AI readiness in the NHS: How can NHS organisations be more prepared for AI implementation?

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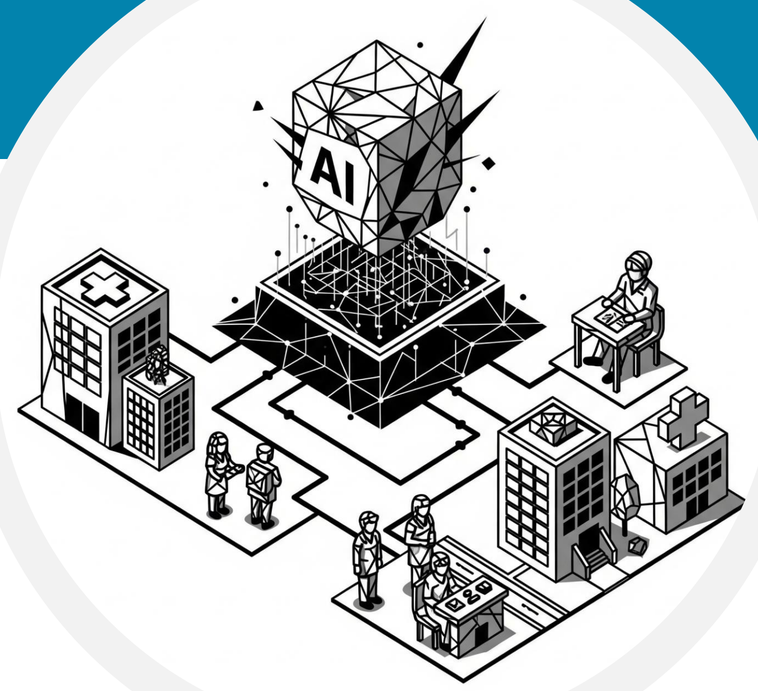

Background and Aims

There is often a lag averaging 17 years between a new technology being developed and being in wide-spread use within healthcare[1]. Artificial intelligence could be subject to this however, there is political will, and practical need within the NHS[2]. Despite many attempts to systematise implementation of AI, (shown in Table 1) barriers often remain at an organisational level (see Case Study in Box 1).

Project aims:

- To characterise what AI readiness looks like for NHS organisations
- To create a framework for understanding a provider organisation's level of readiness
- Develop a practical tool(s) to increase organisational AI readiness

The project is jointly funded by NHS England and The Health foundation.

What has been done?

- A project outline can be seen in Figure 1.
- "AI Readiness" in NHS was characterised through semi-structured interviews with AI implementation experts and a review of the published literature. A summary of the literature can be seen in Table 1.

Table 1: Summary of AI healthcare lifecycles, implementation guides, maturity models and frameworks

Lifecycles	Maturity Models	Frameworks	Implementation Guides
AI for healthcare: Creating an international approach together (NHS AI Lab)	Digital Maturity Assessment (DMA)	A framework for the oversight and local deployment of safe and high-quality prediction models	RCR - Clinical Radiology AI deployment fundamentals for medical imaging
Coalition for Health AI Lifecyle/ Implementing Best practices for Trustworthy Health AI (CHAI)	HIMMS Maturity Model	Implementation frameworks for end-to-end clinical AI: derivation of the SALIENT framework	Evaluation of AI Solutions in Health Care Organizations — The OPTICA Tool
FUTURE-AI: international consensus guideline for trustworthy and deployable artificial intelligence in healthcare	Advancing Healthcare AI Governance: A Comprehensive Maturity Model Based on Systematic Review	Radiology AI Deployment and Assessment Rubric (RADAR) to bring value-based AI into radiological practice	Integrating Human-Centred AI in Clinical Practice A guide for health and social care professionals (CIEHF)
			AI in healthcare: navigating the noise (NHS confederation)

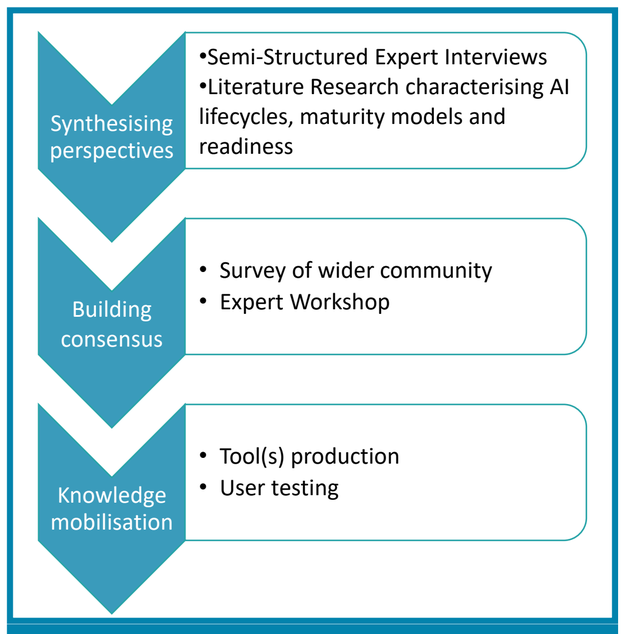

Figure 1 – AI Readiness Project Outline

- Reaching a practical definition of "AI readiness" was difficult to arrive at, due to the breadth and scope of topic. However, though this research process, we arrived at working definition of AI readiness was arrived at:

"The extent to which organisational risks associated with AI implementation and use are understood, mitigated and aligned with local context".

- Using this definition and information already collected we created a list of AI relevant risks and mitigations, aligned with organisational risk management practices along with including examples of potential impact (see QR Code 1).
- We then designed and distributed a survey via various AI healthcare networks for comment and review, allowing for capture of additional pertinent risks and practical steps that can be taken to improve readiness.

Box 1: Case Study – The importance of organisational readiness

Molecular Pathology PDL-1 Reading Automation – lack of system readiness

The molecular pathology department proposed to implement automated reading of their highest throughput stain. A feasibility assessment was undertaken, including a budget impact model. This showed that the cost of implementation would presently outweigh the savings. However, the bulk of the costs arising, were not the AI software, but from the digitisation of an analogue system.

The underlying organisational digital infrastructure was not ready for AI implementation highlighting the need for not only technological feasibility but also system readiness.

Discussion and next steps

Through this, and other associated projects, we have made progress towards improving the environment and tools available for NHS healthcare organisations for implementing AI responsibly and efficiently. Due to the heterogeneity and complexity of AI there will be no singular pathway to AI implementation, however by consolidating and disseminating approved structures and tools, this will increase and scale.

The next step is a workshop which has been planned with a view to:

- Exploring tension arising within the survey results
- Identifying any gaps between organisational risks and mitigations currently available
- Discuss tool(s) design to optimise utility to digital leaders

QR Code 1 – Risks and Mitigations Survey Content

QR Code 2 – References and Links

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The Health Foundation

NHS

Fellowship in Clinical AI

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