



Mid Yorkshire Teaching
NHS Trust



Finding Productivity & Efficiency – NHS in 2030?



*Nicholas Spencer
Consultant Radiologist
&
CCIO AGFA HealthCare
N Europe*

Working together
making a difference

Insights from a career in
radiology and industry –

Transformation and Inter-operability?

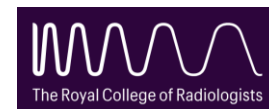
That's life in **flow.**

NS Roles



- NHS consultant radiologist since 1997; Previously CD Radiology, AMD Cancer Services 2010-17, and 2020-23, Clinical Lead YIC 2015-2017
- RCR Faculty Board 2013-2016
- Governance Lead Lodestone Patient Care 2004-2009;
- Clinical Director, Alliance Medical 2009-2011
- Medical Director Medical imaging Partnership 2013-2017
- UKIO Organising Committee and latterly President 2016-2022
- Chief Clinical Information Officer, N Europe AGFA HealthCare, 2022 -
- Appointed Trustee at the College of Radiographers, 2022-2027
- Now 3 days per week for AGFA HealthCare

&12 hrs pw @ MYTT



CCIO at AGFA HealthCare



Clinical credibility, expertise and leadership



Support many parts of business across Northern Europe region



HQ and Global



A global and diverse team



That's a combined
87,307
years of experience



350+
colleagues joined in 2023

#teamagfa



Region	Count
North America	801
Europe	3,305
International	764
<i>of which Benelux</i>	<i>2,241</i>

74 nationalities all part of one global team

CCIO at AGFA HealthCare?



- Industry partners – “CO-OPETITION”
- www.axrem.org.uk



Department for
Business & Trade



Radiotherapy
UK



The Royal College of Radiologists



Department of
Health &
Social Care



national association of
medical device educators & trainers



THE SOCIETY OF
RADIOGRAPHERS



National Institute for
Health and Care Excellence



Royal College
of Nursing



THE ASSOCIATION
OF ASSOCIATIONS



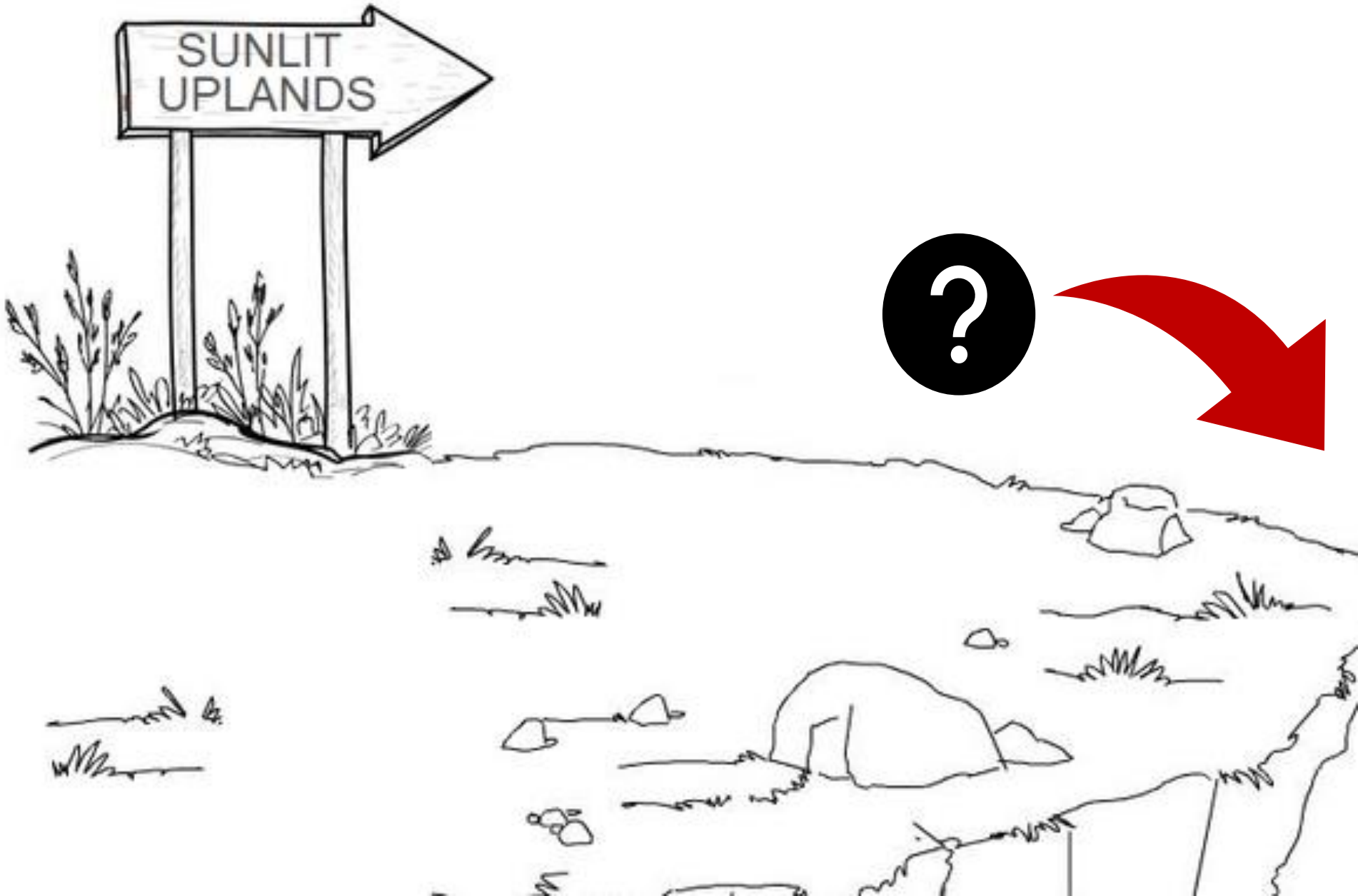
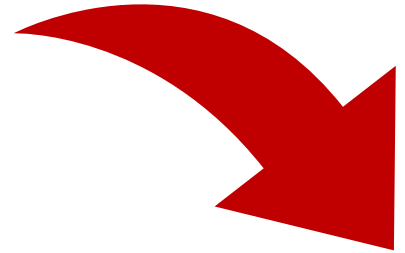
British Society
of Echocardiography

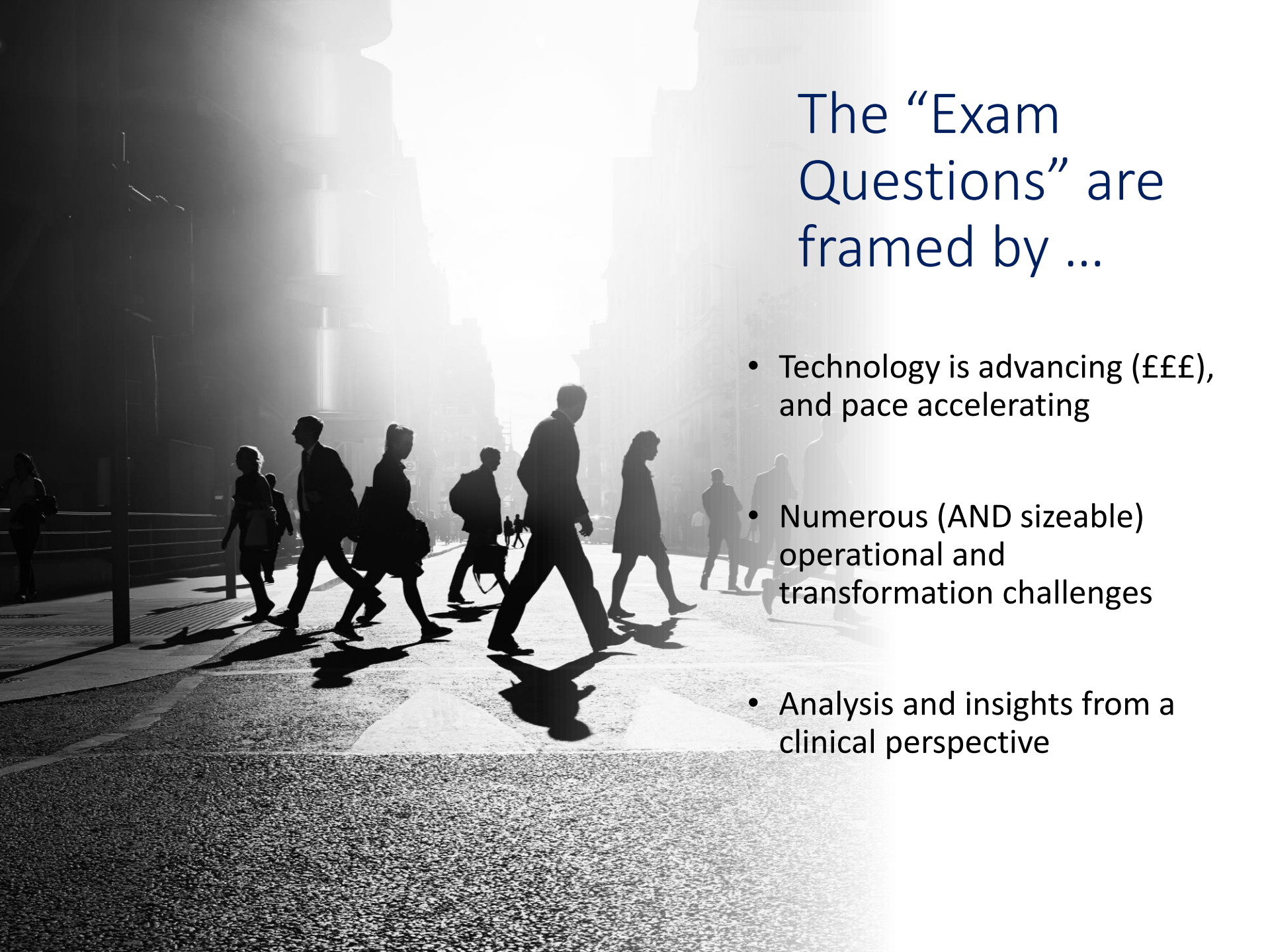


External Engagement



SUNLIT
UPLANDS





The “Exam Questions” are framed by ...

- Technology is advancing (£££), and pace accelerating
- Numerous (AND sizeable) operational and transformation challenges
- Analysis and insights from a clinical perspective

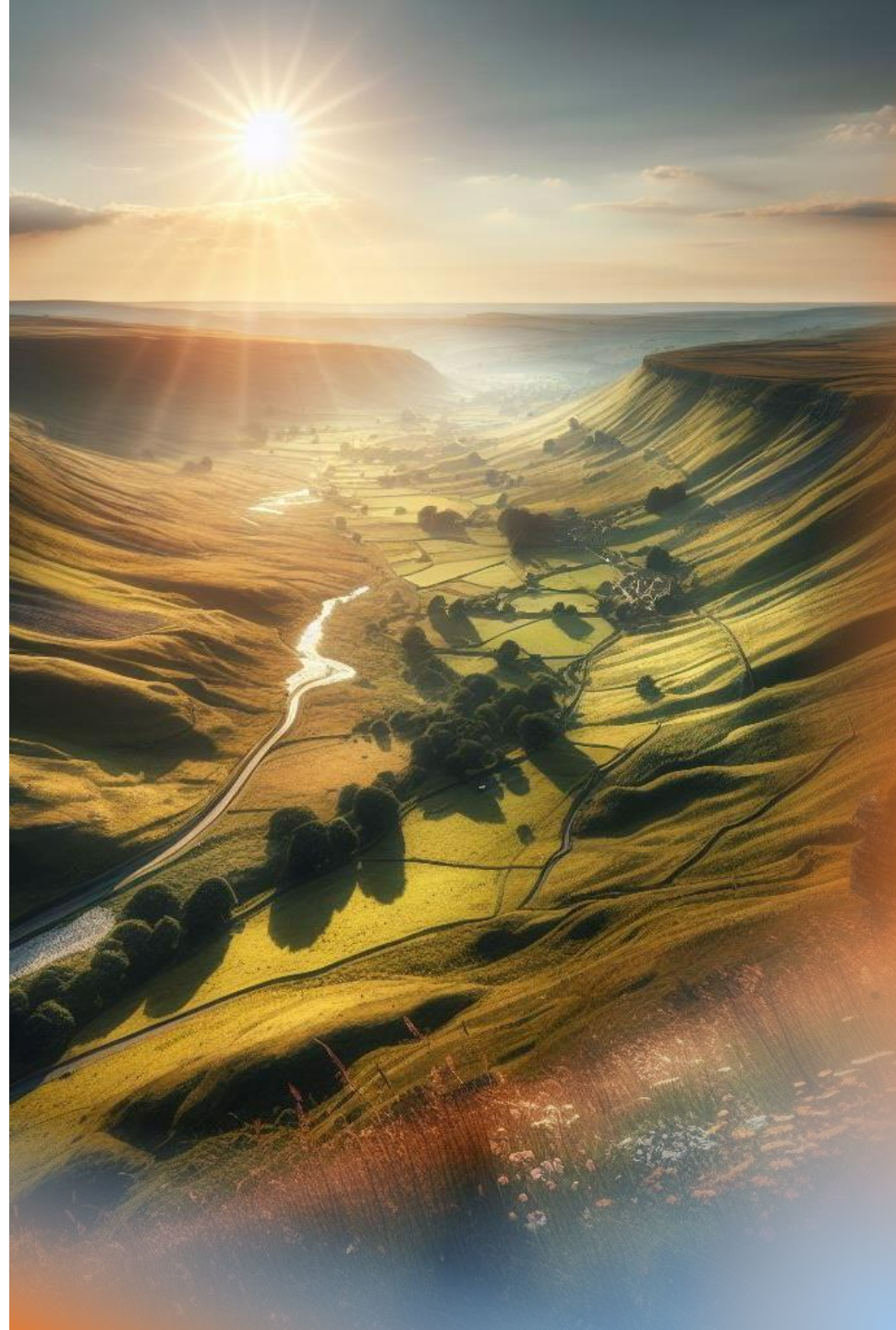
The Exam Questions

- How can we ensure VFM?
- Where are the easy and impactful wins?
- Can we keep relying on and building clinical leadership?



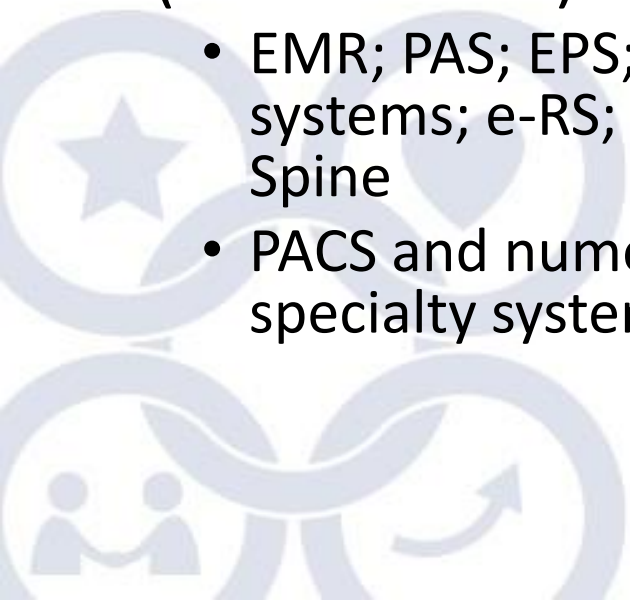
How?

- Learn FROM the experiences of the past
- Learn IN the environment of the present
- Learn FOR the needs and ambitions of the future



Learning FROM the past

- Clinical Leadership
- Executive experience & engagement
- Development of, and investment in systems (and facilities)
 - EMR; PAS; EPS; GP systems; e-RS; NHS App; Spine
 - PACS and numerous specialty systems
- Patient expectations and needs
- Gaps in part of workforce
- Burnout
- Silo'ed working
- System re-organisation



Clinical Leadership

- **Health and social care review: leadership for a collaborative and inclusive future(1)**

- (2022) Messenger and Pollard

- **National leadership Initiatives**

- National Leadership Council
- Medical Leadership Competency Framework

- **Profile and Support (2)**

- **Challenges and Future Needs**

1. <https://www.gov.uk/government/publications/health-and-social-care-review-leadership-for-a-collaborative-and-inclusive-future/leadership-for-a-collaborative-and-inclusive-future> (2022)
2. [Strengthening clinical leadership and management - The Health Foundation](#) (2024)

Learn IN the environment of the present

- Integrated Care Systems
- Understanding and Improving patient flow
- Co-operation and collaboration
- Agenda for Innovation and Technology Adoption
- Leveraging Digital Solutions and Inter-operability
- Patient expectations and needs
- Changes in workforce profiles and norms
- Burnout and Talent Loss
- Seeing the big picture at operational level



Learn IN the environment of the present

- Integrated Care Systems
- Understanding and Improving patient flow
- Co-operation and collaboration
- Agenda for Innovation and Technology Adoption
- Leveraging Digital Solutions and Inter-operability



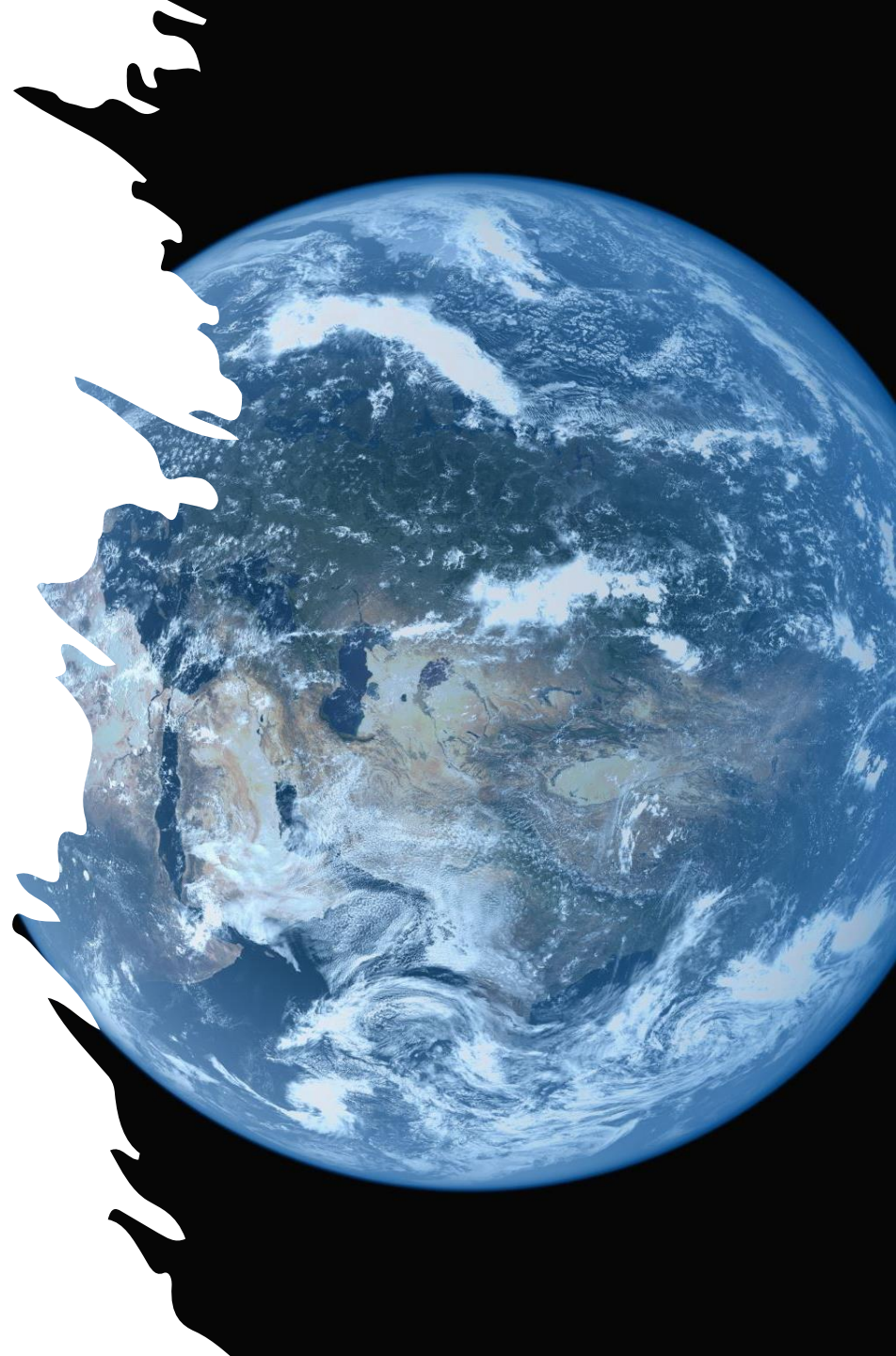
Learn FOR the needs and ambitions of the future

- A connected digital world?
 - Enhance Workforce Welfare and Morale
 - Optimise Management Practices
 - Workforce Planning
 - Reduce Variation in Care
 - Optimise Resource Utilisation
 - Focus on Prevention
- Aging Population
 - Adapting to the changes resultant on the multi-professional workforce
 - AI adoption at scale
 - Cybersecurity and Data Ownership
 - Digital Inequalities



Learn FOR the needs and ambitions of the future

- A connected digital world?
- Enhance Workforce Welfare and Morale
- Optimise Management Practices
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- Reduce Variation in Care
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- Focus on Prevention



A connected digital world?

- 1. Integrated Digital Health Records:** Every patient will have a comprehensive electronic health record accessible across all healthcare settings, ensuring seamless and coordinated care⁽¹⁾
- 2. Telehealth and Remote Monitoring:** Telemedicine will be a standard practice, allowing patients to consult with healthcare providers from home. Wearable devices and remote monitoring tools will enabling proactive management of chronic conditions⁽²⁾
- 3. Artificial Intelligence and Machine Learning:** AI will play a crucial role in diagnostics, treatment planning, and personalized medicine. ⁽¹⁾
- 4. Interoperability and Data Sharing:** Systems across the NHS and social care will be fully interoperable, enhancing patient outcomes and operational efficiency⁽²⁾
- 5. Patient Empowerment:** Patients will have greater control over their health data and care decisions through user-friendly digital platforms. These platforms will provide personalized health information, appointment scheduling, and medication management⁽³⁾

1. [Shaping the future of digital technology in health and social care, Kings Fund; Apr 2021](#)

2. [Digital transformation in the NHS; UK Parliament, June 2023](#)

3. [A plan for digital health and social care; DHSC, UK Gov, June 2022](#)

A connected digital world?

- 6. Cybersecurity:** Robust cybersecurity measures will protect sensitive health data, ensuring patient privacy and data integrity⁽²⁾
- 7. Digital Inclusion:** Efforts will be made to bridge the digital divide, ensuring that all population groups, including the elderly and those in remote areas, have access to digital health services⁽¹⁾
- 8. Smart Hospitals:** Hospitals will be equipped with advanced technologies such as IoT devices, robotics, and automated systems to streamline operations, reduce errors, and enhance patient care⁽³⁾
- 9. Predictive Analytics:** Health systems will use predictive analytics to identify at-risk populations and intervene early, reducing hospital admissions and improving public health⁽²⁾
- 10. Sustainable Healthcare:** Digital technologies will contribute to more sustainable healthcare practices by reducing the need for physical infrastructure and travel, thus lowering the carbon footprint of the health sector⁽³⁾

1. [Shaping the future of digital technology in health and social care, Kings Fund; Apr 2021](#)
2. [Digital transformation in the NHS; UK Parliament, June 2023](#)
3. [A plan for digital health and social care; DHSC, UK Gov, June 2022](#)

Differences - NHS and



- GLOBALLY Striving to be the best Enterprise Imaging Solution
- Development needs to meet the needs of the market
 - Product
 - Technology
 - Strategy and Marketing
 - QARA
- By GEOGRAPHY
 - Sales, Project Delivery, Training and Support, Services including Cyber-security
- Integration and Inter-operability, AI
- Business – grow revenue, increase margin, and reduce cost, fundamentally to ensure continued CUSTOMER ADVOCACY leading to business success through investment in R&D

Differences - **NHS** and Agfa HealthCare

- NHS striving to be the best universal and cost-effective healthcare model
- Development to meet the needs of the citizen
 - Develop Health and Social Care Product across ICS geo's
 - Adopt technology to drive efficiency
 - Strategy and Marketing (government function to assure social good)
 - Regulated by CQC, Standards through NICE and other bodies
- By GEOGRAPHY
 - Regional collaboration for both health and social care plus other services
- Business – work within budgets, focus on collaboration and learning from the best, but ALSO reduce cost, improve efficiency and deliver better patient outcomes and experience

The Exam Questions?

- How can we ensure VFM?
 - In short, energise, maximise engagement and empower our clinical teams PLUS partnership with industry
- Where are the (easy and) impactful wins?
 - EMR/EPR is huge but can drive major change
- Can we keep relying on and building clinical leadership?
 - Simply put, we MUST!





Real World Examples

- Digitally Mature in Amsterdam
- AI in Radiology
 - Improving patient outcomes
 - Reducing the load
 - Improving Quality
- Workflow Orchestration making radiologist and reporting radiographer lives simpler

Looking into nearby system, an IHR?



#1
Enterprise
Imaging
XERO Viewer

- Enterprise Imaging Solution with Xero Universal viewer for 30 departments (-ologies)
- Users by authorised role have access to all medical images
- Deep integration with EPIC EMR



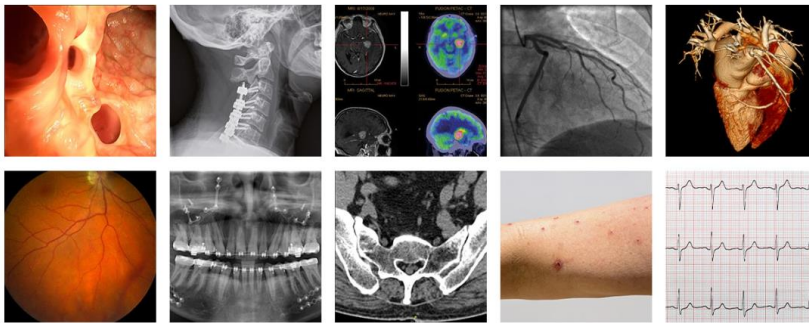
Amsterdam UMC & CWZ customer cases

A centralized, truly enterprise-wide image management strategy on the firm foundation of Enterprise Imaging

A shared image management strategy

Two academic hospitals in Amsterdam – VUmc and AMC – are collaborating with the intention to create an alliance that will result in combined facilities totaling 1,700 beds and 13,000 staff (FTE).

A common strategy for image management, implemented in collaboration with AGFA HealthCare and based on the [Enterprise Imaging platform](#), is a key factor of this merger.



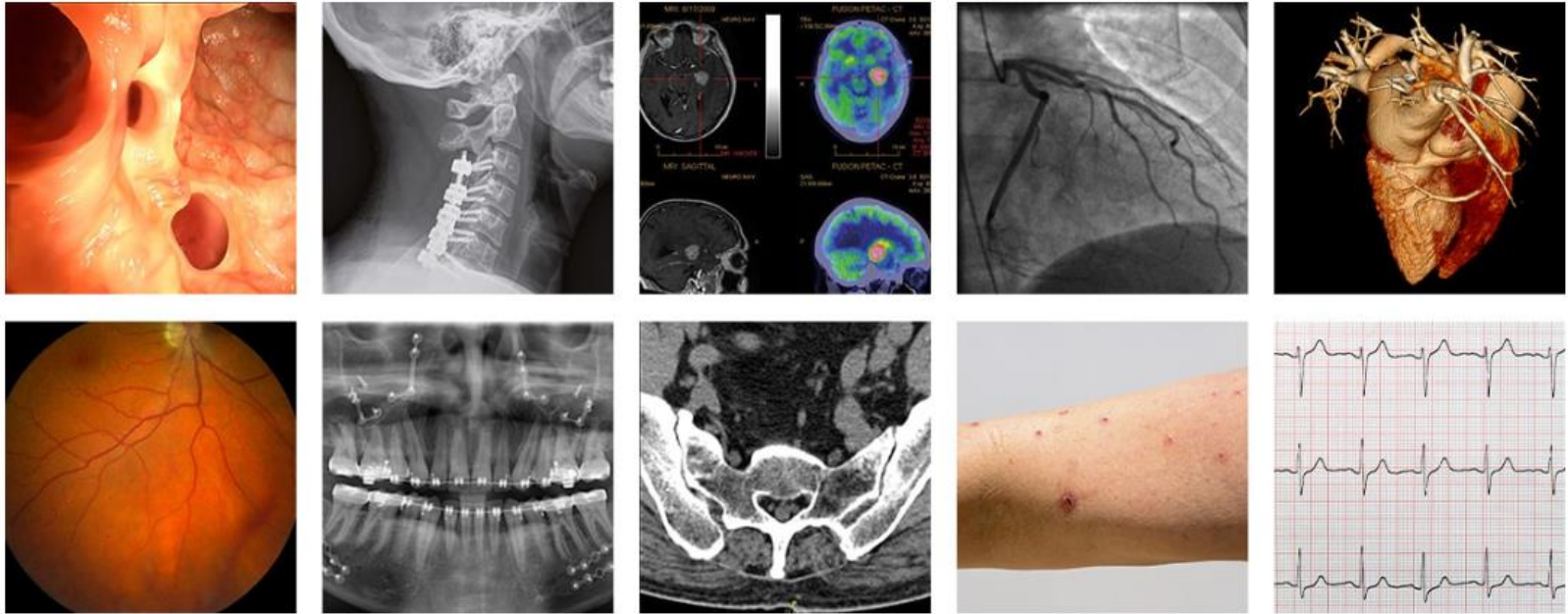
“Imagine hundreds of clinicians spending half an hour, every day, to look for their images, transport them and have them available in their viewer. Today, those clinicians immediately have access to images going back even 10 or 15 years, with our Enterprise Imaging solution. Think how much time and effort that saves!

And already, it has become the ‘new normal’ for them.”

“This remarkable situation is the result of an extensive project to implement Enterprise Imaging in parallel with an electronic medical record (EMR) at the hospitals.”

Supported images include:

Anesthesiology, Cardiac Surgery, Dermatology, Gynecology, Gastroenterology, Intensive Care, Pediatric surgery, Nephrology, Neurology, ENT, Pulmonology, Oncology, Orthopedics, Plastic surgery, Radiotherapy, Urology, Blood vessel lab, Obstetrics, ...



Amsterdam UMC
& CWZ customer
cases

- Project started in **2014**, SINCE WHEN over 35 ologies working with Enterprise Imaging & Epic EMR
- Largest install in the Netherlands
- <https://www.agfahealthcare.com/customer-references/vumc/>
- <https://www.agfahealthcare.com/customer-references/cwz/> (Project started in 2019)



Enterprise Imaging
Grow, Work, Life — In Balance.


RSNA 2024
Building Intelligent Connections
December 1-4, 2024

AGFA 
HealthCare

Meet Us at RSNA

That's life in flow.

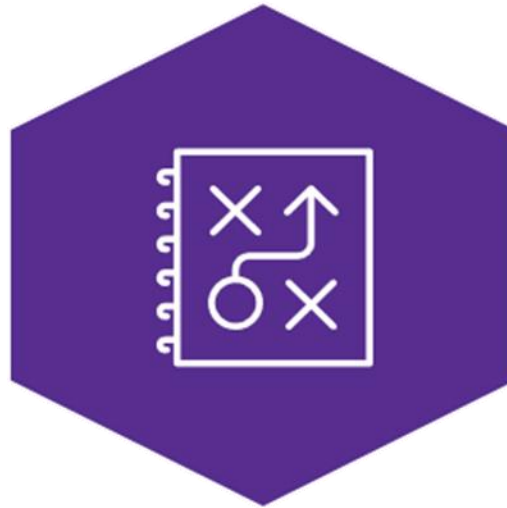
NYHDIF November 2024

*AI in Medical Imaging -
World - 2024
Signify Research Content
Portal*

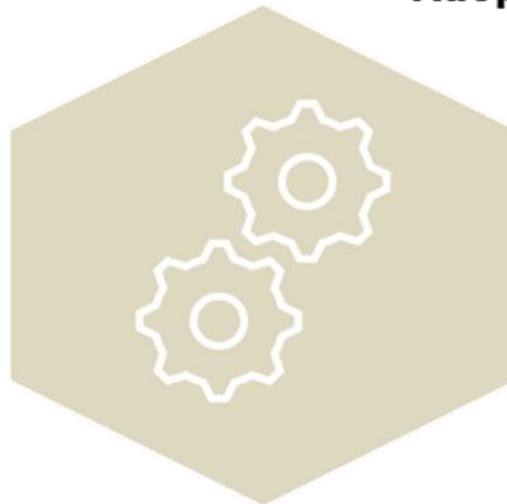
(<https://research.signifyresearch.net/>)

*Created for Nicholas
Spencer, Agfa HealthCare
USED WITH PERMISSION*

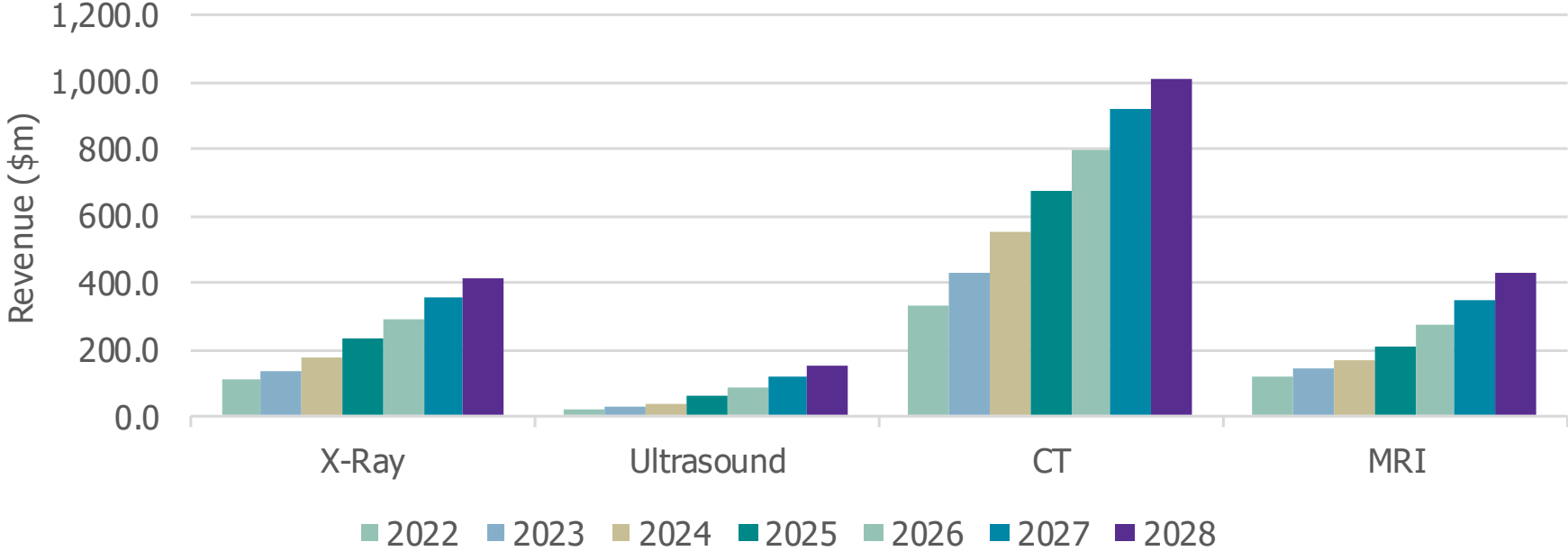
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Research 2024*



Considerations for Increasing the Adoption of AI



Medical Imaging AI - Market by Modality

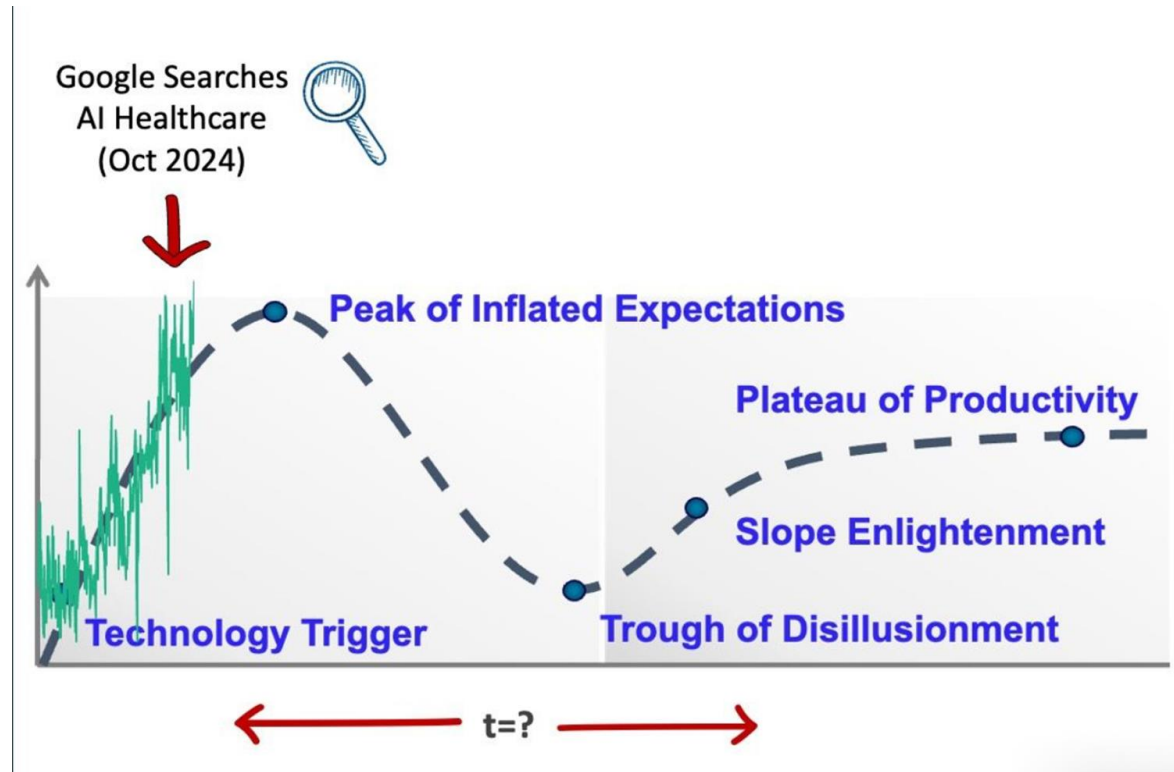


Source: Signify Research

Jun-24

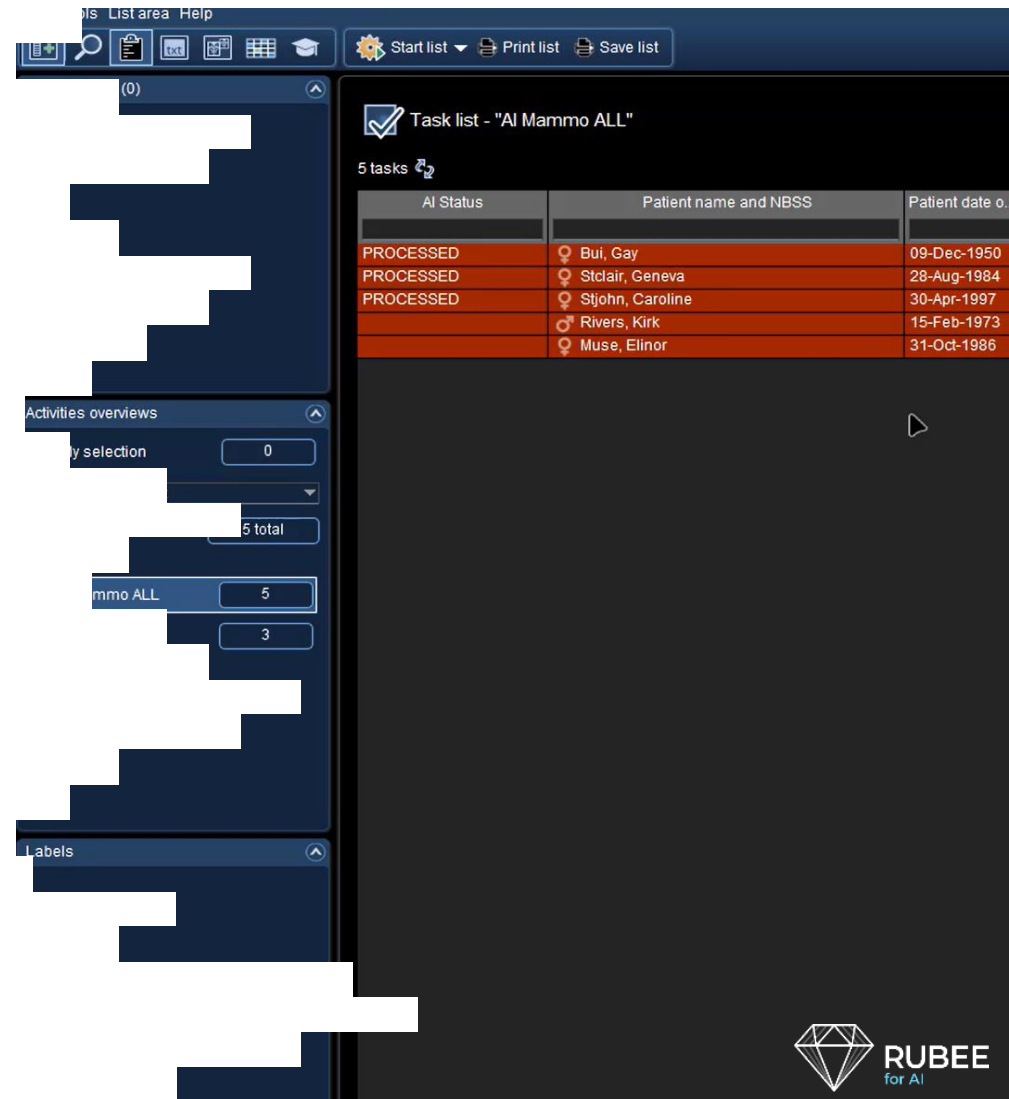
Gartner Hype Cycle – AI Applicable?

- Data Privacy and Security
- Bias in AI training
- Equitable Access
- AI Literacy
- Regulatory Complexities
- Ongoing Monitoring



CURRENT EI CAPABILITIES - Worklist prioritization

- ✓ Escalation rules
- ✓ Worklist prioritization
- ✓ Automated assignment
- ✓ Real-time status of AI processed exams(WIP)
- ✓ Real-time AI results in the worklist



The screenshot displays a software interface for managing a task list. The main window is titled "Task list - 'AI Mammo ALL'" and shows 5 tasks. The tasks are listed in a table with columns for AI Status, Patient name and NBSS, and Patient date of birth.

AI Status	Patient name and NBSS	Patient date of birth
PROCESSED	♀ Bui, Gay	09-Dec-1950
PROCESSED	♀ Stclair, Geneva	28-Aug-1984
PROCESSED	♀ Stjohn, Caroline	30-Apr-1997
PROCESSED	♂ Rivers, Kirk	15-Feb-1973
PROCESSED	♀ Muse, Elinor	31-Oct-1986

The interface also includes a sidebar with "Activities overviews" and "Labels" sections, and a toolbar with "Start list", "Print list", and "Save list" options.

CURRENT EI CAPABILITIES – Workflow Orchestration

Diagnostic Desktop - 8.3.2.010 - Bronze - EIBRONZE

File Tools List area Help

Start reading Open Start list More

Started tasks (0)

Task list - "AI MAMMO PROCESSED"

4 tasks

AI Status	Patient name
PROCESSED	♀ Bui, Gay
PROCESSED	♀ Stclair, Geneva
PROCESSED	♀ Stjohn, Caroline
PROCESSED	♂ Rivers, Kirk

Activities overviews

My selection 0

AI Mammo Worklist

To do 6 total

Details

AI Mammo ALL 6

AI Mammo PROCESSED 4

Labels

RUBEE for AI

- ✓ AI result driven
- ✓ Activities Overviews
- ✓ Orchestration – Which exam gets processed by AI
- ✓ Access – Resident vs Consultant Workflow



Enhancing Efficiency Through Orchestration

Balance Workloads

Orchestrate fair workloads between radiologists of the same specialty, using the RVU or relative weight of each study so...

“We all contribute equally (during our shifts)”

Distribute studies that are avoided

Distribute studies that everybody (and those that nobody) wants to read:

- Every day, assign five (5) CT chests to each radiologist online.
- Distribute MR spines equally across neuro and MSK radiologists
- Assign the same number of peer review tasks to everyone

Help meet SLAs

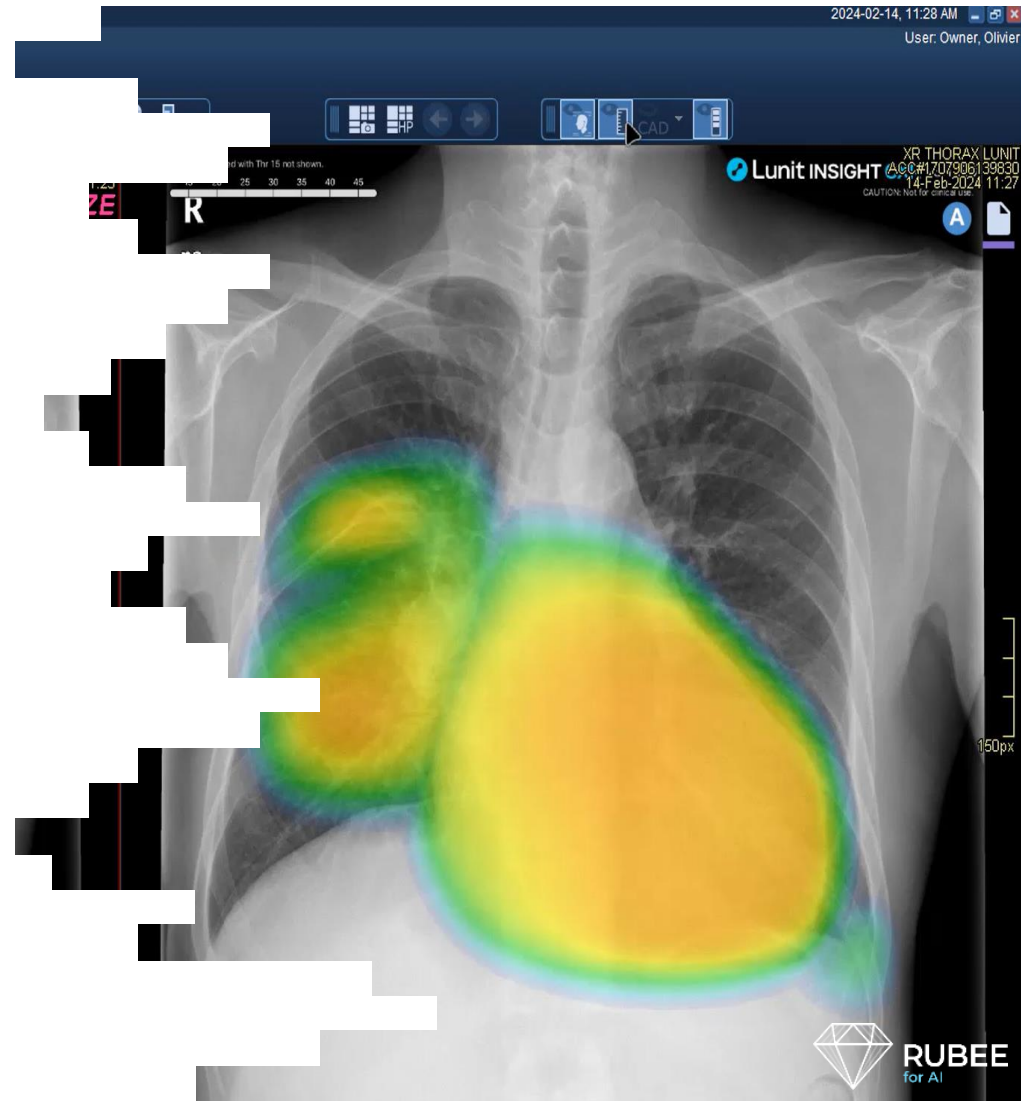
Distribute studies for insourcing or outsourcing based on the target turnaround time (TAT).

- Send studies nearly due to a global worklist (NHS sites for insourcing)
- Send overdue studies to a teleradiology partner for outsourcing

CURRENT EI CAPABILITIES – AI Advanced Visualisation

Presenting AI findings in a relevant and useful way

- ✓ Mammo CAD DICOM SR
- ✓ GSPS; DICOM SC; CSPA
- ✓ Encapsulated PDF



EI CAPABILITIES with AI – REPORT Creation

- ✓ HL7 reporting
- ✓ AI report automation
- ✓ AI results in report templates

The screenshot displays a medical reporting interface. At the top, it shows '1 of 1 task' and patient information: 'Rivers, Kirk 15-Feb-1973 (50 y) ♂'. The main content area is titled 'Reading - 30-Jan-2024, 17:08' and 'Report MAMMO LUNIT'. Below this, there is a 'Report comment (0)' section and a 'Reason for study' field containing '<Reason for study>'. The 'AI' section displays the following results:

BREAST DENSITY ASSESSMENT:

- CC: score 5, category B
- LCC: score 4, category B
- MLO: score 4, category B
- RCC: score 5, category B
- CASE: score 4, category B
- LEFT: score 4, category B
- LMLO: score 4, category B
- RMLO: score 4, category B
- RIGHT: score 4, category B

• Description: Scattered Fibroglandular Densities

Recommendation:
Routine screening mammogram in 1 year.

The interface also shows a table with columns for 'Ordering phys...' and 'MG', and another table with columns for 'Mod...' and 'Performing dep...'. The bottom right corner features the RUBEE for AI logo.



From Packages to Platform!

Almost 1000 AI algorithms FCA, CE or UKCA cleared most in the radiology and diagnostics space

Increasingly in Imaging, AI Platforms are emerging to meet the rapidly changing landscape































































































1. Range
2. Testing
3. Validation on “own data”
4. Creation and testing of own algorithms

125+
AI APPLICATIONS

50+
AI VENDORS

US FDA
510(k) Cleared



BODY PART	MODALITY	AI APPLICATIONS
 BRAIN	MR & CT	         
 CHEST	CT & DX	               
 LUNGS	CT	        
 BREAST	MG, DBT & US	        
 CARDIAC	CT & US	     
 SPINE	X-Ray & MR	     
 MSK	X-Ray	        
 LIVER	CT & MR	      
 URO	CT & MR	  
 SUPER RESOLUTION	CT & MR	   
 WHOLE BODY	MR	 
	KNEE	
	MR	



Shaping the future of AI in healthcare: Global AI Conference 2025

3-4 February 2025, QEII Centre, London and Online
rcrAIconference.com | [#RCRGlobalAI](https://twitter.com/RCRGlobalAI)

 The Royal
College of
Radiologists



Explore the programme and speaker line-up

Early bird rates end:
Monday 25 November, 23:59 (GMT)





Mid Yorkshire Teaching
NHS Trust

Thank you for your attention

Questions?

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AGFA 

The Agfa logo, which is a red diamond shape containing the word 'Agfa' in white.