Understanding and Designing Human Data Relations

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# 1 Introduction

[Target 4,000 words]

## 1.1 Motivation & Problem

[Target 1,000 words]

## 1.2 Prior Work / Theoretical Frame

[Target 1,000 words]

## 1.3 The Research Question & My Approach

[Target 1,000 words]

*What role should people’s data play in their lives, and what capabilities do they need?*

Sub-questions:

* RQ1: How do people understand and relate to data?
* RQ2: What role do people have in the world of data?
* RQ3: What role does does play in people’s lives
* RQ4: What would an ideal world of humans and data look like?
* RQ5: What are the barriers and opportunities toward this ideal?

## 1.4 Contribution

[Target 500 words]

## 1.5 Thesis Structure

[Target 500 words]

## 1.6 Notes

# 2 Literature Review

[Target 8,000 words]

## 2.1 Data-Centrism

[Target 2,500 words]

### 2.1.1 What is Data?

[Target 500 words]

### 2.1.2 The Rise of Data-centrism

[Target 650 words]

### 2.1.3 Data Protection & GDPR

[Target 550 words]

### 2.1.4 The Fight for Effective Data Access

[Target 400 words]

### 2.1.5 Research Gap: The Human Experience of Data

[Target 400 words]

## 2.2 Personal Data Interaction

[Target 2,500 words]

### 2.2.1 Computers as General Purpose Information Tools

[Target 300 words]

### 2.2.2 Personal Information Management

[Target 600 words]

### 2.2.3 Personal Informatics & The Quantified Self

[Target 650 words]

### 2.2.4 The Emergence of Complex Digital Lives

[Target 600 words]

### 2.2.5 Research Gap: The Data Beyond The Individual

[Target 350 words]

## 2.3 Human-Centric Computing

[Target 2,500 words]

### 2.3.1 Human Computer Interaction Foundations

[Target 400 words]

### 2.3.2 Data Transcendence & Human Data Interaction

[Target 600 words]

### 2.3.3 People In Context: Human-Centred Design

[Target 600 words]

### 2.3.4 The Personal Data Economy

[Target 600 words]

### 2.3.5 Defining the Research Agenda for Human-Centricity in Practice

[Target 350 words]

## 2.4 Research Gap

[Target 500 words]

# 3 Approach & Methods

[Target X words]

* this PhD comprises a number of studies conducted between 2016 and 2021.
* there are three strands of enquiry:

## 3.1 1. The Human Perspective on Data Centricism

The objective of this part of the research is to fain a rich understanding of what data IS to people as they live their lives in the modern world.

Epistemiology:

* Here and throughout this thesis, we take a subjectivist perspective, looking more at what people think than trying to discover a single objective truth.
* As Peirce’s pragmatic maxim says, the meaning of anything in the world is understood through the conception of its practical effects, and theories that are more successful at controlling and predicting our world can be considered closer to the truth.
* We take an inductive research approach, finding patterns and forming theories to explain them

Therefore the key approach to this research objective is to be able to meaningfully engage with people about the subject of data, and conduct considered conversations to uncover their points of view.

(insert concentric circles diagram: Your Life > Your Data > )

Using a general approach of leading people into the subject of data using meaningful representations or starting with things that they already know (the devices, software and companies in their own life) I found effective ways to engage with participants and then get them talking about their data.

The interviews I conducted were divided into two strands: - exploring families’ data in a civic context, as it might be used in the provision of care or other state Services - exploring individual ‘digital life’ - the data that participants hold, use, or live with (or is held about them) by the companies they interact with.

(do these need little subsections as in 2 below?)

in the former case, I modelled data types and produced data cards and designed other activities to help stimulate discussion. In the latter, I used sketch interviewing as a technique. Then used standard qualitative interviewing as a technique (how much do I need to say about this?)

### 3.1.1 Data Cards and Card Sorting Techniques

Describe and show Family Civic Data cards used in 2017 study Describe the card-sorting techniques used - the riskiness vs who-should-control-it corkboard technique used in 2017 study

Describe why chose this - boundary objects (REF Star)/things to think with (REF Brandt and Messeter)

### 3.1.2 Family facts

Describe the facts-on-poles technique used in 2017 study.

### 3.1.3 Sketch Interviewing

Describe and show Sketch interviewing as used in the 2017 interviews and GDPR study.

### 3.1.4 Studies undertaken towards this research goal.

* 4 x 2 hr family ‘home visits’ (REF Mannay)
* 3 x 1hr ‘mobile phone/usefulness interviews’
* 5 x 1.5 hr ‘digital life sketch interviews (2017)’
* 11 x 1 hr ‘digital life interviews’ (2019)

## 3.2 2. The Lived Experience of A Data-Centric world

follow same pattern as above.

this time, importance of looking beyond the individual. looking at the way data exists and is used within relationships people have with organisations that hold data, within the data centric world.

additional Epistemiologies we draw on here are foucault’s thinking that meaning comes from discourse, and Deweyan pragmatism, that the purpose of research is to find solutions to real world problems in a manner that the solutions are generalisable.

here we move beyond people’s perspectives and thoughts to their actual lived experiences. our objective here is to understand the lived experience in a data centric world and how data can affect your life and relationships.

building on the prior research around attempts to model and interact with data in a more whole life, systemic way, we step up and look at data from the ‘life’ level - where we can see that, given the fact that most data is not directly held by individuals but by organisations - its role in relationships is key.

### 3.2.1 Early help

* explain the early help context and how it is a good setting to explore data relations especially w.r.t to empowerment

In order to fully explore this we conducted qualitative fieldwork with both sides of the early help relationship, exploring both current experiences of data use but also imagined future uses with different configurations that might be considered more human centric.

### 3.2.2 Card Sorting

### 3.2.3 Sentence Ranking

### 3.2.4 Ideation Grids

### 3.2.5 Group Poster Design

### 3.2.6 Storyboarding Cards

(participatory design) Quick explainer and reference to Golembewski

### 3.2.7 GDPR

* explain the GDPR context and how this is also a way to explore practical experience of real data processes

### 3.2.8 Privacy Policy interviews

as a starting point, having identified companies in people’s lives I start with the objective reality of what those companies say they collect, and use that as a way in to meaningful data conversations with participants.

### 3.2.9 View Your Data interviews

then to explore a real world process, I took participants on a journey of discovery of requesting, accessing and viewing their own held data.

### 3.2.10 Studies undertaken towards this research goal.

HDI in context of care study - 1 x 2h workshop with families (x participants) - 2 x 2h workshop with staff (x participants) - 1 x 2h workshop with staff and parents (x participants)

GDPR study - 10 x 1h+ privacy policy discussion - guiding through email etc - 10 x 2h view your data discussion

## 3.3 3. Uncovering and Exploring Design Constraints and Opportunities

Epistemiology: practical, pragmatism. What is possible. research through design.

This research goal starts from a different perspective, looking from the designer / technologists perspective, to gain an empathetic understanding of the current status quo of data systems and then applying human-centric system to reconsider the design of these systems. The goal is to uncover the barriers and challenges that must be overcome through design of systems and processes, and exploring the possible avenues of design that could be exploited

Here, research was conducted through embedding myself in projects aligned to the research objectives of building new data systems. Not empirical structured research but rather a process of acculturation to the world of building data systems and learning through participation and through research through design and through technical prototyping.

## 3.4 Research Through design

background on how this can be framed as research through design

## 3.5 Rapid prototyping

background on how prototyping is used to explore new ideas - pivoting etc.

### 3.5.1 Studies undertaken towards this research goal

two major projects:

* SILVER (ref early help as earlier)
* BBC R & D/PDS

two minor projects:

* web augmentation
* experimenting with using own data and getting usable data with GDPR

## 3.6 Structure of the following chapters.

Findings from the first research goal, The Human Perspective on Data Centricism, are written up in chapter 4, Understanding data

Findings from the second research goal, The Lived Experience of A Data-Centric world, are written up in chapter 5, understanding data relations.

Findings from the third research goal, Uncovering and Exploring Design Constraints and Opportunities are written up in chapter 6, understanding design constraints and possibilities.

In chapter 7, these findings are brought together to address the overall research question and suggest avenues for future research, design and development that can be applied to design better human data relations.

# 4 The Human Perspective on Data and Data-Centrism

[Target x words]

# 5 Living In A Data-Centric World

[Target x words]

# 6 Human-Centricity: Design Constraints and Opportunities

[Target x words]

# 7 Designing Better Human Data Relations

[Target x words]

# Bibliography