



# Spending time where it counts

An Artificial Intelligence Strategy for Health & Social Care in the North of Scotland 2023-2027

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On behalf of the strategy writing group



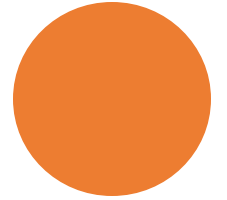
Aberdeenshire Health & Social Care Partnership



Dundee Health & Social Care Partnership

"Value-based healthcare is the equitable, sustainable and transparent use of available resources to achieve better outcomes and experiences for every person"

CEBM, University of Oxford. April 2019



We need to reserve humans for doing human tasks:  
software and machines should do everything else



At every stage in every planning process, at every opportunity  
for change, and at every level in every organisation people need to ask:

*"In what way could AI help with this?"*



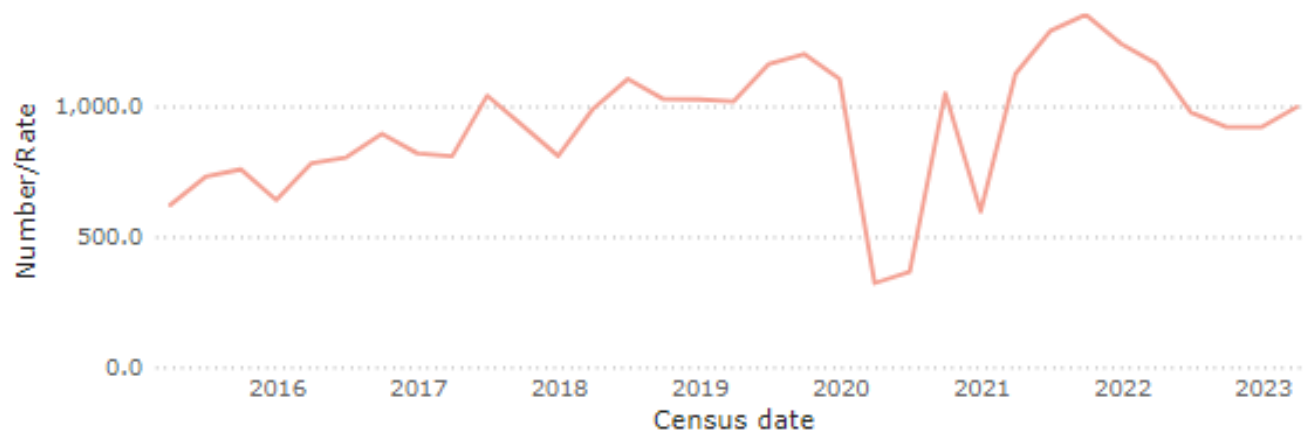
- Cultural change led from the top
- Staff awareness of the possibilities
- Automation research, design and delivery capacity
- Collaboration between organisations

# What is Artificial Intelligence?

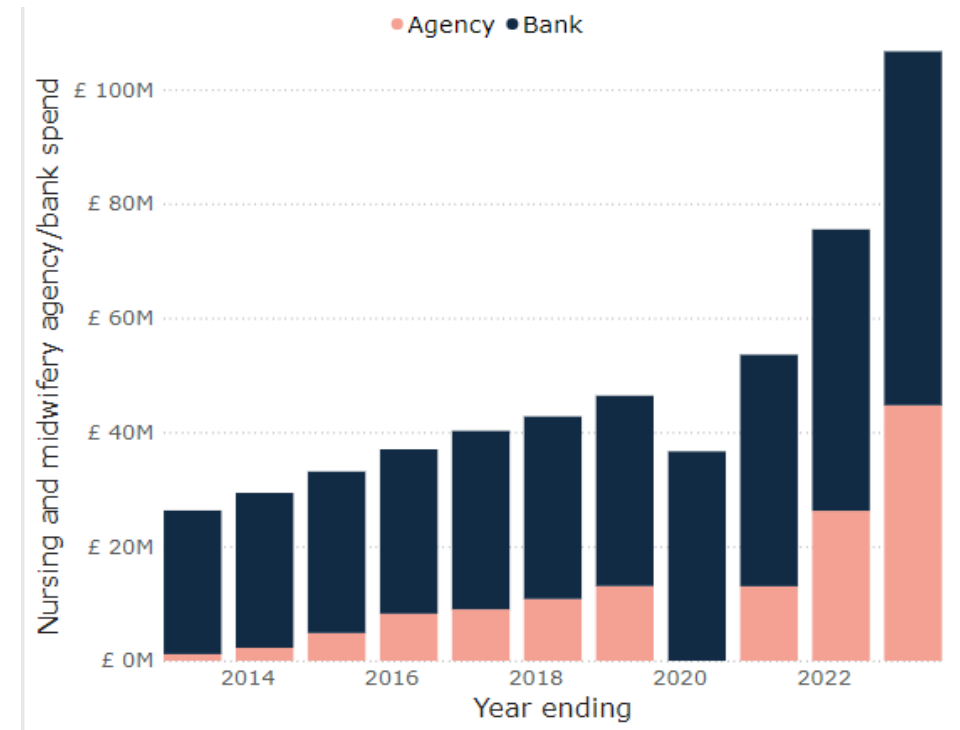
*Technologies which allow computers to perform tasks that would otherwise require human intelligence.*

- Robotics
- Software process automation
- Machine Learning
- Predictive Analytics

# Why does the north of Scotland need an AI strategy?



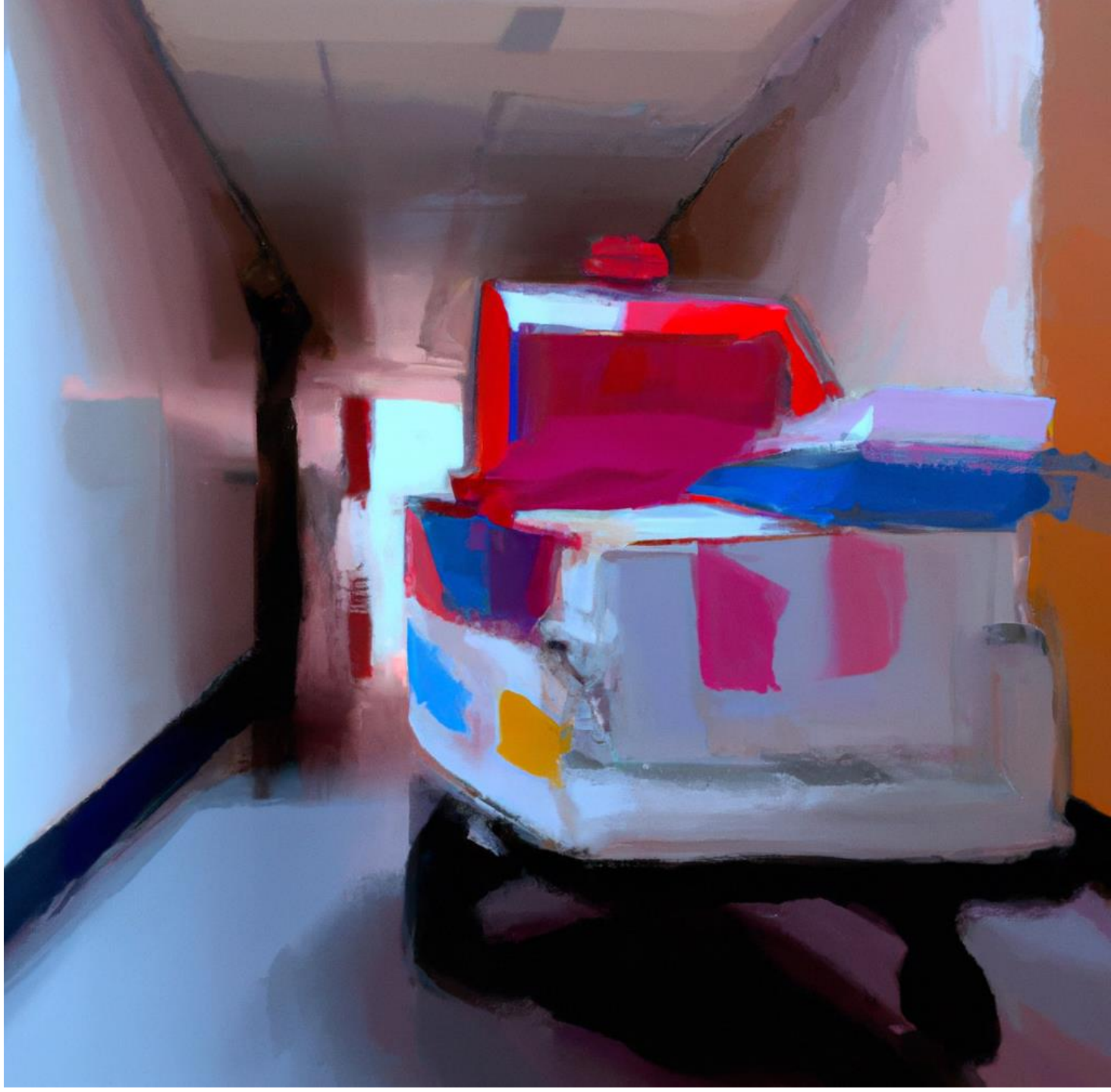
Nursing and Midwifery vacancies in the north of Scotland 2016-2023



Spend on agency and bank nursing and midwifery staff in the north of Scotland



# Robotics



# Robotics – where are the big opportunities?

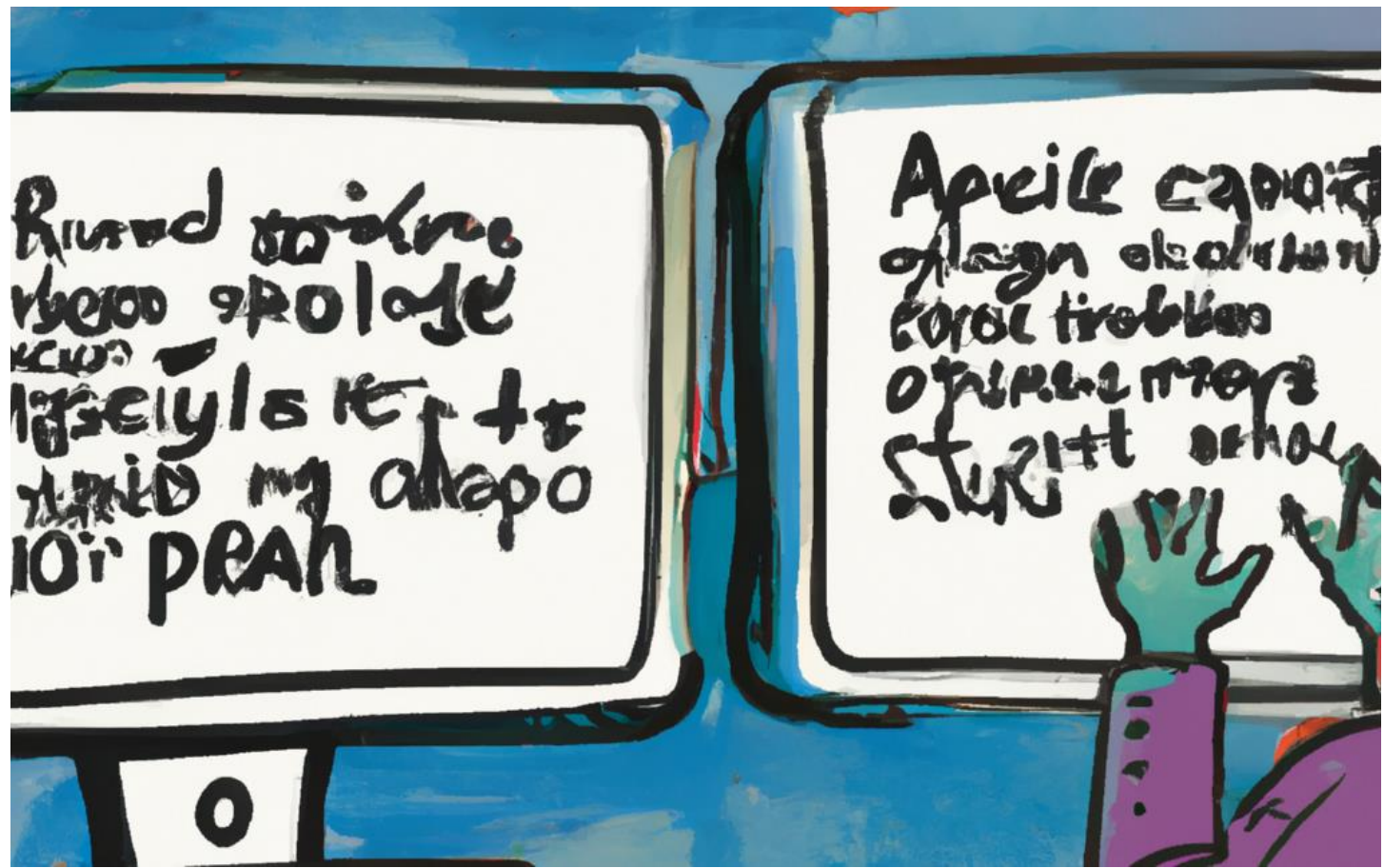
## Autonomous Delivery Vehicles

- Experience at QEUH Glasgow:
  - Do the work of 30 humans
  - Fewer injuries
  - Lower cost

**Should be used in every building  
where their use is appropriate**



1. Commission the national Robotarium to assess the potential to use Autonomous Delivery Vehicles in NoS hospitals and Care-Assistance robots in care homes and similar settings.
2. Work with Directors of Pharmacy to assess where further adoption of pharmacy robots in the community and hospitals could bring advantages.
3. Support the Innovation-led exploration of delivery Unmanned Aerial Vehicles – supporting more proofs of concept in the north of Scotland.
4. When it is deemed that robotics could bring advantages, contracts should be developed on a regional (or national) basis to gain an economy of scale and to facilitate support.



# Software process automation



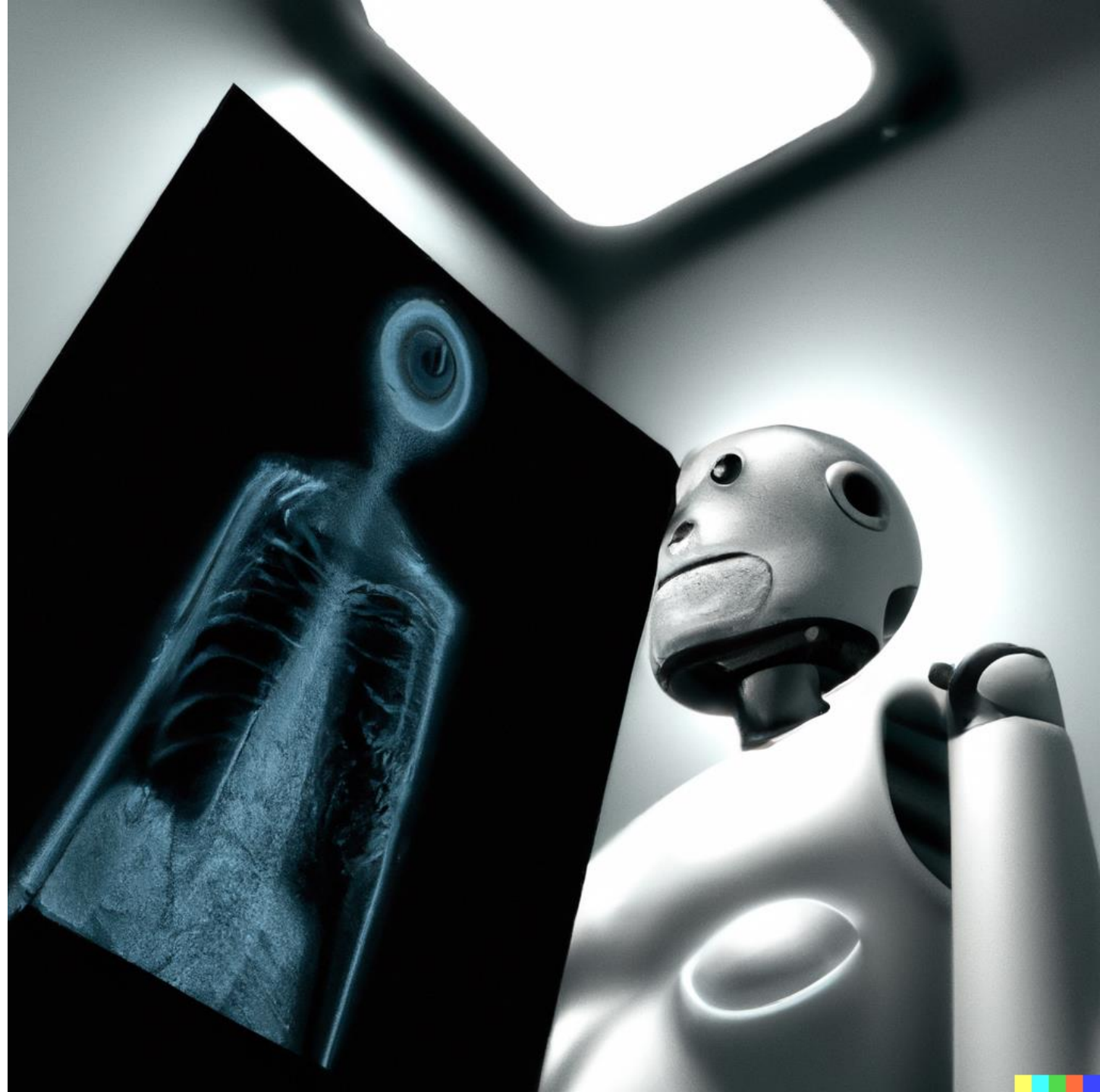
# Process automation – Where are the big opportunities?

## Systematically assessing whether a process could be automated:

- Producing reports
- Working between two un-integrated systems

1. Ensure safe and comprehensive adoption of Microsoft 365 Power Automate by:
  - Working with NES, NSS and others to ensure widespread knowledge and adoption of cloud Power Automate.
  - Develop regional skills and capacity in M365-based automation, including the use of Power Virtual Agents and premium versions of Power Automate.
2. Establish regional expertise in the development of more advanced rules-based automation – beyond what Power Automate is capable of. This should include collaboration on contracts and licences to gain best value.
3. Establish a regional advisory function to help health boards and HSCPs identify opportunities for automation.
4. Departments should systematically review their processes and consider whether automation could bring value.
5. Rapidly establish proofs of concept in areas that bring value to the North of Scotland.

# Machine Learning



# Machine Learning – Where are the big opportunities?

## **Radiology diagnostics**

Learning from trials and adopting across the region.

## **Large Language models/Generative AI**

Producing care summaries for clinicians and patients: need to support trials.

1. Increase collaboration with the Data Lab, Universities and other relevant partners such as the SG & COSLA Data Delivery Board.
  - Promoting work done in the NoS so it can be adopted more broadly.
  - Being Fast Followers of Machine Learning techniques developed elsewhere; accelerating benefits for the citizens and staff of northern Scotland.
2. Do an options appraisal to determine the optimal Machine Learning (ML) infrastructure for the region, balancing performance and cost.
3. Create an ecosystem that supports adoption of ML from proof of concept to procurement; led by the Innovation Hubs and with industry engagement where appropriate.
4. Accelerate implementation into standard care when a ML concept has been validated.
5. Develop an approach to the monitoring of algorithms, to support the regulatory requirements, that is efficient and straightforward.
6. Conduct proof of concept studies in the area of Generative AI, including Large Language Models, to see what benefits they could bring to health and social care.

# Predictive analytics



# Predictive Analytics – Where are the big opportunities?

## Whole system future flow

- Confidence in future bed state predictions.
- Predicting (and preventing) readmissions.
- Planning resource allocation.

1. Develop the skills of the Health Intelligence workforce in the region to better exploit modern predictive analytics tools.
  - Enhance collaboration between teams in the region to gain benefits from this skillset.
  - Develop relationships between NHS Analysts (Territorial and National) and Academia to assist with the adoption of specialist modelling skills.
2. Increase awareness of and provide secure access to health and social care data that's currently available in the region to support the development . Consider the creation of a regional data loch.
3. Determine what the key data gaps are and consider how they could be routinely collected.
4. Progress proof of concept work on predictive analytics to support logistics and whole system flow. For example predicting DNAs and length of stay.
5. Improve the visibility of the output of predictive models; making outputs available at the point of care to all staff and patients/service users who need to see them.

# Ethics and Law

- Autonomy
  - Justice
  - Beneficence
  - Non-Maleficence
- 
- Established concepts in health and social care.
  - Ethics committees in all health boards
  - Medical Device Regulation – Clinical Safety
  - Information Commissioners Office AI Toolkit



# Conclusion and challenges

- Value-Based Healthcare requires Spending Time Where it Counts

## Main challenges

- For all new technologies there is a “**change hump**” to get over; To get over that hump requires strong leadership, and investment.
- The economy of **scale** in AI favours larger organisations whereas the north of Scotland includes many small organisations.
- **Public and Staff understanding** of AI is variable. The more people understand about AI technologies, the more they are likely to accept it as part of their care.\*

\* de Vries CF, Morrissey BE, Duggan D, Staff RT, Lip G. Screening participants' attitudes to the introduction of artificial intelligence in breast screening. Journal of Medical Screening. 2021;28(3):221-222. doi:10.1177/09691413211001405

# Consultation open until 15th December



AI Strategy and feedback link available at the NoS  
Innovation Hub

[NHS Scotland North](#)