NHSE’s UPRN Story

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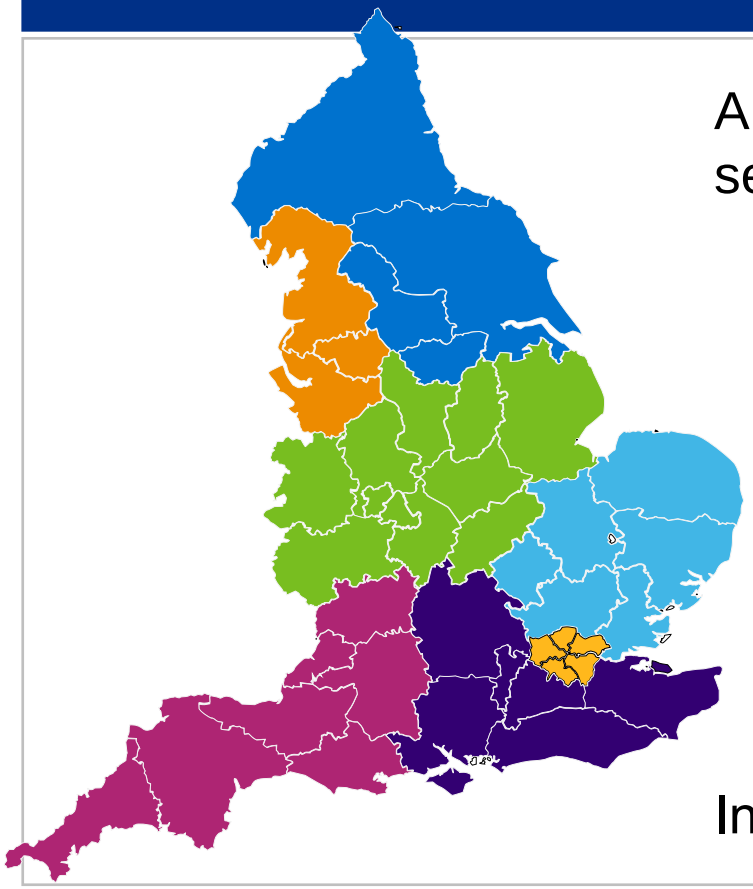
Quick Intro

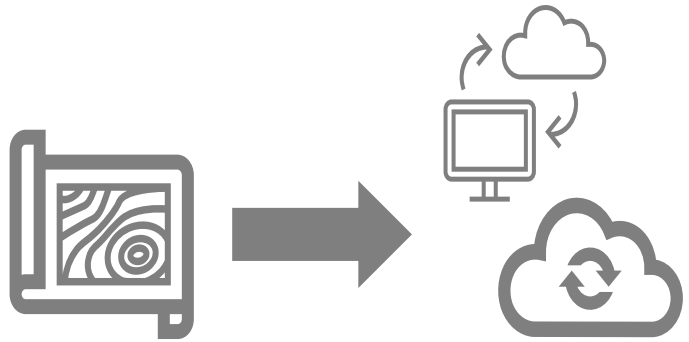
Senior Data Engineer at NHS England



Approx 20 years experience working with geospatial data within a NHS setting.

Originally “colouring” in maps

These days my focus is data:-



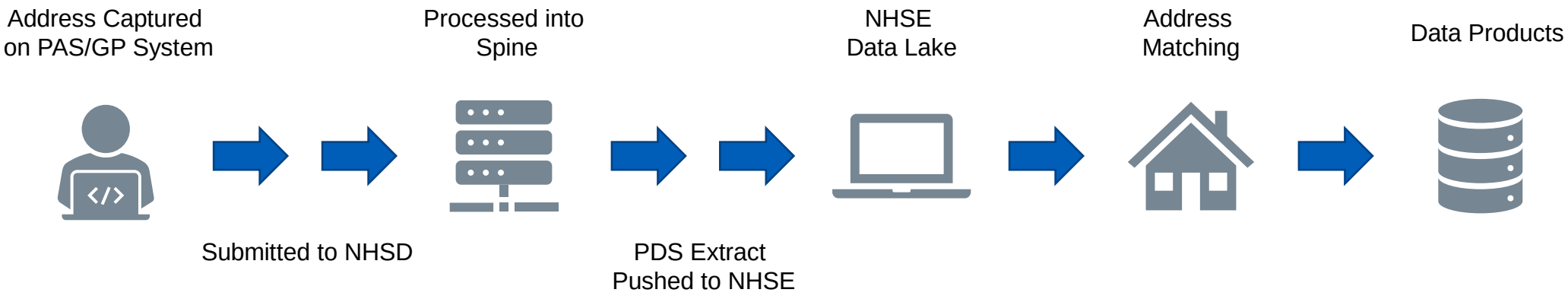
- Geographic
- Demographic

In essence data that might have an impact on people’s health

Key Drivers

1. Data Quality Improvements
2. Population Health Management
3. Understanding the wider determinants of health

Flow of Addresses through NHS infrastructure



Address Matching

The spine is the primary method of storing patient demographics in England.

- Information can be entered and altered from practices, hospitals and other providers and has live updates
- **It has 95 million discreet addresses**
- Over 82 million patients (includes living, deceased and deducted)
- Holds the address history back to around 2012

Address Matching Process

- Retrospective matching using off the shelf software
- We use both Address Base Premium and PAF data to determine a potential UPRN for an address
- Currently working on automating the matching process so it becomes part of our daily build of our demographic master patient list

Matching Results

Currently processed 46.1 million addresses

- These represent most recent addresses captured
- Remaining 50 million relate to patients address history

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Each returned address has a match score and a indication of what was wrong with the address.

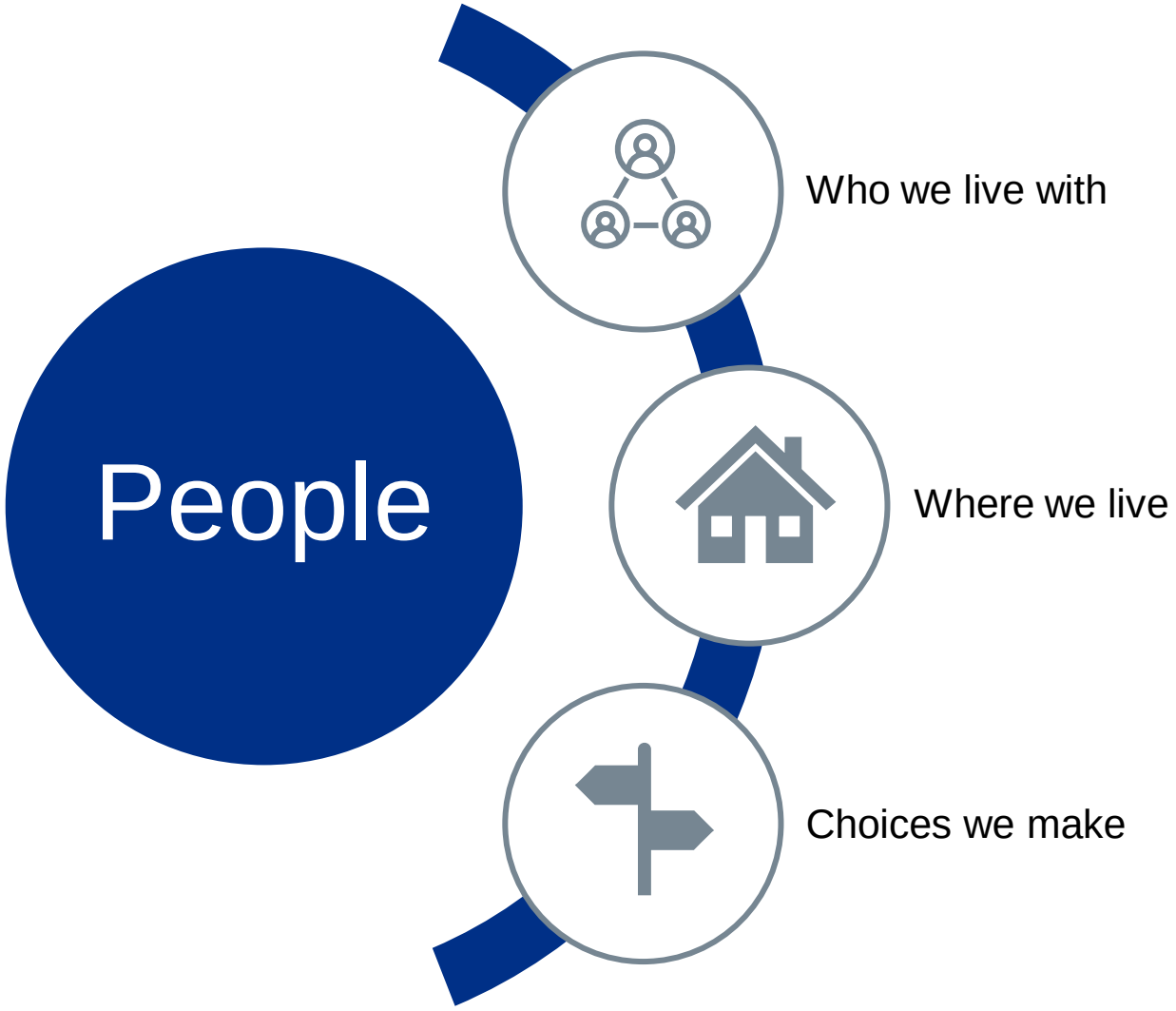
UPRN cover of addresses is around 93.73%

- Geo-Place estimate a false positive match of around +1%

Of those processed and unmatched about 300k are unusable

Upshot is that 93.5 % of NHS numbers that are held in the Spine can be linked to a UPRN

Why Bother?



The UPRN:

- Enables us to relate people to the environment we live in
- To understand relationships with the people we live with
- Choices we make that affect our health
- We are establishing a landscape of data that influences an individuals health and any outcomes
- Ultimately this will increase our understanding of the wider determinants health

Care Home Master Patient Index

Problem	System Flag is poorly populated and often out of date indicates population of 170k Capacity tracker indicates 365k
Linkage	Using CQC Care home data Create linkage on UPRN and various address matching options
Care Home MPI	Able to identify approx. 350 - 360k people living in a care home

"At present, there is no timely or frequent collection of data at the national level based on a census of all people in care homes on a given date. This is a critical issue, as the population is ageing, expanding, and becoming more complex. The ability to identify the care home population is essential for monitoring activity and targeting healthcare services appropriately. The pseudonymised patient-level dataset, we can be used to develop a comprehensive picture of patient pathways and how the care home population navigates through the healthcare system."

Not just a flag of people living in a care home

- ✓ Able to calculate how long people have lived in a care home
- ✓ Able to know when people have moved from home to care home and vice versa
- ✓ Able to see a patients full care home address history – how many places and how long at each place

COVID-19: a catalyst for change

In responding to the pandemic, we leveraged new technologies to:

Divert: Patients/service users to the facilities that are best able to care for them.

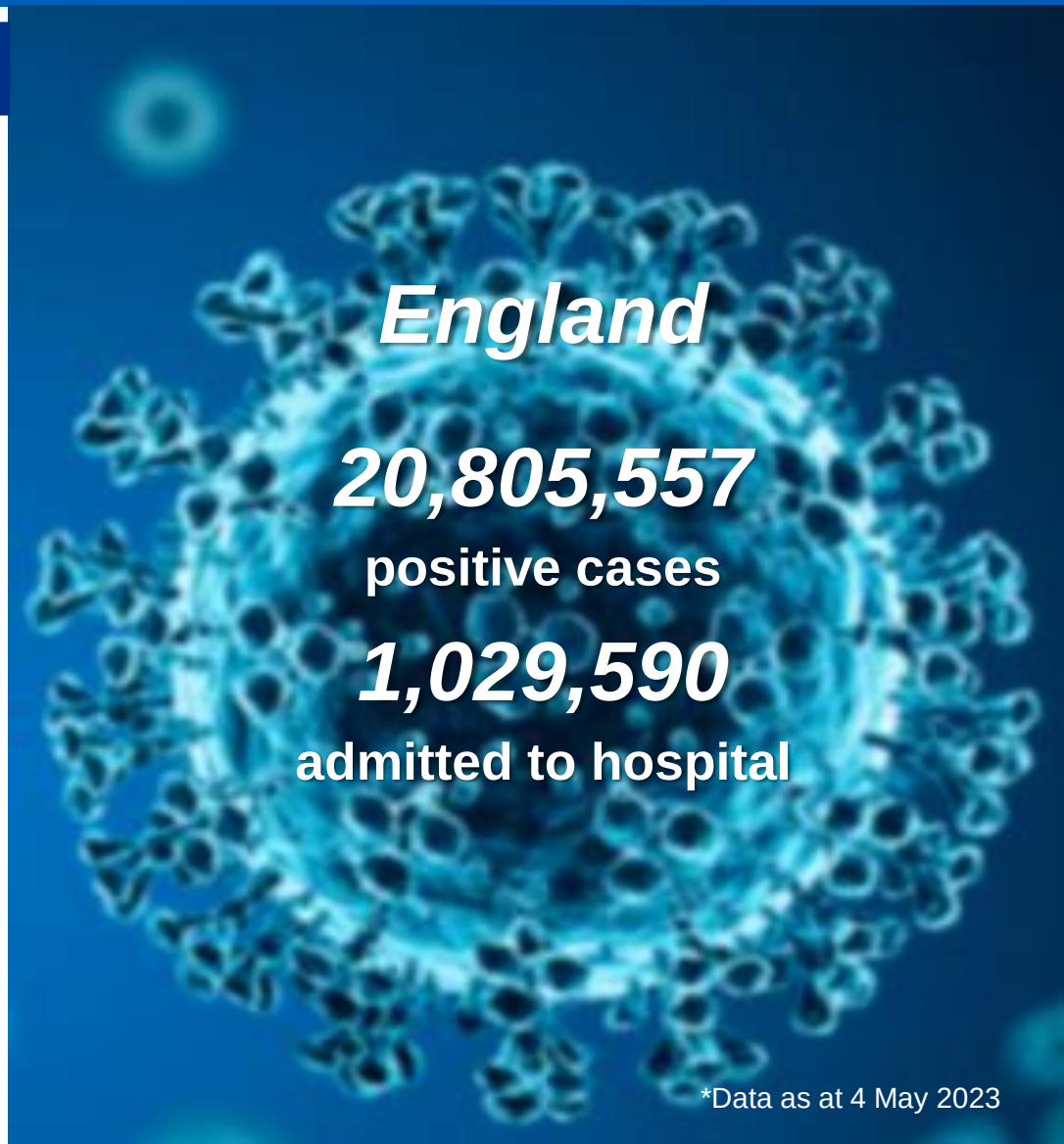
Inform: National policy decisions designed to keep people safe.

Undertake: Research to help understand about service demand and capacity.

Understand: Performance – focusing on population health outcomes.

Proactive: Increase health and care resources in emerging hot spots.

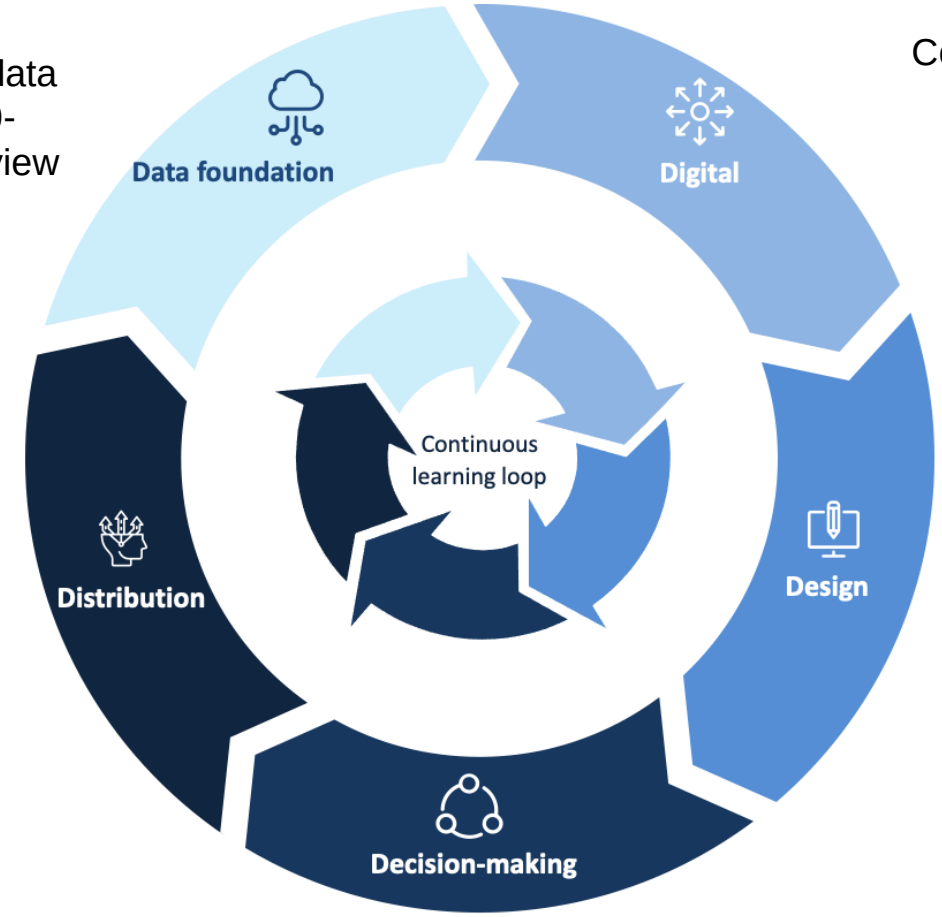
Ensure: Critical capacity is available to respond to peaks in demand.



For system-wide transformation we need an at scale delivery model

Create patient and citizen-data platform to provide a 360-degree patient and citizen view

Configuring and leveraging the correct digital modalities and technology stacks to achieve value to staff, carers, patients and citizens by enabling meaningful data analytics



Delivery high quality health and care experiences across channels and feed response data to patient and citizen data platform

Capability-factory model, digital-asset management, and agile marketing to drive experimentation

Population health insights to improve health systems and personal insights that drive behavioural change. Achieved via advanced analytics and machine learning.

Getting Products to Analysts & Users

Its one thing to have a well developed data product like the care home MPI, but how do we get it the analysts in both the national and local teams?

1. **Secure Data Environments for operational use, planning and population health management**
   For example: a federated data platform for NHS staff and care providers

2. **Secure Data Environments to support research by academia and industry**
   For example: research environments to support medical research

Secure Data Environments will improve:

- ✓ **Patient privacy**: removing personal detail to keep patient information confidential.
- ✓ **Security:** ensuring that systems have high level of protection.
- ✓ **Efficiency:** connecting data to speed up decisions and discovery of new treatments.

Data storage and access platforms built to uphold the highest standards of privacy and security - adhering to the five data safes.

- **Safe people**
- **Safe projects**
- **Safe settings**
- **Safe outputs**
- **Safe data**

The FDP has been borne out of a need for connected data and information to make informed decisions

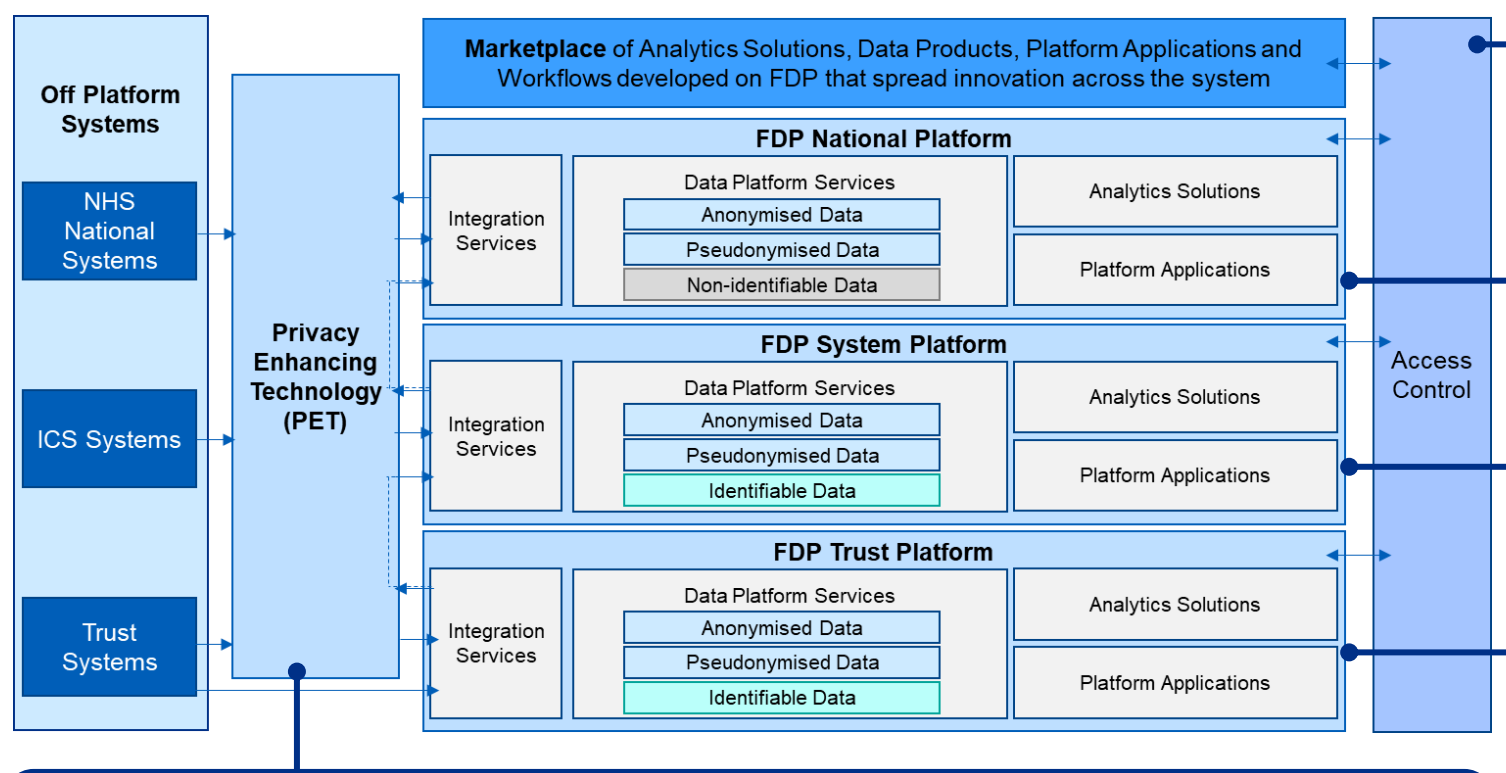
Situation	The NHS is under massive operational pressure and each part of the ecosystem operates with different systems that often can't talk to each other. This means we have lots of operational hand-offs within and between organisations and a difficulty in provision of high quality information to streamline workflow and enable data driven timely decision making.
Complication	This makes it hard for health and care organisations to work together to understand patterns, solve problems, plan services for local populations and ultimately to deliver better care for the people they serve.
Question(s)	Can we design a technical solution – using lessons learned from our COVID-19 response – that brings information together to transform the way our workforce use data to support and plan care? And can we do this in a way that reduces the burden on local providers and frees up more clinical time to care?

Our vision and five target outcomes

Vision	**Connecting the NHS to transform care and improve outcomes for patients**				
Target outcomes	Frontline staff have the information they need to provide the best possible care for patients	Population Health management - putting patients and citizens at the centre of service design	ICSs are able to effectively coordinate care	The NHS has access to the information it needs to undertake strategic and operational planning	There is increased transparency and patient understanding of how data is used positively
What it will mean	“I have access to the information I need – in one place – enabling me to deliver the most appropriate care for each patient”	“I have the insights I need to proactively plan services around the peoples needs – which they can access when and where they need them”	“I have the information I need to proactively coordinate care”	“I understand where the NHS needs to invest in workforce and capacity, and can negotiate better deals”	“I support and trust where my data is being used for my care and the benefits of others”

How will it work in practice?

Federation means that each Trust and ICS has their own platform for which they are the data controller.



Only authorised users will be granted access to information for approved purposes.

Access for each platform will be governed and managed by each individual organisation (data controller).

Trust and system platforms will be able to interact with one another (where appropriate).

Trust and system platforms will also interact with a national NHS England platform for reporting purposes.

Privacy Enhancing Technology (PET) will be a standalone service that discovers, protects and supports the audit and governance of data uses. PET will enable the sharing of data in alignment with the security and privacy constructs defined by information governance requirements.

Contact Details

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