



# OpenDott - ESR4

Felipe Schmidt Fonseca  
Annual Progression - Year 1

# Annual Progression

18.01.2021

1. OpenDoTT - Smart Cities
2. Training + Contextual Review
3. Research Studies
4. Design Concepts
5. Next Steps

# Open Design of Trusted Things

## Smart Cities

Technology is fundamentally changing how cities work, but these smart cities are most often determined in a top-down fashion, with little transparency or accountability in how data influences the workings of the city. ***Can we create cities that are not just smarter, but kinder, fairer and more citizen-centred?***

# Training and Contextual review

# Training Modules

- Thesis Writing for International PGRs
- Stand and Deliver - Giving Effective Presentations
- Unconscious Bias - Relevance and Risk
- The Complete Researcher - PhD Launchpad
- Research Integrity
- The Writing Process - Getting Started with the Literature Review
- Publish or Perish - Academic Publishing in a Nutshell
- Introduction to Public Engagement
- Future-proof your Career
- Open Access and Publishing Practice
- Design Research Bootcamp
- Design Research - Module 2
- Waste Management in Developing Countries
- Platform Cooperativism Now!
- Internet Health and Open Leadership

# Literature

*Smart Cities and Critical Urbanism*

*Waste and material flows in the city*

# Past projects

*MetaReciclagem, Bricolabs, Transformatéria, ...*



3

FIRE EXIT  
KEEP CLEAR

VEOLIA

PLASTIC BOTTLE

Thomas









# Theme groups

- Appropriate and Grassroots Technologies
- Circular Economy, Repair Culture, Maintenance, Waste Prevention
- Commons: Collective Management, Cooperativism
- Critique of the Smart City, Urban Studies
- Databases, Blockchain and Online Ledger Systems
- Green New Deal
- Internet of Things
- Living Labs, Citizen Innovation
- Making, Craft, Digital Fabrication, Hackerspaces
- Methods: Design Research, Ecosystem Mapping, Diary Studies, Design Fiction
- Sustainability, Environment, Climate
- Techno-politics
- Waste Management and Recycling

Focus:  
waste prevention in smart cities

*Reuse of materials in cities and towns through initiatives aimed at and run by local actors.*

# Research Questions

## **Research Question 1 (RQ1):**

What prevents more widespread reuse of discarded materials in contemporary cities?

## **Research Question 2 (RQ2):**

What are the different actors - formal and informal - involved in reusing material objects at a city scale and how do they operate?

## **Research Question 3 (RQ3):**

What current and future digital technologies might help in making local societies reuse a higher proportion of materials that are otherwise discarded?

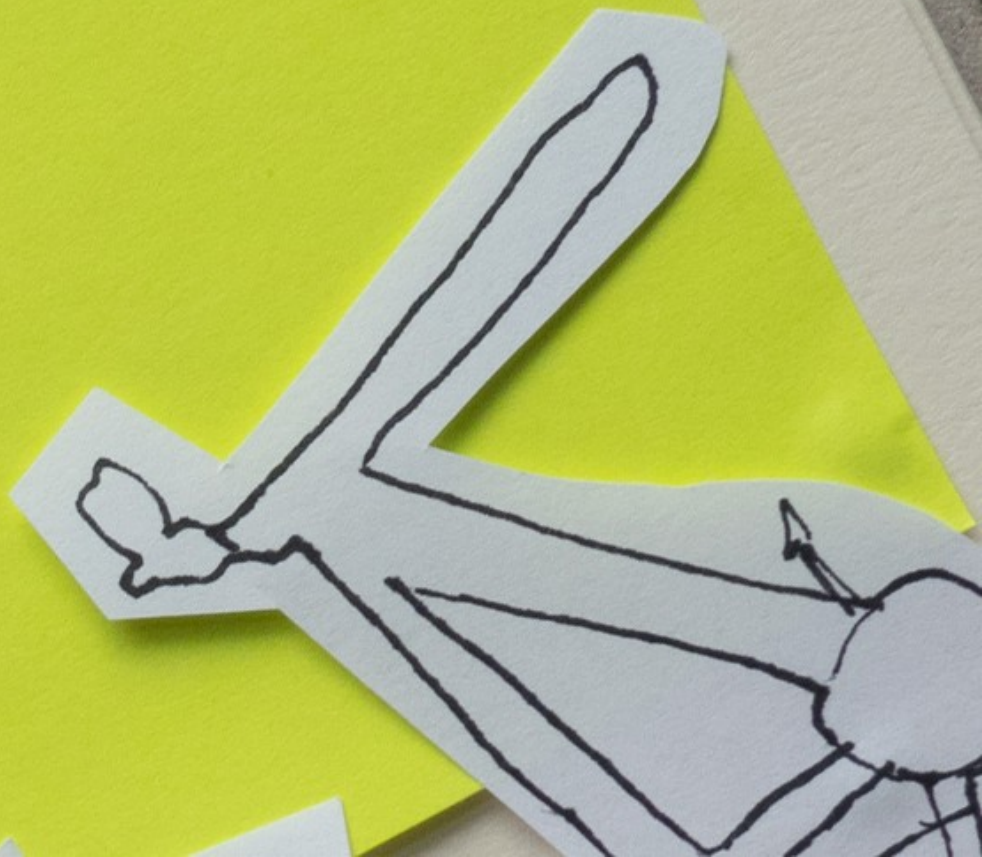
# Research Studies



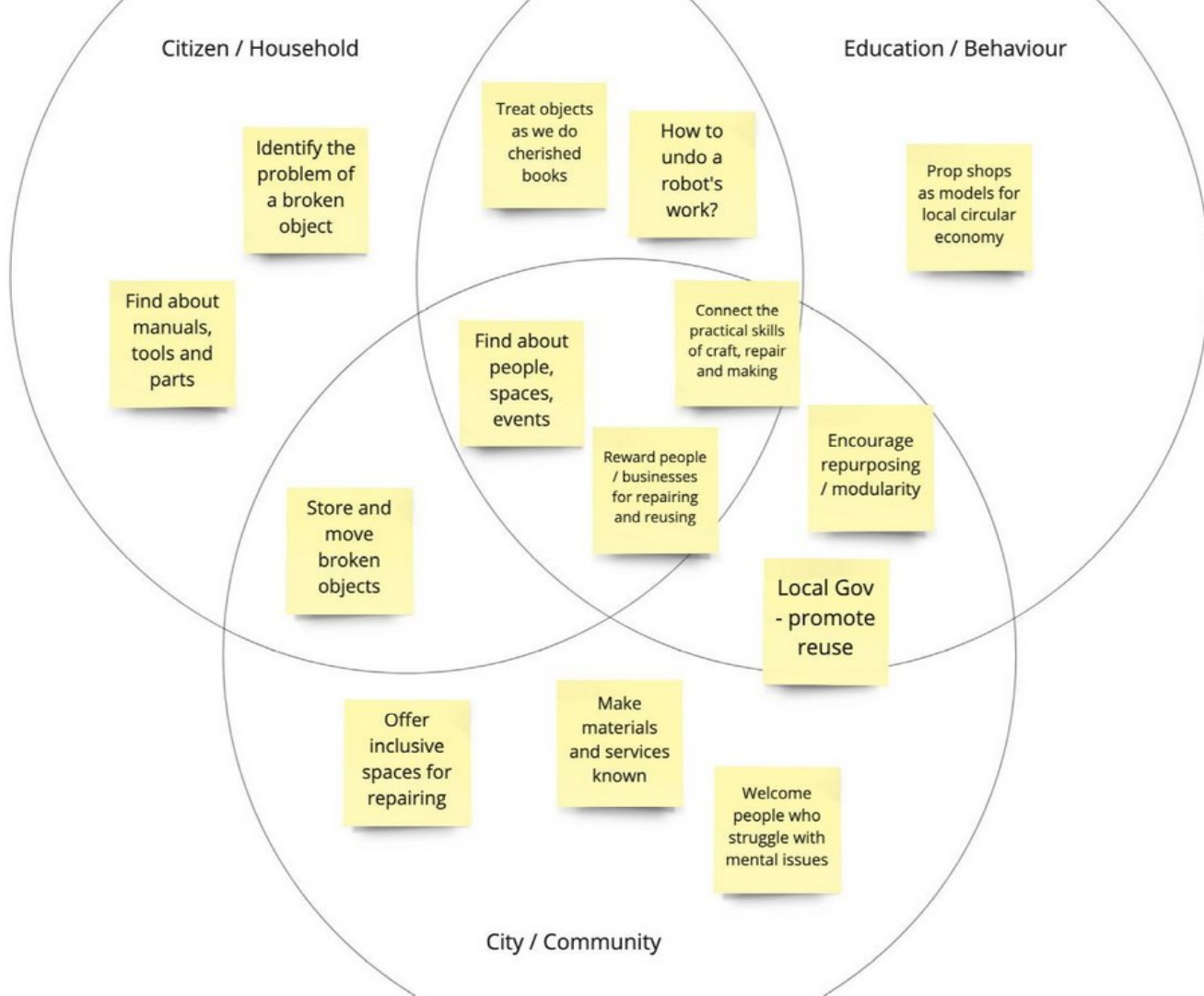
## 3.1. Repair Journey

“The research will investigate in what ways can materials that are broken, obsolete or otherwise inadequate be **repaired, adapted or transformed in urban contexts**. In particular, the study expects to understand how the value of an object is perceived in different situations. It is part of a wider research project investigating alternatives for **handling discarded materials in the city**.”

THE  
FREE  
Bicycle  
DIARY



# Repair Journey



## 3.2. Ecosystem Mapping

“The goal of the project is to understand **how discarded materials circulate in the urban context**, as well as where and how they are handled and transformed. I’ll be looking particularly into **how potential value is assessed** in different kinds of facilities, and what types of **equipment, methodologies and data sources** can aid in that.”



miro

miro

# Ecosystem Mapping



# Design Concepts

# Setting / Scenes / Actors

## **Citizen**

Individual/household who has broken or unwanted things.

Individual/household who is interested in acquiring affordable and reliable used things.

## **Community**

Group or organisation willing to generate income for community members.

Volunteer group or not-for-profit organisation in charge of repair cafes, clothes swaps and other zero-waste projects.

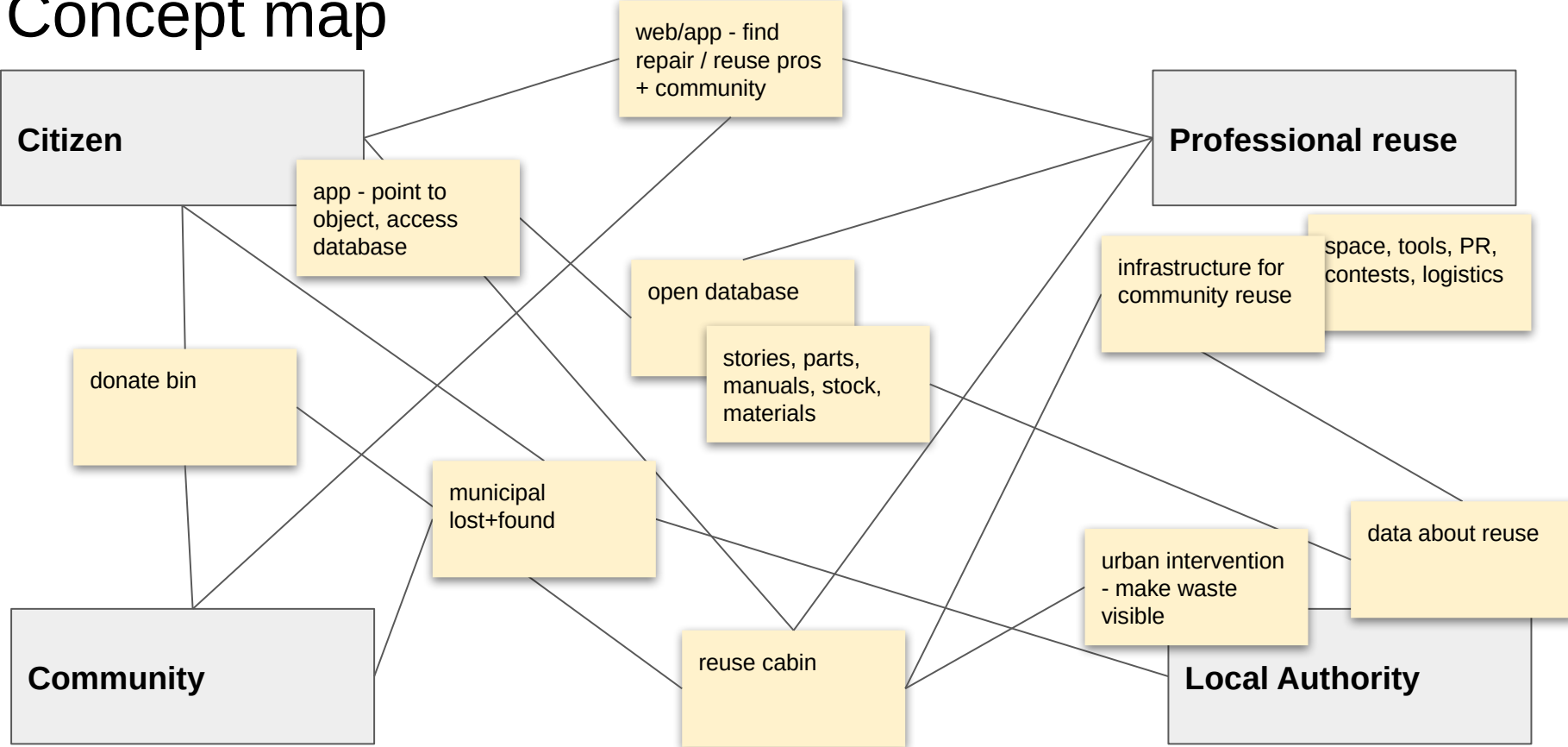
## **Professional reuse**

Social enterprises or SMEs working on the selection, transformation and redistribution of second-hand materials.

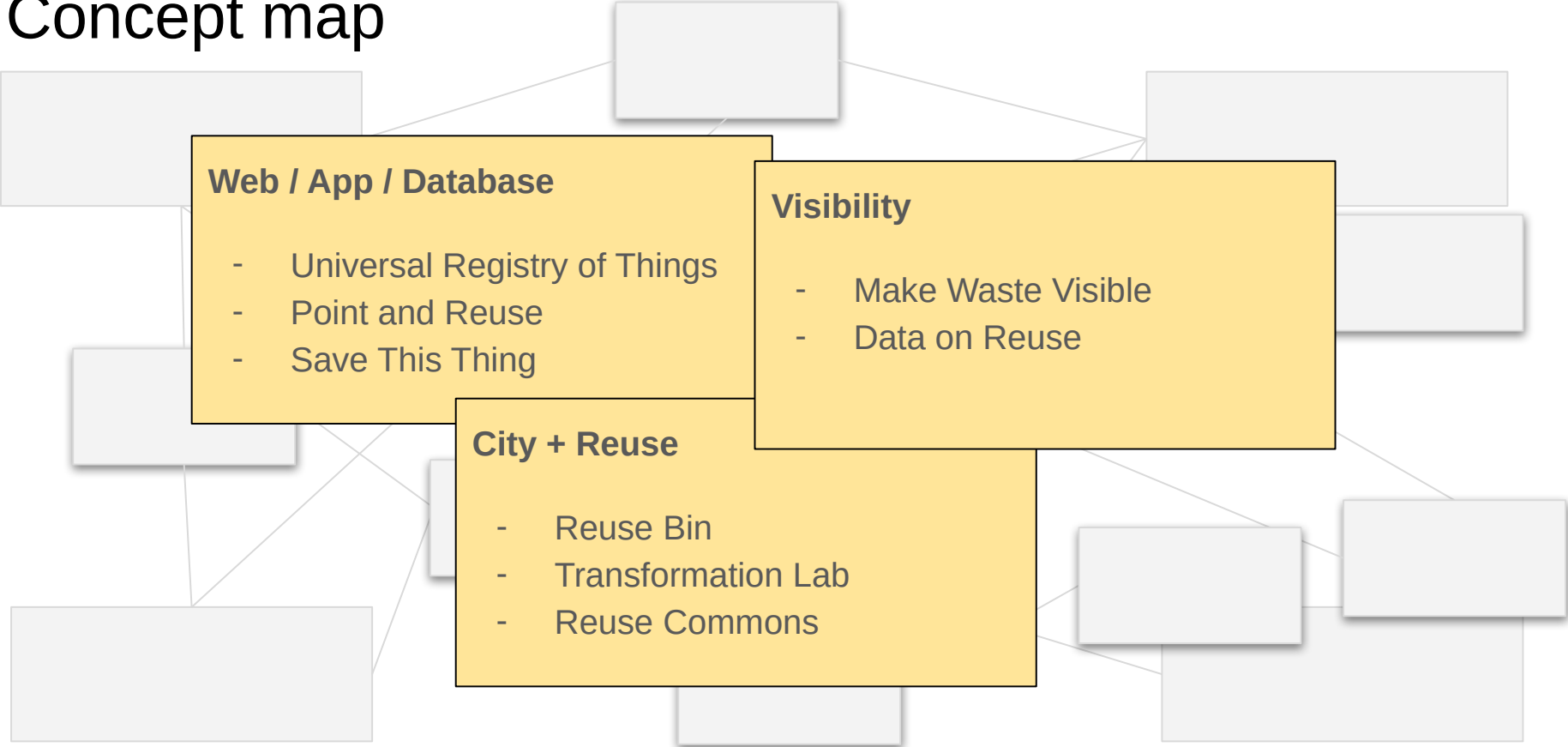
## **Local Authority**

City council / local gov looking into social, environmental and economic benefits of encouraging the reuse of materials.

# Concept map



# Concept map



1/8

## Universal Registry of Things

*Open database*

Information about as many types of objects as possible.



2/8

## Point and Reuse

*App / Website*

Allows users to quickly evaluate the potential value of an object.



3/8

## Save This Thing

*App / Website*

Geo-referenced open directory of reuse alternatives with user evaluation / reputation system.



4/8

## Make Waste Visible

*Urban Interventions*

Expose the volume of waste generated by towns and cities.



5/8

## Data on Reuse

*Open Dataset*

Data about different kinds of reuse of materials in urban environments.



6/8

## Reuse Bin

*Urban Service*

Track your donations.



7/8

## Transformation Lab / Shop

*Blueprint*

Urban infrastructure for reuse / upcycling of materials.



8/8

## Reuse Commons

*Urban Service*

Collective stewardship of post-consumption materials.





# Grouped Concepts

## Data and Things

### **Universal Registry of Things**

Open database about objects, to support the reuse (repair, recirculation, upcycling) and help evaluate the potential of objects for secondary markets.

### **Point and Reuse**

An app that allows users to take a picture of any object, match it against the Universal Registry of Things and instantly evaluate or learn about its potential for reuse and upcycling.

### **Save this Thing**

Geo-referenced open directory of shops, professionals and groups that offer alternatives to reuse materials.

## Transparency / Visibility

### **Make Waste Visible**

Urban interventions exposing the volume of waste generated by towns and cities.

### **Reuse Dataset**

Open Dataset about different kinds of reuse of materials in urban environments.

## Reuse in the City

### **Reuse Commons**

Ecosystem for the collective stewardship of post-consumption materials.

### **Transformation Lab**

Blueprint of facilities for reuse / upcycling of materials in urban contexts.

### **Reuse Bin**

Track what is made of your donations.

Next steps

# Second year - research plan

## Training

- Open Leadership and Internet Health (done)
- Prototyping Technologies

## Prototype: digital “agent valoriste”

- Valoos - machine to evaluate the reusability of physical objects
- Data structure for universal registry @mozfest

## Fieldwork

- Experience prototype + participants (video + online workshop)



# Draft plans for 3rd year

- Investigate cases in which policies of waste prevention are designed and implemented in collaboration with local actors. Berlin, Nantes, Amsterdam, Barcelona.
- Evaluate the possibility of augmenting with IoT the ability to assess and act upon discarded materials.
- Explore commons-based governance systems to manage the potential wealth of discarded materials in municipalities and regions.

Thank you!