

Accelerating the safe adoption of AI in health and care

NHS AI Lab



www.nhsx.nhs.uk/ai-lab/

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The AI Lab will be a focal point for
accelerating the safe adoption
of AI to the front line of health and care

The Lab Programmes



The AI in Health and Care Award

Accelerate the testing and evaluation of the most promising AI technologies which meet the strategic aims of the NHS Long Term Plan.

The AI Skunkworks

Tackling challenging issues that can help speed up the adoption and use of AI in health and care settings.

The AI Regulation Ecosystem

Enable a world leading safe and ethically robust ecosystem for the development and deployment of AI technologies.

AI in Imaging

Supporting the development of imaging technology; from mechanisms used to safely collect and share data to validating AI imaging software.

The Accelerating Detection of Diseases Programme

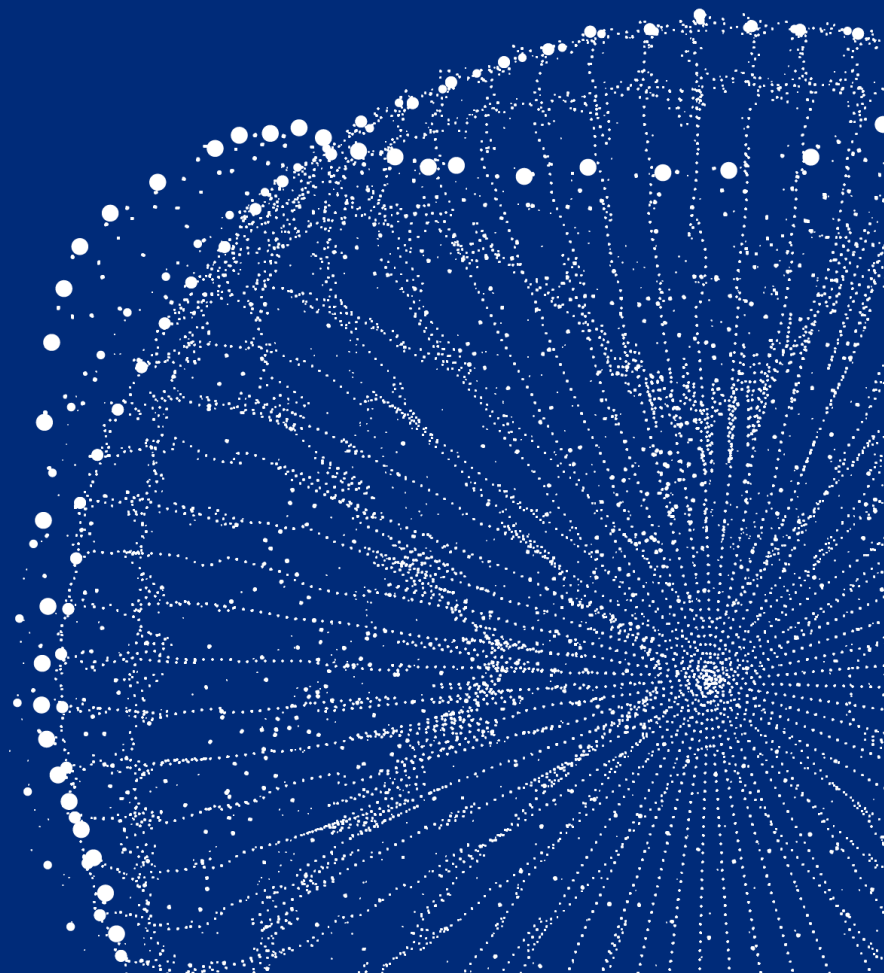
Enabling the use of polygenetic tests and available data, to help screening programmes identify patients most at risk of disease.

Multiple long-term conditions (multimorbidity)

Using AI to identify disease “clusters”, enabling research into the underlying causal pathways.



AI in health and care award



AI in Health and Care Award

The Award will accelerate the testing and evaluation of the most promising AI technologies which meet the strategic aims set out in the NHS Long Term Plan. It is run in collaboration with the Accelerated Access Collaborative (AAC) and NIHR in four phases across the spectrum of development: from initial feasibility to evaluation within the NHS and care.

531 applications were received for Round 1 - **42** applications will be funded across Phases 1-4.

The Next Round of the Award is open from 3rd Nov-8th Dec 2020. For Phases 3 and 4 we particularly encourage applications in the following focus areas: triage, imaging, screening, and intelligent operational automation.

Full information can be found on the AAC's website

<https://www.england.nhs.uk/aac/what-we-do/how-can-the-aac-help-me/ai-award/round-2-ai-in-health-and-care-awards/>

RI Phase 4 Winners

Theme	Name	Description	Company
Imaging	Optos AI	Machine learning algorithm to analyse images of the back of the eye for the presence/severity of any diabetic retinopathy, and then advises if referral to an eye care specialist is needed (based on the local clinical pathway).	Optos Public Limited Company
Imaging	Mia	Deep learning software that has been developed to solve critical challenges in the NHS Breast Screening Programme (NHSBSP), including reducing missed cancers, tackling the escalating shortage of radiologists and improving delays that put women's lives at risk.	Kheiron Medical Technologies
Imaging	e-Stroke Suite	A set of tools that uses AI methods to interpret acute stroke brain scans, and helps doctors make the right choices about treatment and the need for specialist transfer of patients with confidence. It also provides a platform for doctors to share information between hospitals in real-time, avoiding the delays that can occur.	Brainomix Limited
Imaging	Veye	An AI platform to optimise oncology pathways, which can be integrated into existing software systems. Veye Chest, the first clinical application, is unique in its ability to currently automate early lung cancer detection, and soon also support treatment response assessment	Aidence
Treatment Planning	DLCExpert	Automation of the time-consuming and skill-intensive task of contouring healthy organs on medical images for radiotherapy planning so that they are not irradiated during treatment.	Mirada Medical Limited
Operational Efficiency	DrDr	AI to ensure attendance is as high as possible by using past appointment attendance and demographic data to predict those less likely to attend in the future and customises communication with these demographics accordingly.	ICNH LTD
Operational Efficiency	Referral Intelligence and Triage Automation	RITA is an AI solution to automate the triage of GP referrals – assessing the urgency and next step for the referral and sending through directly to the next step in the process. In addition the solution includes a virtual assistant that supports clinicians in writing letters back to GPs, significantly speeding up this process.	Deloitte
Triage	Healthy.io	Using a home test kit and mobile app, Healthy.io's solution empowers patients to self-test at home with clinical grade results. Fully integrated to the Electronic Medical Record (EMR), real-time results are available for clinician review and follow-up. Shifting testing to the home increases uptake, improves quality, reduces workload in primary care, and creates savings.	Healthy.io (UK) Ltd
Triage	EchoGo Pro	A fully automated and scalable application for quantification and interpretation of stress echocardiograms that autonomously processes "real world" echocardiographic image studies to predict prognostically significant cardiac disease.	Ultromics Limited
Triage	Zio	A complete and clinically proven ambulatory ECG monitoring service, utilising powerful AI-led processing and analysis to support clinical workflows and improve the diagnostic yield and timeliness of cardiac monitoring.	iRhythm Technologies Ltd.

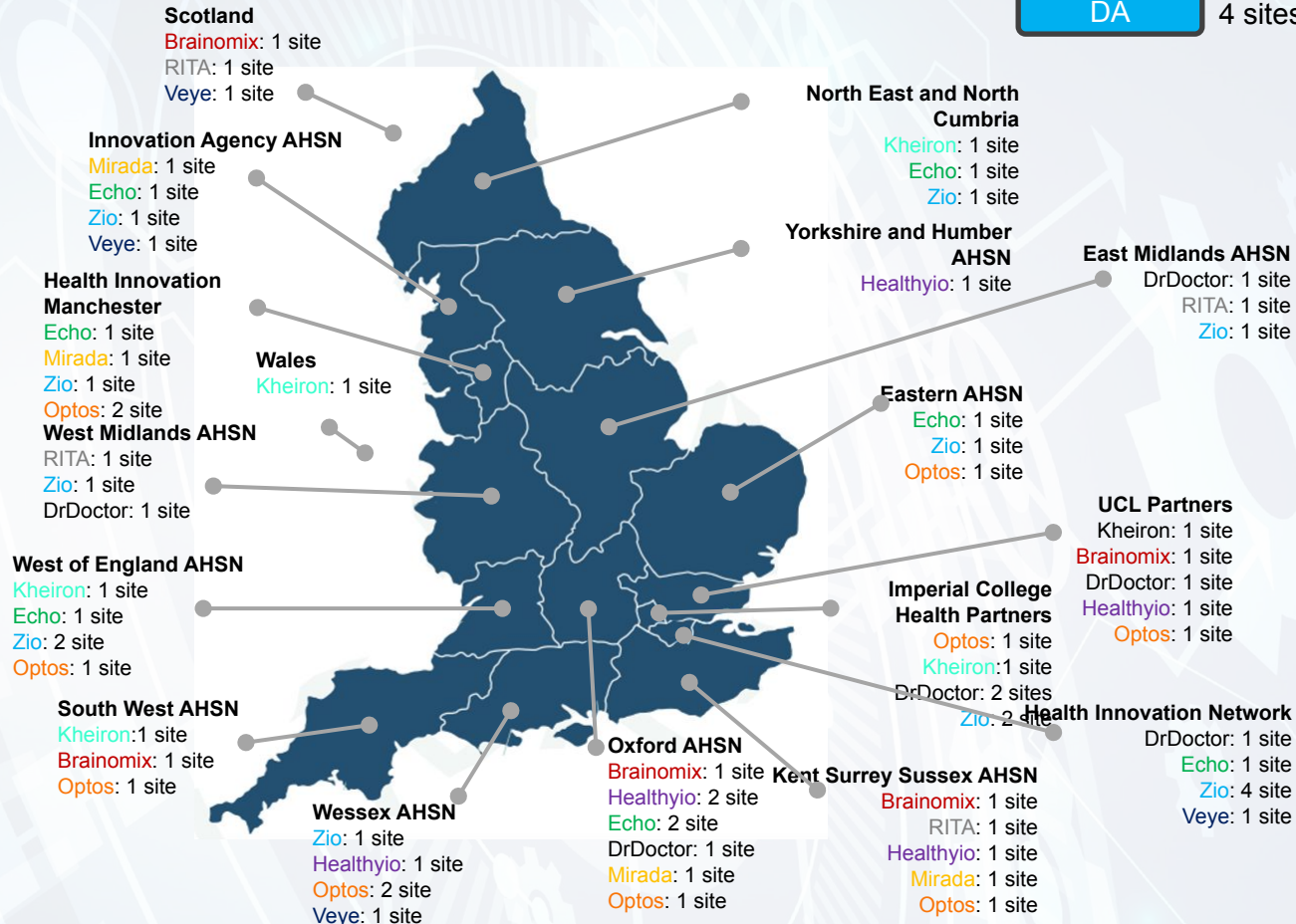
Overview of Round I Phase 4 Sites

England

66 sites

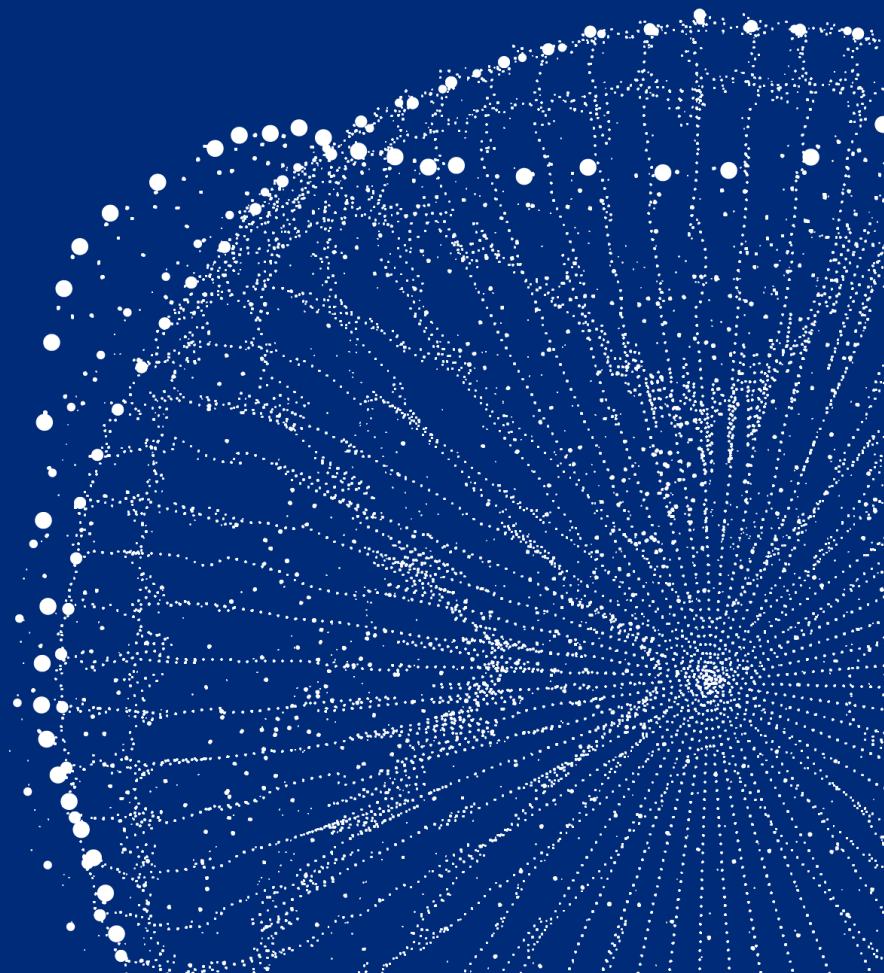
DA

4 sites

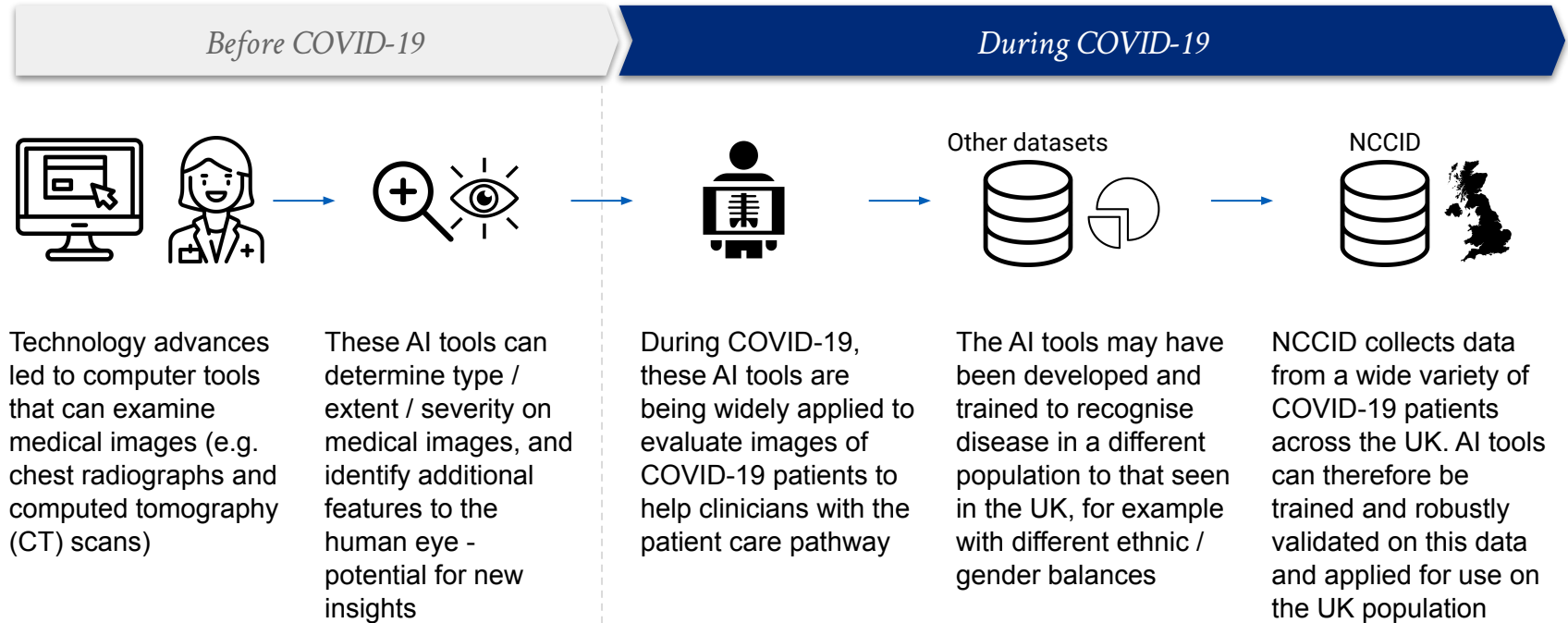




AI in Imaging



The National Covid-19 Chest Imaging Database



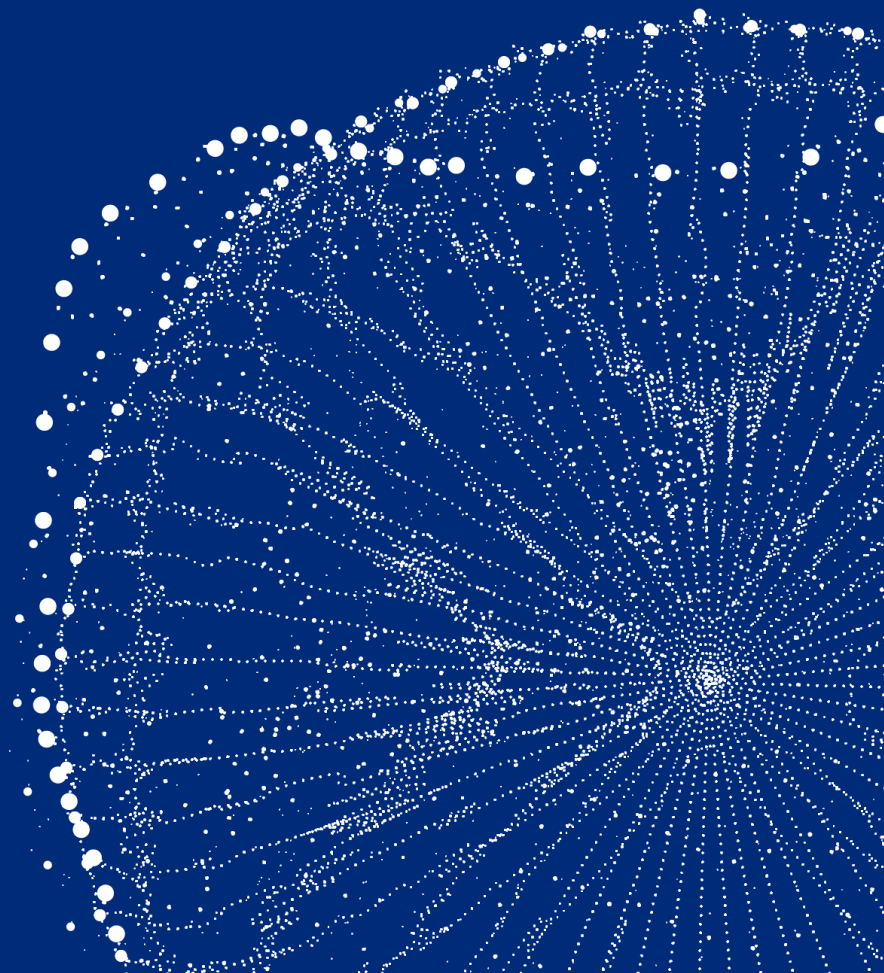
What is next for AI in Imaging



The NHS AI Lab is now investigating building a national medical imaging platform. A discovery exercise is starting in November 2020.



AI Skunkworks



Helping the health and care system define and explore their problems and opportunities where AI could help



**Idea
generation**

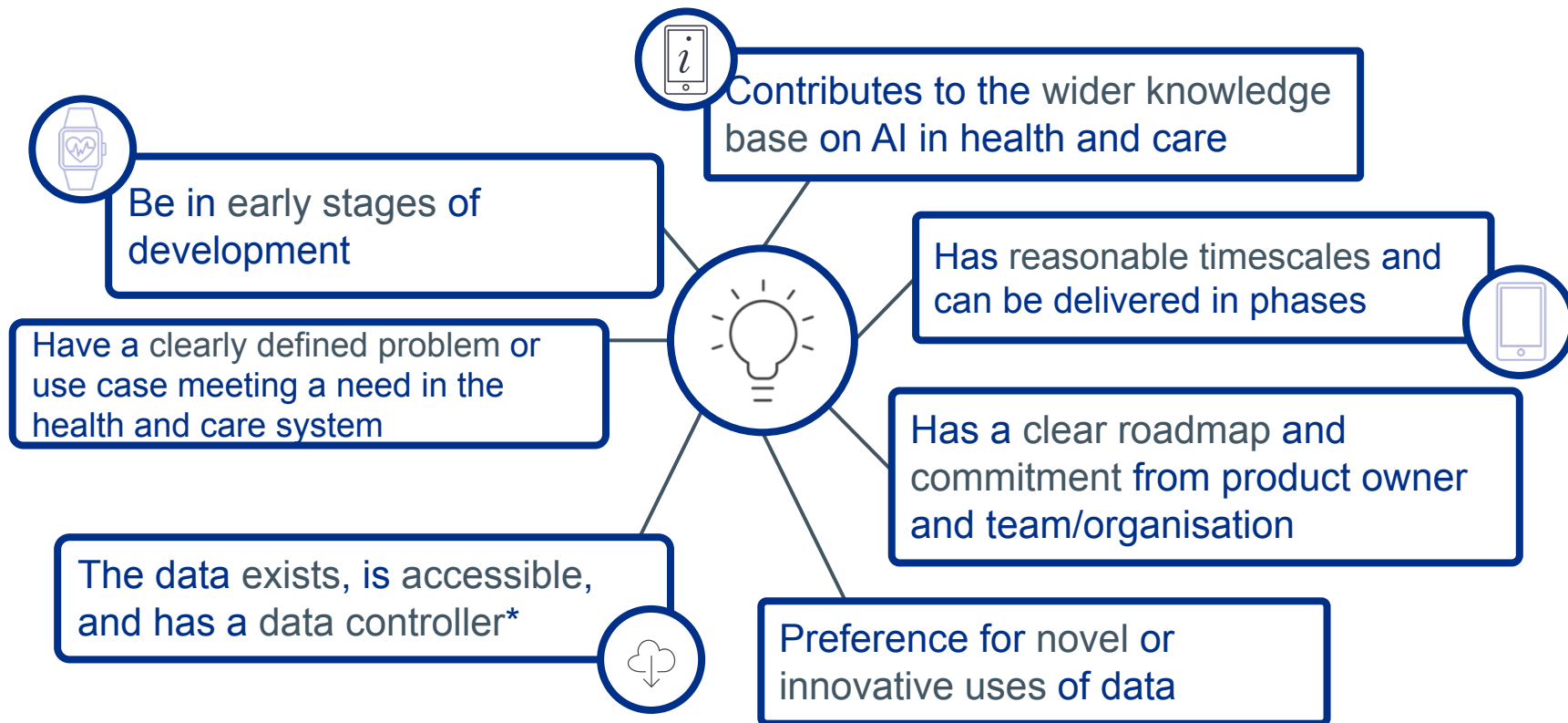


**Testing
solutions**



**Building
capability**

Scope of AI Lab Skunkworks projects



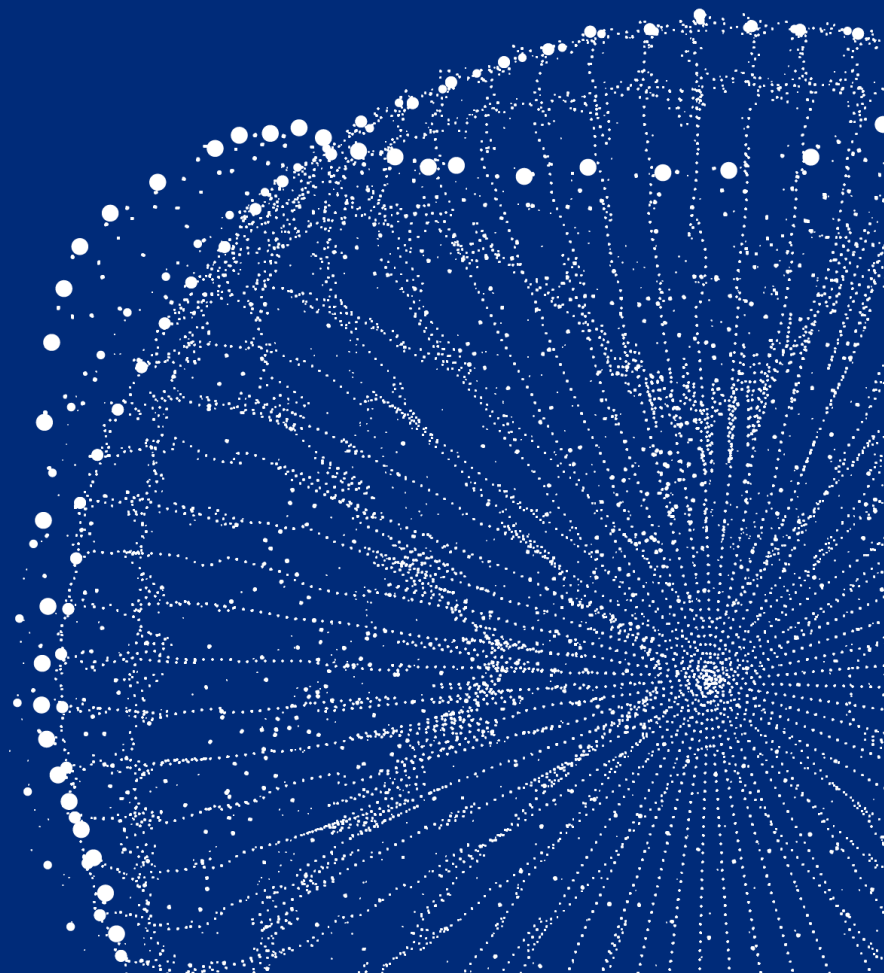
The Dragon's Den



- We listened to and explored a **variety of ideas** from across NHSX, NHS E/I and DHSC
- The Dragon's heard **five** creative pitchers
- **One** pitch was successfully recommended to the NHS AI Lab Board
- We helped set-up and procure a supplier to deliver the **Proof of Concept** with the successful NHSX team
- We have kicked off **Data Lens** - creating the ability to search metadata across disparate data sets



AI Regulation programmes



Overview of programmes

Multi-agency advice service: a joint service between HRA, MHRA, NICE and CQC that offers support, information and guidance on regulation and evaluation of AI and digital health technologies

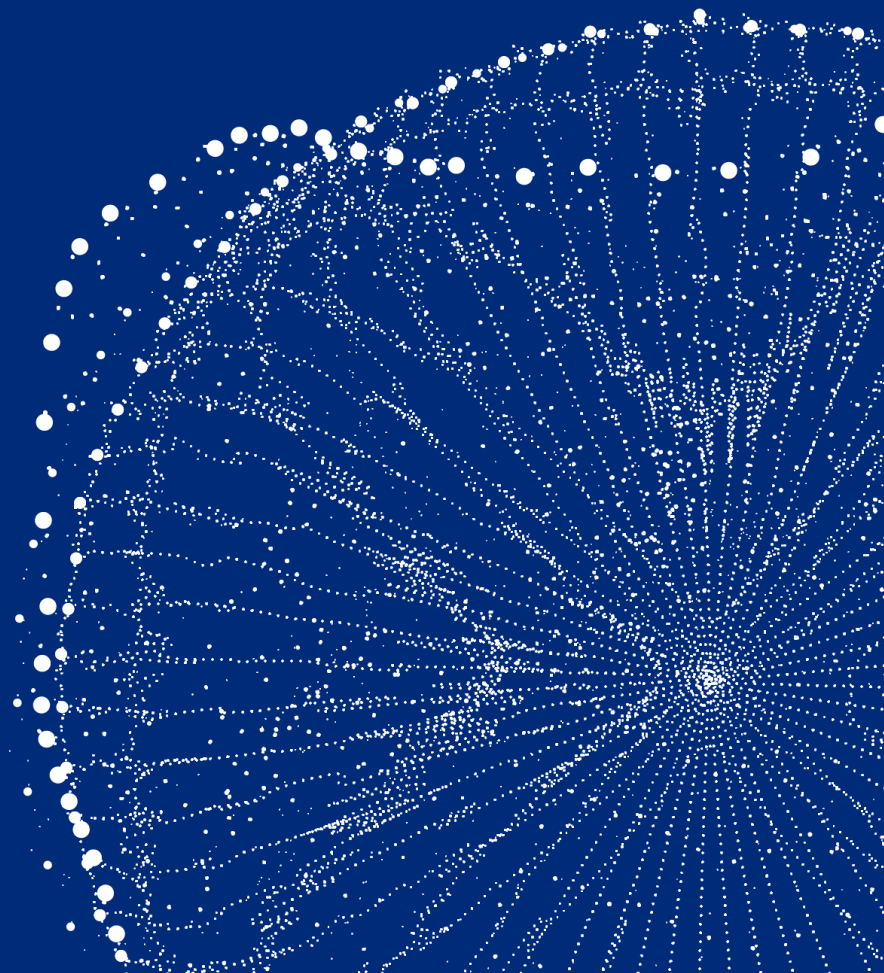
Streamlined technology review: speed up the process of reviewing application for CAG and medical devices between HRA/MHRA

Technology Vigilance (yellow card): enhanced Yellow Card system, spanning all incident types (including technology) and provide research into novel AI signal detection techniques across medicines and devices

Synthetic data: continue MHRA's existing work (funded by the Regulators' Pioneer Fund) to develop synthetic datasets that can be used to validate algorithms, including AI algorithms, in medical devices



Thought leadership
and supporting the
system

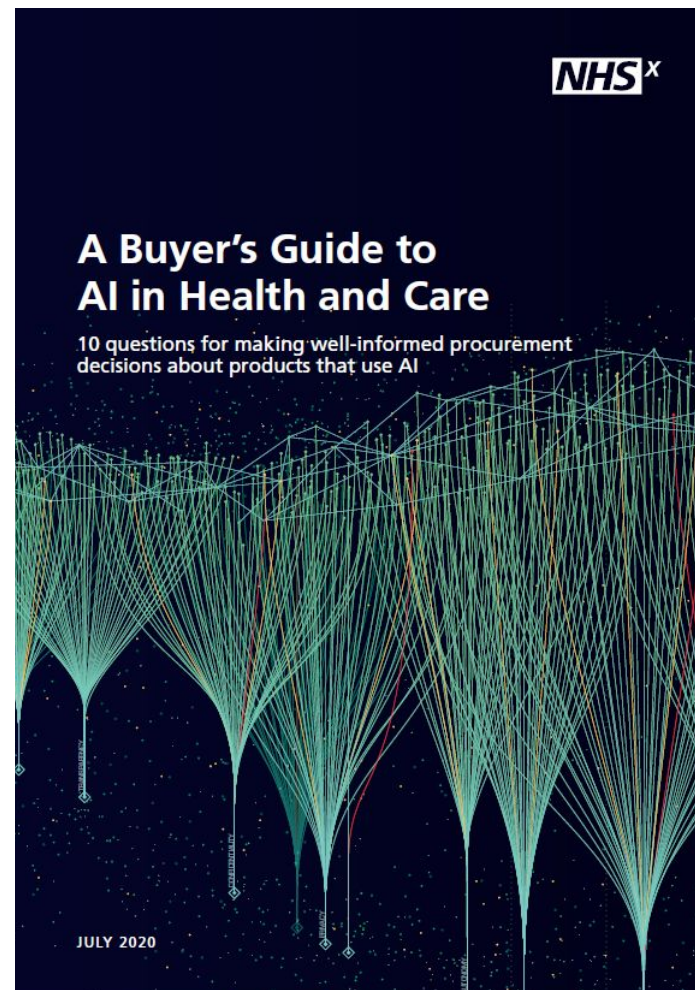


Recent AI resources

Resources to help developers and commissioners understand, develop and adopt AI for health and care

- A Buyer's Guide to AI in Health and Social Care
- Use case for AI in social care
- A Guide to Good Practice for Digital and Data-Driven Health Technologies - an update to the current Code of Conduct. Coming soon

<https://www.nhsx.nhs.uk/ai-lab/explore-all-resources/>



How might we influence and contribute to international policy and governance for AI in healthcare?

The NHS AI Lab was commissioned by the Global Digital Health Partnership to understand the current use of AI technologies, and supporting policies and regulations.

The NHS AI Lab identified policy gaps and opportunities.

Derived from the experience and insight of the Global Digital Health Partnership, the white paper addresses four areas:

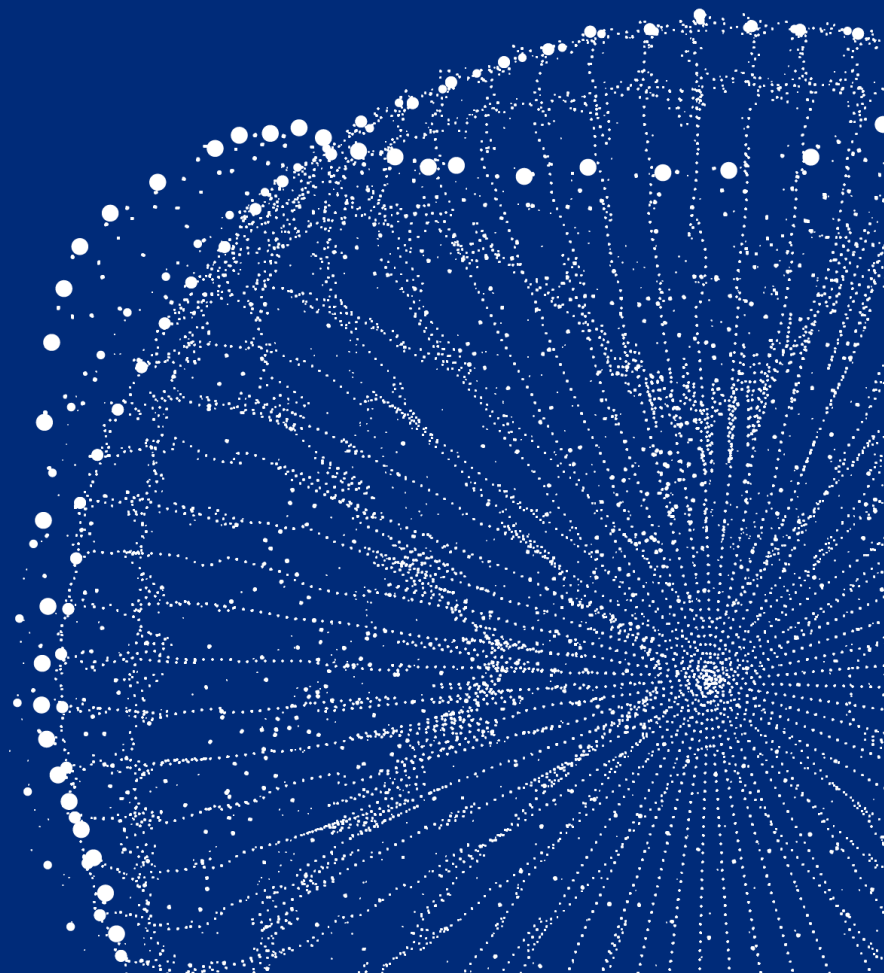
1. Leadership and oversight
2. Ecosystem
3. Standards and regulation
4. Engagement

White paper launching at the GDHP Summit in December





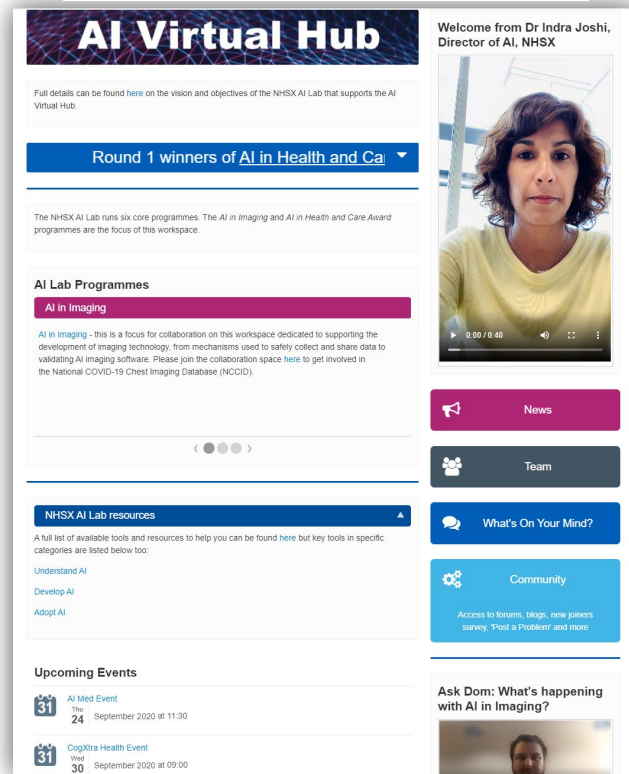
AI Virtual Hub



AI Virtual Hub

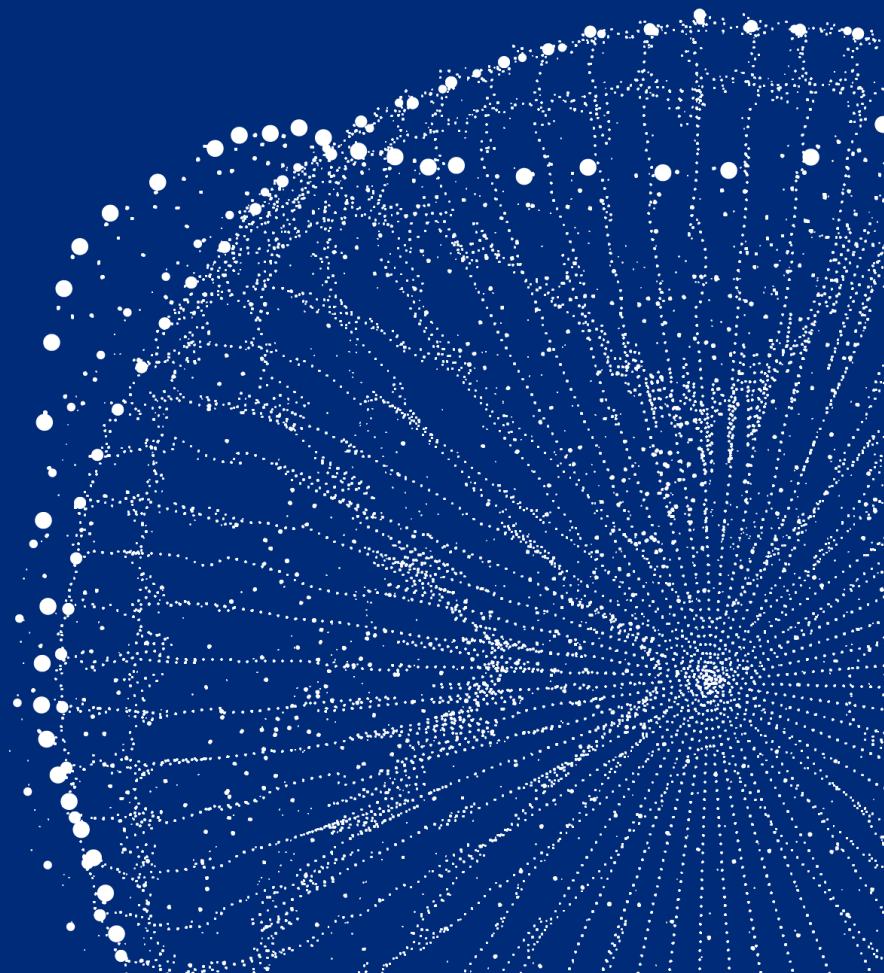
- A space for people in the NHS to come together around AI.
- **Get involved** by joining the **discussion forums**. Share your knowledge, experiences, ideas, questions and solutions with other like minded people in the AI community.
- This group supports the mission of 'getting it right' as we look to accelerate the deployment of safe, ethical and effective AI in health and care.
- In the coming months we will be theming some specific conversations:
 - Future rounds of the AI in health and care award
 - Exploring popular use cases for AI
 - Exploring platforms for AI in imaging

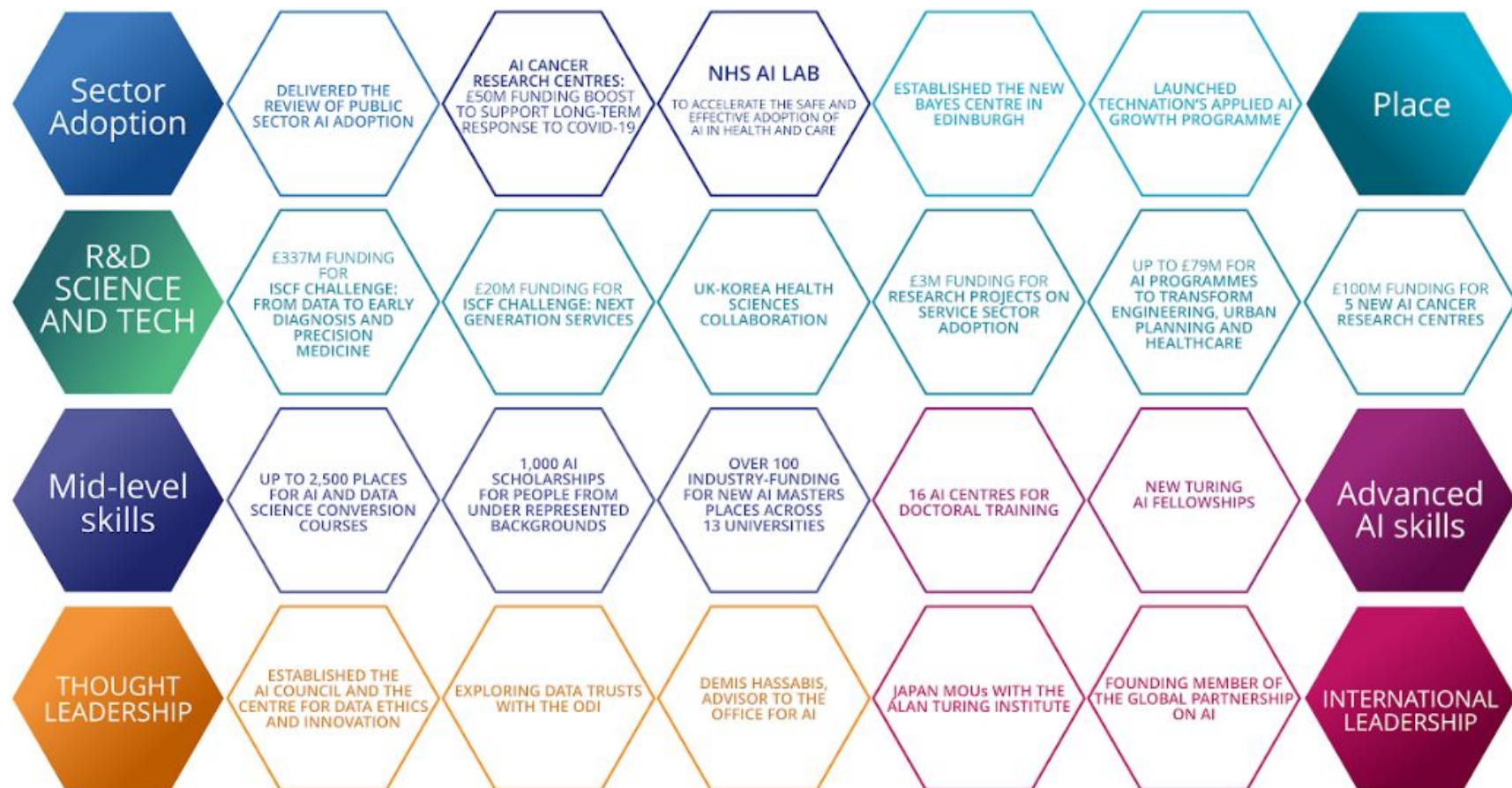
<https://www.nhsx.nhs.uk/ai-lab/ai-lab-virtual-hub/>





Wider context for AI and Data





A Data Strategy for Health and Social Care

- Empowering staff and system leaders to be confident to handle data through simplified information governance;
- Continuing to build public trust and be transparent in our use of data;
- Sharing data to join up care across the sector, while understanding the differing levels of maturity in different areas;
- Utilising data to plan and commission health and care services effectively;
- And adopting safe, effective and ethical data-driven technologies such as AI to improve health outcomes where appropriate.

Any questions?