

EMRAD INNOVATION NEWSLETTER



The data-innovation connection

Vol .5, provides a recap of EMRAD's Innovation and AI Forum held on
the 14th of June, 2024

EMRAD Innovation Newsletter

Bi-Monthly Newsletter



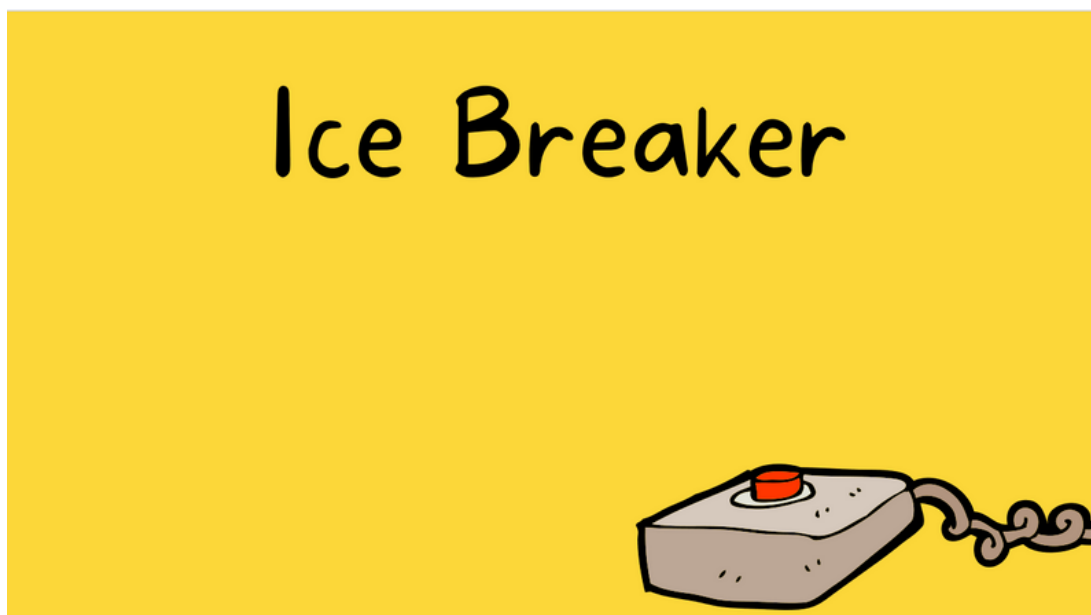
The Data-Innovation connection

By Chiamaka P. Ojiako

We are halfway through 2024 with a plethora of events - how many Innovation, Artificial Intelligence (AI), and health data events have you attended so far? This edition spills the tea on EMRAD's last Innovation and AI Forum, so feel free to add it to your 'events attended' list. A number of events set the tone of EMRAD's last Innovation and AI Forum; the NHS AI Lab's funding cut, coupled with talks about unlocking the value of data, and the trepidation about the future of NHS that comes with every election.

The conversation kicked off with reflections on themes from recent events, which included the UK Imaging and Oncology (UKIO), NHS Confederation, and the Health Data Research UK (HDR UK) Midlands event. Interestingly, the recurring themes on the struggles with implementing innovation in the NHS were resource constraints, especially digital and IT-related, medico-legal issues and the challenge of developing long-term business cases for emerging technologies.

Make an attempt to answer the ice breaker questions in 30 seconds. *(Please click the ice breaker image for the link)*



Did you get any right? Following attempts by the attendees to answer the questions, Iain Macleod explained the connection between the questions and crucial innovation and data topics.

- EMRAD has over 2 petabytes of imaging data - the challenge with generating and keeping large quantities of data is figuring out how to use it in a manner that benefits patients and the public. He referred to the recent Google and Harvard study that generated almost the same amount of data from scanning 1 cubic millimetre of brain tissue.
- The closest living relative to a sloth is an anteater - the key message is that the sloth's slowness could be misjudged as laziness when it is partly a defence mechanism adapted to their environment for survival from predators.
- Recently in the news, a citizen of Cheyenne in Wyoming decided to run for mayor under a chatbot-based AI named Virtual Integrated Citizen (VIC) and his policy is to allow ChatGPT to make all the decisions.

Iain concluded the icebreaker session with big questions the NHS is currently struggling to answer in the face of differing public perceptions of innovation, AI inclusive.

- | | |
|--|--|
| <ul style="list-style-type: none">• Is it making the right decisions?• Have we fed it the right data?• Have we told it about the right outcomes? | <ul style="list-style-type: none">• Are we scrutinising it properly to make sure it's doing what we thought it would do?• How do we embrace novel ways of working?• And how do we do that in perpetuity in our self-perpetuating system? |
|--|--|

While the audience pondered on these thought-provoking questions, we moved on to the demo session. During the demo session, imaging innovations were showcased, and participants had the chance to engage with the innovators, ask questions, and give feedback on already implemented innovations in the breakout rooms.

DEMOS

1. *Aival* presented by Khanwal Bhatia - Aival is a software for independent evaluation, monitoring and post deployment surveillance of healthcare AI products that gives clinical users the tools to assess its performance (including biases if any) and safety across different scanners and patient demographics.
2. *Contextflow* presented by Mia Ilıc - Contextflow is an AI based software for detecting and managing lung cancer, Interstitial lung disease (ILD) and other lung diseases such as Chronic obstructive pulmonary disease (COPD).
3. Tremaine Richard Noel, Northampton General Hospital (NGH) Automation Accelerator set the scene for the discussion on the data-innovation connection with his presentation on the Automation Accelerator team and how they can support imaging's digital transformation journey. He highlighted automation that handles repetitive tasks, process analysis on available data to understand variants in processes, bottlenecks, and improvement areas, and finally generative AI, especially for non-clinical activities like writing documents.

INNOVATION DATA CONNECTION

In this session, we had a fireside conversation on harnessing data for innovation. Sarah Bolton, Centre for Healthcare Equipment & Technology Adoption (CHEATA), opened the discussion with CHEATA's offerings, which include contract-based support to clinical, academic, and commercial med-tech developers to gather evidence that can be used to support NHS adoption. They also offer value proposition and health economics support to medtech developers. She mentioned that one of the gaps identified in the course of working with industry and academia is large curated anonymised datasets to verify and validate innovations in relevant patient populations.

Matt Dunn, Nottingham University Hospitals, presented on how harnessing data represents working smarter and doing things differently amidst workforce shortage and other system pressures. He spoke about the different themes that we currently use data for, including case finding, resource management, performance improvement, technology/innovation validation, and teaching and training. He clarified that having a large amount of data alone is not sufficient to maximize the potential of clinical data, thus emphasizing the importance of improving data quality.

Incomplete data and inconsistencies in coding standards, variability in modality labelling, and incorrect labelling of exam protocols reduce the usability of available data with adverse impact on innovation validation and deployment.

The session ended with the speakers' thoughts on the next steps for imaging networks to tap into the vast opportunities that imaging data presents for innovation.

- For software and AI developers to move forward, access to diverse datasets is key.
- There needs to be clarity on the areas that need improvement and would benefit from innovation; a collective strategy on what exactly Trusts want to achieve and why. What innovations or Medtech solutions do Trusts want to use and why? Without a shared vision, clarity of purpose and a clear roadmap, Trusts buy-in for data quality exercises and innovation deployment will continue to prove challenging.
- Have a plan for standardising, improving, and maintaining high quality data over time, map out use cases and priorities for data use.
- Data curation for algorithmic evaluations should be based on areas with the highest impact. A key question is if we had this algorithm retrospectively, would these events have happened? Would this algorithm have made a difference in the lives of a patient or patients if it was used years ago?

Afterwards, the audience discussed barriers and recommendations for a more collaborative approach to deploying innovation using data insights.

- Testing, validating and deploying technology take time and effort and are done in addition to a day-to-day job. Funders need to manage expectations, understand the associated governance, resource levels of Trusts, and processes involved in testing and validating to ensure that it is done right.
- Seed funding and short-term approach to funding for innovation is not sustainable for building the needed teams and skill sets. NHS needs to inject stable funding for building strong teams and resources that can support, evaluate, and implement new technologies effectively and timeously. The expectation that the existing workforce will fit in is not viable—there needs to be a different team and approach to enabling sustainable adoption of new technologies and innovations.
- The sustainability of setting up and maintaining mechanisms, teams, and resources (including infrastructure for maintaining data security) for enabling data access for innovation is in question—what is the demand and frequency of requests required to sustain operation? Who will provide sustainable funding for continued operation?
- Deploying innovations and new technologies just because it is trendy, without due consideration of its fitness for purpose and value to the system, clogs the pipeline for solutions that are needed. There is a need to change our approach by defining what good looks like, what we would like to achieve, and encouraging co-creation opportunities to develop new technologies or improve existing ones.

Collaboration and shared vision are crucial for adopting innovations and emerging technologies sustainably. We need to take the first step, regardless of the complexity or length of the innovation adoption race. This would entail improving our data quality to where we can glean insights to identify the gaps, priorities, and opportunities for innovation. The East Midlands Imaging Network (EMRAD) aims to promote a more collaborative approach to innovation adoption and explore the data-innovation connection. EMRAD and Health Innovation East Midlands work closely together to make this possible.

If you would like to introduce an innovation that will be valuable to radiology, please fill in this [engagement form](#). Contact NUHNT.info.emrad@nhs.net for continued engagements on your imaging innovation, developing challenge statements, requests for innovation scans and discussing opportunities within your Trusts for developing or improving innovations.