

# Digital Transformation Programme

Imaging services are accessed by around 95% of patients in secondary care pathways. In 2021 the West Midlands Imaging Network was established as the largest network in England, carrying out more than 11% of all imaging activity within England.

**15**

NHS  
Trusts

**6**

Integrated  
Care Systems

**3,000**

Staff

**47**

Locations

**14**

Community  
Diagnostic  
Centres

**390k**

Examinations  
Each Month

**290**

X-ray  
Units

**371**

Ultrasound  
Scanners

**73**

CT  
Scanners

**63**

MRI  
Scanners

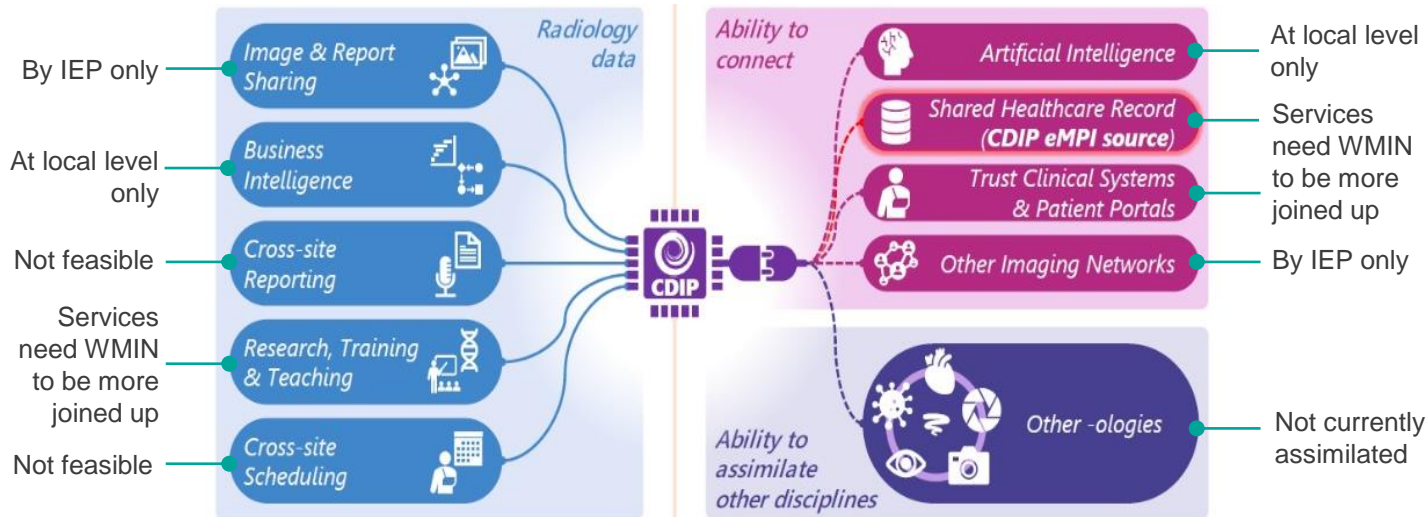
As well as looking at a range of clinical pathways, joint procurement and supporting the implementation of AI, we are undertaking a once in a lifetime **Digital Transformation Programme** where all imaging systems are delivered by a suite of single-instance solutions.



For more information on our network, watch this video or visit our [website](#)

October 2024

# Our Digital Current Operating Model



## What are the Problem Statements?

### Cross Site Scheduling

Patient choice in health and social care is a legal right of a patient. With new Community Diagnostic Centres and the call for better access, the ability for patients to move between different services remains limited.

#### Patient Choice

- By giving patients control over their appointments they are able to base their decision on the things that matter most to them
- Patients may choose an appointment closer to work during the day or may choose to visit a location nearer to home, whereas they would usually have to travel further to a tertiary centre
- National reports have found that patients are willing to travel to reduce their waiting times

#### System Benefits

- A consequence of giving patients choice is equalising waiting times across the region.
- A digital solution will also ensure no slot is wasted as any last-minute cancellations can be made automatically available to people who are able to attend
- Patient choice helps to tackle health inequalities, for example a patient without a car may choose a hospital with better public transportation links and carers will benefit from a choice of access

## Business Intelligence

Understanding a service is key to making improvements and planning for the future. A range of different BI tools are used locally at each trust.

### Current Limitations

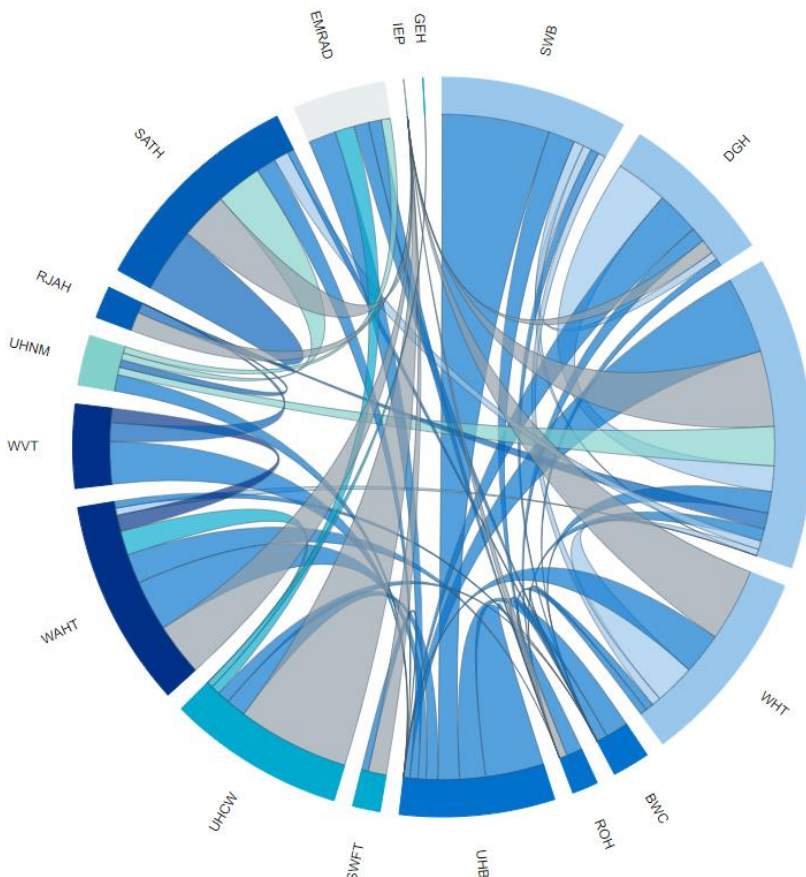
1. Some formal systems are in use, but there is still a reliance on manual pulling and interpretation of data
2. Using local solutions means organisations are using different definitions and different data sets meaning they cannot compare with similar organisations



## Image and Report Sharing

Currently, each Trust of the WMIN procures and operates a digital platform for imaging. Images are captured on imaging devices that are connected to a Picture Archiving and Communication System (PACS), where the images are stored and accessed. Clinicians access images on the PACS and create diagnostic reports that are stored on the Radiology Information System (RIS).

Over 600,000 examinations were transferred across Trusts within our network in 2023. Many of these examinations included multiple images, sometimes 100's.



### Current Limitations

1. Image sharing is not an instant process. It can take as little as an hour to get an urgent image or over 5 days in some cases
2. Existing methods require a manual process across multiple steps

*Requesting > Processing > Sending > Receiving > Processing*

3. Images are replicated, creating duplicate storage costs and clinical issues
4. Systems cannot search for previous images at other Trusts if you don't know they exist

## Impacts from Image Transfer Delays

### Outpatient Appointments

- Images and/or reports not being available prior to an appointment:
  - Wasted appointment and requirement to reschedule
  - Decisions are made without waiting for results
  - Reports may not be read in a routine/timely manner, meaning there is a risk that findings are not acted upon



### Emergent Patients

- Making life-changing decisions for patients is an everyday occurrence in imaging.
- Every minute counts in making treatment decisions about stroke & aortic dissections
- Access to specialist opinions or decisions to transfer patients to a tertiary service will rely upon access to images which can cause severe ongoing disability if not treated as emergent



### Patient Care

- Most importantly, the delays in image reporting and transfer has the potential to impact on patient care and outcomes:
  - Anxiety from waiting for results
  - Low patient satisfaction from waiting times, or the need to 'chase' results
  - Poorer patient outcomes from delays to treatment or patient pathways



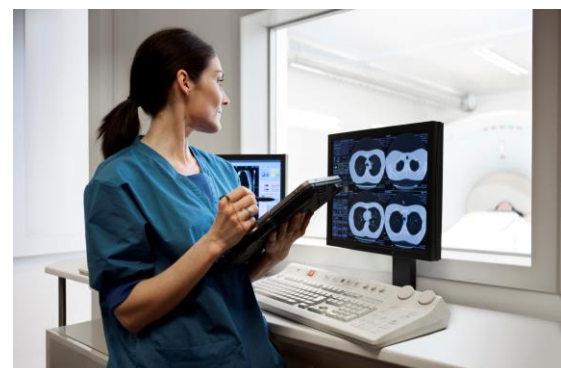
### Expert Review

- Where images are not available for MDT, patient will need to be rescheduled delaying treatment decisions, wasting MDT slots and increasing time on waiting lists
- Access to specialist opinions outside of the trust is key to support ongoing professional development and closing feedback loops



There is no digital solution in place currently to deliver many of the aspirations of the WMIN, or the desire of the NHS plan, or of patients in our care.

Digital technologies within imaging are not keeping pace with modern era of Artificial Intelligence, Digital Security, Collaboration and Joined up Patient Records



# Converged Digital Imaging Platform (CDIP)



## Our Vision

Deliver a high-quality CDIP for Trusts which provide seamless access to images and data, reduces current imaging costs, delivers reduction in outsourced reporting and enables home working, OOH workflows and training opportunities

## Our Objectives

A key outcome of the WMIN Digital Programme is the creation of the WMIN **Converged Digital Imaging Platform (CDIP)**. This platform will meet the digital needs of the imaging departments across all 15 trusts, supporting clinical imaging and radiology services. The scope of CDIP is to deliver capabilities and services required to deliver a modern and future-proofed digital imaging services, embracing collaboration across the 15 trusts. The capabilities are those that are provided today primarily within Picture Archiving and Communication System (PACS) and Radiology Information System (RIS) with some enhanced functions. CDIP will establish the foundation for implementing **WMIN's goal to create a unified, digital solution** to replace the various systems currently used our trusts

## Benefits

 FINANCE	Cost saving: optimal value for money in implementing digital solutions. Access to capital funding for implementation of CDIP. Reduction in outsourcing spend. Reduction in admin costs through automation & not resorting to manual image transfers	1
 CLINICAL	"Right first time" diagnosis. Immediate access to life saving information. Availability to cross site images, scheduling, & reporting: images, reports, appointments and reporting lists available in any trust independent of requesting source, acquisition center or reporting site.	2
 PATIENT	Improving opportunities for patient movement. Improved patient experience and satisfaction. Reduced DNAs. Faster turn-around times.	3
 SERVICE	Improved MDTs - reduced 'skips' and less administration. Reduced outpatient appointment 'skips'. Eliminate duplicate scans. Timely images and reports to MDTs. New ways of working - repatriation of outsourcing overnight.	4
 QUALITY	More opportunity for training and education - Network REALM. More access to specialist advice and second opinions. Facilitated collaboration between and within Trusts. Accelerated wider image sharing - Research, Training, ShC Record.	5
 AI	AI orchestrator would allow for: Access to AI evaluation as a network. Rapid deployment of technologies. Leading to more robust network funding bids.	6

# What we want it to do

**① reliability & system-up-time essential as providing vital clinical service for large geography & population**

**Data Archive**

- network & archive connectivity ◆◆
- system resilience & redundancy ◆◆
- cybersecurity ◆◆

**① deep UI integration**

**DICOM Viewing**

- advanced visualization ■
- quality control ■
- routine image reading ■

**① automation via business rules/logic is expected, e.g. move requests to appointable status if conditions met**

**Request Management**

- business logic rules automation ◆■
- interoperability with trusts' order comms ■
- vetting & protocols ■
- rejections & cancellations ■
- interoperability with CDS ●
- order comms functionality ◆■

**① closed-loop communication, i.e. referrer & imaging two-way communication with information flowing from imaging to referrers' systems when status of request changes**

**Scheduling**

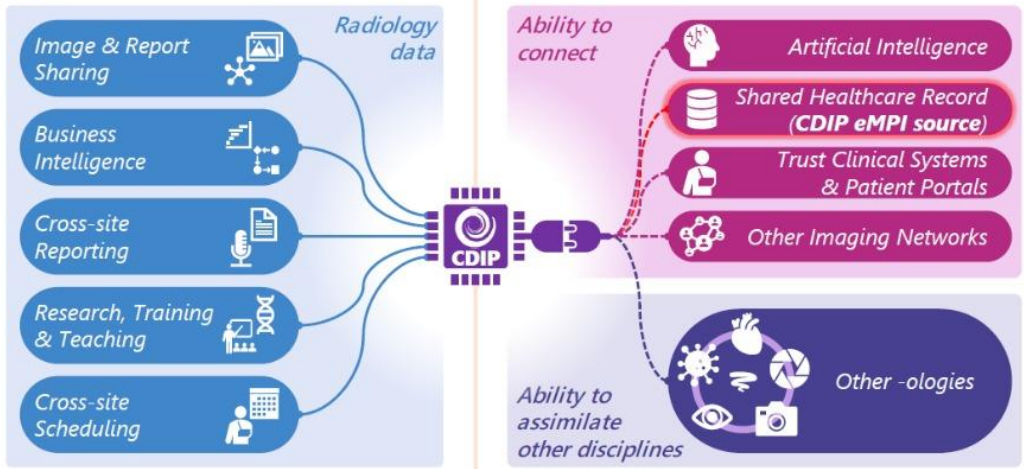
- machine learning diary creation/optimisation
- cross-site scheduling
- patient-facing scheduling function
- patient information & engagement solutions
- integration with staff availability systems
- room/modality management diary for service days, etc.

**Clinical Image Reporting**

- local & cross-site reporting
- ✦ result alerting, notification & acknowledgment
- ✦ result sharing with patient portals, EPR, etc.
- internal communication module, incl. study linking

**Additional Functions/Tools**

- ✦ radiation & dose management
- automated intravenous contrast related-data capturing
- ✦ multi-disciplinary team meetings **① collaborate with WM Cancer Alliance**
- ✦ REALM
- ✦ peer-review
- ✦ artificial intelligence comparison, deployment & monitoring
- radioactivity administration & disposal



**① 'back office' & system administration tools required for database management at these various levels**

**System Management**

- patient-level tools ◆■
- Image-level tools ◆■
- system codes level (exam & location codes, etc.) ◆■

**Data Sharing**

- patients ◆◆■
- other NHS imaging networks (NIR compatible) ◆◆■
- independent sector, incl. teleradiology ◆◆■

**Accessibility & Ease of Use**

- clinical staff ■
- operational & management ■
- system administrators & technical teams ■

**① potential to converge other clinical specialties (pathology, cardiology, etc.) when these become ready & funded**

**Other -ologies**

**Business Intelligence (BI)**

- ✦ assets (modalities, workstations, etc.)
- ✦ code use & variations
- ✦ room usage
- ✦ turnaround times per state changes **① state changes include: received, justified, rejected, waiting, appointed, cancelled, attended, acquired, reported, amended, etc.**
- ✦ workforce
- ✦ service/delivery bottlenecks
- ✦ regional variations
- ✦ demand & supply analysis, etc.

**Regional Integrations**

- ✦ shared care record (ShCR) **① north & south midlands ShCR: CDIP's source of electronic master patient index**
- ✦ SDE/TRE for research & audit **① collaborate with WM TRE**
- ✦ educational tools **① collaborate with Midlands Imaging Teaching Academy for teaching, training & CPD tools**

**Trust-Based Integrations**

- ✦ EPR data visualisation in radiology applications
- ✦ upstream & downstream clinical systems **① deep UI integration**

**Key:** ■ Application, ◆ Infrastructure, ● Professional Services, ✦ Needs local & network level functionality.  
**Abbreviations:** CPD: continuous professional development, SDE/TRE: secure data environment/trusted research environment, UI: user interface, eMPI: electronic master patient index.

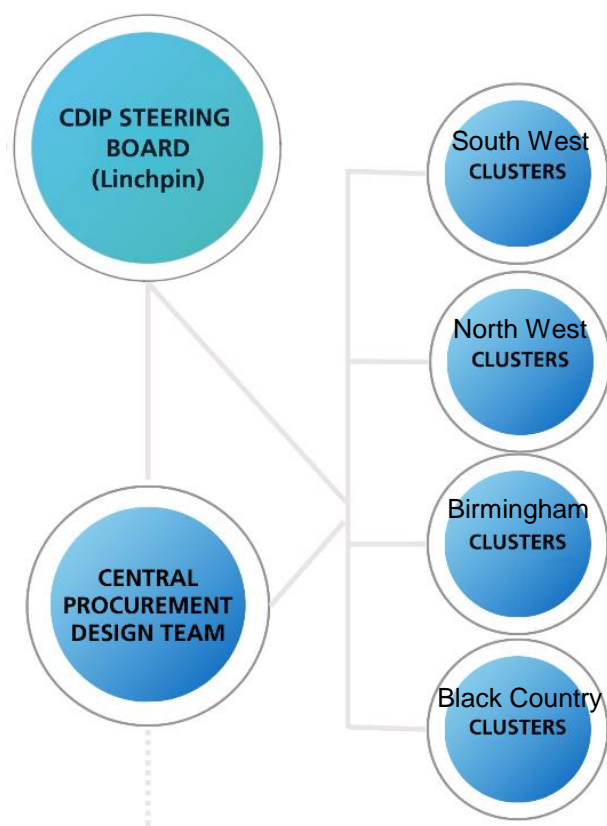
# CDIP Programme Progress

Our governance structure provides a clear framework for the oversight and progression of the programme.

Our CDIP Steering Board is made up Chief Digital or Strategic Officers from each of our Trusts and ICBs. These executive sponsors meet regularly to provide oversight of the programme and act as enablers.

To support each trust, we have supported the establishment of four 'clusters'. Each of these groups act as the drivers, facilitating the programme locally.

We have teamed up with the University Hospital Birmingham NHSFT who will be leading on the procurement.



## Programme Timeline

### Outline Business Case

- We are currently writing an Outline Business Case demonstrating the Strategic, Economic, Financial and Commercial Case
- We need to identify Cash Releasing Benefits to help support these cases before we present it to each of our 15 organisations. We are also asking other networks within the West Midlands for support and to aid development and roll out of the solution
- We hope this will be approved before the end of the year to enable us to move onto the next steps

### Output Based Specification

- We have engaged with our members across the network to understand what they would like from a new system
- By identifying the clinical, technical and operational requirements we can explore the market and procure a system that we support our organisations to not only share reports and images, but will support the future of Artificial Intelligence, Business Intelligence and network-wide collaboration

ACTIVITIES	2024/25				2025/26				2026/27																															
	Q1		Q2		Q3		Q4		Q1		Q2		Q3		Q4																									
	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M				
OUTLINE BUSINESS CASE	Develop				Trust Approvals																																			
OUTPUT BASED SPECIFICATION	Develop				Trust Approvals																																			
PROCUREMENT					Pre-Procurement Market Engagement				Award Preferred Bidder Status				Contract Negotiation & Award																											
FULL BUSINESS CASE																								Develop		Trust Approvals														
IMPLEMENTATION																								Mobilise		Early Adopter Implementation														

# For More Information



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Website

<https://wmidsimagingnetwork.nhs.uk/>



LinkedIn

[West Midlands Imaging Network](#)

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**WEEKLY ROUND-UP**



October 2024