

Jimmy Tidey, PhD

USER EXPERIENCE RESEARCH PORTFOLIO

Project 1

Google-internal team management tools

Project 2

Marketing infrastructure design guide

Project 3

PhD research



Hello, I'm Jimmy.

I bring technical knowledge and academic rigour to user experience research and service design.

My approach to research draws on industry experience and a design research PhD. My tech skills include data analysis and front-end prototyping.

I love working at the intersection of cultures and specialisms; my diverse background has helped me to make unique contributions in settings ranging from academia to startups to working at Google.

Employment history

(Summary)

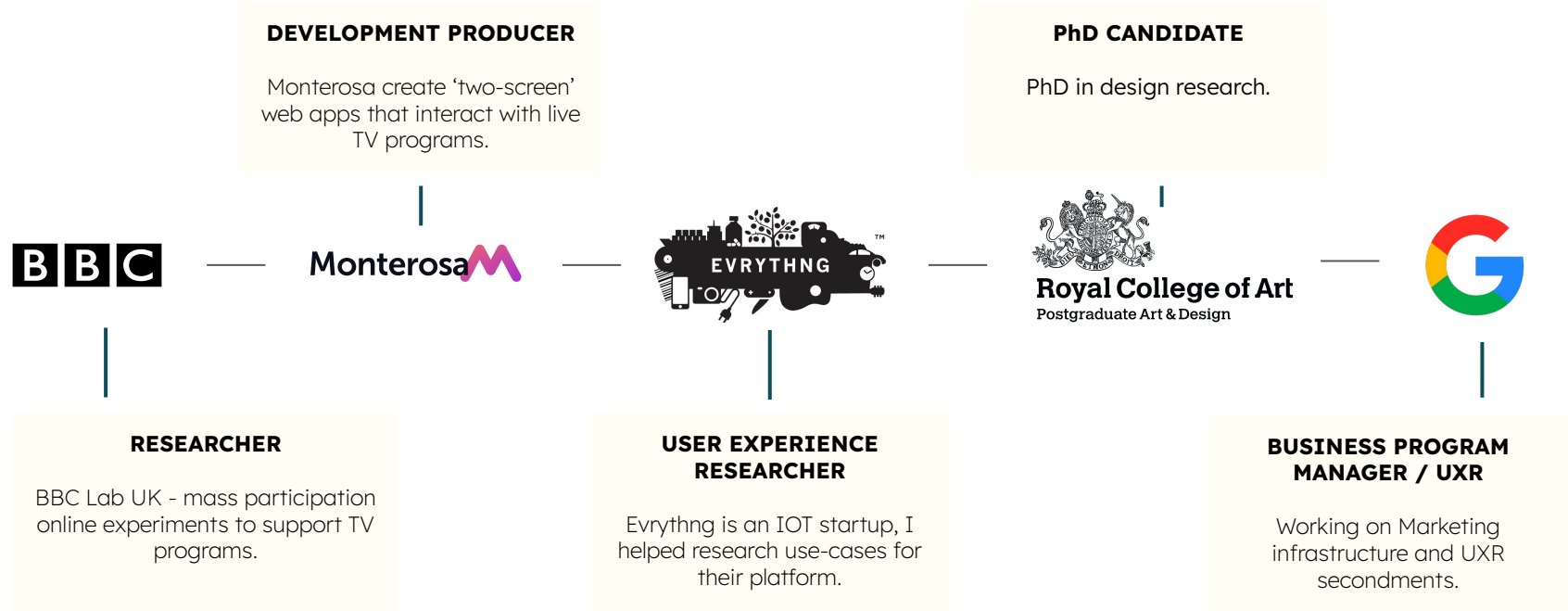


Royal College of Art
Postgraduate Art & Design



Employment history

(Summary)



Portfolio summary

I've included a lot of detail in my portfolio. To make it easier to navigate, I've provided direct links to projects (underlined) and a list of the research methods demonstrated in the project.

PROJECT 1

Team management tool

A detailed description of the work I did as UXR responding to a feature request.

Methods

- In-depth interviews
- Concept testing

PROJECT 2

Marketing infrastructure design guide

Project 1 gives a granular account of adding a new feature to a product. In contrast, project 2 was a global design guide for the marketing department's digital infrastructure.

Methods

- Service mapping
- In-depth interviews
- Data analysis

PROJECT 3

PhD Research

Building and evaluating a social media analytics tool.

Methods

- Physical prototypes
- Data / network analysis
- Focus groups
- Sociometric surveys

PROJECT 1

Google Team Management tool

My Role: Leading the project as a User Experience Researcher

Team: Support from a UX manager, working with a UXR and engineering team.

Duration: 8 months (40% commitment)

Outcome: Internal team management tool upgraded to better support ~3000 engineers

Context

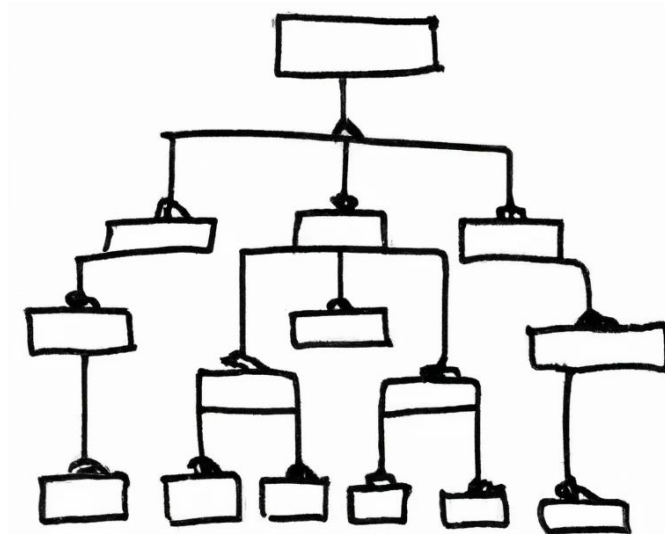
Google has an internal tool for managing teams. Teams are represented as a tree, where every team has a single 'parent' team.

A VP of engineering made a feature request for the tool to allow teams to have two parents to reflect the way teams work.

The request implied a major change to the UX and underlying data model.

Key challenge

Taking a tightly-specified but hard-to-implement feature request from a senior stakeholder, using UXR methods to find a deliverable, usable solution that meets the requester's original intentions.



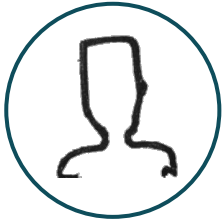
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What I did

Working with the engineering and UXR teams, I led the project, including:

- Understanding the context of the ‘two-parent’ feature request.
- Running a scoping phase to frame the problem in terms of user groups and their user needs; building a mockup of how the ‘two-parent’ solution could work.
- Evaluating the ‘two-parent’ solution through in-depth user interviews.
- Building a case to address the ‘two parent’ feature request with a combination of existing features and incremental improvements.

Team & stakeholders



“The client” - a VP of
an engineering
department



Me



UX manager



UXR advising on
integration into
existing UX programs



Engineering
team

Research structure

At the outset of the project, I ran an extensive scoping phase to define a research question based on specific user needs, deliberately moving away from the implementation details of the initial feature request. We then ran in-depth interviews to validate the user needs and concept-test the original feature request.

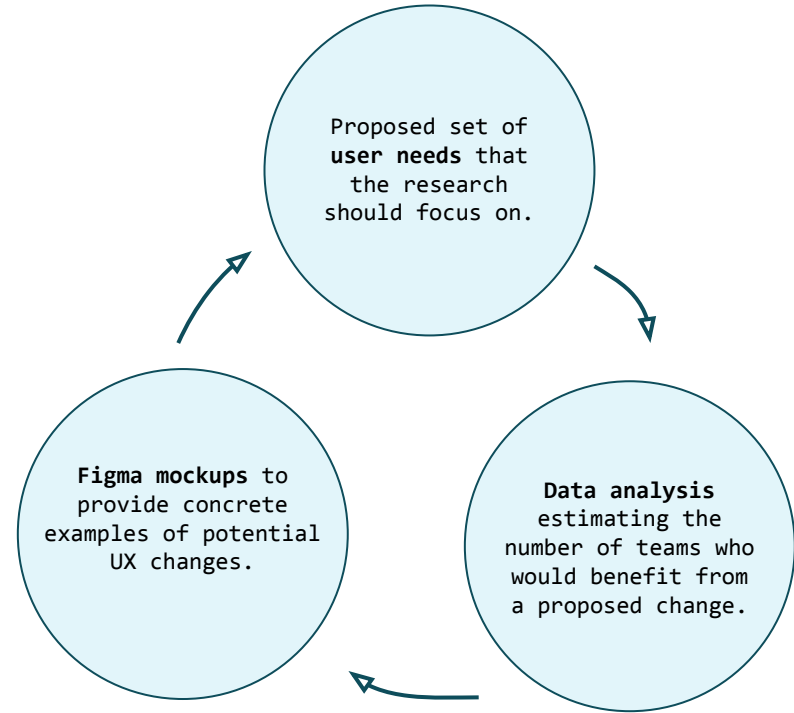


Iterative Scoping

Five iterations of scoping were required to define the user group and user needs that best reflected the goals of the feature request.

In each iteration, we discussed different criteria for teams that might benefit from having two 'parents'. My data analysis is described in more detail on the next slide.

I also used **Figma to generate mockups** to generate consensus around how the original feature request might work.

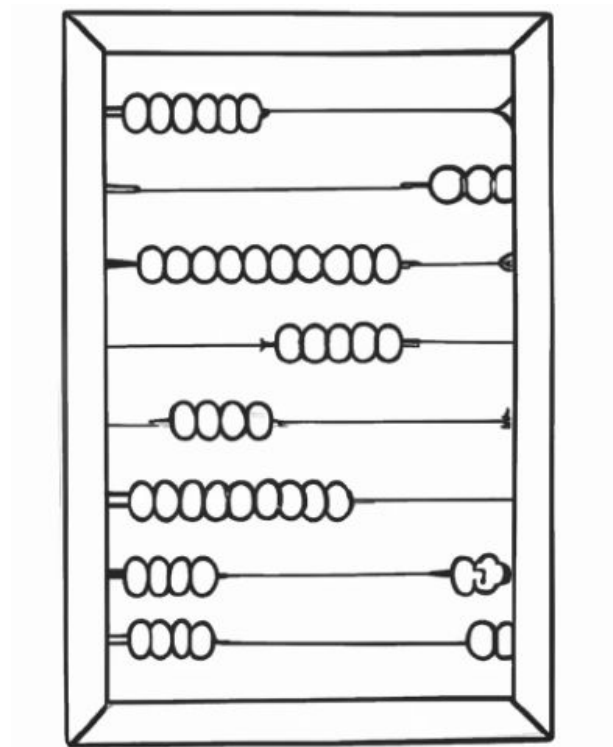


Data analysis

I used BigQuery and Jupyter Notebook scripts to estimate how many users would benefit from each iteration of the 'two parent' function. (eg. '132 teams at Google have staff from two or more departments'). The analysis ensured ensure any new features would benefit a broad user base.

The data was in the form of two 'graphs' (sets of nodes and edges); I wrote complex SQL queries to discover which teams had particular properties (e.g. 'team with at least three subteams with distinct groups of team members')

I used the Python NetworkX library to simplify the graph data and the Gephi visualisation tool to create network diagrams that articulated different team structures at Google.



Scoping outcomes

- **Four categories** of potential user benefits for senior managers were identified which we could test in the in-depth user interviews.
- The initial brief anticipated benefits primarily for **individual team members**. By systematically considering user benefits, we identified that **senior managers** were, in fact, the most important user group. This informed who we included in user testing interviews.
- I iteratively developed a mockup of the proposed feature, which we subsequently used for **concept testing**.

User interviews - recruiting

I created a recruiting survey and sent it to ~300 engineering team leads. We wanted to get a representative sample of team leaders with respect to tenure, region and team structure - categories we identified as strongly shaping users' experience of the Team Management Tool.

I ensured that all stakeholders approved our sampling method while guarding against manipulation of the sampling process.

Eight users were selected for interviews.

*Mockup of the
recruiting survey with
selected questions*

Engineering team leads UX interview invite

The Team Management Tool user experience team are looking for engineering leads to participate in a 45 minute remote interview about the way you use TMT. Please complete the form below if you are interested. As thank you gift, we'll make a donation to a charity of the participant's choice.

What is the composition of the team(s) you lead?

- ☐ One or more of my teams have a mixture of different types of engineers
- ☐ My teams are mostly or completely composed a single type of engineer
- ☐ Other: _____

What region do you work in?

- ☐ US / AMER
- ☐ EMEA
- ☐ APAC
- ☐ Other: _____

How long have you worked at Google in engineering?

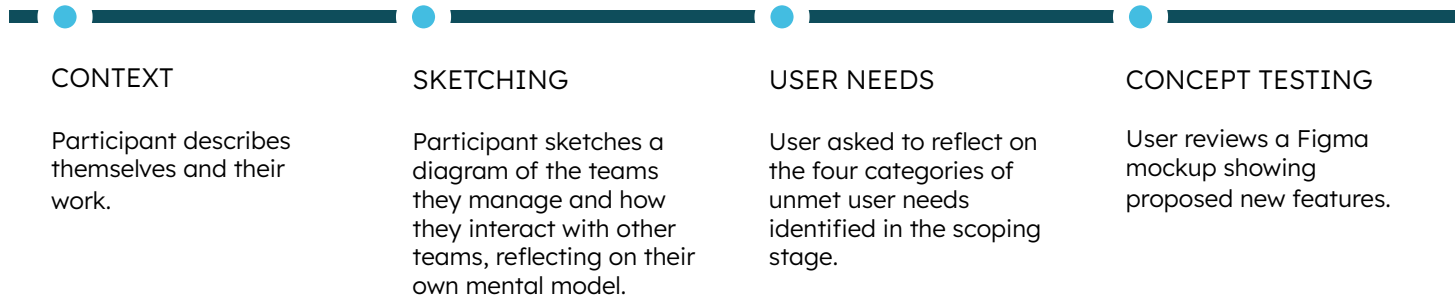
- ☐ One year or less
- ☐ Between one year and three
- ☐ Longer than three years

In-depth user interviews

I conducted eight semi-structured remote interviews, including moderating them and writing the script.

The interviews were recorded with engineering team leads from across Google. We planned to consider a second wave of interviews, however, after the first wave a clear picture had emerged.

Interview structure



Interview Findings

- The sketching phase indicated that participants' mental models of their team structure were highly diverse and complex - much more complex than would be captured by allowing teams to have two parents.
- The sketching phase also indicated that team leads would likely use the 'two parent' functionality to create extremely confusing team hierarchies.
- In the concept testing phase of the interview, almost no support was found for the prototype version of the feature request.
- Over half the users were not aware of an existing 'partnerships' feature that could be used to indicate collaborations.

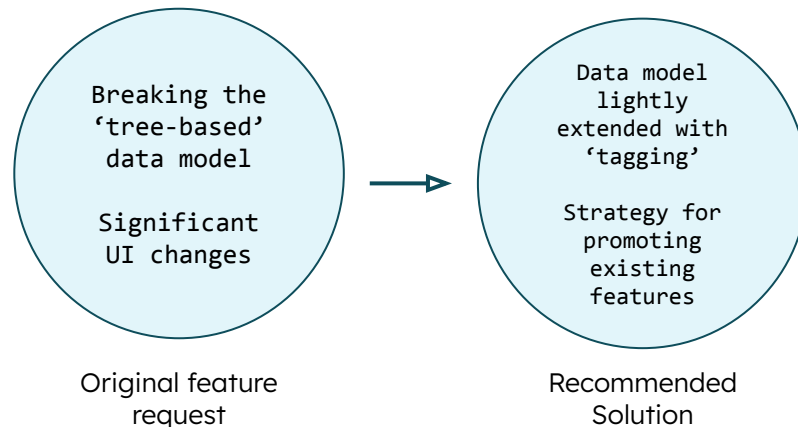
Impact

Product impact

- The original feature requester agreed that a naive implementation of their request would not meet their goals.
- A small extension to the existing data model was suggested using 'tags'.
- We identified a set of users who should be using an existing 'collaboration' feature and suggested a strategy for promoting this feature to them.
- This approach will benefit teams across Google, specifically thousands of engineers who use the system.

Further work

Producing a guide or set of templates to articulate best practices for using the team management tool was identified as a next step.



UXR secondment background

My secondment arose from an on-spec research project, demonstrating my ability to use speculative design and editorial writing to initiate and build momentum for research projects.

Speculative design

What we miss about the office, an 'on spec' research project about opportunities for collaboration during the covid lockdown, which circulated to hundreds of Googlers.

Research methods: speculative design, literature review.

Tech skills: BigQuery analysis



Research article

Article in an internal journal discussing my research.

Research methods: editorial writing

Tech skills: Network visualisations using Python Networkx library & Gephi



UXR secondment

My article led to a project with an infrastructure team to improve an internal collaboration tool used by over 2,000 engineers.

Research methods: Figma mockups and concept testing.

Tech skills: BigQuery analysis

PROJECT 2

Project 2: Marketing infrastructure design guide

My Role: managing a design agency, authoring a design guide

Team: Marketing Ops director leading, working with one other Business Program Manager

Duration: 8 months (30% commitment)

Outcome: 14 design principles used for all future marketing infrastructure

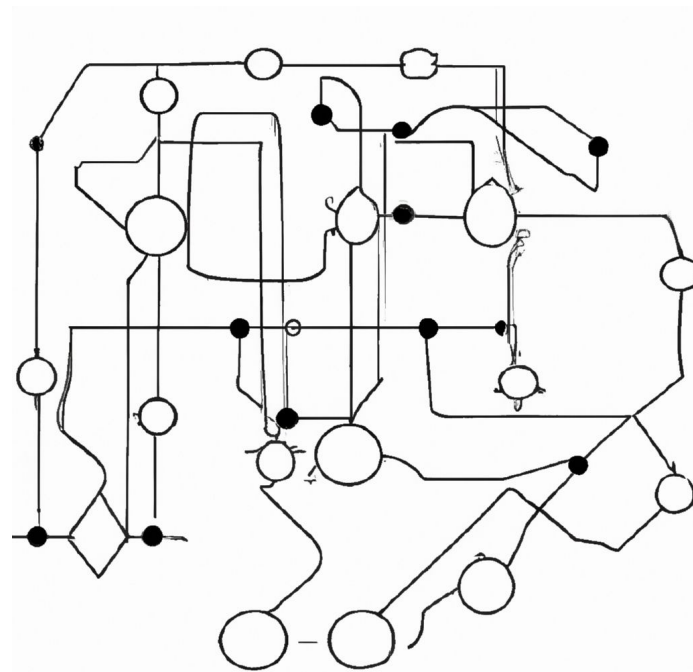
Context

Marketers at Google use workflows that have developed organically over 20 years of evolution in Google marketing. The result can be very confusing.

As part of a team, I wrote a design guide to inform revisions and additions to infrastructure, helping it evolve to a less confusing state over time.

UXR relevance

While this project could most succinctly be described as a service design project, I deployed UXR methods (In-depth User Interviews, analysis of product use data), and focused on user-centered design.



Some details, including the original assets, are sensitive and cannot be included. Above is DALL·E's imagined diagram of a complicated system.

What I did

1. Briefing and guiding an external design agency to help us build a service map of the existing marketing ecosystem.
2. Working with the agency to interview 12 marketers, including collaboratively writing scripts. I also helped with the screening process.
3. Working with the design agency to articulate our findings, which included sample user journeys and evaluating potential for change across 20+ tools.
4. I authored 14 design principles as guidelines and in a 'checklist' format.
5. Iteratively testing the design guide with marketers and teams that build tools for marketers.
6. Working to promote the design guide internally.

Team & stakeholders



Me



Business Program
Manager



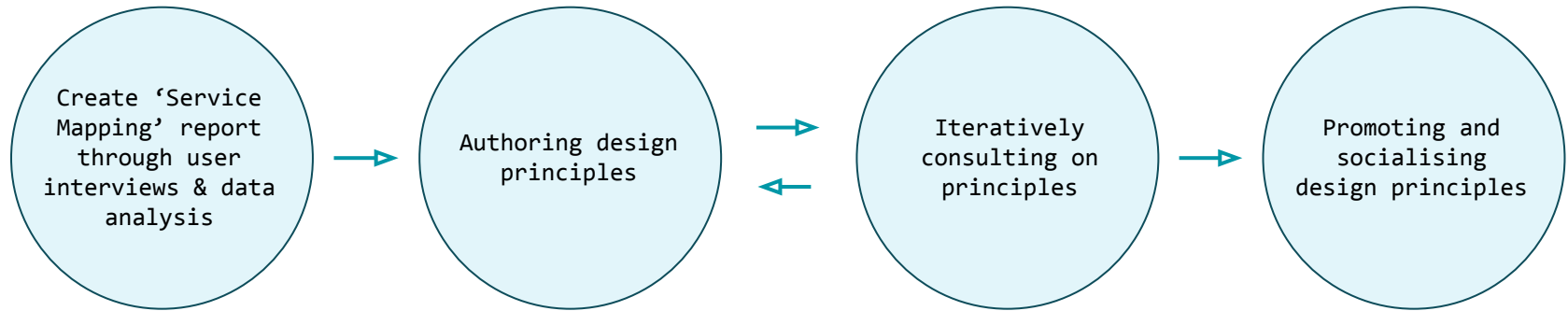
Marketing Operations
Director



External design agency

Project structure

The project began with the service mapping phase and proceeded to an iterative process of improving a set of design principles based on the issues highlighted in the service mapping.



Service mapping interviews

I worked on discussion guides and recruiting for the service mapping interviews.

In recruiting we ensured that participants represented a balance of tenure at Google and employment types (Full time, vendor, contractor). We ensured all regions were represented (AMER, EMEA, APAC)..

Interview process

A series of 12 interviews with marketers designed to better understand how they experience the existing ecosystem.

Participants were asked which tools they used most and which they experienced the most frustration with.

Ask the participant about the three workflows, processes or tools they use the most as part of their work as a marketer. Follow up with the below questions [~10 mins per workflow].

1. For [workflow], how did you first discover you needed to use it? How did you go about finding it?
2. On average, how long would you say it takes you from starting the [workflow] process to finishing?
3. Can you remember how long you thought it would take when you first used it? Have you been provided with any information on how long it should take?
4. Did you need any help or support with [workflow]? How did you get it? [Prompt] For example, have you spoken to anyone in person or used documentation?
5. If your project was an emergency, what could you do to accelerate the process? [Prompt] Have you been made aware of any 'break glass' or emergency procedures?
6. When you complete the process, are you asked to give any feedback about your experience?

Mockup of a script excerpt.

Selected interview findings

- Improvements to internal systems were not communicated to users. Many users have been 'burned' by poor UX and are unaware when improvements have been made.
- Tools and systems that worked well for full-time US-based employees were not well suited in other contexts, for example office hours that are only available in US working hours.
- Marketers have distinct needs compared with other departments, for example marketers are often uncomfortable with the internal bug tracker, which is used as part of many workflows .

Service mapping report

The 'service mapping' review of the marketing ecosystem resulted in a report. The report built support for allocating resources to improve the marketing ecosystem.

The report included:

- A mapping of the interactions of all the different systems and tools we discovered
- Analysis of the number of users for each system and, where available, data from the Google company-wide tools survey
- Detailed reviews of user journeys that were both common and caused high levels of frustration
- Direct quotes from the interviewees
- Estimated rankings to help us pick the best candidates for change: how much the tool is used, frustration levels, and how easy it would be for us to make changes the tool.

Contractomatic workflow

Potential for change: ★★★☆☆

Frequency of use: ★★★★★☆

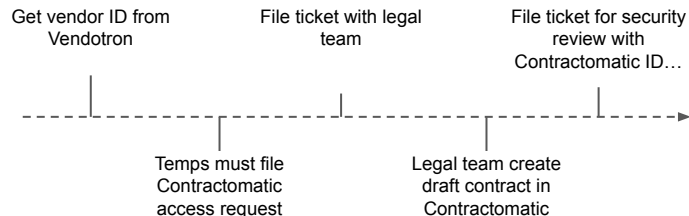
User frustration: ★★★★★

Average completion time: 2 months

Google Tools Survey rating: 80% negative

Usage: 348 unique marketers in 2021

User Journey



User Quote

"I should be allowed to expense headache pills when I use Contractomatic"

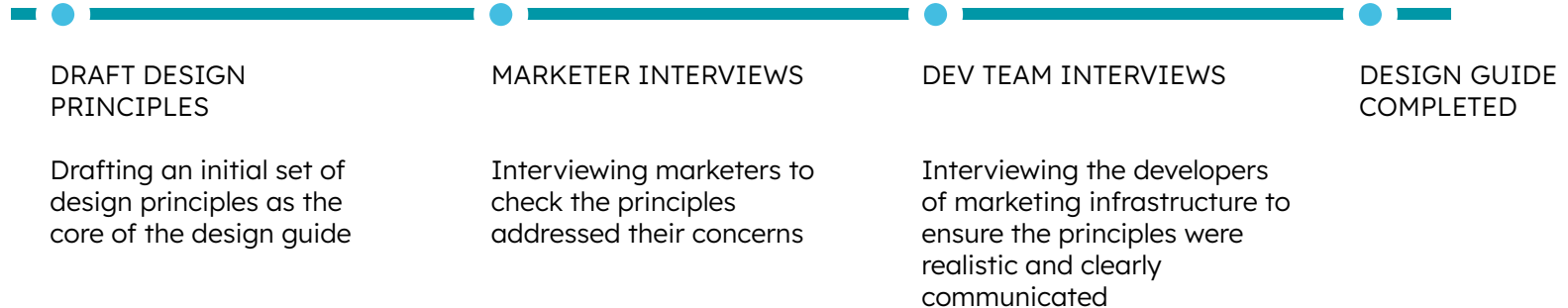
Mocked-up report page for an imaginary workflow.

Outcomes

- The ecosystem review successfully built a case with leadership for allocating more resources to improve marketing workflows.
- As part of the drive to improve marketing workflows, the idea of a design guide to inform future development was approved.

Developing the design guide

Building on the service design mapping, the design guide aimed to succinctly express the main findings in actionable design principles. To ensure the guide met its goals we ran user testing with marketers and teams developing marketing tools.



Design guide in-depth interviews

I wrote discussion guides and moderated interviews to develop the design guide iteratively.

This slide discusses the interviews we conducted with developer teams in detail. We followed a similar process with marketers, as described on the previous slide.

We used remote semi-structured in-depth interviews with developers currently working on building tools that marketers would be required to use. The interviews were focused on ensuring the design principles were clear, had an appropriate tone of voice, and were relevant and actionable.

For each principle, ask the following questions [~ 5 mins per principle].

1. Can you tell me, in your own words, what you think this design principle is describing? There's no wrong answer.

[If the participant is confused, explain the intent of the principle]

2. Is the principle written in familiar and appropriate language? Does it use an appropriate tone of voice?

3. Does this principle apply to a project you are working on? Do you think it would be beneficial to that project?

4. At what stage of your project do you think this principle is applicable?

5. Do you have the resources and support to apply this principle?

Discussion guide for testing design principles with developers.

Marketer interview findings

- Marketers highlighted that tenure strongly affects perceptions of internal processes.
- Marketers wanted the design guide to be very explicit that it applied only to internal tools, not their campaigns.

Engineer interview findings

- Engineers helped us understand where the tone of voice for our design guide didn't sufficiently acknowledge the difficulties they faced in building tools.
- Engineering teams asked for more extensive guidance on how to undertake user research.
- The engineers suggested that there should be a 'checklist version' of the design guide, where they could explicitly state how they planned to meet all of the design principles.

Project Impact

- **Product** - All new marketing infrastructure projects will use the checklist version of the design guide to inform the development of marketing tools.
- **Cultural** - The design principles advocated for a user-centered design approach across marketing.
- **Leadership** - The infrastructure review helped inform a shift in senior leadership's approach to marketing infrastructure. Although already a priority area, the work secured extra resources to address issues, including identifying priority areas.

PROJECT 3

PhD Research

My Role: Researcher / doctoral candidate

Team: Multiple collaboration, including with a regional NHS Trust and central government.

Duration: 4 years

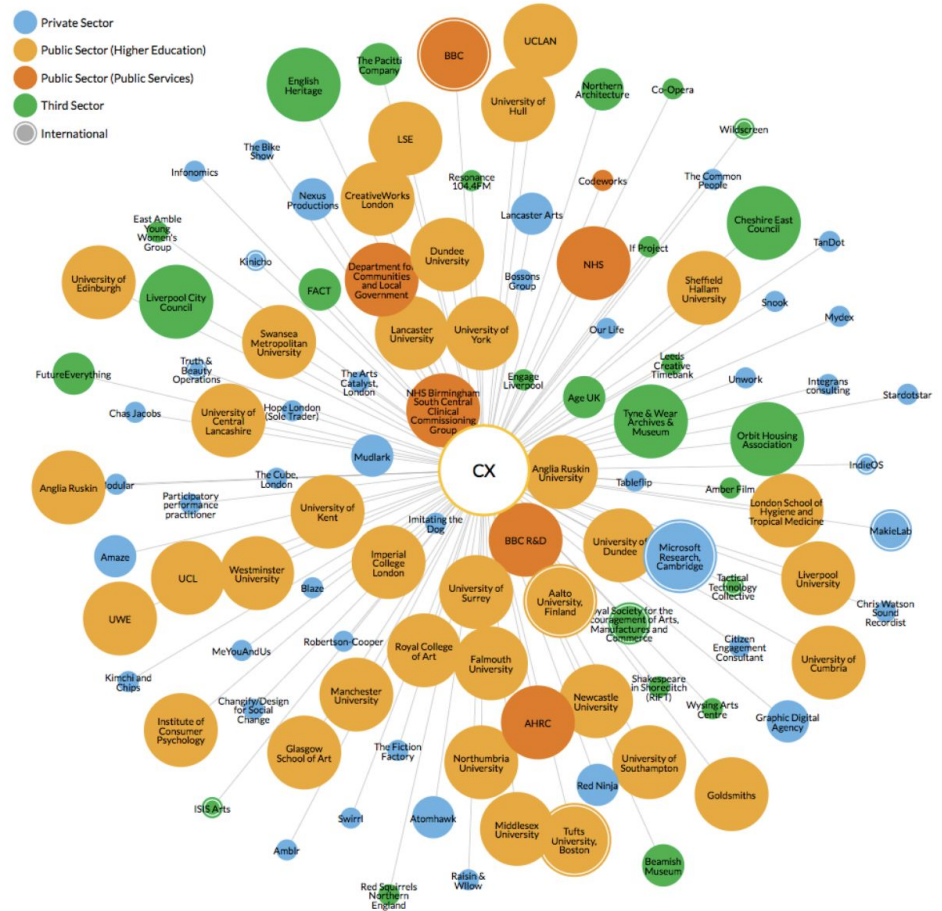
Outcome: a paid-for software product, a set of design principles, a doctorate

Context

My PhD was part of the Creative Exchange program. It was funded by the Arts and Humanities Research Council to explore 'digital public space'. There were 21 other doctoral researchers in the program.

The research program was a collaboration between the Royal College of Art (where I was based), Newcastle University and Lancaster University.

The Creative Exchange program acted as a hub between many other institutions. My collaborations were predominantly with local government institutions.



PhD Summary

Real-world problem

My PhD developed a social media analytics tool for local government. Social media hosts many conversations about topics relevant to local government - local planning issues, crime, the environment etc. However, local government rarely uses social media analysis as a means to understand the communities they serve.

In my PhD I built and tested a Twitter analytics tool (*LocalNets*) to explore social media analytics as a tool to support local government policymaking.

Theoretical framing

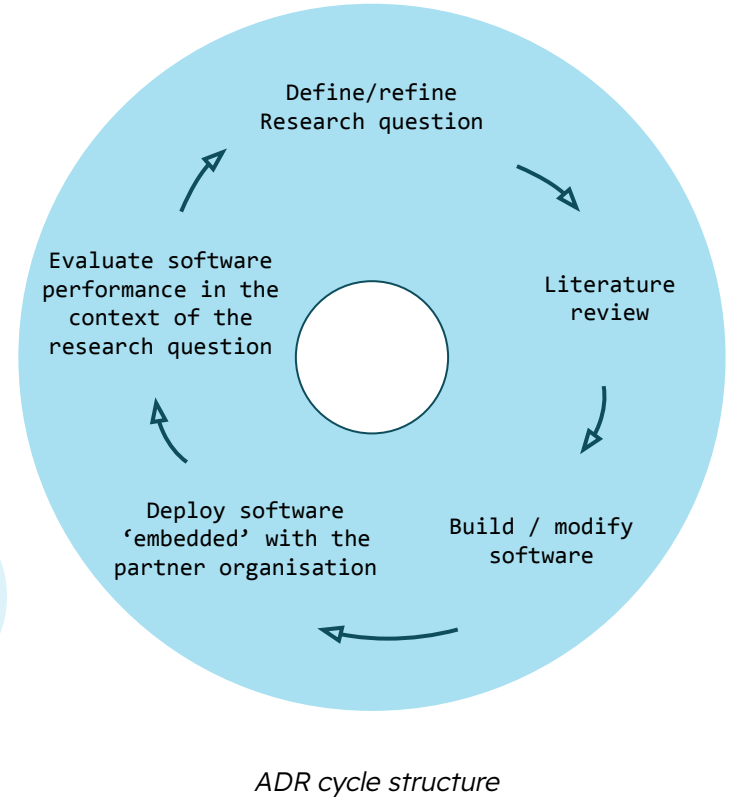
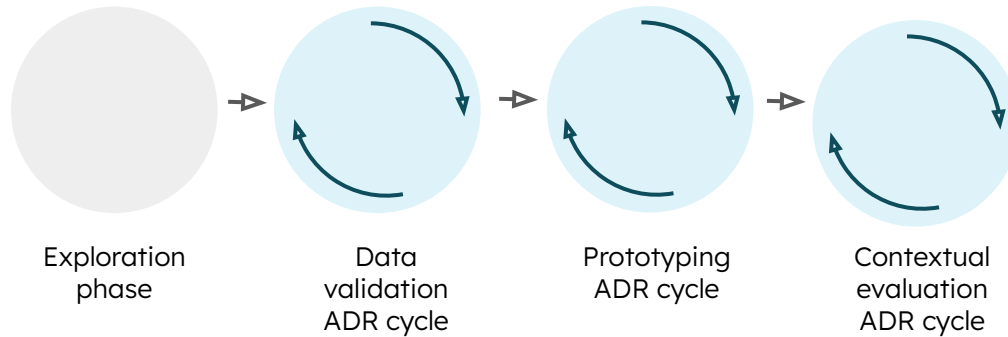
Drawing on design research methods, my PhD was highly interdisciplinary. The project was framed in relation to the concept of collective action from the discipline of political economy and used tools from network science to detect communities and process data.

Outcomes summary

1. A social media analytics product. Three organisations **paid a monthly subscription** to continue using my tool after the research completed.
2. A **set of design principles** for social media analytics for local government as a contribution to design research.

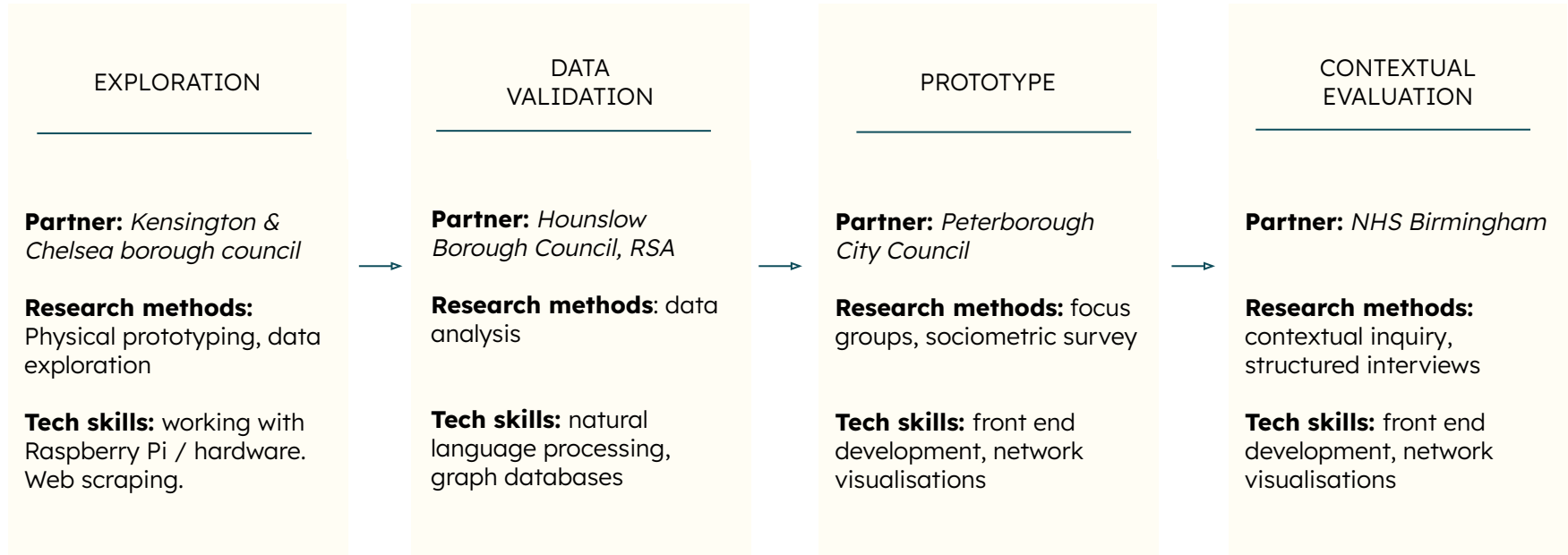
Research structure

My research used the Action Design Research framework, a cyclical approach to analysing software in context. The research consisted of three research cycles, each with the same ADR structure.



Research cycles & partner projects

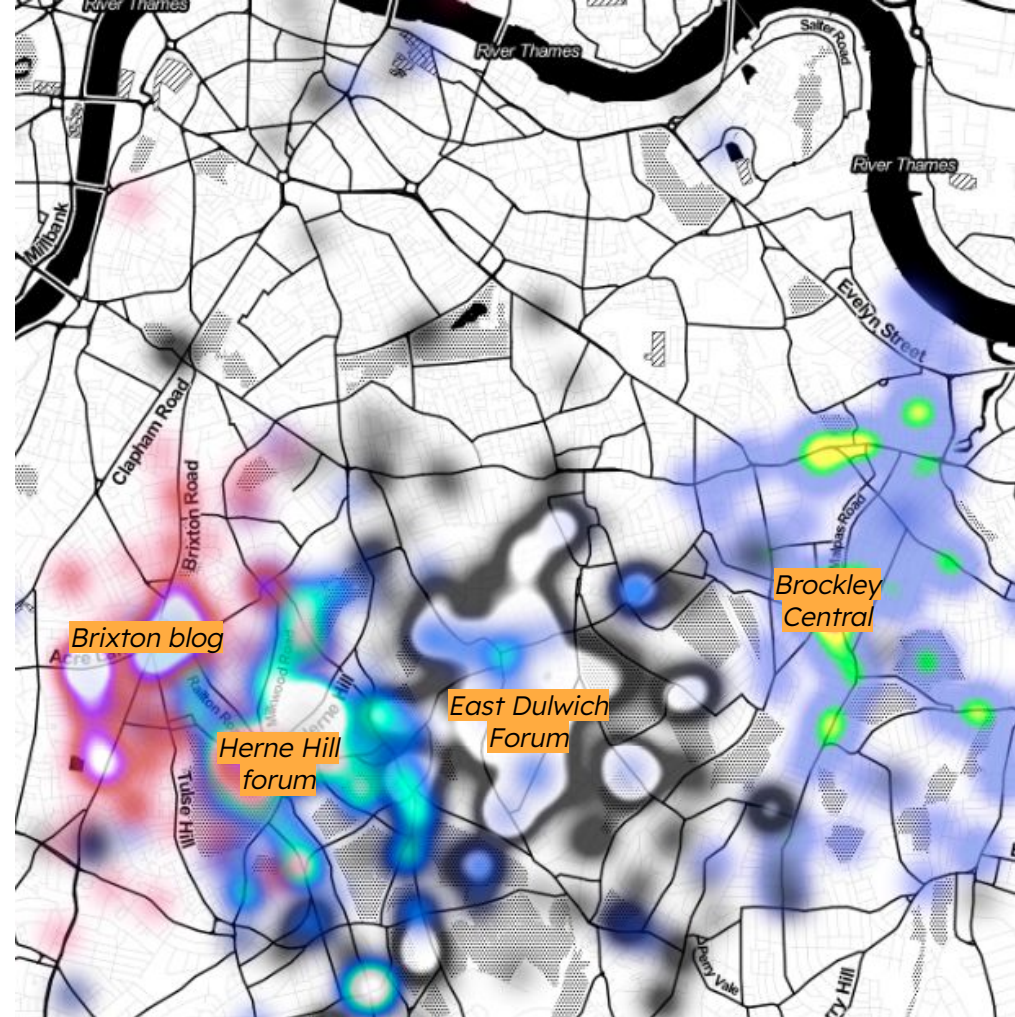
My PhD developed the LocalNets analytics software through a series of projects with partner organisations.



Exploration phase - data sources

At the outset of the project, an exploration phase investigated a wide range of options for using social media analytics in the context of Local government.

One strand of the exploratory phase considered I explored using data from 'hyperlocal' blogs and forums.



Exploration phase - tweet-based newspaper

As part of the exploration phase I created a tweet-based 'newspaper' (using the *Little Printer* receipt printer).

It was deployed in various locations, including in the staff canteen of Kensington & Chelsea borough council.

Tweets were selected manually for local relevance.

Printing an 'instant
newspaper' using
Twitter data. →

Printer in action. ↓



Prototyping phase selected findings

- In comparison with the Twitter API, collecting data from 'hyperlocal' forums is complex, and geographic coverage is poor. Based on the exploratory work, I decided to further investigate data from the Twitter API.
- In Kensington & Chelsea, there was a significant corpus of locally-oriented Twitter activity that was of interest to K&C staff.
- Taken together, these points supported the idea that Twitter analytics might be relevant for local government.

Quantitative data validation phase

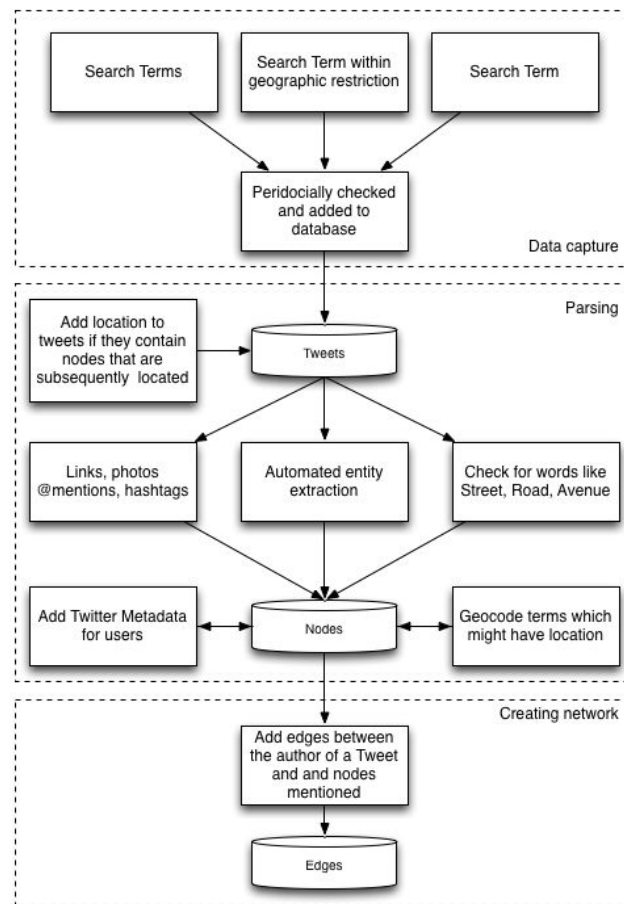
My second project was with the Royal Society of Arts (RSA) and Hounslow Borough Council.

I built a data analysis pipeline to add metadata about the locations and topics mentioned in tweets.

As part of their research, the RSA prepared a detailed asset map (a list of community centers, community events, community organisers etc.) of a single ward in Hounslow through a door-to-door survey.

In this phase of the research a comparison of the manually gathered and Twitter-based data was made, and explored visualising the data.

There was overlap between the manually mapped assets and the assets from the Twitter corpus (~10%).



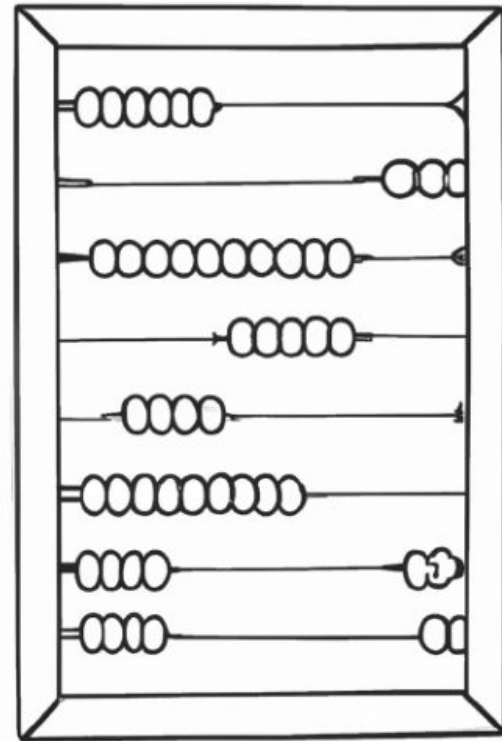
Software architecture diagram

Data Analysis

My PhD research drew on a number of data analysis techniques, including:

- **Natural language processing.** I used an NLP library to parse tweets for entities (eg. locations, people and institutions mentioned in tweets).
- **Network analysis.** Data from Twitter was stored in both a Mongo database and Neo4J graph database. Neo4J stored Twitter users and entities as nodes and mentions as edges. Using Neo4J I ran community detection algorithms (see next slide) and performed queries on properties such as betweenness and centrality.
- **Geolocation.** Localnets inferred the locations that tweets referred to by geocoding extracted location entities. It also inferred areas that specific Twitter users were connected to by aggregating their geolocated tweets. Geolocating

Community detection and geolocation were subsequently used to allow Localnets to find Twitter users to participate in local government focus groups.

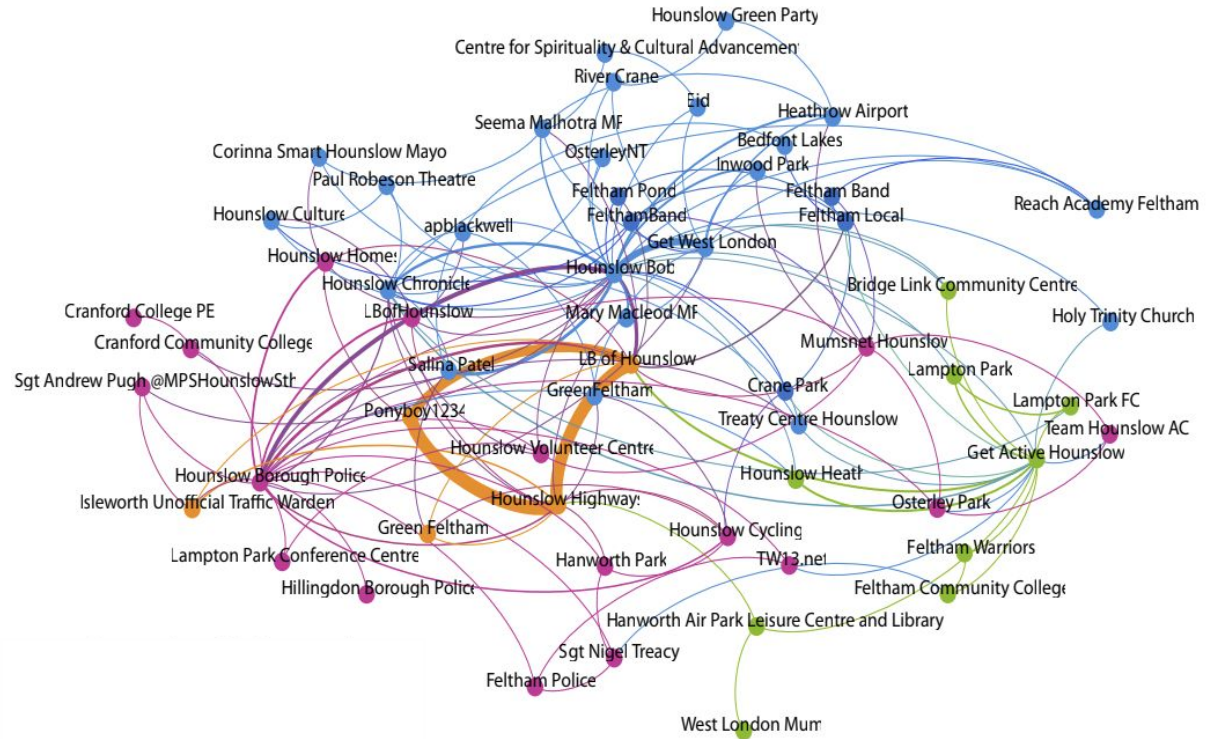


Data visualisation

To visualise the data collected by LocalNets, I created network diagrams of local communities. Within the LocalNets software, network analysis algorithms were used to discover relevant Twitter accounts. They were also used as part of the UI.

This diagram shows interactions between Twitter accounts in Hounslow, where nodes are accounts and the thickness of the edges shows interactions.

Colours show algorithmically detected communities.



Network map of community asset Twitter accounts in Hounslow.

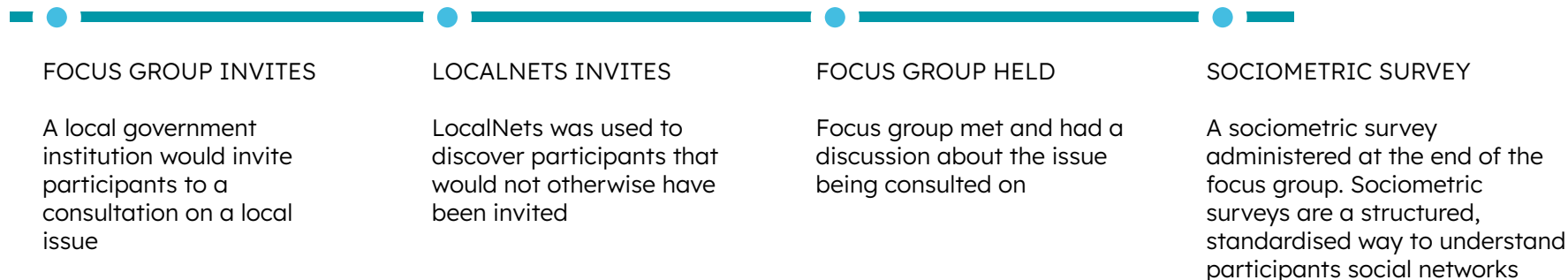
Data Validation Findings & outcomes

- Tweets were successfully tagged and geolocated to specific areas using natural language processing and network analysis.
- There was overlap between the manually mapped assets and the assets from the Twitter corpus (~10%).
- Individuals, as opposed to locations or events, were best represented in the Twitter data.
- **Outcome:** The data suggested that a potential use-case for LocalNets would be finding participants for local government consultation programs. The Twitter was able to find many individuals who were highly engaged in local topics (eg. traffic management) and lived locally in Hounslow.

Focus groups

The data validation phase indicated that LocalNets data might be effective at finding participants for local consultations. This led to the development of a method for using existing local consultation focus groups to evaluate LocalNets.

The method was designed to evaluate how LocalNets could contribute to broadening focus group participation and strengthening community connections.



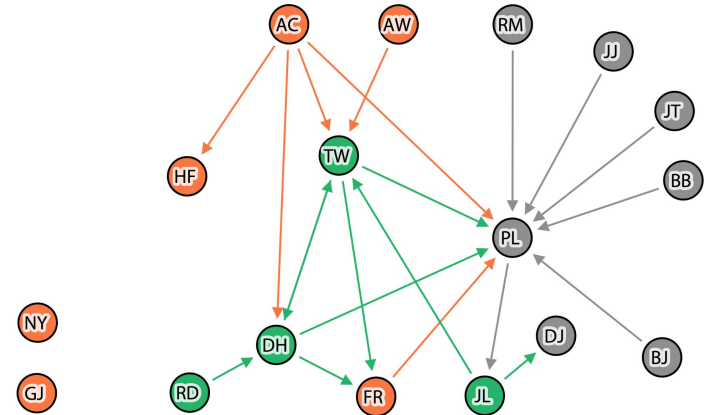
Sociometric surveys

This slide describes in detail how sociometric surveys were administered and analysed to evaluate LocalNet's impact.

Please indicate how familiar you are with today's focus group participants.

	Anton Coles	Hugh Franklin	Andrea Warner	Tina Jones
I know this person from Twitter				
I know this person, other than through Twitter				
I have previously worked with this person				
I would like to keep in touch with this person				
Would like to work with this person in the future				

Example of a sociometric survey question



Sociogram of a focus group in Hounslow. Nodes indicate participants, Arrows indicate who previously knew whom. Orange nodes were invited through LocalNets. Grey nodes were invited by Peterborough City Council. Green nodes were invited through both.

The diagram shows that LocalNets may have helped invite users who would not normally be part of the social group that attends local focus groups.

Findings & outcomes

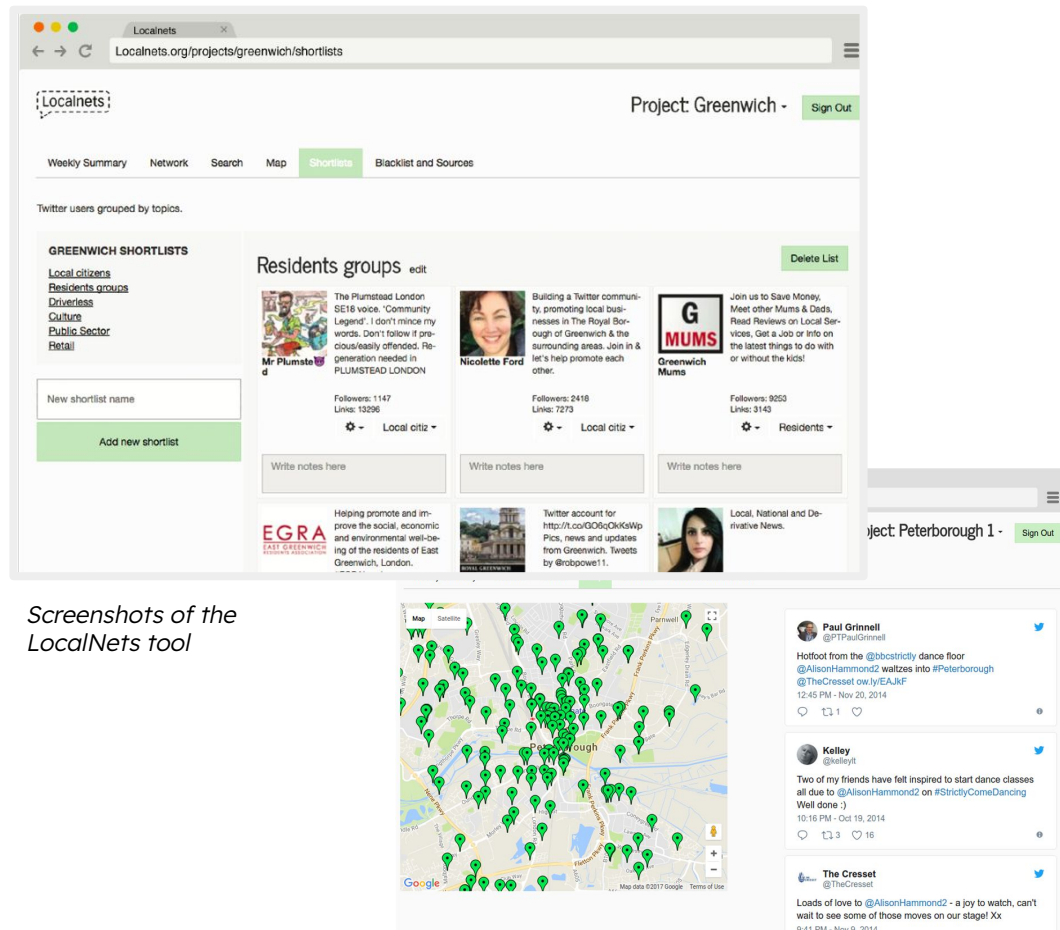
- This sociometric surveys built a picture of how LocalNets contributed new participants to the focus groups, indicating that many new participants were known to existing ones.
- Despite not delivering a wholly new set of participants, local government organisations valued the ease with which they could extend focus group participation.
- **Outcome:** The findings built confidence that LocalNets could address a genuine user need for local government organisations, and supported moving to a more detailed review of how LocalNets would be used in context by Local Government staff.

Contextual evaluation

A contextual evaluation was conducted with three partners, with NHS Birmingham testing the final iteration.

In this stage of the research, the tool was used by NHS Birmingham staff to select participants in a local consultation about an underperforming medical practice.

I used semi-structured interviews to understand their experience of using LocalNets. The interviews were in person and took place in the user's workplace.



Screenshots of the LocalNets tool

Contextual evaluation outcomes

- Network diagrams, which were presented as part of the interface, were rarely used. While they convey a 'summary' of the data LocalNets, when it came to task completion, such as selecting participants, they are too complex to convey sufficiently precise information.
- On the basis of these interviews, functionality was added to create shortlists of potential participants, responding to a need to generate and review multiple sets of potential invitees.
- I also added functionality to export shortlists to Excel, which was the most common means for sharing and discussing potential participants within the local government institutions I worked with.

Impact

My PhD research resulted in:

- LocalNets - a working web app, with three institutions signing up to pay a monthly fee to use it.
- A set of four design principles for social media analytics tools for public sector institutions.
- Avenues for further enquiry, including the use of network algorithms to detect communities in the context of local government consultations.
- A set of situated design findings based on the specific set of case studies where it was tested.
- A doctorate.



END