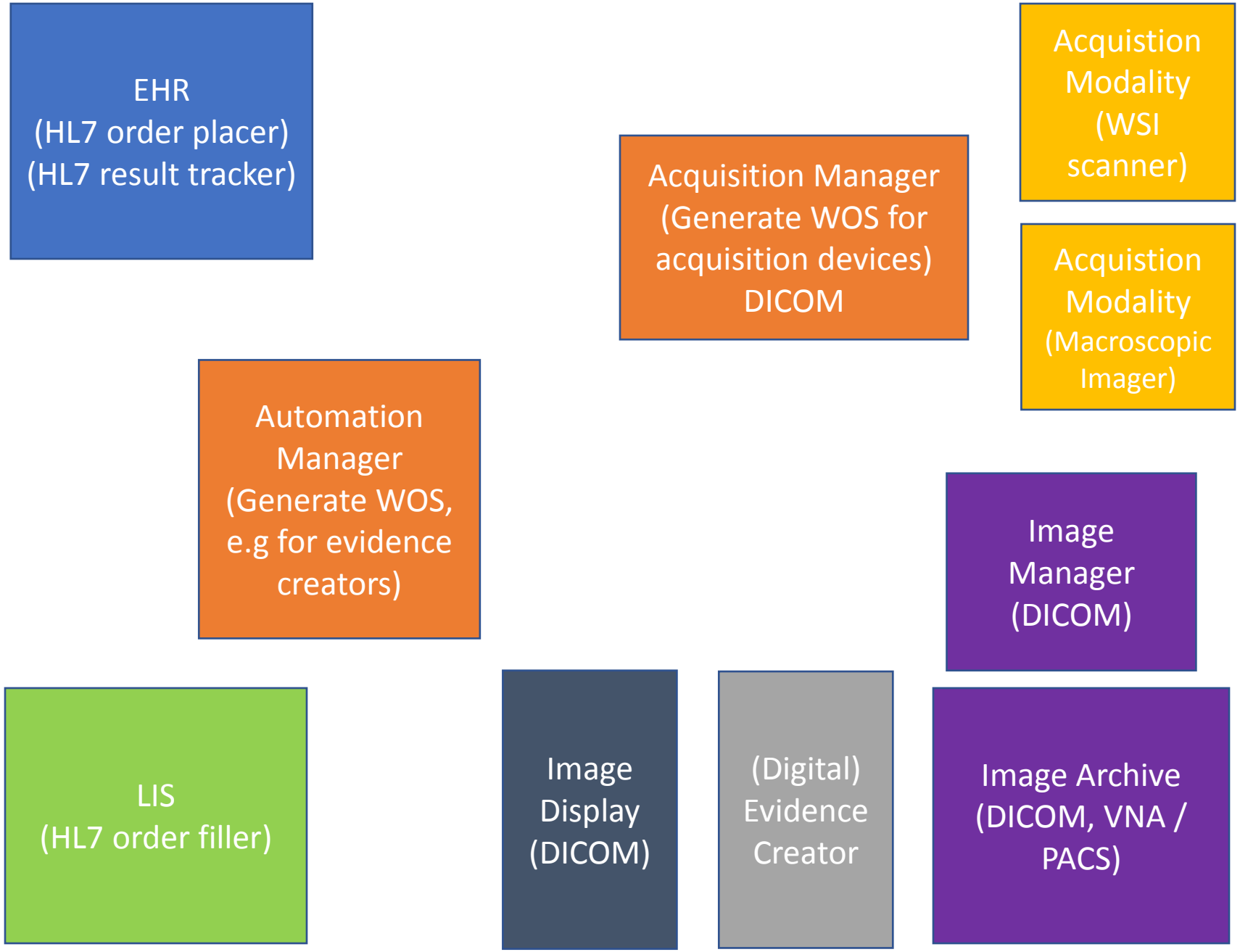
IHE Anatomic Pathology Workflow Redesign Day 2

Sardinia, Italy
Nov. 13-15, 2017


EHR
(HL7 order placer)
(HL7 result tracker)
Acquisition Manager
(Generate WOS for acquisition devices)
DICOM
Acquistion Modality
(WSI scanner)
Acquistion Modality
(Macroscopic Imager)
Automation Manager
(Generate WOS, e.g for evidence creators)
Image Manager
(DICOM)
LIS
(HL7 order filler)
Image Display
(DICOM)
(Digital) Evidence Creator
Image Archive
(DICOM, VNA / PACS)

EHR – LIS (Ordering, Reporting)

- Provider or specimen collector places tissue specimen order (LAB-1)
- Order filler notifies order placer that laboratory has generated an order and requests an order number (LAB-2)
- Order filler transmits pathology report result (LAB-3)
- Actors
  - Order placer (LAB-1)
  - Order filler (LAB-2)
  - Order results tracker (LAB-3)

Order Filler – Acquisition Manager Transactions

Order Filler
(e.g. LIS)

Acquisition Manager
(Generate WOS for acquisition devices)
DICOM

- Order filler issues an acquisition request to digitize glass slides or macroscopic specimen (LAB-21 WOS broadcast)
- Acquisition manager responds to order filler with a status code that indicates digital image has been acquired (LAB-23)
- Order filler requests status of a WOS (successful completion, normal operation, in error status, location etc) of digital image creation corresponding to acquisition request (maybe adapt from LAB-26)
- Acquisition manager queries order filler for acquisition request corresponding to unannounced asset encountered in acquisition device (LAB-22)
- Assumption: there exists local slide, specimen, container identifiers (associated with a case “accession” number)
- To do: include use cases that convey need for these transactions
- Actors: order filler, acquisition manager

Order Filler – Preparation Manager Transactions

Order Filler
(e.g. LIS)

- Automates the devices involved in the preparation of a glass slide
- Examine leveraging LTW (LAB-4, LAB-5), LSH
- Actors: order filler, preparation manager

Preparation Manager
(generates WOS for physical processing)

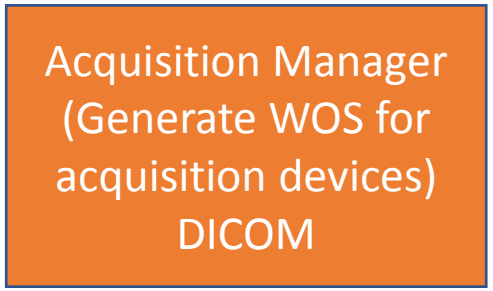
Order Filler – Image Analyzer Manager Transactions

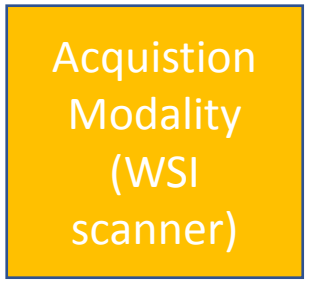
Order Filler (e.g. LIS)

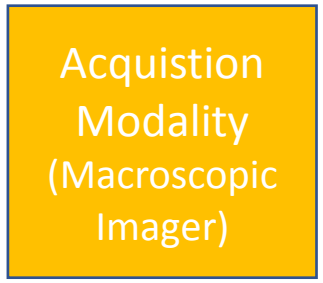
Image Analyzer Manager (generates WOS for evidence creators)

- Order filler issues a new request to analyze a digital image
- Analyzer manager responds to order filler with an outcome of the analysis (LAB-29)
  - A new image or annotation layer might be created and stored
  - Discrete data might be returned (e.g. Ki67 proliferation index)
  - A status code is returned (LAB-26)
- Order filler requests status of digital image corresponding to analysis request WOS (e.g. progress, maybe adapt from LAB-26)
- Analyzer manager queries order filler for analysis request corresponding to unannounced image encountered in digital analyzer (use case out of scope: where additional data required to complete analysis, e.g. new ROI, no nuclei, etc)
- Actors: order filler, analyzer manager

Acquisition Manager – Acquistion Modality







- Acquisition manager generates work order for acquisition modality
- Acquisition modality replies with status and URL of digital asset if acquisition succeeded
- Not discussed at IHE PALM F2F: need scanner vendors and DICOM WG members

Automation Manager – Digital Analyzers

Automation Manager (generate WOS for evidence creators)

- Automation manager transmits work order to a digital analyzer along with a URL to a digital asset
- Digital analyzer replies with status code and URL for a new digital asset if analysis is successful

Evidence Creator / Digital Analyzer

Acquisition Manager – Image Manager

Acquisition Manager (Generate WOS for acquisition devices) DICOM

- Acquisition manager request image manager to store digital asset
- Image manager replies with status code and URL to digital asset if successful

Image Manager (DICOM)

Image Manager – Image Archive

Image Manager (DICOM)

Image Archive (DICOM, VNA / PACS)

- Image manager requests archive to store digital asset
- Image archive replies with status and URL for digital asset if archival successful

Image Archive – Acquistion Modality

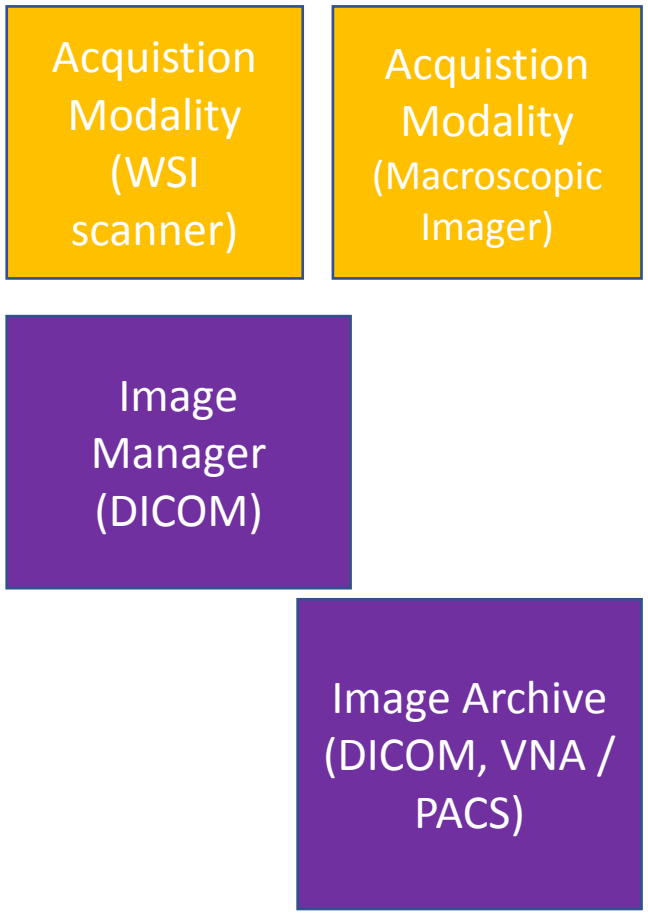
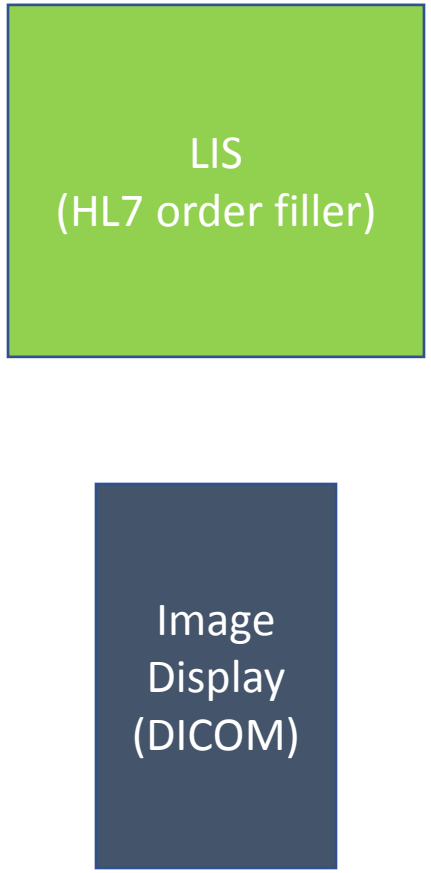


Image Manager – Image Display

Image Manager (DICOM)

Image Display (DICOM)

LIS – Image Display



Digital Pathology White Paper Plan