

# Digital health data: what types of value can be generated and how can we do it?

Opportunities to use health data to support innovation

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**IBM Services**



## Health data context

What types of value for which users?

How could the NHS capture value?

What capabilities are required to deliver value?

# The Life Sciences industrial strategy focused on the creation of three new industries

01

## Genomics

Sequencing technology  
Precision medicine  
Biobank and Sanger/EBI  
Genomics England

### Key items

- 100k to 5m
- Genomic volunteers
- Sequencing Biobank with Nanopore and Illumina

02

## Early Diagnosis

Developing new care pathways in a single payer environment  
Identifying disease earlier to reduce cost  
Reshaping and refocusing diagnostics, digital and pharma industries

### Key actions

- £100m in national radiology and pathology networks
- Accelerating detection of disease cohort 5m

03

## Digital Health

Large scale datasets enabled for applications in clinical trials, drug discovery, diagnostics and to enable care pathway improvements

### Key actions

- HDR Data Alliance  
Digital Innovation Hubs Programme
- National standards for interoperability and open source
- Code of conduct

# Its all about patients...



- Health data is all about patients
- Respect and compliance are key
- Health data can enable improvements for patients in
  - care delivery
  - care management
  - Research

More information can allow better treatments to be designed more efficiently

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The NHS has the components to form a rich longitudinal patient record across many data sources ...



# Data can enable insights useful across different groups

Patients

Academia

Providers

Health tech  
researchers

Biopharma  
researchers

# Data can enable insights useful across different groups

## Patients

Wellness

Own health record

Ancestry

## Academia

Basic science

Natural history

Disease progression and prevention

## Providers

Care pathways

Care personalisation

Pharmacogenomics

## Health tech researchers

Apps

Diagnostics

Remote Monitoring

## Biopharma researchers

Research cohorts – pre-clinical and epidemiology

Clinical Trials

Market insight and health economics



# Example use cases: clinical trials



**NHS DigiTrial**  
Health Data Research Hub for Clinical Trials

NHS DigiTrial will focus on the development of a foundation service to improve the assessment of clinical trial feasibility, supporting improved planning and delivery of clinical trials in the UK.

**HDRUK**  
Health Data Research UK

**INDUSTRIAL STRATEGY** | UK Research and Innovation

**Clinical trial feasibility**

- Accelerate trial design based on insights into available patients

**Patient identification and management**

- Identify and contact patients to invite them to enrol
- Monitor and collect patient information during trials

**Synthetic controls**

- Identify pre-existing patients with a suitable history to form a control arm with no treatment required

**Trials reporting**

- Integrating trial outcomes into the patient record

Health data context

What types of value for which users?

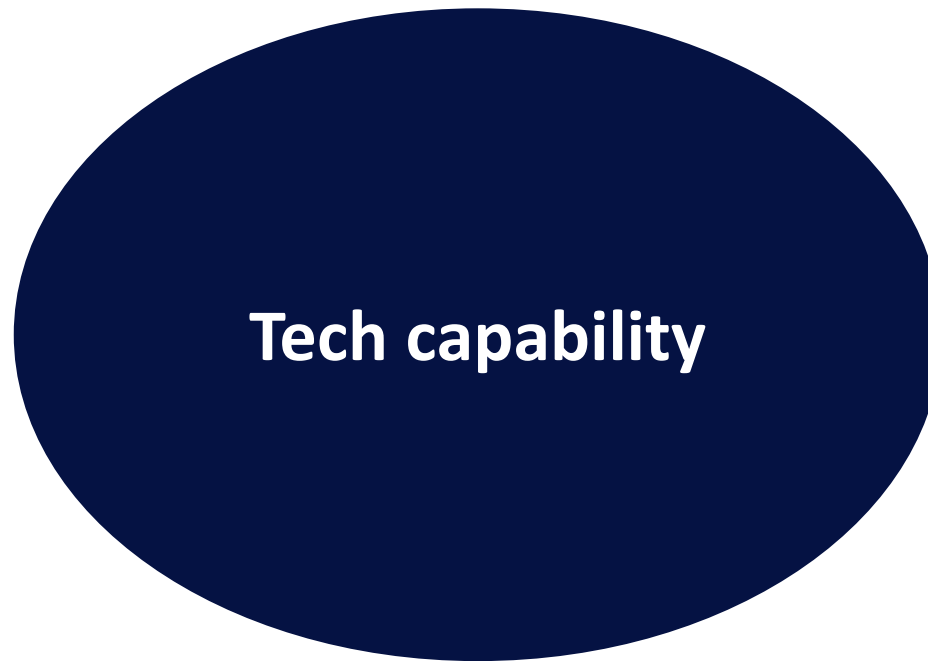
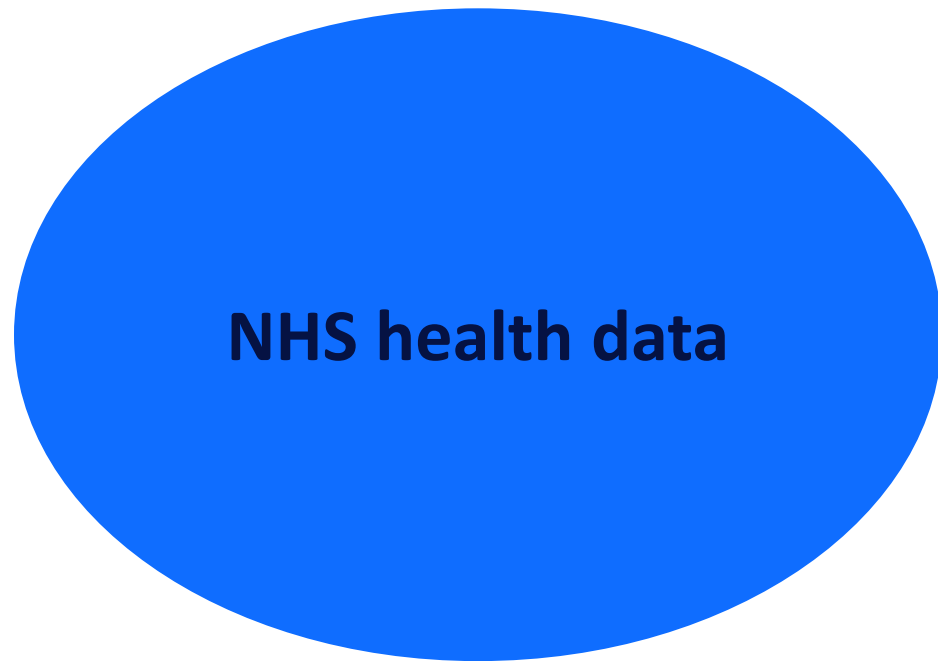
How could the NHS capture value?

What capabilities are required to deliver value?

# There are a variety of models to commercialise data



In the UK, there is a distribution of assets..



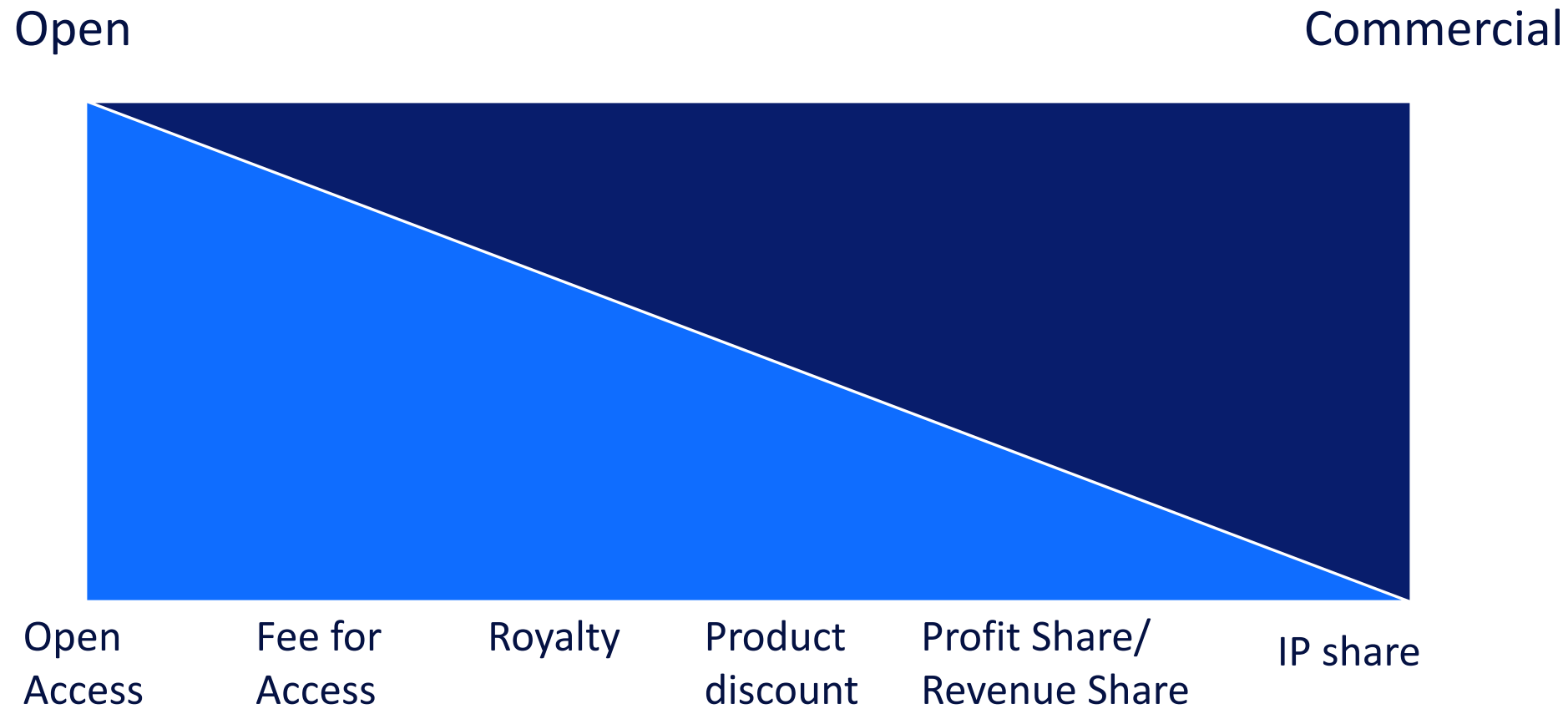
None of these types of organisations can deliver change alone

# Different types of commercial model are in use in the NHS

<b>Data Sharing Agreements</b>	<b>Grant-funded collaboration</b>	<b>Licensing</b>	<b>Cost-Recovery</b>	<b>Commercial Arrangements</b>
Access NHS data based on Data Sharing Agreements i.e. secondary uses.	Allocated by academics/public sector organisation.	License to use/access data.	Data service provided in exchange for a fee to organisations.	Exchange of assets/valuable resources between parties

Source: Harwich, E. and Lasko-Skinner R. (2018) 'Making NHS data work for everyone', Reform

# ...and can be placed on a theoretical continuum



- Consortium
- Golden Share
- Local Asset Backed Vehicle

Source: Harwich, E. and Lasko-Skinner R. (2018) 'Making NHS data work for everyone', Reform

# Fair share has been enshrined in the DHSC code of conduct



Guidance

## Code of conduct for data-driven health and care technology

Updated 18 July 2019

Contents

Introduction

The principles

Principle 1: Understand users, their needs and the context

Principle 2: Define the outcome and how the technology will contribute to it

## Introduction

Today we have some truly remarkable data-driven innovations, apps, clinical decision support tools supported by intelligent algorithms, and the widespread adoption of electronic health records. In parallel, we are seeing advancements in technology and, in particular, [artificial intelligence \(AI\) techniques](#).

Combining these developments with data-sharing across the NHS has the potential to

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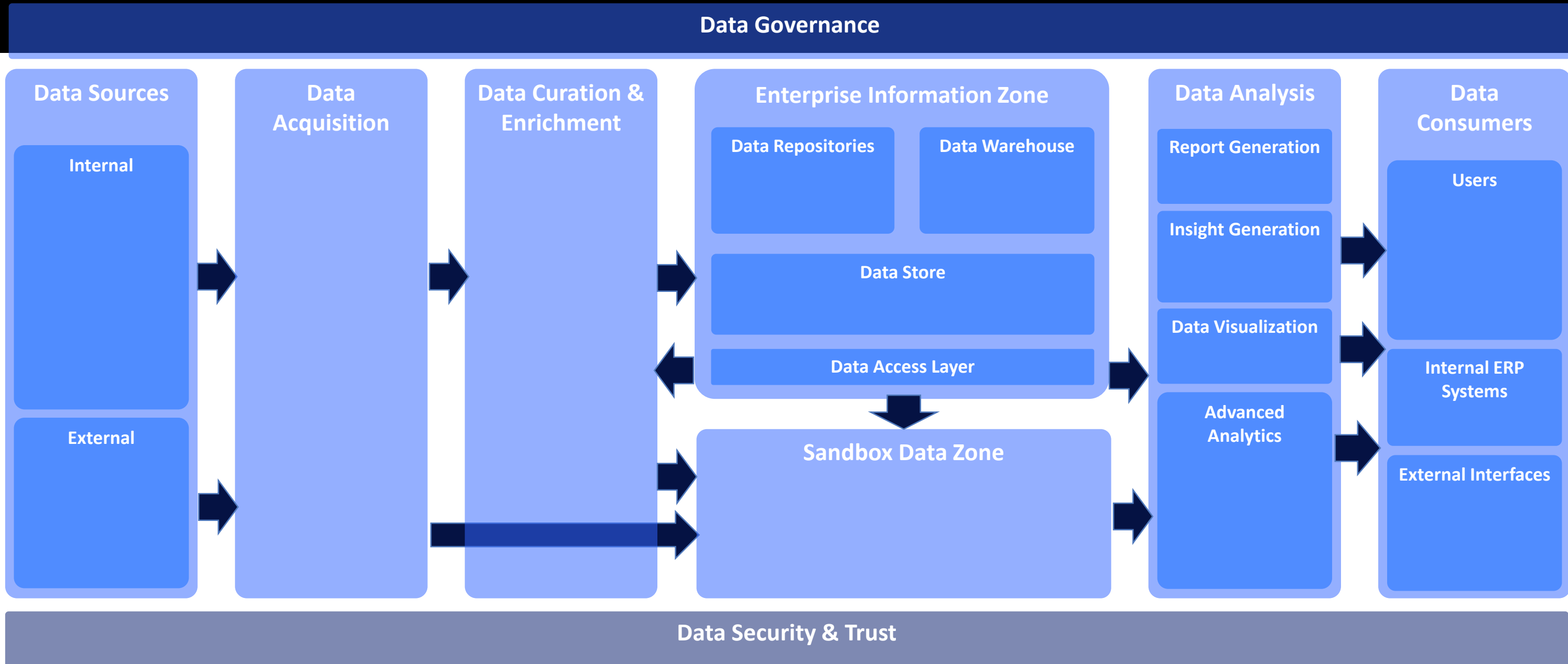
# Key data capabilities

**Data Storage**

**Data Infrastructure**

**Data Analytics**

# Healthcare data requires a diversity of capabilities



# Key data capabilities are distributed – collaboration is key

## Data Storage



## Data Infrastructure



## Data Analytics



## Data Security & Trust

# Collaboration and partnerships will be key to delivery

- Detailed use cases demonstrate the value opportunity for different users
- Commercial models need to enable benefits across data custodians, tech and researchers
- Skills across data curation, architecture and tools can be brought together
- Trust and security are key to including patients in the partnership

Health data can allow better treatments to be designed, more efficiently, to improve patients lives and return value to the NHS