

Ethics for 'bring your own data' in healthcare

Fiona MacNeill



Ergonomics and Design

Phase I



Preferential design

- Male
- Able-bodied
- Athletic

Loose fitting strap

Arbitrary goals

Heavy watch face

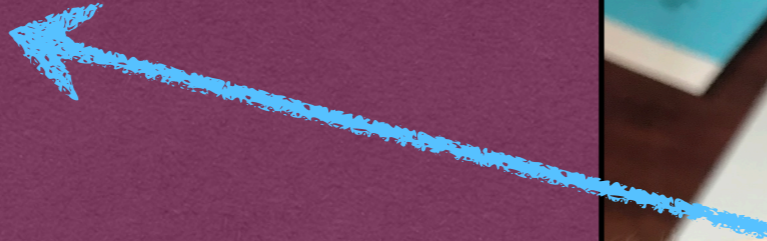
Skin irritation due to material (fixed strap)

Sources: Literature Review, Autoethnography, Technical Analysis

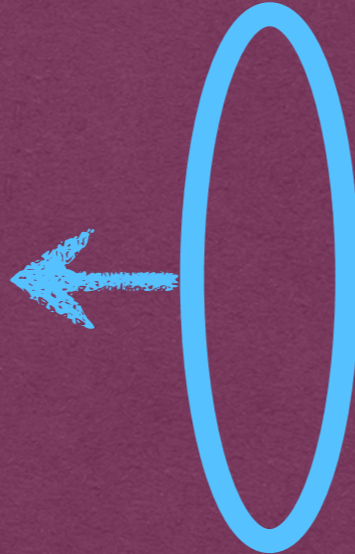
Issues with Accuracy

Phase I

Fit of strap



Wrist Circumference



Higher Body Mass Index

Proprietary measures/Algorithms

Skin Tone



Sources: Literature Review, Autoethnography, Technical Analysis

Emotional Effects

Phase I

Positive

Values their data/information

'The endowment effect'
(Kahneman, Knatsch and
Thaler (1990))

Objective Proof of Activity

Motivational goals

Feedback

Internal

External

Could be an added stressor

Guilt: letting the device down

Can be cheated

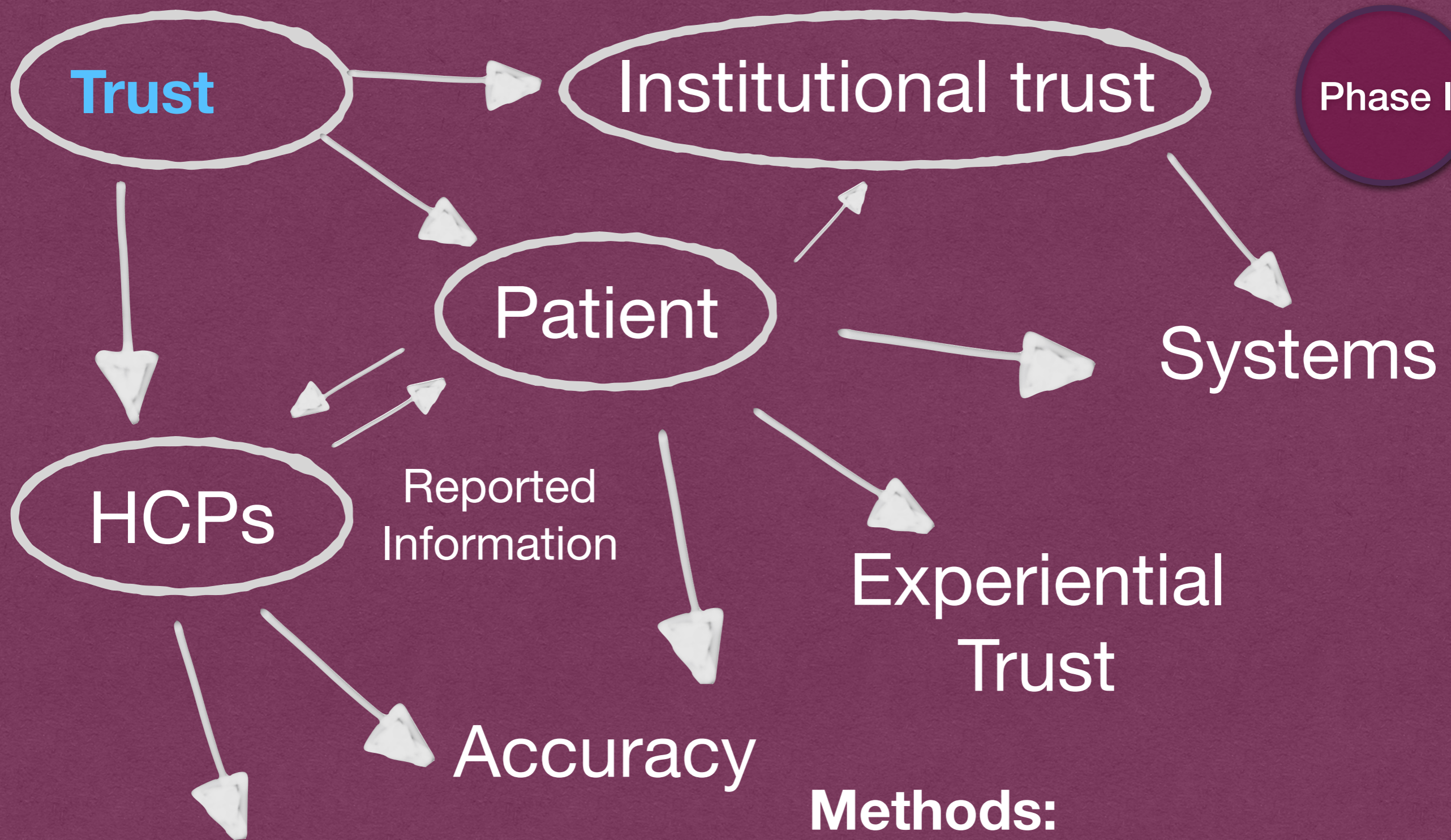
There are ways of cheating
to show different readings

**Unrealistic goals are
demotivating**

**Inappropriate arbitrary
goals can damage health**

Negative

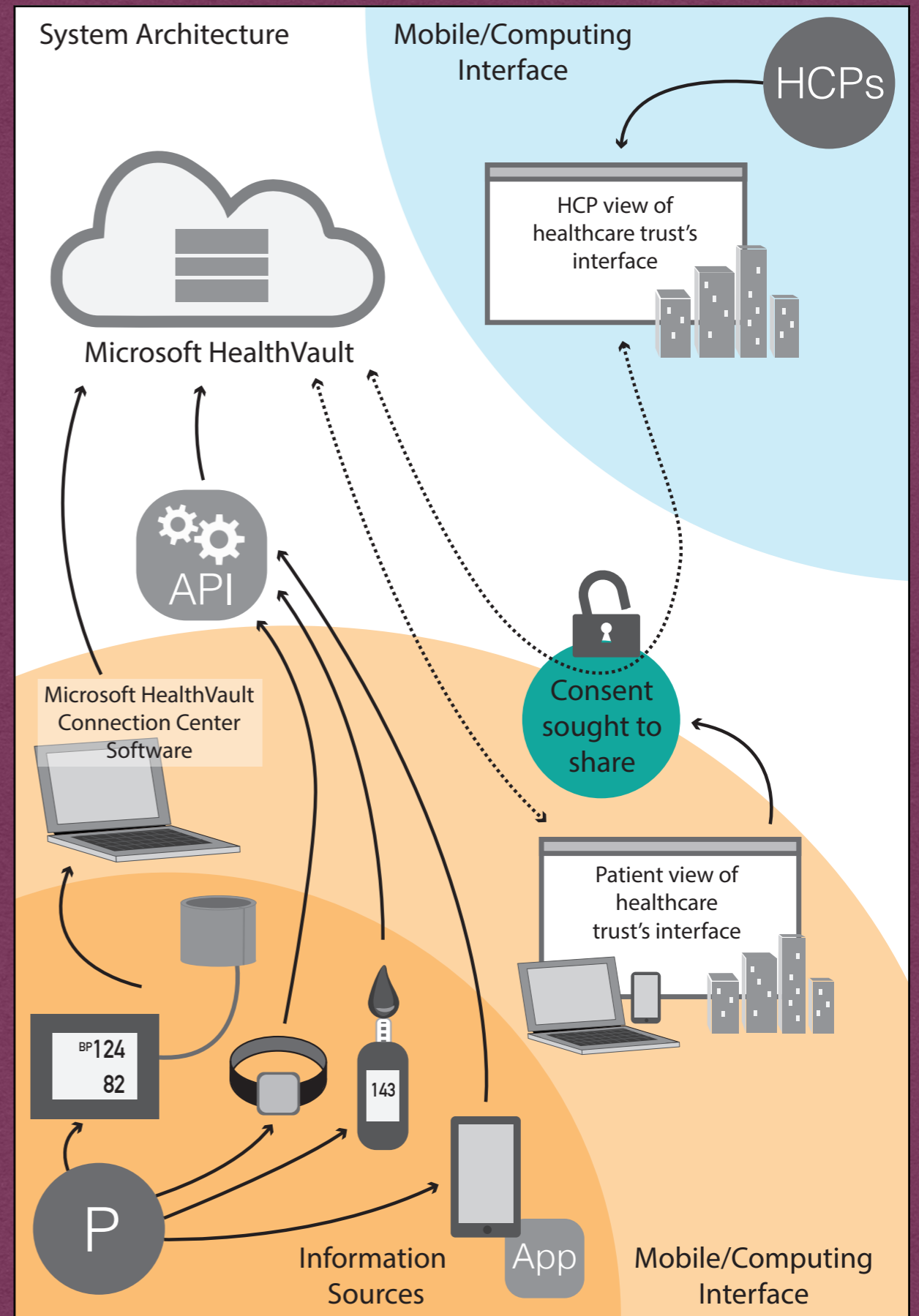
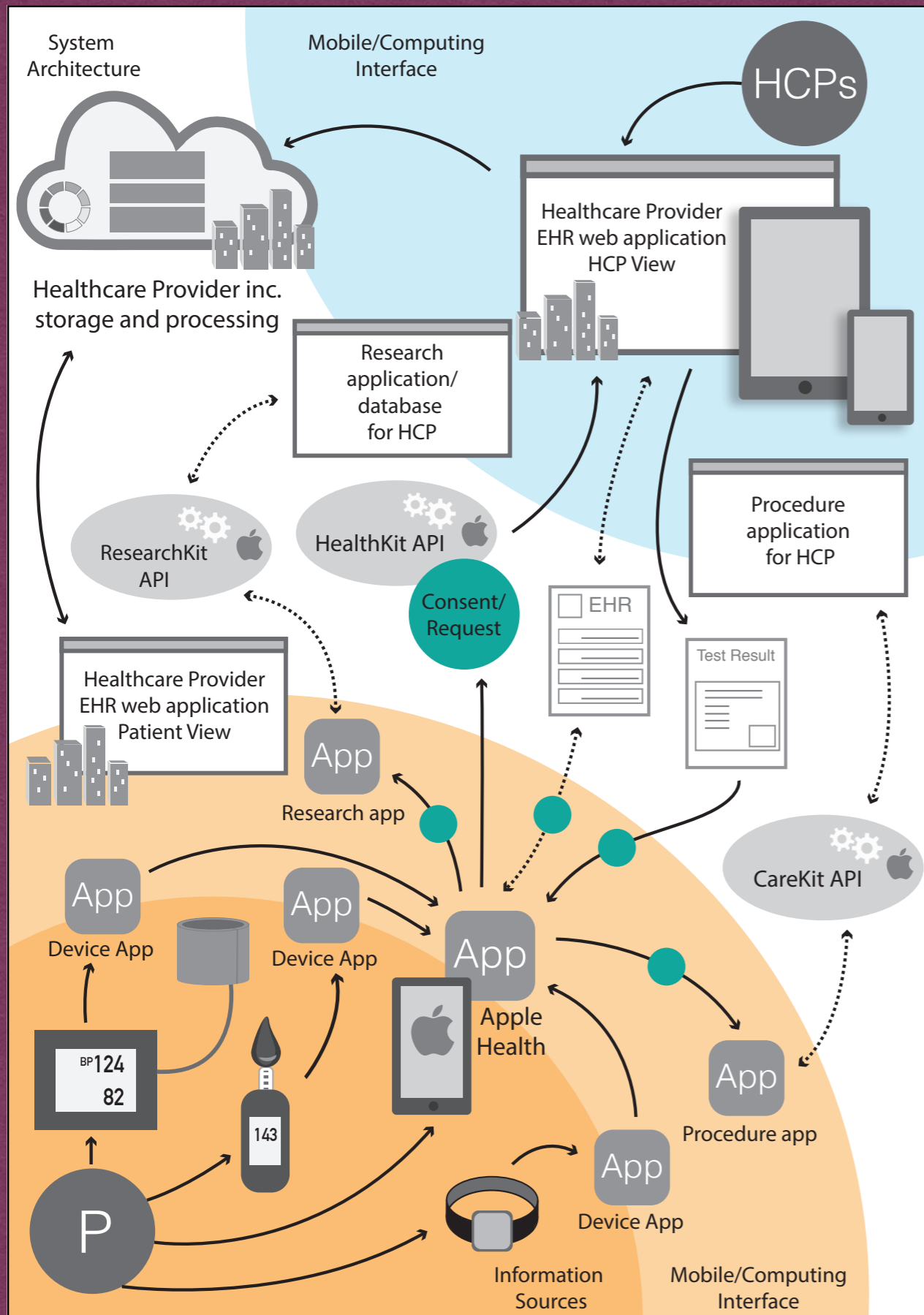
Sources: Literature Review, Autoethnography, Technical Analysis



Clinical validation

Methods:

- Literature Review
- Competitor Analysis
- Smartwatch Owners Survey
- Interviews (Prototyping)



#blackmirror

Reflect

Charlie Brooker Thought Experiment



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Monthly payments (for the Apple Watch) depend on your level of activity and could be between £0 and £12.50.

#dontbemorallyfeeble

Summary for ethical use of 'bring your own data'

What needs to happen...

Improved ergonomics - design for every body

Improved accuracy - for every body

Summary for ethical use of 'bring your own data'

What needs to happen...

Improved ergonomics

Improved accuracy

Access to info and tech - multiple platforms including web-based

Digital literacy - training needed to support effective use

Data literacy - multimodal display with better explanations

Health literacy - central value proposition of a personalised system

Summary for ethical use of 'bring your own data'

What needs to happen...

Improved ergonomics

Improved accuracy

Access to info and tech

Digital literacy

Data literacy

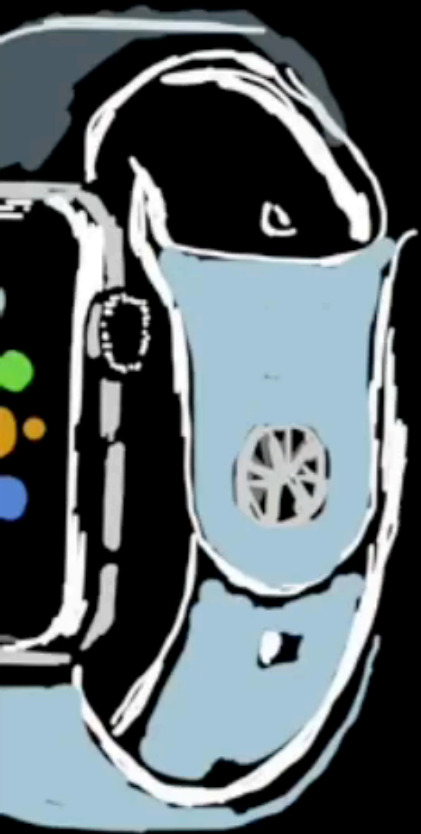
Health literacy

Increased corporate transparency - required for clinical validation

Secure infrastructure, authentication, controlled info exchange

Standards are needed - NICE Evidence Standards Framework for Digital Health Technologies (2018) is a good start!

We are currently in the process of teaching the next generation of devices about the human body



Thank you

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