#### FELIPE SCHMIDT FONSECA

## **Cities**

Felipe has focused on waste, exploring how smart cities might encourage more reuse and repair rather than disposal. This has involved a mapping of reuse and repair facilities in cities and a participatory study exploring the challenges people face in reusing things.

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At the current stage of the OpenDoTT project, I am working on design concepts that respond to data collected in this first year of work. The data comes from two design research studies; my explorations towards literature review; and reflection upon projects I have been involved with in the past.

My investigation is focused on smart cities with a strong emphasis on environmental and social issues, as well as ownership and sovereignty. I am directing my attention in particular to waste management, but with a specific take on it. I want to contribute with solutions to avoid as much as possible the very need to manage waste in the usual way and to encourage instead the reuse of materials in cities and towns through initiatives of repair and repurposing aimed at and run by local actors.

This sort of initiative is arguably nothing new, as people have been repairing, repurposing and recirculating things since forever. These practices, however, are seldom pictured in discussions about smart cities.

### **Research Questions**

My investigation topic is the smart city. I am directing my attention in particular to the reuse of materials in cities and towns through initiatives aimed at and run by local actors. It is a critical take to the way waste management is often implemented by local governments. Instead of increasing the efficiency of waste collection and disposal (usually towards recycling, incineration or landfills), I expect to generate ideas that contribute to avoid as much as possible the very need to manage waste on the first time.

- Can waste be considered an indicator of a city's health? In that sense, to what extent should it be hidden from public view or exposed widely?
- 2. In what ways can digital technologies be used to encourage the reuse of materials in urban contexts? Can IoT be used to help in assessing the value of discarded objects, repairing and repurposing them or making them reach people or organisations that can put them to good use?
- 3. What would be the implications of reusing materials with the aid of technologies vis-a-vis concerns of privacy, security and health?



- 4. What is the role of local governments in promoting waste prevention and how can that be embedded in smart city projects?
- 5. What do digital technologies have to offer in terms of promoting the social handling of second-hand materials? How to relate that to concepts of commons-based governance, social stewardship, multi-stakeholder cooperativism and circular economy?"



"The only time when I have spoken with them [waste management authorities], they seem to be focussing on education campaigns. That is the sort of things that they are looking at. Whereas, when I look at data science area, they are all thinking about using robots to separate waste better, but it looks like it is not that much better than what is currently being done." **Participant (Data Scientist)** 

## Methodology

#### 1. Ecosystem Mapping

The goal of the project was to understand how broken or discarded materials circulate in the urban context, as well as where and how they are handled and transformed. I was 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. I expected to do that by interviewing managers and staff working at places responsible for solid waste treatment, as well as organisations and companies that repair, repurpose or handle donations of



different types of materials.

The COVID-19 lockdown in place during the whole of my data collection period made it difficult to visit and interview staff

members from waste management, or volunteers in charities. I managed however to recruit participants for online or phone interviews who brought me a sufficiently diverse set of perspectives: a local manufacturing / design shop; a nonprofit organising zero waste initiatives; a second hand shop / cash advancer; a scrap shop with an artists' studio attached; a data scientist creating ways to visualise waste data.

I could not get a hold of anyone from a local Council that would agree to be interviewed for the study, despite asking around in different cities and social circles. It may be only a result of the current times, with a lot of pressure over waste collection and many new issues to deal with regarding health and safety of staff and citizens. But I couldn't help reiterating the feeling that many cities are uncomfortable to discuss their waste policies. I was able however to acquire a broad understanding of waste management systems by attending an online course called "Waste Management in Developing Countries". As my research focus is not exactly waste management but rather waste prevention, that proved a good starting point. The COVID-19 lockdown in place during the whole of my data collection period made it difficult to visit and interview staff members from waste management, or volunteers in charities. I managed however to recruit participants for online or phone interviews who brought me a sufficiently diverse set of perspectives: a local manufacturing / design shop; a nonprofit organising zero waste initiatives; a second hand shop / cash advancer; a scrap shop with an artists' studio attached; a data scientist creating ways to visualise waste data.

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#### 2. Repair Journey

The study was designed to investigate ways in which materials that are broken, obsolete or otherwise inadequate can be repaired, adapted or transformed in urban contexts. In particular, I expected to understand how the value of an object is perceived in different situations, and how accessible are the possible ways to handle or transform it.

Those who volunteered to participate were asked to start a repair diary of one object that was either broken, malfunctioning or inadequate. Each participant was able to choose the object their diary would focus on. It could be an object they were currently interested in exploring, or some notable experience they have had in the past. During some weeks, participants would be asked to reflect upon the value of the object they chose, in what ways it could be considered usable and how easy it was to repair or repurpose it. Stories of failed attempts were to be considered as relevant as successful ones.



## **Initial steps**

The Repair Journey was inspired by design research studies using probes: objects that invite participants to interact materially with them by completing, adding information or interventions, wearing or changing them. In February 2020 we (the OpenDoTT fellows) had a workshop with Jayne Wallace and Justin Marshall at Northumbria University to explore



possibilities to use probes for our research. My interest in understanding the way citizens interact with materials that were somehow inappropriate - broken, ill-fitted, obsolete or otherwise - led me to design what I originally named "broken probes". I had planned to host a meeting in Dundee in early April that would explain the purposes of the study and recruit participants. Due to the COVID-19 lockdown, that event moved to online. I ended up not having that much attendance from Dundee, but had about 20 people from all over the world in a



call hosted from my bedroom. That allowed me to get a sense of the general interest of people in the topics I was covering.



# Next steps and open questions

Before joining OpenDoTT, I was already used to participatory dynamics. In the past I had already engaged in community advisory boards for public policies, acted as the local liaison for a research project about open and collaborative science, helped kickstart more than a dozen of projects that involved making groups of people talk to each other. I had however a feeling of having to improvise when decisions were to be made.

I remember during one of my first supervisory meetings in Dundee discussing how to make conclusions more explicit in research through design. I felt I needed to learn more about how that worked. How to document participation, how to use documentation as evidence and to establish a clear narrative that would strengthen whatever decisions were made. It was as though all the elements were there in my past projects, but still I was somehow improvising, relying on my own intuition to make the calls. Was it really participatory if I acted as a sort of maestro conducting the elements of participation?

Through this year, however, I had access to systematic ways to go about this. I've learned about ethics, about making

impressions explicit, and about demonstrating what I previously treated as revelation. A method instead of magic.

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Still, there is a lot to reflect upon. I was at some points underwhelmed by the outcomes of my research. I confess I'm not in love with my results. Is it because the mystery is somehow removed? Perhaps that is a good thing, scientifically. There should not be any conclusion that can not be traced back to data. At least for this phase. That's it, our first year was all about sourcing data from participants and turning it into relevant information.

I am however looking forward for future steps in which I can bring creative magic back to it - not contradicting data and method, but rather expanding on it.