# A. NHS antibiotic prescribing research project

## Existing data about us is matched, linked and compared to help GPs use antibiotics better

**PEOPLE**
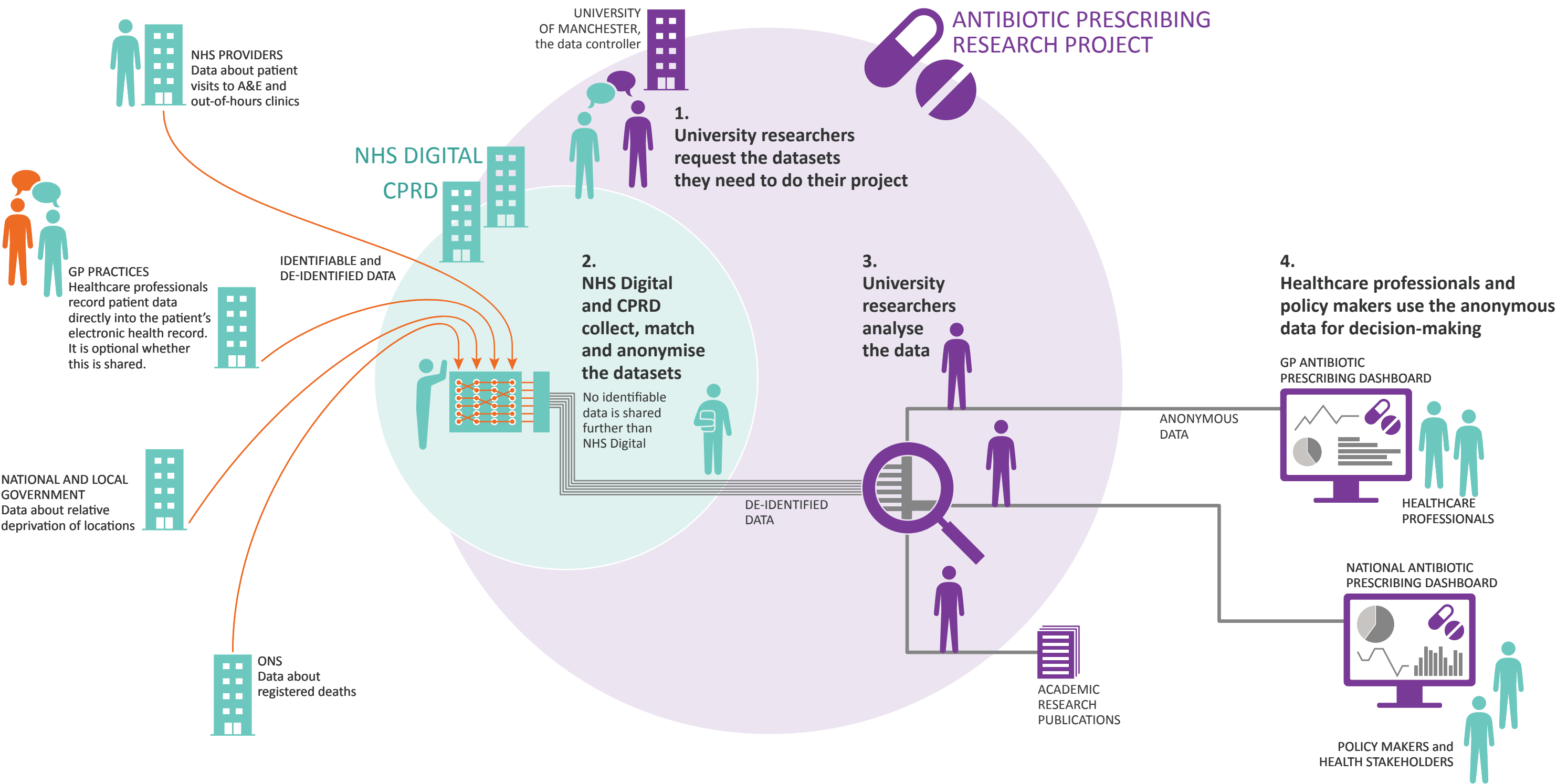Identifiable data, eg name, NHS number, gender, date of birth, postcode
De-identified data, eg symptoms, referrals, prescriptions, cause of death

**GOVERNMENT, PUBLIC SERVICE and NHS ORGANISATIONS and the PEOPLE who work for them**, eg NHS Digital, the national provider of information, data and IT systems within health and social care in England, and Clinical Practice Research Datalink (CPRD), a research service supporting public health and clinical studies

**EXTERNAL ACADEMIC ORGANISATIONS and the PEOPLE who work for them**

**NHS PROVIDERS**
Data about patient visits to A&E and out-of-hours clinics

**UNIVERSITY OF MANCHESTER,** the data controller

**ANTIBIOTIC PRESCRIBING RESEARCH PROJECT**

**NHS DIGITAL CPRD**

**1.**
**University researchers request the datasets they need to do their project**

**GP PRACTICES**
Healthcare professionals record patient data directly into the patient's electronic health record. It is optional whether this is shared.

**IDENTIFIABLE and DE-IDENTIFIED DATA**

**2.**
**NHS Digital and CPRD collect, match and anonymise the datasets**
No identifiable data is shared further than NHS Digital

**3.**
**University researchers analyse the data**

**4.**
**Healthcare professionals and policy makers use the anonymous data for decision-making**

**GP ANTIBIOTIC PRESCRIBING DASHBOARD**

**ANONYMOUS DATA**

**HEALTHCARE PROFESSIONALS**

**NATIONAL AND LOCAL GOVERNMENT**
Data about relative deprivation of locations

**DE-IDENTIFIED DATA**

**ACADEMIC RESEARCH PUBLICATIONS**

**NATIONAL ANTIBIOTIC PRESCRIBING DASHBOARD**

**ONS**
Data about registered deaths

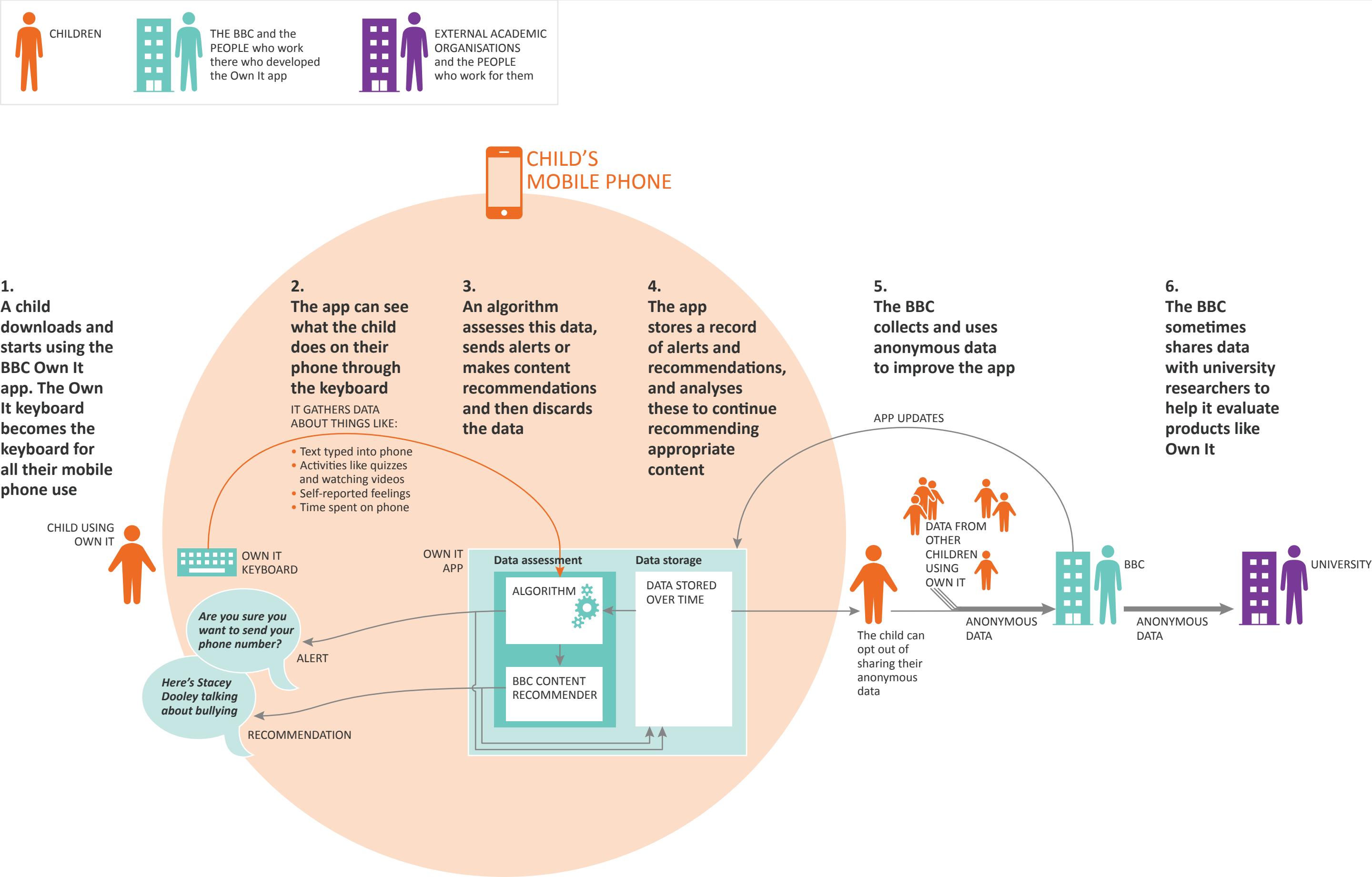**POLICY MAKERS and HEALTH STAKEHOLDERS**

# B. NHS Covid-19 data store

## A national, secure data store to hold data in one place to help national organisations responsible for coordinating the Covid-19 response

PEOPLE

GOVERNMENT, PUBLIC SERVICE and NHS ORGANISATIONS and the PEOPLE who work for them

EXTERNAL COMMERCIAL ORGANISATIONS and the PEOPLE who work for them

*What NHS organisations say about the Covid-19 data store has changed several times and information exists in different places. This is our representation of what we currently understand. The parts of the visual that have been blurred are the parts where there is uncertainty about what is going on.*

NHS COVID-19 DATA STORE

NHS ENGLAND, the data controller

Self-reported status via online questionnaire

Shielded patient list — NHS DIGITAL

IDENTIFIABLE and DE-IDENTIFIED DATA

111 calls 999 calls — NHS ENGLAND

Patient data related to Covid-19 — GPs and HOSPITALS

Test and trace data — PUBLIC HEALTH ENGLAND

50+ additional sources of data

**1.**
**NHS England contracted commercial organisations to help build and run the NHS Covid-19 data store**

FACULTY, MCKINSEY and DELOITTE are helping PALANTIR to analyse and communicate the data

**3.**
**Several organisations are analysing the data**

**2.**
**NHS England collect, check and de-identify data and then upload it to the data store**

DE-IDENTIFIED DATA

**4.**
**Government, NHS and the public can see anonymous data about the coronavirus and use it to make decisions**

STRATEGIC DECISION-MAKERS DASHBOARD

ANONYMOUS DATA

NHS OPERATIONAL DASHBOARD

PUBLIC INFORMATION DASHBOARD

PALANTIR built and manage the platform

AMAZON WEB SERVICES are providing infrastructure and technology

A MICROSOFT cloud platform has been used to build the data store

**Who has access to data, for what purposes and for how long?**

# C. BBC Own It app for children

## Children receive real-time, well-being advice and content recommendations and no identifiable data leaves their phones
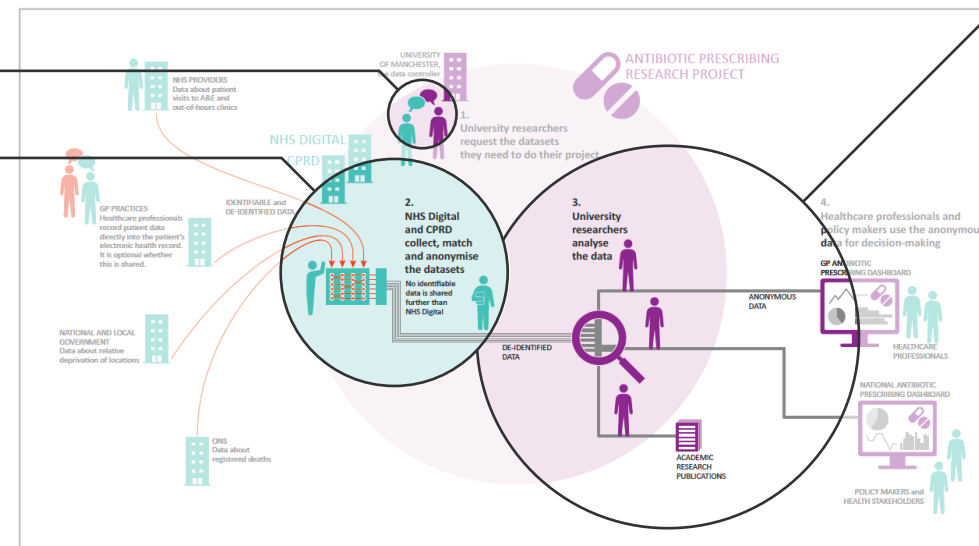
CHILDREN

THE BBC and the PEOPLE who work there who developed the Own It app

EXTERNAL ACADEMIC ORGANISATIONS and the PEOPLE who work for them

CHILD'S MOBILE PHONE

**1.**
A child downloads and starts using the BBC Own It app. The Own It keyboard becomes the keyboard for all their mobile phone use

CHILD USING OWN IT

**2.**
The app can see what the child does on their phone through the keyboard

IT GATHERS DATA ABOUT THINGS LIKE:

- Text typed into phone
- Activities like quizzes and watching videos
- Self-reported feelings
- Time spent on phone

OWN IT KEYBOARD

*Are you sure you want to send your phone number?*

ALERT

*Here's Stacey Dooley talking about bullying*

RECOMMENDATION

**3.**
An algorithm assesses this data, sends alerts or makes content recommendations and then discards the data

OWN IT APP

Data assessment

ALGORITHM

BBC CONTENT RECOMMENDER

Data storage

DATA STORED OVER TIME

**4.**
The app stores a record of alerts and recommendations, and analyses these to continue recommending appropriate content

**5.**
The BBC collects and uses anonymous data to improve the app

APP UPDATES

DATA FROM OTHER CHILDREN USING OWN IT

The child can opt out of sharing their anonymous data

ANONYMOUS DATA

BBC

ANONYMOUS DATA

UNIVERSITY

**6.**
The BBC sometimes shares data with university researchers to help it evaluate products like Own It

# D. Data sharing & re-use

**Where data collected by one organisation is then shared with another organisation**

PEOPLE

GOVERNMENT and PUBLIC SERVICE ORGANISATIONS and the PEOPLE who work for them

EXTERNAL COMMERCIAL or ACADEMIC ORGANISATIONS and the PEOPLE who work for them

## NHS antibiotic prescribing research project



**Researchers request the data they need to do their project**

**DATA COLLECTION**
Data is collected and de-identified by NHS Digital and CPRD

**DATA RE-USE**
De-identified data is re-used by university researchers

## NHS Covid-19 data store



**The NHS contracted commercial organisations to help build and run the NHS Covid-19 data store**

**DATA COLLECTION**
The NHS collect, check and de-identify data and then upload it to the data store using tools and systems provided by commercial organisations*
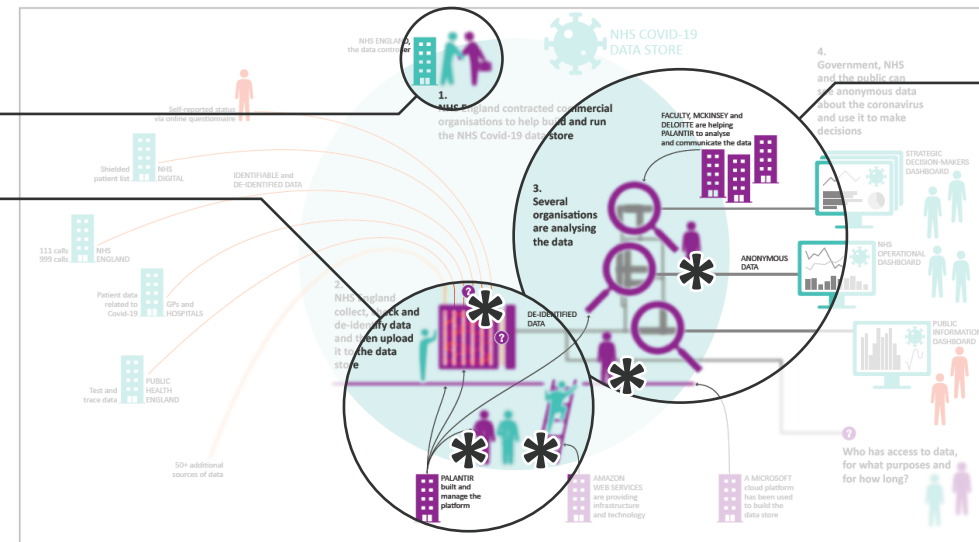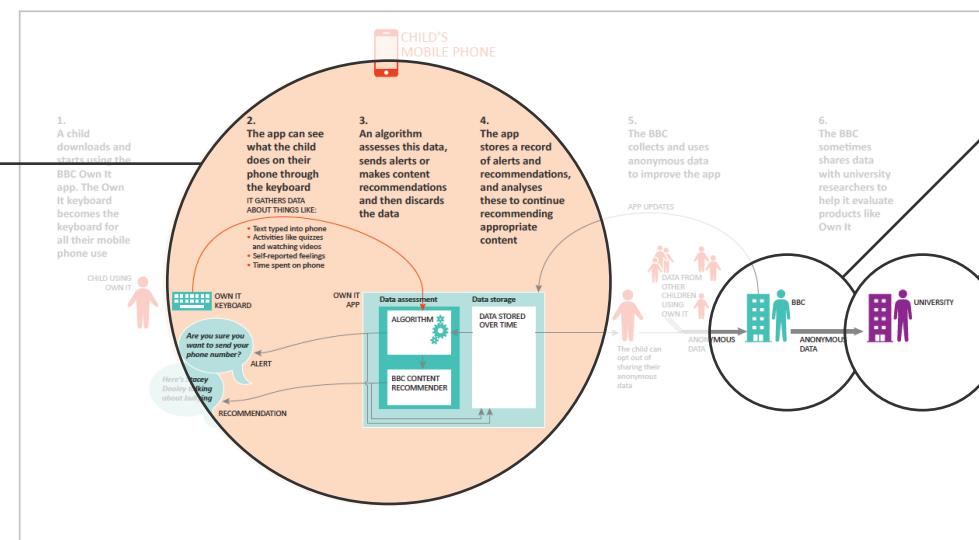
**DATA RE-USE**
Several commercial organisations* analyse the de-identified data

**\*BUT**
We don't know who has access to data, for what purposes and for how long

## BBC Own It app for children



**The child chooses to download and use the Own It app**

**DATA COLLECTION**
Data is collected by the app and stays on the child's phone

**DATA RE-USE**
Anonymous data is re-used by the BBC to improve the app

**DATA RE-USE**
The BBC may share this anonymous data with university researchers in the future to help it evaluate products like Own It