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IHE for emerging market – Learning from integration experiences

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IHE for emerging market

– Learning from integration experiences

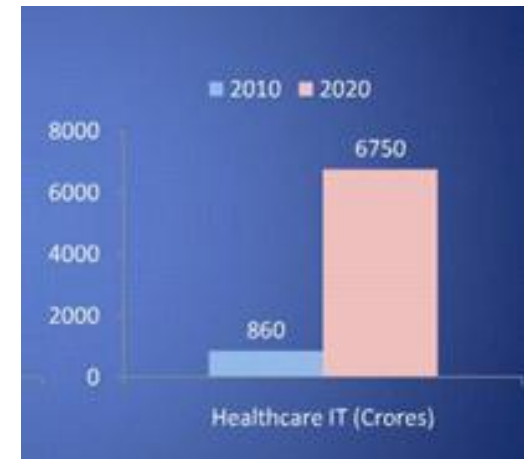


Agenda

- ❖ Medical Imaging in India
- ❖ Imaging Informatics Solution - Current Challenges
- ❖ Radiology Workflow - A Quick Recap
- ❖ Integration Challenges - Our Experiences
- ❖ Conclusions

Hospitals / Diagnostic Centers embracing digital technology.

- # Eagerness to drive paperless practices
- # Advanced Imaging Technologies and equipment are increasingly affordable
- # Increasing adoption of EMR and PACS

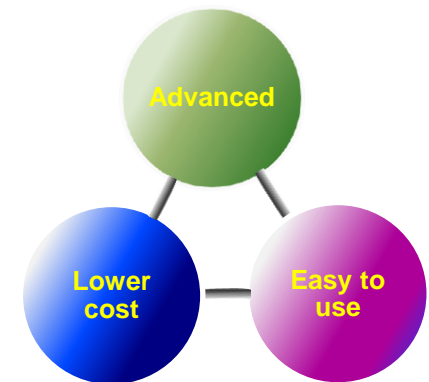


Nasscom stats for healthcare in India (in Indian Rupees)

Imaging Informatics Solution

- Current Challenges / Expectations

- # Indian Radiologist workload 15 times more than USA Radiologist* - *Need to handle high volume of patients at a high throughput*
- # Computer literacy of the data entry operators - *Requires custom error correction workflows*
- # Solutions to be feature rich, cost effective and highly customized



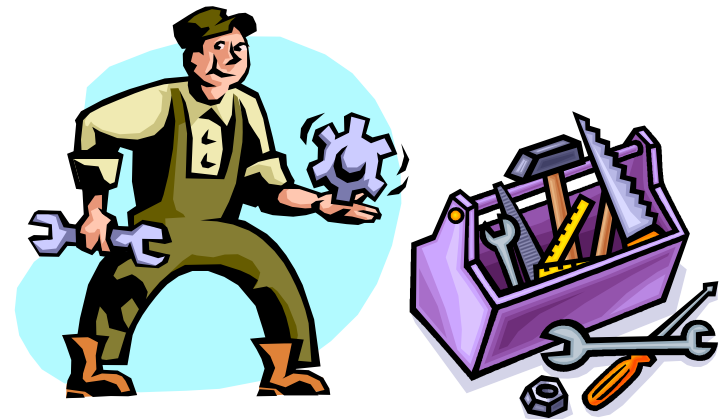
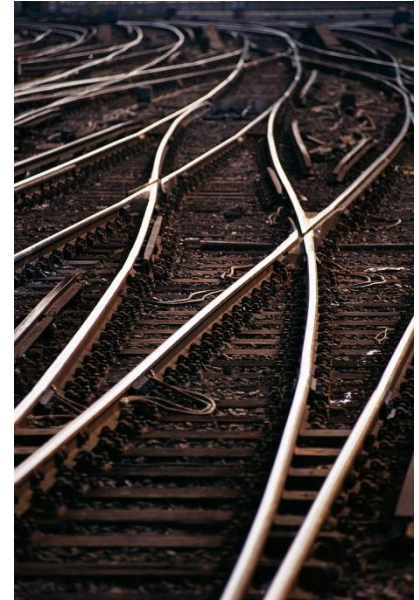
* Reference [Indo-US Workshop on Large Scale Data Analytics and Intelligent Services]

Imaging Informatics Solution

- Current Challenges / Expectations

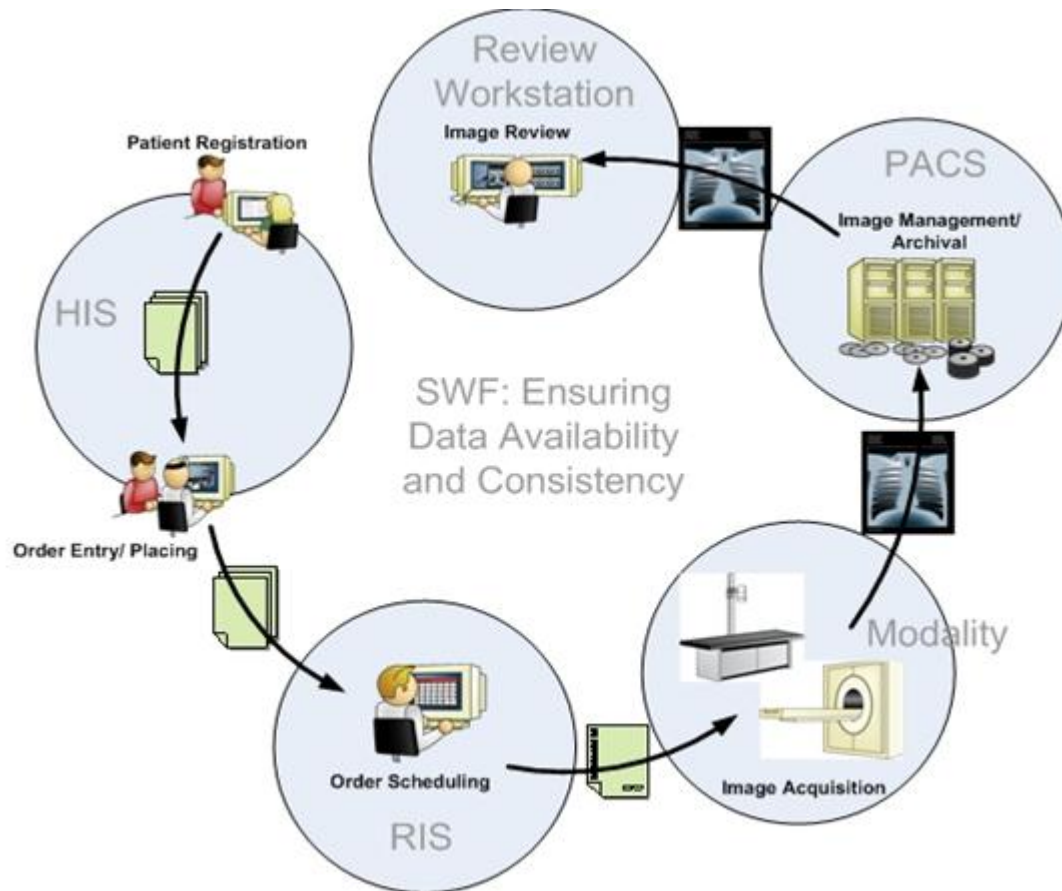
Impact (IHE compliant vendor):

- # Integration with wide range of customized solutions which may not be up-to-date with standards
- # Expectation of high tailoring, even if not standards compliant.



Radiology Workflow - A quick recap

IHE Scheduled Workflow (SWF) integrates the ordering, scheduling, imaging acquisition, storage and viewing activities associated with radiology exams.



Integration challenges:

- ❖ Order Placing
- ❖ DMWL
- ❖ MPPS
- ❖ Reporting

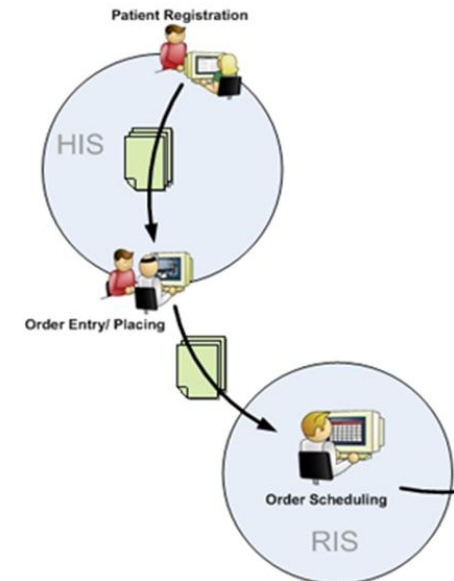
HIS places an imaging order to RIS through HL7 – ORM*

Benefits:

- # Patient demographics / order entry at single place
- # Effort for maintaining and searching of patient files/ folders reduced

Challenges :

- # Legacy HIS not compliant to HL7 standards.
- # Varied implementations of HL7 versions
- # Many customizations required for integration



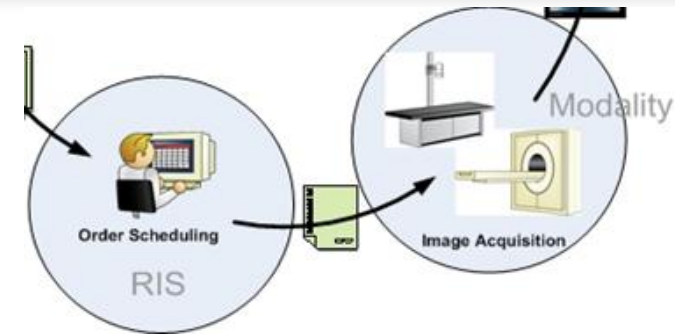
* HL7 v 2.3

Modality Work List (MWL)

Modality queries for work list orders from RIS.

Benefits:

- # Seamless data flow to Modality from order entry
- # Hardcopy Order Requisition forms not required

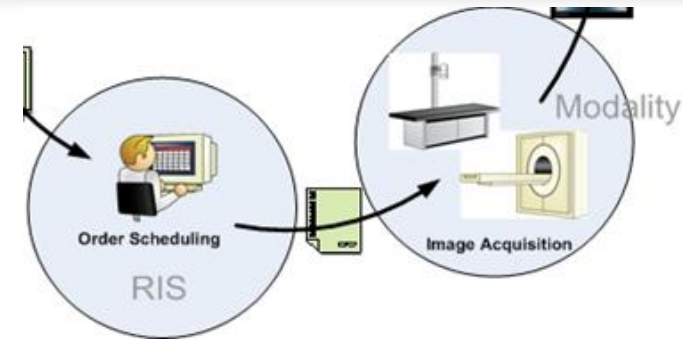


Challenges:

- # In India, many patients not aware of their DOB → Mechanism to inform DOB as approximated
- # Deployments have mix of Modalities with MWL and non-MWL → Custom solution required for paperless workflow
- # Laterality of (paired) body-part not part of requested procedure information

Modality Performed Procedure Step (MPPS)

Modality updates RIS with status of acquisition



Benefits:

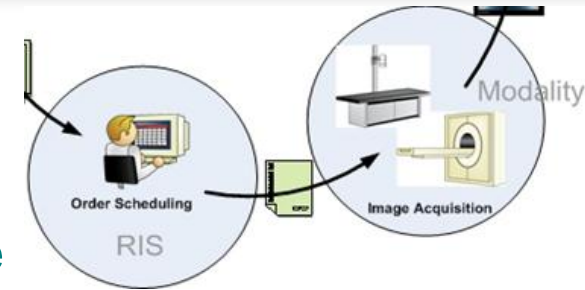
- # Automatic status updates. No manual follow-ups.
- # Contrast dosage information → precise billing / inventory
- # Exposure information → Regulatory / clinical data mining
- # Unscheduled MPPS → Support Emergency Workflow

Contd.

Modality Performed Procedure Step (MPPS) – contd.

Challenges:

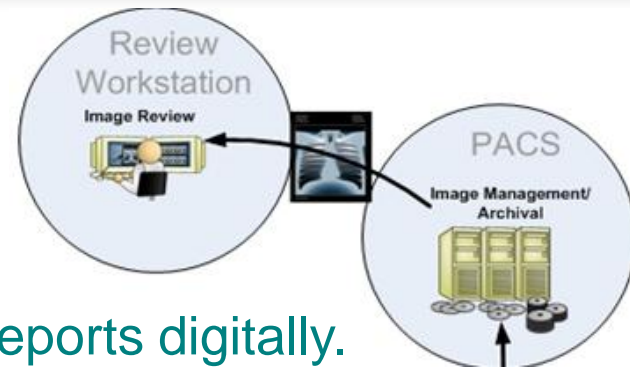
- # Estimated time to complete acquisition not available
- # Order Reconciliation required at RIS for corrections done at Modality
- # Many modalities do not support MPPS
 - Manual intervention to update order status is required
 - Emergency registration at RIS becomes mandatory step



Reporting Workflow helps to organize / schedule reporting tasks and to monitor progress.

Benefits:

- # Search digitally stored report contents. Dispatch reports digitally.
- # Ensures consistency and integrity of patient data



Challenges:

- # Due to high volume, probability of erroneous data entry increases → expectation to handle this with minimal intervention
- # Report recall and distribution due to amend /append of finalized report
- # EMR/HIS expect report in varied formats – Encapsulated Data, String Data,..

- IHE could consider Workflow needs of Emerging Markets.
- The key factors for customization could be
 - Simplified workflow
 - Speed and automation
 - Reconciliation workflow
- India specific Connectathon forum:
 - Vendors get a common platform to integrate and test
 - Reduce integration challenges at deployment

References & Acknowledgements



Title	URL
<p>Medical Image Informatics : Challenges By Phaneendra K Yalavarthy (IISc) [Indo-US Workshop on Large Scale Data Analytics and Intelligent Services]</p>	<p>http://lcm.csa.iisc.ernet.in/indous-symposium/</p>
<p>Fighting Fit: an overview of the market for healthcare technology solutions in India [Nasscom stats for healthcare in India]</p>	<p>http://emerge.nasscom.in/2011/03/fighting-fit-an-overview-of-the-market-for-healthcare-technology-solutions-in-india/</p>
 The IHE logo consists of the letters "IHE" in a bold, purple, sans-serif font. To the right, the tagline "changing the way healthcare connects" is written in a smaller, orange, sans-serif font. Below the tagline, the website "www.ihe.net" is written in a smaller, purple, sans-serif font.	<p>http://www.IHE.net/</p>
 The DICOM logo features a stylized globe with horizontal lines, followed by the word "DICOM" in a large, bold, serif font. Below it, the tagline "Digital Imaging and Communications in Medicine" is written in a smaller, italicized serif font.	<p>http://dicom.nema.org/</p>
 The HL7 logo features the letters "HL7" in a bold, red, serif font. Below it, the tagline "Health Level Seven" is written in a smaller, red, serif font.	<p>http://www.HL7.org/</p>

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Thank you for your attention !