Multi-Country Working Group (MCWG) on Image Information Sharing

Adoption of MCWG recommendations for ehealth national imaging and impact on EHDS

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IHE CATALYST

Multi-country Working Group (MCWG) Timeline

Creation decision by MCWG membership & IHE-Europe Executive Committee approval of the MCWG taskforce

Support by

IHE CATALYST

December 2022

MCWG created

Q1 2024

Completion of first 3 sets of MCWG Recommendations*

Q3 2024

Updated MCWG Recommendations Central QIDO Hub and Central Viewer Hub Extensions*

Q4 2024

Recommendation on Exchange of Significant images*

Q1 2025

Deployment Tools and Clinician Use of Metadata Guidance

MCWG Recommandations Published

99% closing the gap for national imaging interop framework deployment

MCWG Approved Recommendation on Imaging Information Sharing

www.ihe-europe.net/multi-country-working-group-Imaging-Information-Sharing

MCWG Scope, objectives and deliverables

Scope:
Deployment of interoperability for Imaging Exchange

- **National or regional level**
- Complementary to Cross-Border imaging exchange focus of EU Commission (eHN, JA9).

Goal:
Deliver design analysis for specific extensions

- Extensions are needed to **effectively deploy IHE Profiles, DICOM, FHIR** and other standards within countries' ehealth services. Complementary to eHDSI for Cross-Border.

Currently includes representatives from 11 countries

- **Austria, Belgium, Canada-Quebec, Czechia, Denmark, England, Finland, France, Netherlands, Norway and Spain**
- MCWG is working on expanding that list. **Other countries European and non-European are welcome**

MCWG produced 6 sets of recommendations one year

- Recommendations **sufficiently mature, complete (multi country consensus) and stable to be offered for adoption into national interoperability frameworks.**
- **Publicly available documents. MCWG members to ensure rapid feedback as they apply.**

MCWG Recommendations and work in progress

Set of recommendations completed

Feb 2024

- **Standards and Profiles Positioning**
  - Addition of:
    - QIDO Hub
    - Central Viewer

May 2024

- **Imaging Metadata & Linkages**
- **Imaging Study Manifest**
- **Significant Images**

Dec 2024

Topics in progress

- Tracking and Adoption Focus Group
- Specific issues on a shared imaging report content
- Public Comments on XC-WIA and Management of the URLs in the KOS imaging manifests used to reference imaging studies

- Market/Gateways
- Clinician Guide to Metadata usage

February 2025

1. Standards and Profiles Positioning

Topic description and scope

Recommendation

- **Standards and Profiles Positioning**
- **Tracking and Adoption Focus Group**
- **Imaging Metadata & Linkages**
- **Imaging Study Manifest**
- **Significant Images**
- **Clinician Guide**
- **Deployment Gateway**

Use Case aligned with the
eHN Guidelines on Medical imaging studies and reports :

https://health.ec.europa.eu/document/download/0079ad26-8f8f-435b-9472-3cd8625f4220_en?filename=ehn_mi_guidelines_en.pdf

- search and select imaging studies of interest
- access to images
  - **links in report to server-side or centrally hosted image viewer**
  - **to native DICOM images by a requester-side viewer/processor.**

Choice of profiles and standards

- Position the role of HL7 FHIR in the sharing of imaging information architectures
- **Select profiles and standards for the use case** (IHE MHD (FHIR), IHE/XDS-I, IHE/XCA-I, DICOM WADO-RS)

1 - Standards and Profiles Positioning

Recommendation Highlights

Recommendation

- **Standards and Profiles Positioning**
- **Tracking and Adoption Focus Group**
- **Imaging Metadata & Linkages**
- **Imaging Study Manifest**
- **Significant Images**
- **Clinician Guide**
- **Deployment Gateway**

Three different deployment architectures may coexist (See Note) :

A. Country (or stand-alone Region) with a **central document registry** both with distributed PACS/VNAs

B. Country with **federated document registries** & regions with distributed PACS/VNAs

C. Country (or region) with a **central document registry and a central VNA**

Note: Manifest Document Repositories whether centralized or distributed is possible in all three architectures.

Imaging Study Manifest (DICOM KOS) used in all deployment architectures.

Transactions are from the following profiles:

A, B or C: **IHE MHD** (FHIR based with document reference resource) + **DICOM WADO-RS** (Rest)

A or C: **IHE XDS-I** (WS SOAP-Based) + **DICOM WADO-RS** (Rest)

B : **XCA-I** (WS SOAP based) + **DICOM WADO-RS** (Rest)

2. Imaging Metadata & Linkages
Topic description and scope

Recommendation

- Standards and Profiles Positioning
- Tracking and Adoption Focus Group
- **Imaging Metadata & Linkages**
- Imaging Study Manifest
- Significant Images
- Clinician Guide
- Deployment Gateway

Ensuring effective sharing with linkages

- **For clinician as well as for imaging production**
- Both for imaging reports and imaging studies.
- Linkages with clinical orders and imaging procedure requests

Defining a robust imaging metadata strategy

- **For filtering access in queries** (key filtering elements) for imaging studies.
- **For selecting** among filtered imaging studies returned

2. Imaging Metadata & Linkages
Recommendation Highlights

Recommendation

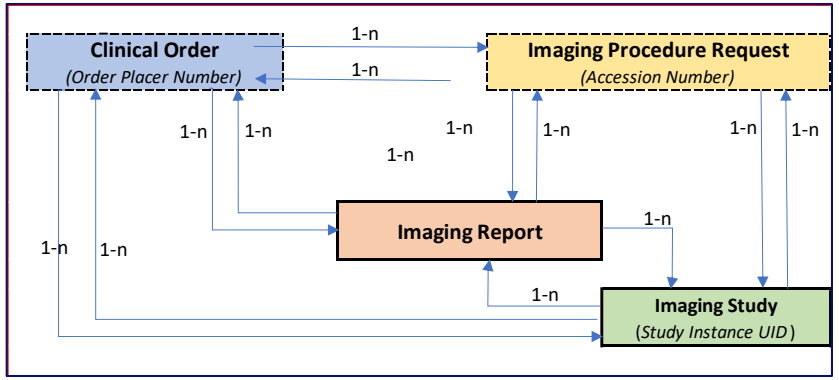
- Standards and Profiles Positioning
- Tracking and Adoption Focus Group
- **Imaging Metadata & Linkages**
- Imaging Study Manifest
- Significant Images
- Clinician Guide
- Deployment Gateway

Filtering in queries :

Criteria needed for health professionals (imaging and others) when exploring a patient imaging records:

Metadata element	Description	Query level
Anatomical Regions	Set by RIS per each imaging procedure code	1 (or 2)
Study level modality	Set by RIS per each imaging procedure code	1 (or 2)
Study Instance UID	Set by RIS (sometimes by modality)	2 (or 1)
Accession number	RIS generated imaging procedure request identifier	2 (or 1)
Order Placer number	From ordering module EHR/EMR	2 (or 1)
Imaging Procedure Code	Set by RIS per each performed procedure code	2

Linkages for relationships between various entities



- Initial filtering request (level 1)
- Subsequent selection (level 2) among il list of responses to initial request

Use of Display Names and Codes Value Sets
- Imaging Procedure
- Laterality

Non-imaging specific metadata
- Document Classes: Imaging or Report
- Practice Setting (source Specialty=.

Workflow
- Publication trigger
- Imaging reports header data

3. Imaging Study Manifest
Topic description and scope

Recommendation

- Standards and Profiles Positioning
- Tracking and Adoption Focus Group
- Imaging Metadata & Linkages
- **Imaging Study Manifest**
- Significant Images
- Clinician Guide
- Deployment Gateway

Definition of Imaging Study Manifest

- Based on *eHN Guidelines on Medical imaging studies and reports*
- Based on DICOM and IHE XDS-I

Analysis of the detailed content of the imaging manifest (KOS)

- National and local patient IDs,
- Accession numbers,
- Additional content in study/series/instance descriptions for technical or clinical efficiency.

3. Imaging Study Manifest

Recommendation Highlights

Recommendation

Standards and Profiles Positioning

Tracking and Adoption Focus Group

Imaging Metadata & Linkages

Imaging Study Manifest

Significant Images

Clinician Guide

Deployment Gateway

- DICOM KOS vs FHIR Document bundle (incl. Imaging Studies Resource). Choice of standard: DICOM KOS

  ⇒ **DICOM KOS is a better use case match**

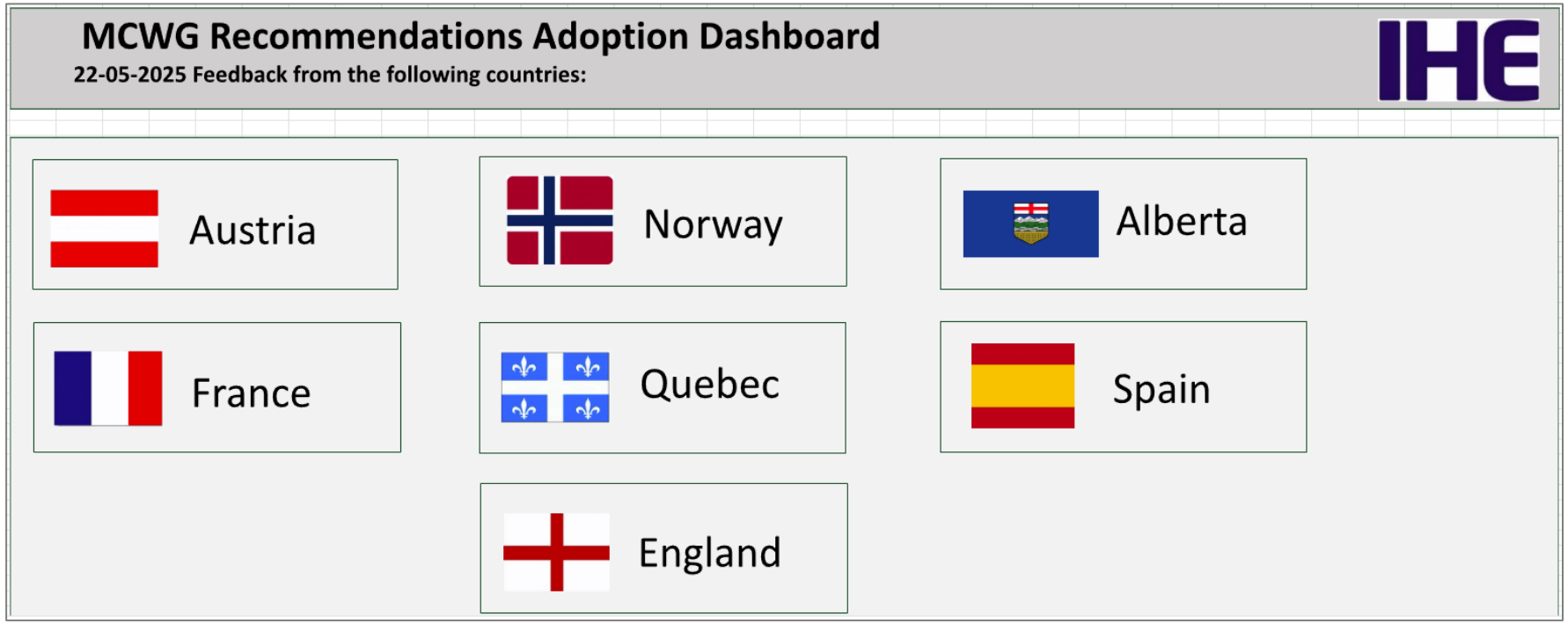
  - Neutral: Content match 90+% covered – Both are missing only a few standard attributes:
  - **Imaging SW Alignment for consumption with 80% created from Imaging Data**
  - **Much wider Adoption** – 84 vendors passed Connectathon testing of KOS Manifests (XDS-I). Over 100 sharing environments (Hospital, Regional, national) deployed in Europe

- Transaction to support sharing of manifests and workflows variants
- Key requirements on SOP Classes retrieved by WADO-RS
- Detailed recommendations for manifest content (what needs to be added, why and how)
  - Patient Identification,
  - Study Information,
  - Workflow/identifiers,
  - Series and Instance Information
- Retrieval
  - Locating the Referenced Studies, Series and Instances.
  - Management of retrieve URL and location OIDs
- Selection of Significant Images (IHE KIN)

MCWG Recommendation Adoption Checklist/Survey

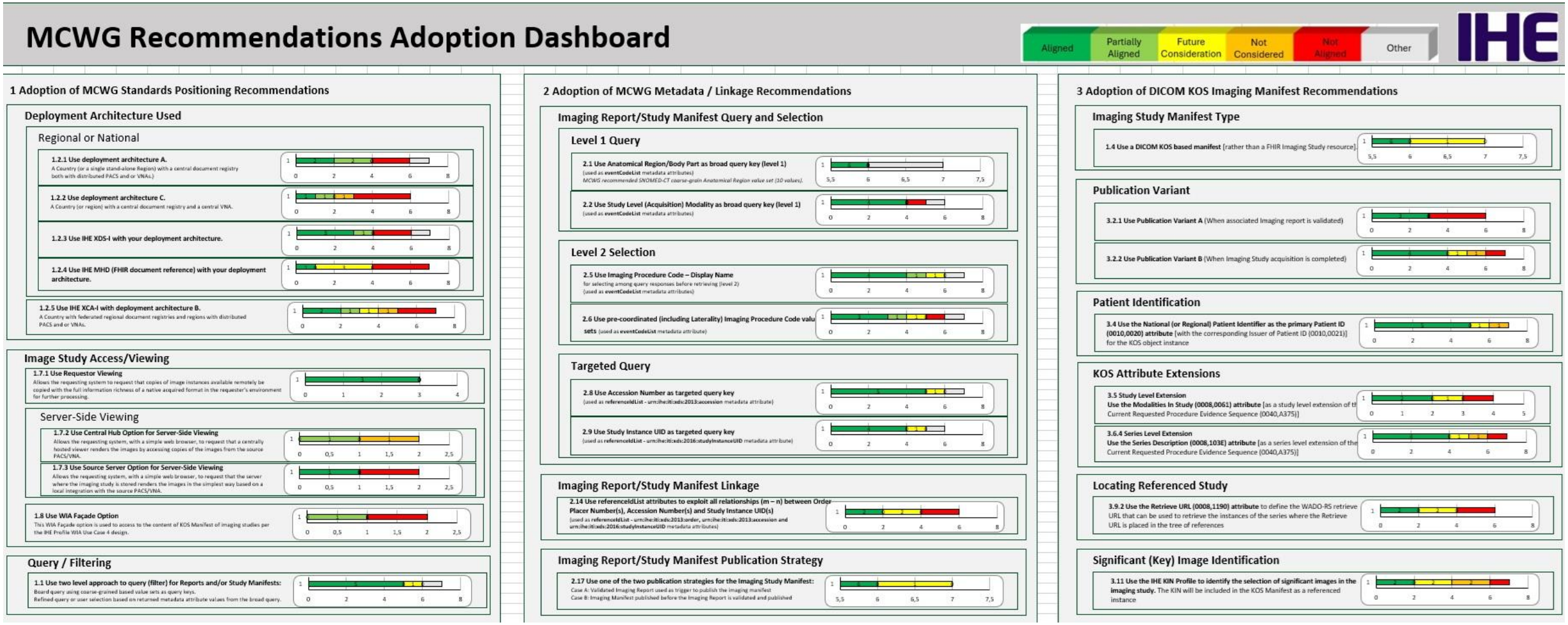
A checklist is available to assess your countries national image sharing infrastructure alignment with the MCWG recommendations:

To date the following countries have completed the adoption checklist.



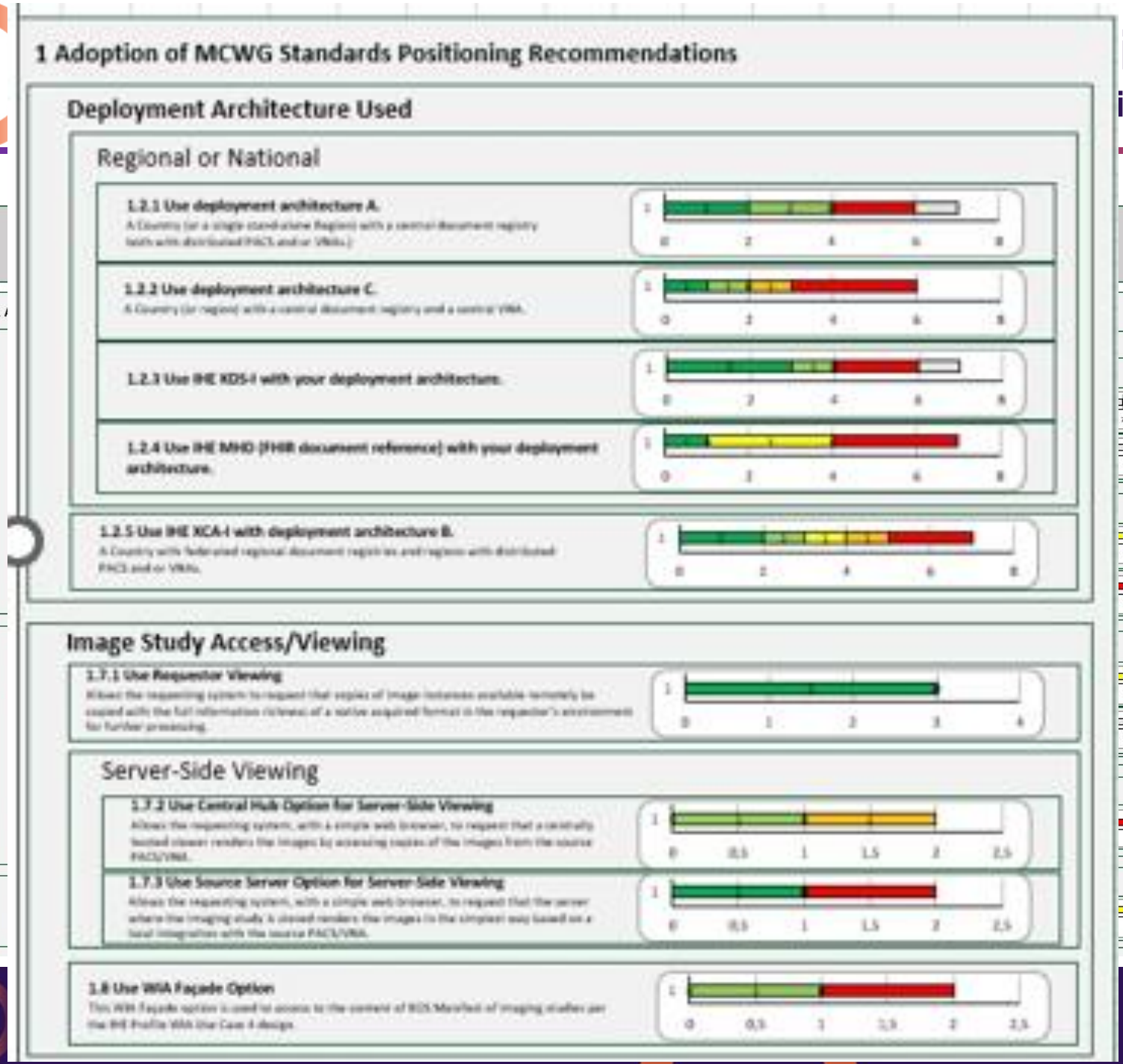
Tracking and Adoption of Recommendations

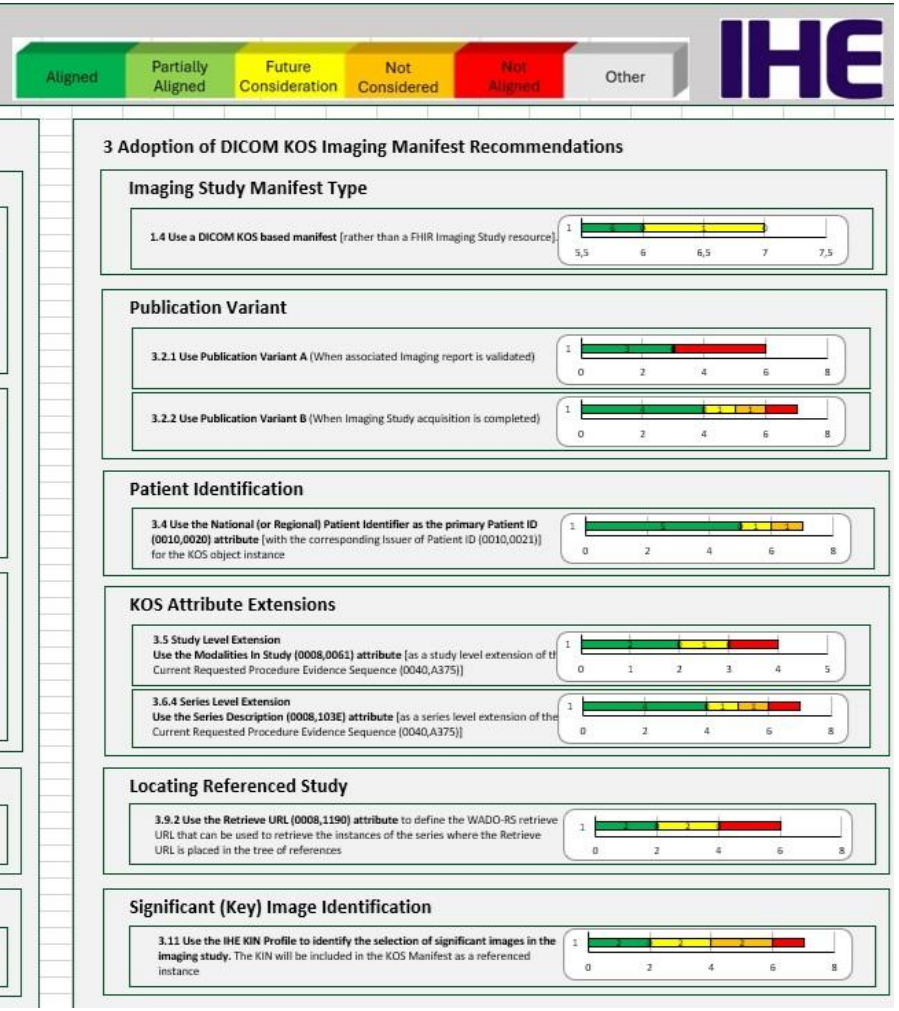
Adoption Dashboard



ion of Recommendations

ion Dashboard





NEXT STEPS IN 2025 AND TIMELINE

Tracking and Adoption FG	**On-going**
Specific issues on a shared imaging report content	**In progress**
Public Comments on XC-WADO and Management of the URLs in the KOS imaging manifests used to reference imaging studies	**In progress**

The Multi-Country Working Group on Imaging Information Sharing is well established and has delivered valuable refinements to the available standards and profiles for a consistent deployment across multiple countries.

These companion recommendations are compact and assemble significant technical, imaging expertise with more than 15 years of standards deployment experience.

Adoption tracking and topics that support EHDS for imaging are the first half of 2025 priorities.

… Possible Future Topics such as: Image compression, URL Mgt, Security/Privacy, Imaging Report, Reformat Recommendations, etc.

Linking *MCWG on Imaging* with MyHealth@EU and Xt-EHR

Xt-EHR
(EHDS National Interoperability Specifications)

MCWG on Imaging – Core *(Current)*

Ministries and eHealth Agencies

Adding Health Professionnals, Industry,

MCWG on Imaging – Community of Doers

IHE Europe

MyHealth@EU (Cross-Border)

- **Move *MCWG on Imaging-CoD* closer to Xt-EHR:**
  - Raise the visibility of MCWG Recommendations.
  - Visibility of IHE-Europe's convener role with large range of stakeholders.
- **Ensure that MCWG participants also engage into Xt-EHR WP7.2 (imaging) to ease MCWG Recommendations alignment.**
- **Ensure that MCWG participants also engage into MyHealth@EU to ease MCWG Recommendations adoption by EHDS.**

Specific MCWG contributions to Xt-EHR WP 7.2 Medical Imaging

MCWG has provided specific contributions to Xt-EHR WP 7.2 Medical Imaging on the following:

- **Use of a common document management layer**
  Across all Xt-EHR Prioritized Services (patient summary, ePrescription/eDispensation, lab results, medical imaging & hospital discharge) based on the **IHE MHD Profile** using the **FHIR DocumentReference** resource with generic search/filtering parameters.

- **European HL7 FHIR Implementation Guide on Imaging Report**
  Explaining the need to keep the Imaging Study Manifest distinct (separate) from the Imaging Report – see HL7 FHIR - Report and Manifest.

- **Imaging Study Manifest DICOM KOS specification**
  A draft EHDS Imaging Study Manifest Specification (embedded) is under review by Xt-EHR WP 7.2. MCWG has collected review comments (embedded) from MCWG members and approved the submission to Xt-EHR WP 7.2 on March 3rd, 2025.


Xt-EHR EHDS
ng Study Manifest


EHDS Imaging
Manifest-Commer

- **Proposed encoding for the Imaging Study Manifest**
  An analysis to choose the most appropriate encoding of an Imaging Manifest (embedded)
  – Pivot format for cross-border/national/regional sharing is the widely deployed DICOM KOS but facilitating consumer side transformation to other (JSON) representations based on specific consumption use case requirements.


MCWG Analysis
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Specific MCWG contributions to MyHealth@EU (Medical Imaging)

MCWG has provided specific contributions to MyHealth@EU (Medical Imaging) on the following:

- **Cross-border Proof of Concept (POC) Medical Imaging Studies (MIS)**
  Analysis of the transactions required to support the eHN Medical Imaging Guideline – Use Case 1 with a comparison between a 2 and 3 step approach (embedded). The 3 step approach has been adopted:
  1. Query for list of imaging reports and imaging study manifest matching a set of search parameters.
  2. Selection and retrieval of relevant imaging report(s) and/or imaging study manifest(s).
  3. Selection and retrieval of relevant imaging study parts (series/instances) using details from selected imaging study manifest(s).

- **Cross-border Instance (Image) Retrieval**
  Advice on the potential use of the IHE XC-WADO Profile as the instance retrieval mechanism between NCPs.

CONCLUSION

IHE MCWG welcomes additional countries and looks forward to further collaborations with eHN groups and projects

Questions, Comments and Suggestions are welcome and should be sent to the IHE-Europe Secretariat: secretariat@IHE-Europe.net