application



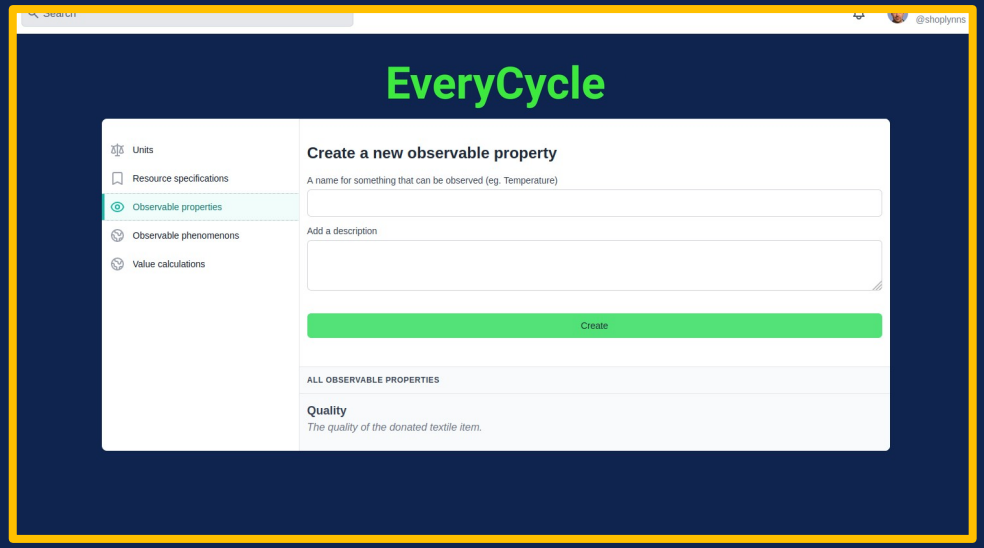
Units of measure can be configured in the app. Eventually, the units of measure from Reflow could be used, and it is best to coordinate units as much as possible for maximum interoperability with the rest of the circular economy.

Configuration application



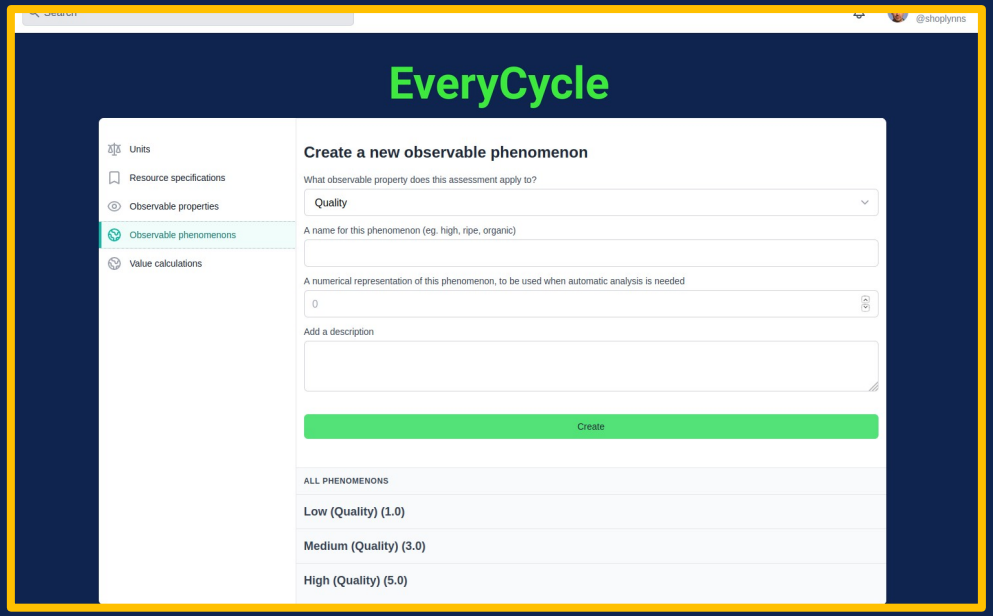
Resource specifications are used to define all the types of resources needed by the application. This includes types of textiles that could be donated, defined as specifically as desired. One way to think about the specificity is that if different types of resources require different formulas to calculate tokens, they should be broken out to support that. It also includes whatever tokens will be used.

Configuration application



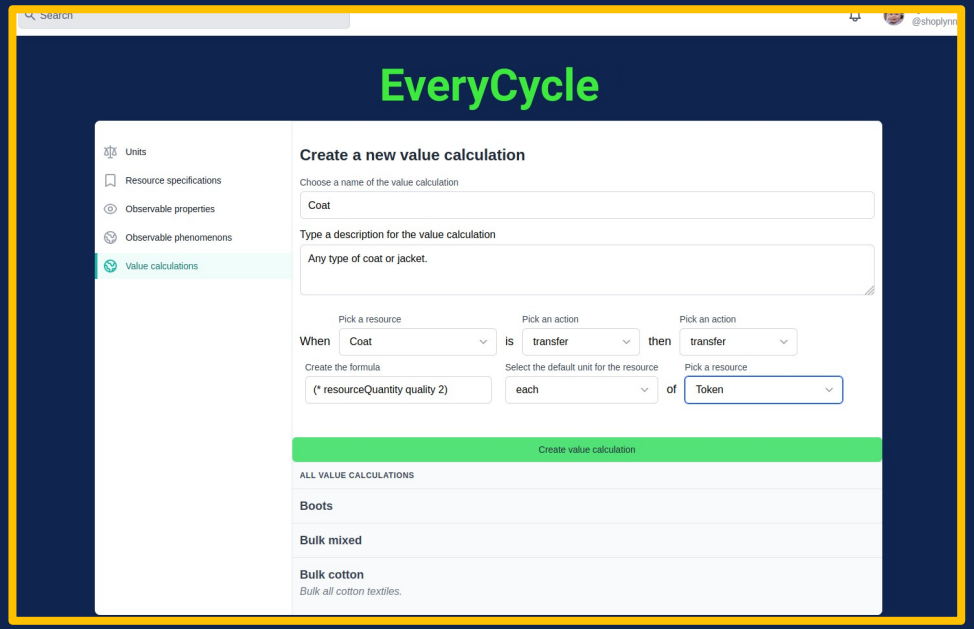
This setting gives the administrators a way to define the quality measure to be used when donations are received....

Configuration application



… and the choices for that quality measure. Each choice is given a numeric factor that can be used in the formula for creating tokens. This gives the capability to reward more tokens for higher quality donations.s.

Configuration application



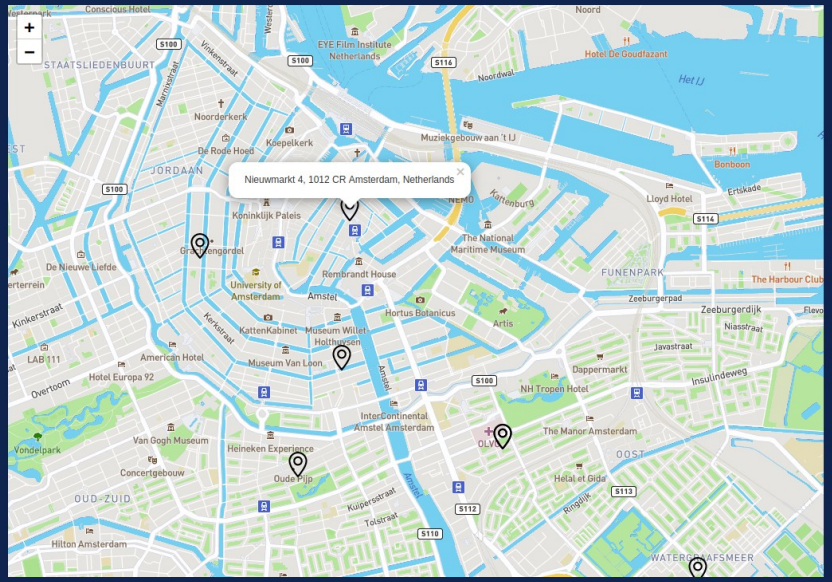
Finally, the program administrators can define as many ways to calculate tokens as they need, for different types of donations, both bulk and specific kinds of items. The formula can take into account both quantity and quality of a donation.

This screen can also be used to configure other rewards besides tokens, if ever needed.

This set of configurations make it possible to use this app in any industry or setting.

Informational map

EveryCycle



The map of drop-off sites and local businesses accepting tokens would be openly available on the web.

The map works for drop-off sites. It could be enhanced to toggle between drop-off sites and local businesses. Or it could show both, with different visual representations.

Donation receipt application

Here is a recorded demo of the donation application.

Donation receipt application

A technical possibility that underwent preliminary investigation is to use existing available software and a special device for electronically transferring tokens to the citizen's phone. This enables the citizen to remain anonymous when they spend their tokens, which would exist only in a wallet on the phone.

However, the Amsterdam pilot user group was not ready to make a decision on what token(s) to use. There are some already existing local tokens that are a possibility, in addition to various technical options.

Tokens as payment in local businesses

Once the citizen has tokens, they could use them in local businesses who accept them. This part of the story was not implemented, nor has it been envisioned in any detail. It will depend on the token(s) chosen.

Our team thanks you!

ValueFlows: Lynn, Maro (user requirements, specs, project coordination, documentation)

Bonfire: Antonis lead with help from the rest of the Bonfire team (development)

DisCO: Stacco (grant contact)

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