

Artifact Ecologies

What, why, and how?



AARHUS
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Agenda

1. What are artifact ecologies?
2. Why apply the concept?
3. How do we apply it?
4. Ecology mapping exercise
5. Discussion

What are Artifact Ecologies?

“The artifacts* a person has made their own and uses.”

A developing theory and a design tool influenced by the reality of a daily life surrounded by many overlapping artifacts

*: things used to mediate activity, i.e. a tool broadly understood

What are Artifact Ecologies?

Three interesting aspects illustrate how the meaning and function of artifacts depends on the surrounding ecology

- Multi-mediation
- Contexts and transitions
- Development

Multi-mediation

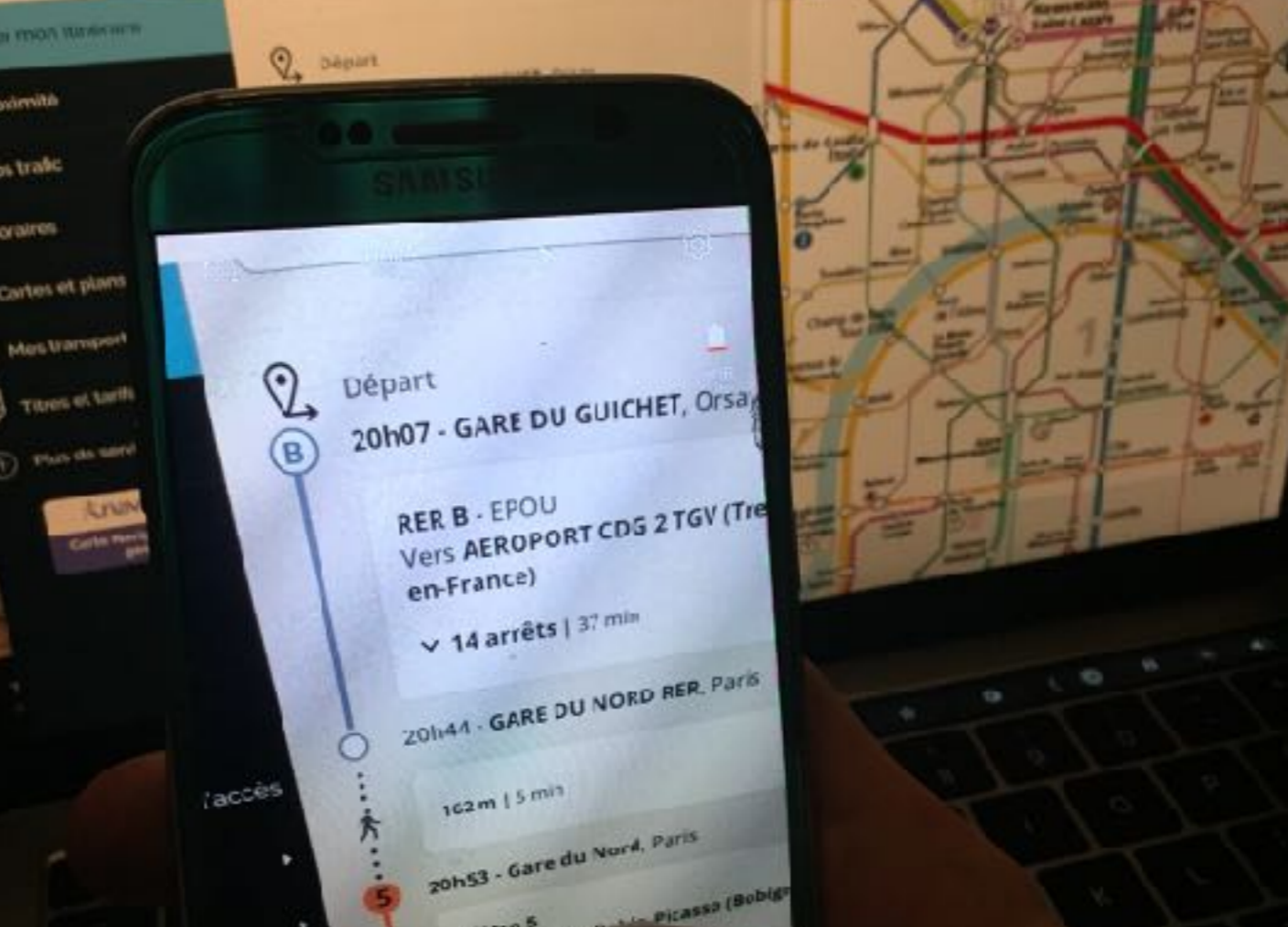
What do we do with many overlapping and partially redundant technologies?

Combine, substitute, and adapt them!

sug git:(master) python sug.py

abominator; loather : one who hates or loathes
 reasoner; ratiocinator : someone who reasons
 Fabian : a member of the Fabian Society in Britain
 tree_hugger : derogatory term for environmentalist
 on of forests
 male_aristocrat : a man who is an aristocrat
 nonfictional : not fictional
 archipelagic : relating to or part of an archipelago
 zonal : associated with or divided into zones

Handwritten notes on yellow paper:
 To create a self-organizing system, you need to have a...
 Trade-offs: stability vs. adaptability
 Complexity: more components, more interactions
 Emergence: properties of the whole that are not in the parts



GIMP interface showing a diagram of devices and a 'Color to Alpha' dialog box.

Diagram elements: Laptop, Tablet, Smartphone, connected by lines.

Color to Alpha dialog: Front: [] to alpha. Buttons: Help, Cancel, OK.

Definitions section with a table and a spreadsheet.

Interactions from God
 Pluggable Interactions
 Self-assembling Interactions

	Step 1	Step 2	Step 3	Step 4
Interactions from God	Developer	Developer	User	???
Pluggable Interactions	Developer 1	Developer 2	User	???
Self-assembling Interactions	Developer	User	User	User

Spreadsheet Table 1:

	Step 1	Step 2	Step 3	Step 4
Interactions from God	Developer	Developer	User	???
Pluggable Interactions	Developer 1	Developer 2	User	???
Self-assembling Interactions	Developer	User	User	User

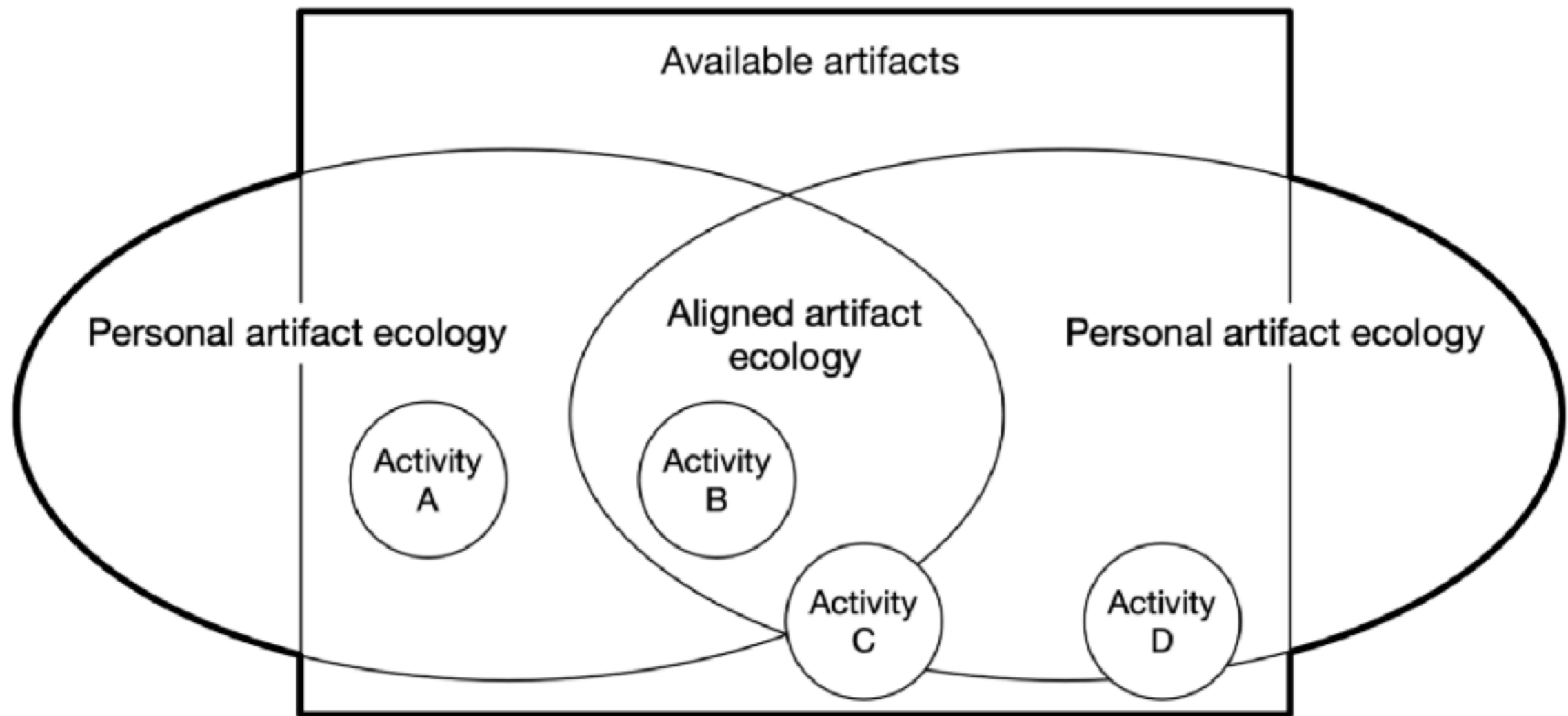
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Contexts and transitions

Short-term dynamics: which of your artifacts do you use when?

- Personal rhythms: work, home, out and about
- Collaboration often requires aligning ecologies
- Sometimes you get pushed to the edge or outside of your personal ecology

Contexts and transitions



(Larsen-Ledet et al., 2020)

Development

Long-term dynamics: how does a technology become “part of your ecology”?

- Arrival of the iPhone:
expectations and desire →
exploration and breakdowns →
equilibrium →
- Food co-op:
artifacts arrive by happenstance, strategies, and tactics

(Bødker and Klokmoose, 2012; Bødker et al., 2016)

Why Artifact Ecologies?

Different insights for design and reflection

- Where are the agitated states that might invite design?
- What kind of landscape will your novel artifact enter?
 - Where might it settle down?
 - What will it replace and accompany?
 - Who will artifacts be shared with and controlled by?

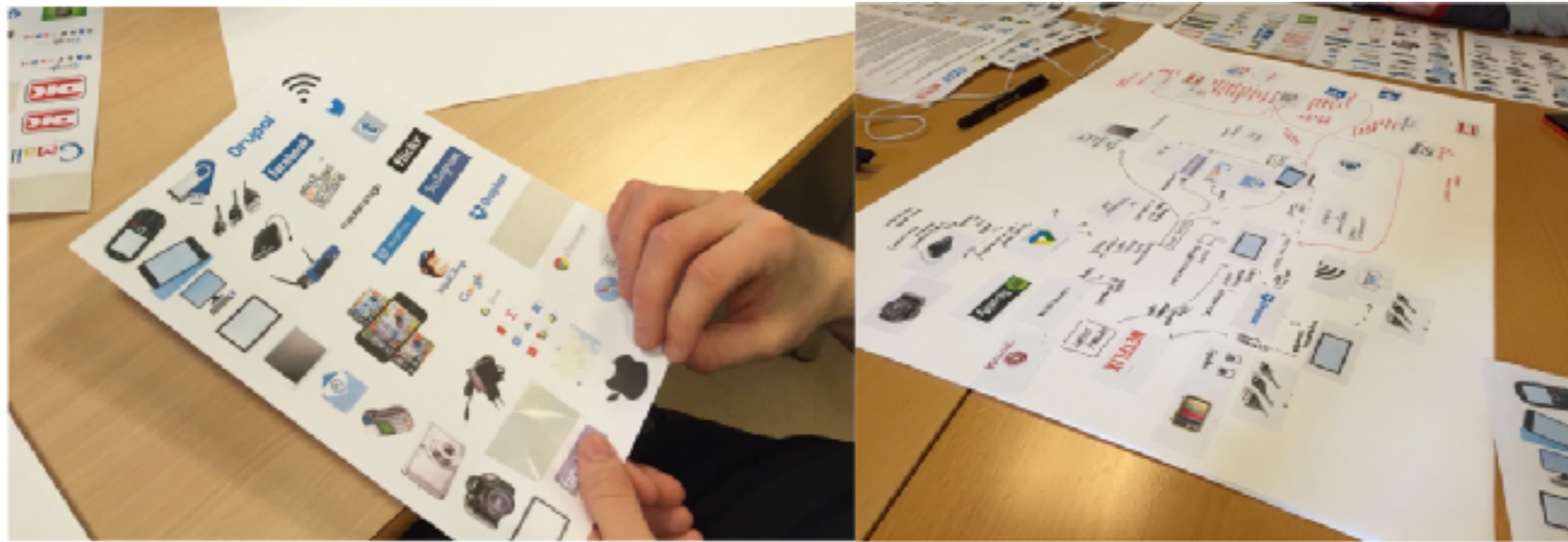
How Artifact Ecologies?

When we start trying to understand a concrete ecology, some operative questions show up:

- Scale: organizations, individuals, a single activity?
- Focus and boundaries: what gets included? where is the edge of the ecology?
- Method: how do we get an overview, how do we learn about the aspects that interest us?

The concrete design situation often hints at answers

Mapping artifact ecologies

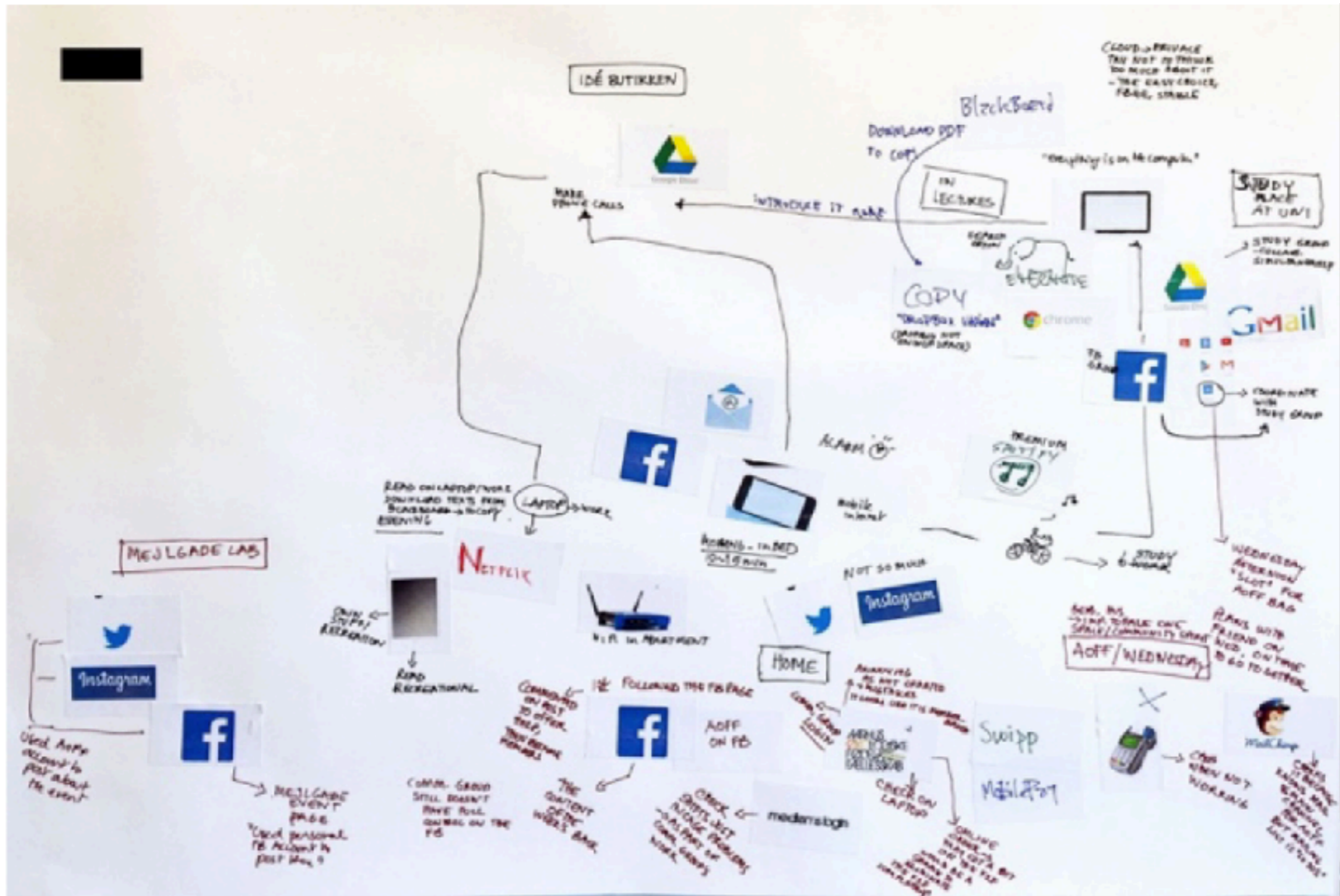


One way to get a sense of an ecology is to visually map its participants and relationships

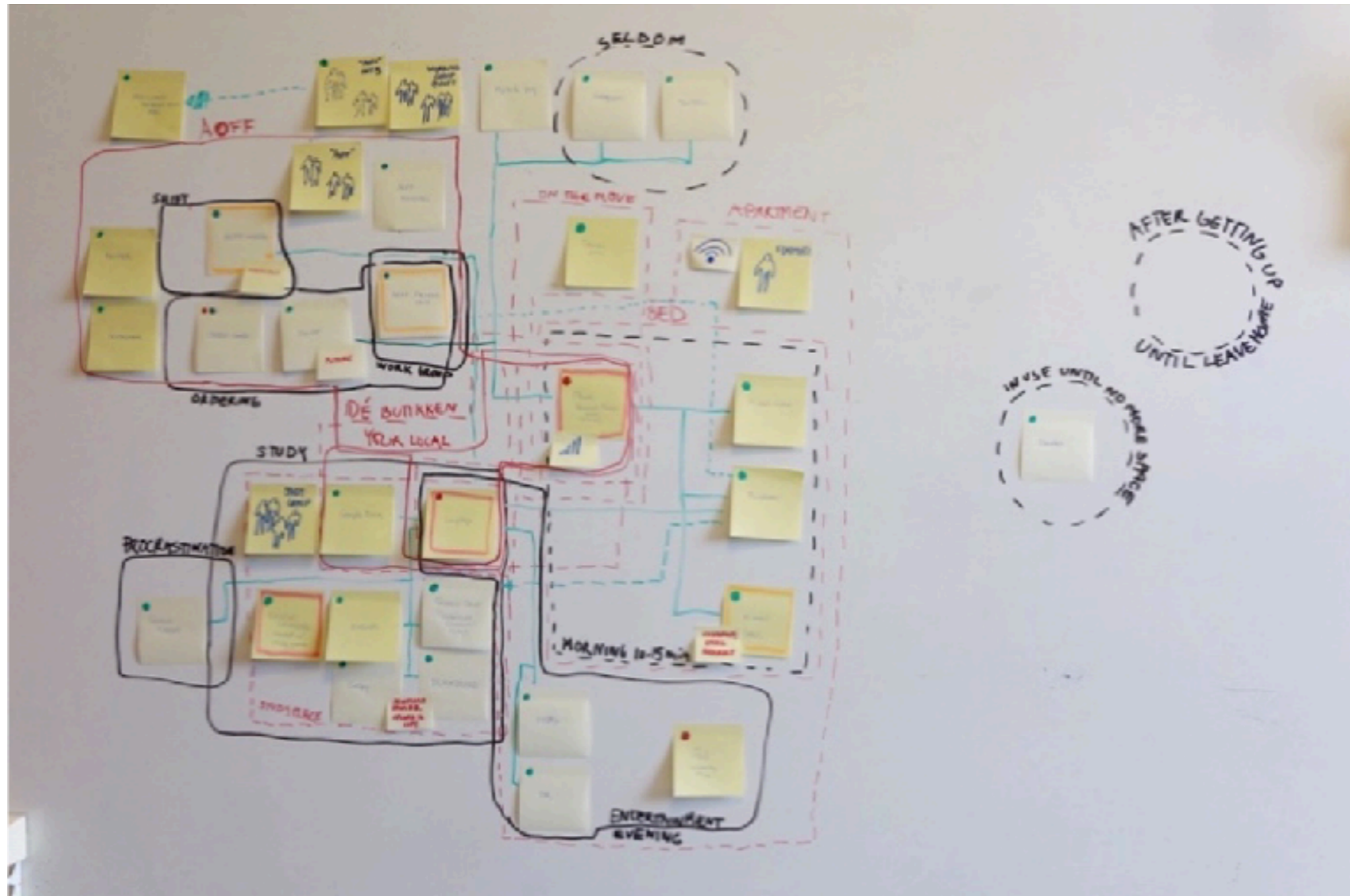
Mapping starts with a snapshot, but allows us to begin talking about contexts, transitions, and development

(Bødker et al., 2017)

An initial map



A processed map

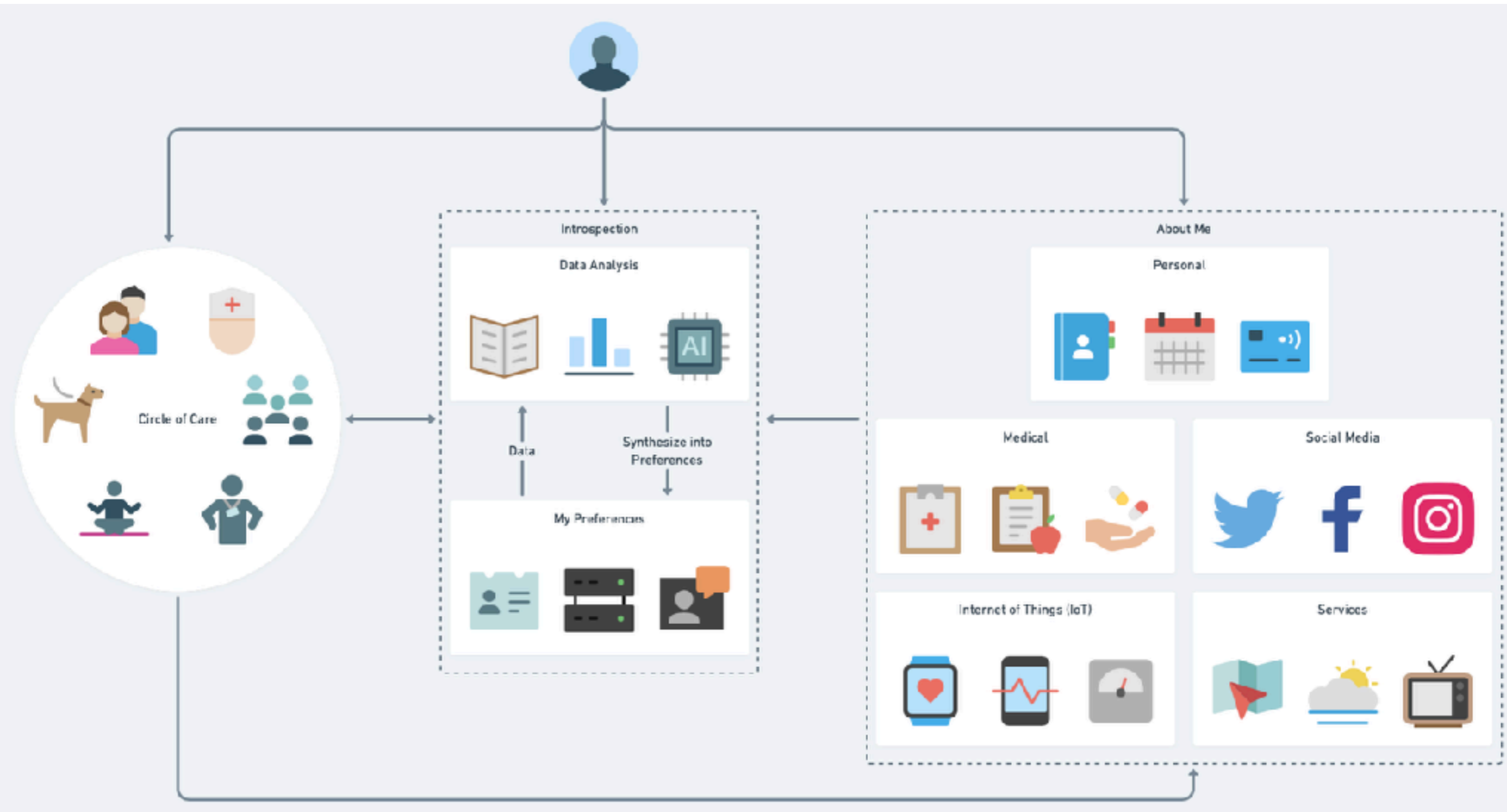


Let's try it out

Figma link: <https://www.figma.com/file/5AWCSRFBsQYtzXp2GeCuR8/Mapping-Artifact-Ecologies?node-id=0%3A1>

- Choose an interviewee, interviewer, mapper
- Choose a focus: a particular activity (favorite hobby?), environment (at home?), or kind of artifact (chat apps?)
- Try starting with an inventory of artifacts, then connecting them to activities, collaborators, etc
- Try looking for contexts and history by asking by asking about time and place
- Use “stickers”, write with sticky notes, or collage with image search etc.

How did it go?



Intelligent User Interfaces Architecture Overview

Ecologies against Totalizing Systems

It's tempting to take a conceptual model like this as a blueprint for implementing new technical systems

- What values are embedded in this “totalizing move”?
- What kind of ecologies do these kinds of systems participate in?
- One of the lessons of artifact ecologies is that “users are Turing-complete” (Lialina, 2012). That's a resource, not a breakdown

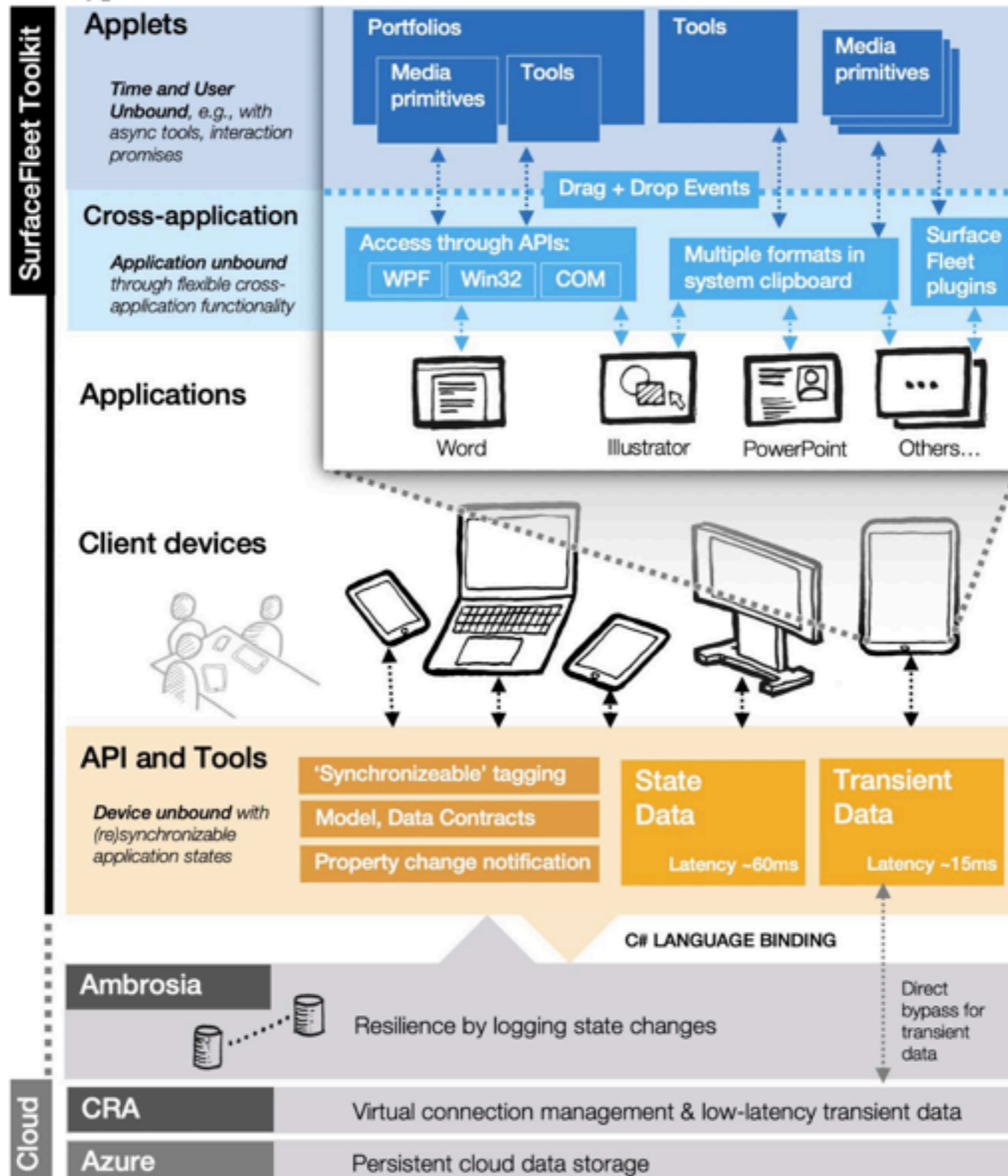
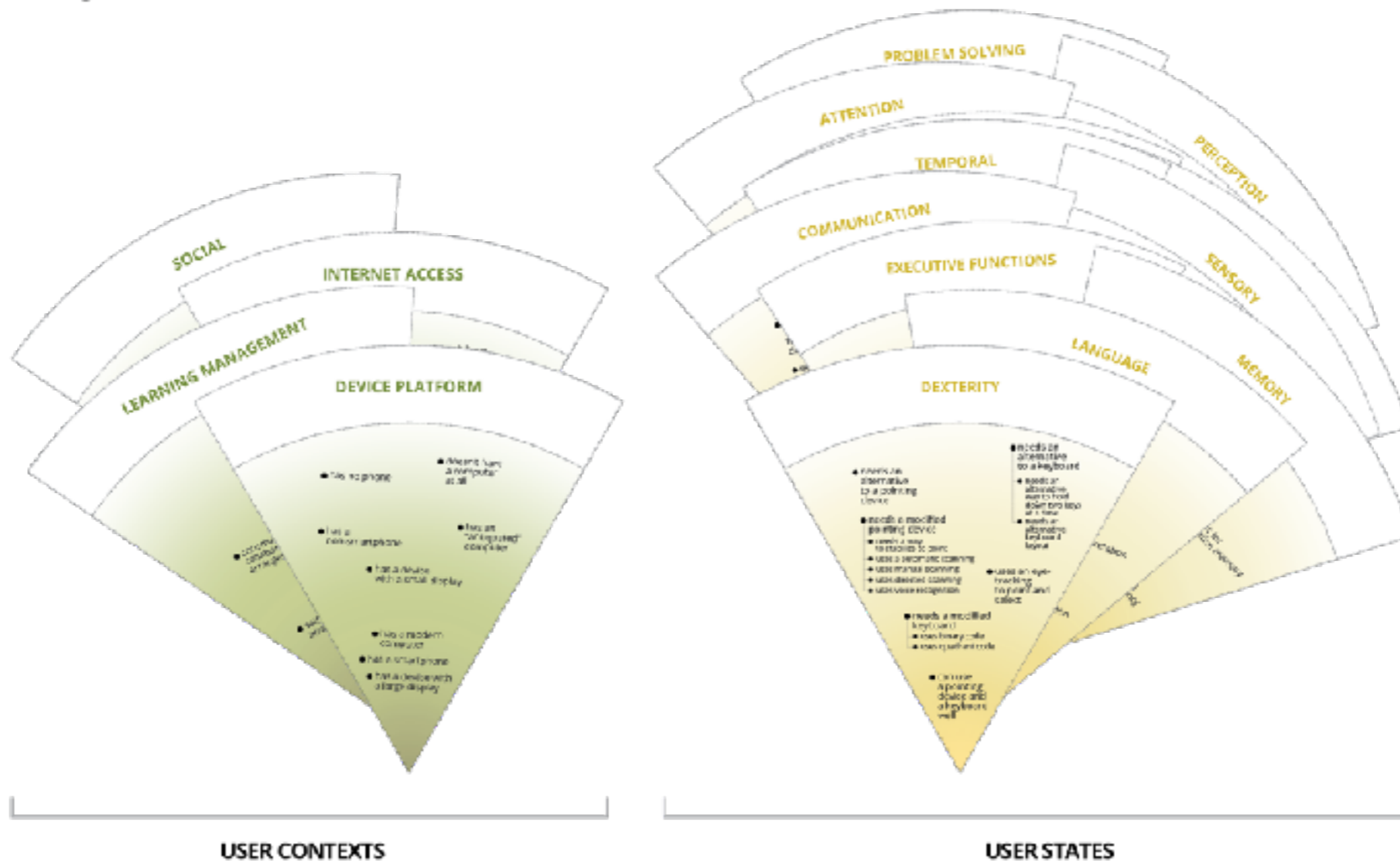


Figure 5. System, toolkit, and underlying technical components of SurfaceFleet.

Brudy et al., 2020. *SurfaceFleet: Exploring Distributed Interactions Unbounded from Device, Application, User, and Time.*

What do ecologies offer you as inclusive designers?

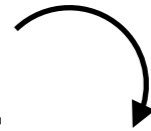
Inclusive Design Mapping Tool
 Choosing the facets



Recommended reading

- Bødker and Klokmoose. 2012. Dynamics in artifact ecologies. NordiCHI '12
- Bødker et al., 2016. 'A Farmer, a Place and at least 20 Members': The Development of Artifact Ecologies in Volunteer-based Communities. CSCW '16
- Bødker et al., 2016. *Happenstance, Strategies and Tactics: Intrinsic Design in a Volunteer-based Community*. NordiCHI '16
- Bødker et al., 2017. Untangling the Mess of Technological Artifacts: Investigating Community Artifact Ecologies. Communities & Technologies '17
- Larsen-ledet et al. 2020. *Collaborative Writing Across Multiple Artifact Ecologies*. CHI '20
- Lialina. 2012. *Turing Complete User*. <http://contemporary-home-computing.org/turing-complete-user/>

Mapping method



Recommended reading

And if you want to look for other work on artifact ecologies, this recent article reviewing the existing literature on the topic is a good starting point:

Lyle et al., 2020. *What's in an Ecology? A Review of Artifact, Communicative, Device and Information Ecologies.*

NordiCHI '20