

Role of AI and digital in addressing NHS financial challenges



EY

Building a better
working world

Agenda

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- 2 Slido - Challenges
- 3 Digital and Data Opportunity Landscape
- 4 Case Study and Discussion
- 5 Slido - Barriers for Implementation
- 6 Close



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What are the key challenges and where do you think digital technologies such as AI might play a role?

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How well are you utilising
data to deliver on your
financial challenges?

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Digital and Data Opportunity Landscape



Platforms

Platforms capability provides systems implementation and integration capabilities to enable enterprise transformation leveraging third party applications, emerging and digital technologies.



Predictive Analytics

Leverage historical and real-time data to forecast demand or provide trends/insights



Automation

Automation capability catalyses digital transformation by creating efficient "digital workforces" through software technologies like RPA and BPM.



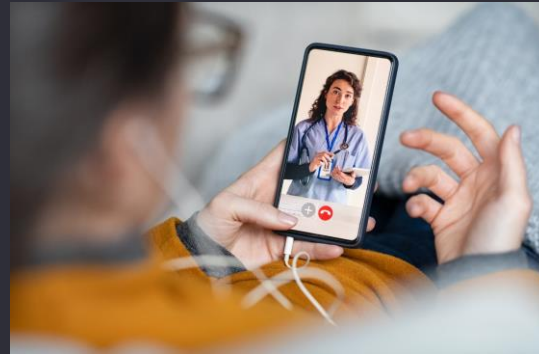
AI

AI-driven tools can support clinical decision-making and increase operational efficiency (e.g., AI-powered triage), and chatbot-based patient engagement



Virtual Agents

AI - powered chatbots and voice assistants to reduce administrative burden and increase engagement



Digital Engineering

Optimised digital infrastructure and IT systems for better scalability and efficiency



Digital Twins

Simulation of operations of workflows enabling scenario testing and optimisation



Cyber Security

Protection of data and build resilience against cyber threats

Introduction to AI

Long-term value



Customer (patient) value

Customer trust and Customer experience and innovation



People value

Employee satisfaction and accelerating high value activities



Societal value

Economic, social and environmental impact, ethics and reducing digital inequality



Commercial value

Cost reduction and margin, productivity improvements and revenue growth

Examples of successful implementation in NHS

- ▶ AI systems have been used to detect cancers in mammograms and identify abnormalities in chest X-rays, significantly reducing the time taken for diagnosis.
- ▶ NHS has partnered with AI firms to streamline drug discovery processes, using AI to analyse vast datasets and identify potential new treatments.
- ▶ Moorfields Eye Hospital, worked on a collaboration to develop an AI system that can analyse eye scans and diagnose conditions like diabetic retinopathy and age-related macular degeneration, often matching or exceeding human experts.

Risks

Corporate failures

- ▶ Airline held liable for its chatbot giving passenger bad advice
- ▶ US lawyers fined for submitting fake court citations from ChatGPT

Practical issues

- ▶ Sometimes adds content that did not exist - **Hallucinations**
- ▶ Systems can make mistakes when the content is particularly complex

What is and isn't AI?

What is AI?

The application of computational tools to build models from examples, data and experience rather than following preprogrammed rules

Programs that enable computers to understand text and spoken words in much the same way human beings can

Large language models (LLMs)

- ▶ AI assistants (Apple Siri)
- ▶ Search engine (Google)
- ▶ Google translate

Programs that allow machines to learn from data and make decisions and predictions on their own

Machine learning (ML)

ML techniques:

- ▶ Supervised learning (e.g., credit adjudication)
- ▶ Unsupervised learning (e.g., customer segmentation)
- ▶ Reinforcement learning (e.g., hedging)

Deep learning

- ▶ Product recommendation
- ▶ Suggested reads or podcasts

Programs that attempt to simulate behavior of the human brain by learning from large amounts of data

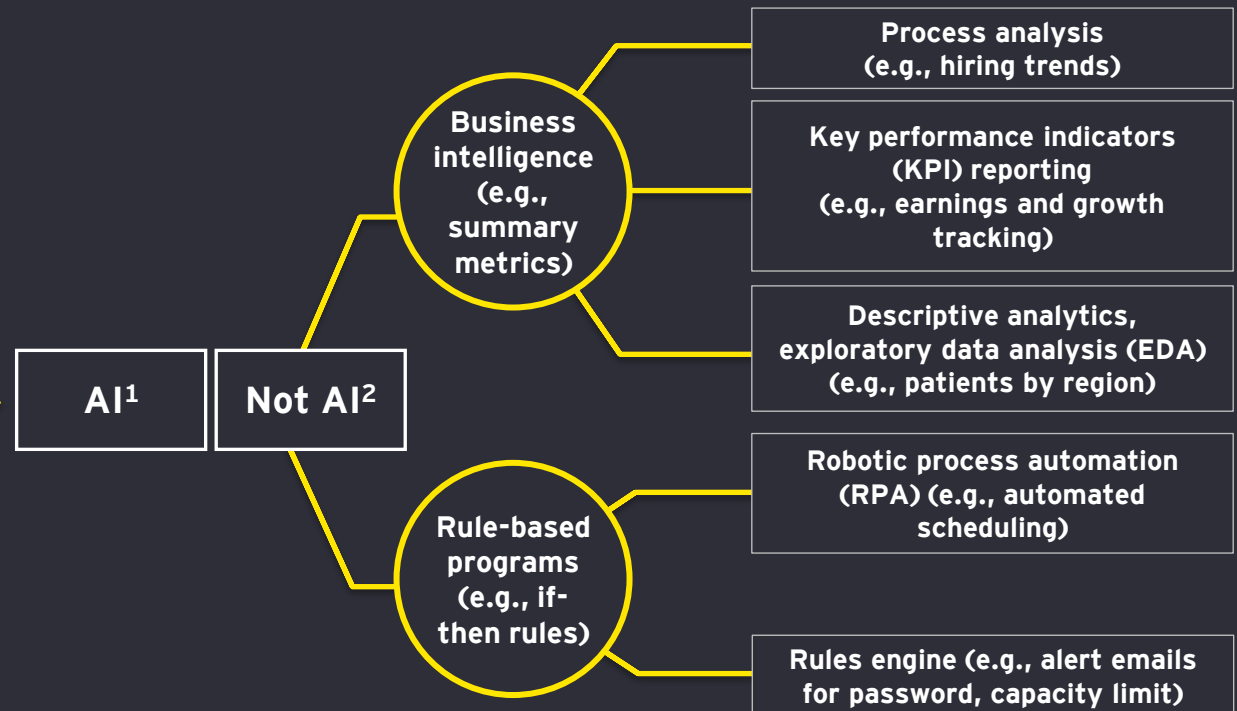
Computer vision

- ▶ Self-driving cars
- ▶ Face detection (phone cameras)

Programs that help computers process, analyze and interpret visual data (e.g., digital images or video)

What is not AI?

Computer software for which every action and outcome is defined or explicitly programmed by humans



¹ AI is a continuously evolving field and the list is meant to be illustrative.

² Examples are meant to be illustrative and not exhaustive.

Framework for Assessing Digital and Data opportunities

		Management and operations			Patient experience	Clinical care
Modalities		Finance and procurement	Reporting, analysis and planning	People (HR, recruitment, training, service)		
Text	Data	- Financial reporting / analysis / benchmarking / difference - Analysing procurement spend, benefits, supplier performance - Checking invoices - against plan, duplicates	- General data enhancement - Reporting (repetitive ad hoc) - Investigative analysis -, identifying root causes and solutions (e.g. waitlists, RTTs, Clock starts/stops, DNAs) - Planning - seasonal / yearly forecasting	- Data improvement - People reporting / analysis - Assessing performance against ambition / best practice (linked to the docs) - Job planning review	- Create personalised health education materials - Patient pathway tracking information (combined across all systems incl. EPR, Pathology, Theatres, Imaging, Referrals etc)	- Summarising patient records - Interpreting genomic data - Risk stratification such as for AKI, Colorectal pathways. - Prediction of patient pathways including predicting medically safe patient, patient outcomes, patient discharge destination etc.
	Docs	- Procurement - e.g. contract review, preparing and assessing tenders - Supply chain - e.g. preference cards	- Reviewing reports for insights and analysis - Creating automated reports from analysis for publishing.	- AI-led workflows from standard operating procedures - Assessing documents against requirements e.g. goals / objectives	- Creating patient friendly summaries of medical notes - Ambient technology led transcription and automated development of patient letters	- Differential diagnosis (BMJ) - Alternative treatment (BMJ) - Visualising treatment pathways: Create interactive diagrams to guide clinicians through complex treatment protocols - Follow up notes (primary care - BMJ)
Audio		- Chatbots for suppliers chasing e.g. payment - Transcribing meetings - Actions and workflows for tracking actions	- Transcribing meetings - Transferring / transcribing any audio used in data collection / analysis into a database	- Chatbots for employees - Transcribing meetings - Actions and workflows for tracking actions	- Call centre training, prompting, historical summary, post call summary / actions - Chatbot- waitlist follow up - Chatbot - primary care (BMJ) - Language transcription services	- Recording notes - Audio to text transcription
Image		Converting images / photos to text / data for use in analysis - see above in document	Converting images / photos to text / data for use in analysis	- Generating images for training materials - Converting photos / images to text / data	- Written or audio description of images - Image-based self-referral/diagnosis	- Diagnostics (Imaging) reporting - Uploading scanned notes and digitalising - Pathology results reporting - Dermatology photos reporting - Care monitoring (Trust, supported living, home)
Coding		- Generate code for use in analysis for example patient data and identify trends - Building code and apps for workflow automation			Predictive modelling to enhance personalised care	

Case study 1 - HR Services Transformation



EY helped a large NHS Trust deliver on their People First promise. The work has realised benefits through improved employee experience, increased self-service, automated HR & Payroll workflows, improved time to onboard and resolved data inconsistencies through ServiceNow enablement.

Challenges

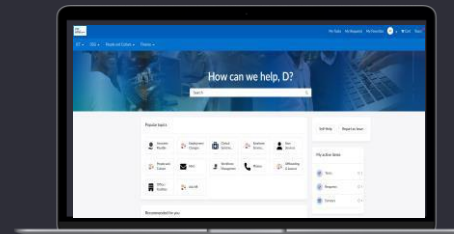
- Time wasted and sub-optimal experience for staff accessing HR services
- HR teams had poor visibility and reporting of user requests
- Parallel use of multiple disjoint legacy systems for HR data and requests led to frustration among employees, with simple queries taking excessive time to resolve
- Fragmented processes across HR, with an absence of workflow management, requiring multiple inefficient hands-off between teams
- Poor and lengthy employee onboarding experience, resulting in unfilled vacancies and high spend on agency

Solution

- End to end HR transformation, starting with vision, business case and roadmap definition through effective implementation & go-live, underpinned by change management to drive adoption and sustainable change
- Launched one-stop-shop employee portal for HR and IT, giving users access to policies, information and requests, underpinned by intuitive search and navigation
- Simplified and streamlined over 45 HR workflows and processes, now driven by automation and digitisation including e-signature
- Data integration with ESR and TRAC to drive further HR efficiencies and improve data accuracy

Value (as per 6-month benefits realisation report after Phase 1 go-live)

- **4.4 / 5** customer satisfaction score
- **16%** improvement in HR case resolution turnaround time
- **47%** improvement in staff productivity when interacting with HR
- **13%** improvement in manager productivity when interacting with HR
- **26%** increased in digitisation of HR processes
- **£305,000** savings in annualised overpayments



“EY is a trusted transformation partner; they understand the complexity of large NHS Trusts and they went above and beyond to deliver an effective Employee Service Centre solution for us”

Programme Delivery Lead, large NHS Trust

Sep '23

Initiation

Oct '23

Business case & roadmap

Dec '23

Design & implementation

Mar '24

Testing, training, cutover

Apr '24

Phase 1 go-live

Nov '24

Phase 2 go-live

Case study 2 - Transforming clinical and non-clinical admin through GenAI

Problem	Solution	Client Examples
13.5 hrs per week (third of working hrs) is spent on clinical documentation 25% increase in time spent on clinical admin than a decade ago despite improvement in digital means 57k per consultant doctor's time spent on generating clinical documentation and searching for missing information 85% of all NHS Healthcare professionals felt the burden of clinical documentation is a significant contributor to burnout 12 days average turnaround times for generating a clinical letter is approx. 1.8 the average time each letter is reviewed/refreshed before issued due to formatting; grammar/content errors lost in translation between clinician/admin teams.	Integration of GenAI technology for speech recognition can be successfully deployed to reduce clinical admin including: - Completion of clinic notes - Creation of clinical letters for patients and other healthcare providers - Raising internal tasks for onward referrals, diagnostics, tests etc - Tracking of patient's status and progression on pathways Benefits - Reduced clinician time on admin tasks - Improved turnaround of letters for patients therefore reducing waiting times - Reduced outsourcing costs - Reduced admin workload and staff	Through review of clinical tasks and integration of speech recognition tools, trust projected savings of £3-4m annually including savings from reduction of outsourcing cost Reduction of outsourced transcription cost by £20k per month Reduction of dental letters turnaround from 4 weeks to 5 days. 90% of letters sent within 24hrs Reduction of average turnaround time for letter from 12 days to 3 days.

Case study 3 – Supply Chain Text Matching

The Trust was looking to re-design and optimise their theatre stores to improve efficiency and enhance patient safety. EY is conducting an *initial proof of concept* in Trauma & Orthopaedics using **Artificial Intelligence** to digitise preference cards, understand the required level of stock and optimise the stock room layout

600+

Preference cards

28

Surgeons

200+

Procedures

14k

Items extracted

2k

Unique items after
cleansing

Approach



1. Data extraction

Extract and consolidate preference cards from a variety of PDF and Word documents



2. Data cleansing

Clean data to identify user errors such as variations of the same name



3. Mapping items and procedures

Map item names to the master item catalogue and map procedure names to national codes using AI and manual validation



4. Upload to inventory system

Upload the consolidated preference card extract to the inventory management system



5. Understand stock requirements

Estimate the stock requirements based on the preference cards, activity and historic stock trends. Use insights to re-design the stock room

Key outcomes

- ▶ Improved management of stock levels leading to reduction in costs and improved efficiency
- ▶ Ability to understand the stock levels required based on factors such as demand changes
- ▶ Reduction in manual effort required to maintain the preference cards
- ▶ Reduction in clinical harm due to missing stock and delays in theatre
- ▶ Effective use of Trust owned stock

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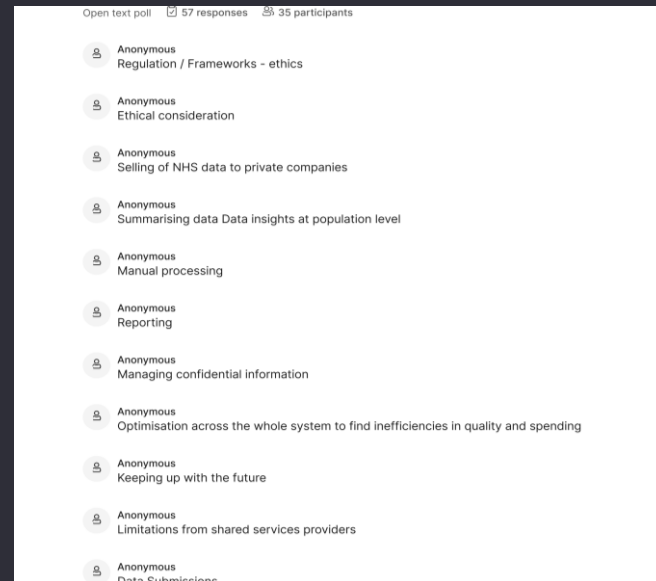


What are the barriers in your organisation to implementing these solutions? And how do you think we can overcome these?

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Slido Results

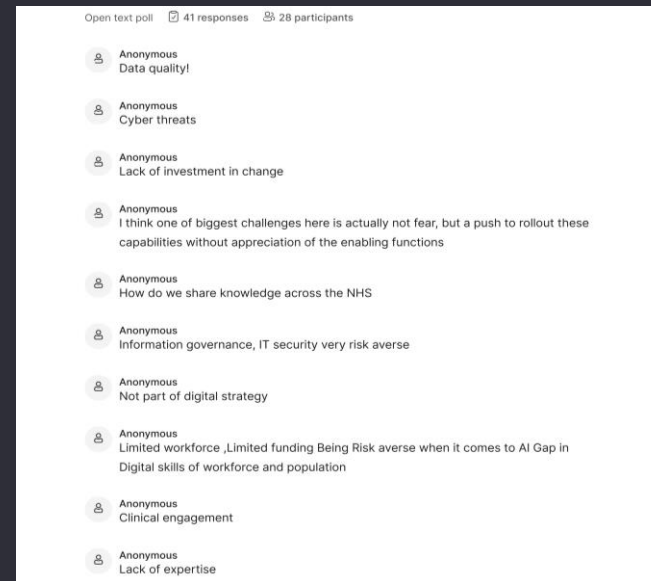
What are the key challenges and where do you think digital technologies such as AI might play a role?



Key Themes

- ▶ Concerns around data protection, information governance, and the ethical use of AI
- ▶ Emphasis on improving data quality, ensuring accurate reporting and lack of technical expertise
- ▶ Calls for better interoperability of systems
- ▶ Focus on using technology for proactive care, reducing repetitive tasks, and cutting operational costs

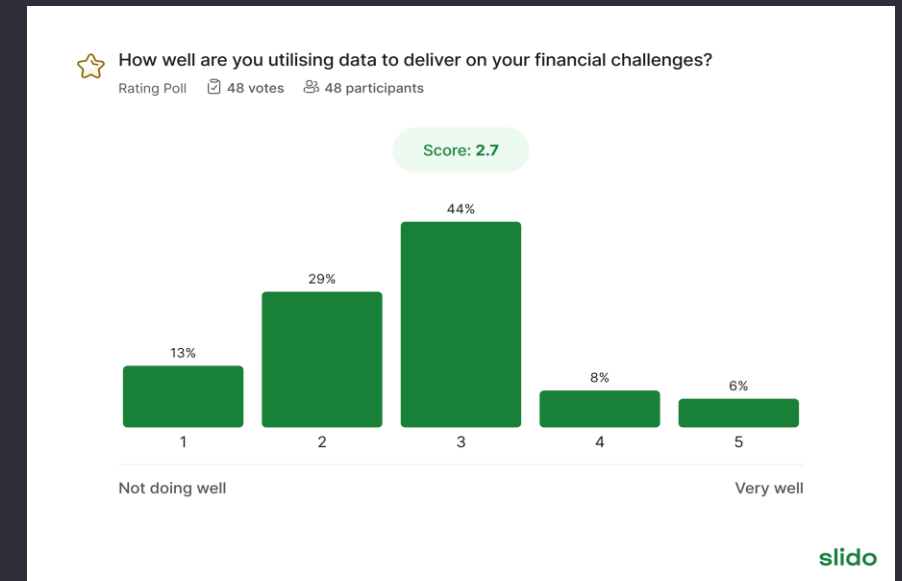
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Key Themes

- ▶ Concerns around data quality, security, and governance
- ▶ Limited funding, high cost and ability to demonstrate ROI
- ▶ Underestimation of long-term AI impacts while overestimating short-term benefits can lead to unrealistic expectations
- ▶ Challenges in balancing time, cost, and experience required for deployment

How well are you utilising data to deliver on your financial challenges?



Key Themes

- ▶ 44% gave a score of 3 which highlights that majority have managed to use data efficiently to manage financial challenges. However, there is still room for improvement
- ▶ Other half of respondents primarily sit at the lower end of the spectrum indicating they are not utilising data well to address financial challenges
- ▶ Minority of the respondents have managed to use data really well

Thank You

