



# EPR & Interoperability Standards for RIS & PACS

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# Data Sharing Standards

- n Architecture
  - n Structured/Unstructured
  - n Centralised/Distributed
  - n Published/Mined
  - n Document-based/Data-based
- n Type
  - n Open
  - n Custom
  - n Proprietary
- n Definitions
  - n Data Content
  - n Messaging

# Architecture

- n Structured/Unstructured
- n Centralised/Distributed
- n Published/Mined
- n Document-based/Data-based

# Structured vs. Unstructured

## n Structured Data

- n Great for homogenous sources such as images – e.g. PACS
- n Useful for research and secondary uses

## n Unstructured Data

- n Most useful for heterogeneous environments
- n Better for humans, not so good for automated usage
- n Most radiology reports (held in RIS) are pretty unstructured

# Centralised vs. Distributed

- n Centralised

- n Data is held in one or more large central “stores”

- n Distributed

- n Data is held locally
  - n (or where most convenient)

# Published vs. Mined

- n Published:

- n Data is explicitly send to the chosen destination(s), based on local policies
- n Publication is analogous to printing off the report etc.

- n Mined:

- n Data is extracted from existing systems via standard or custom interfaces

# Document vs. Data Based

## n Data-Based

- n The important construct is the data itself
- n May be combined or split as convenient

## n Document-based

- n Analogous to paper records
- n Documents (structured or not) are atomic

# Ownership of Standards

- n Standards-based
- n Proprietary
- n Custom

# Open vs. Proprietary vs. Custom

- n Open Standards
  - n Defined by bodies other than the supplier
  - n May be official or “de facto”
    - n TCP/IP used by the whole Internet is officially “unofficial”!
- n Proprietary Standards
  - n Owned by the vendor
- n Custom Standards
  - n Allow development of **exactly** what you want
  - n Can take years to develop
  - n In many cases are simply re-inventing the wheel

# Open vs. Proprietary vs. Custom

	Custom	Proprietary	Open
Your own "perfect" specs	ü	û	û
Well tested	û	?	ü
Ability to Swap Vendors	ü	û	ü
Vendors pays for (and may already have done) the development	û	ü	ü

# What does the standard define?

- n Content
- n Messaging
- n Content + Messaging

# Overview of Open Standards for use in an EPR

- n DICOM
  - n Essential for images
  - n Can also be used for reports (SR)
- n HL7
  - n Mainly “administrative” functions
- n CDA
  - n Based on HL7 V3 – content only
- n ISO 13606
  - n The “academic” solution
- n IHE XDS
  - n Currently the best “pragmatic” open solution
  - n >100 vendors

# Content vs. Messaging

	Content	Messaging
DICOM (inc. SR)	ü	ü
HL7	ü	ü
CDA R2	ü	û
ISO 13606	ü	Promised
XDS	CDA + DICOM + Any	ü

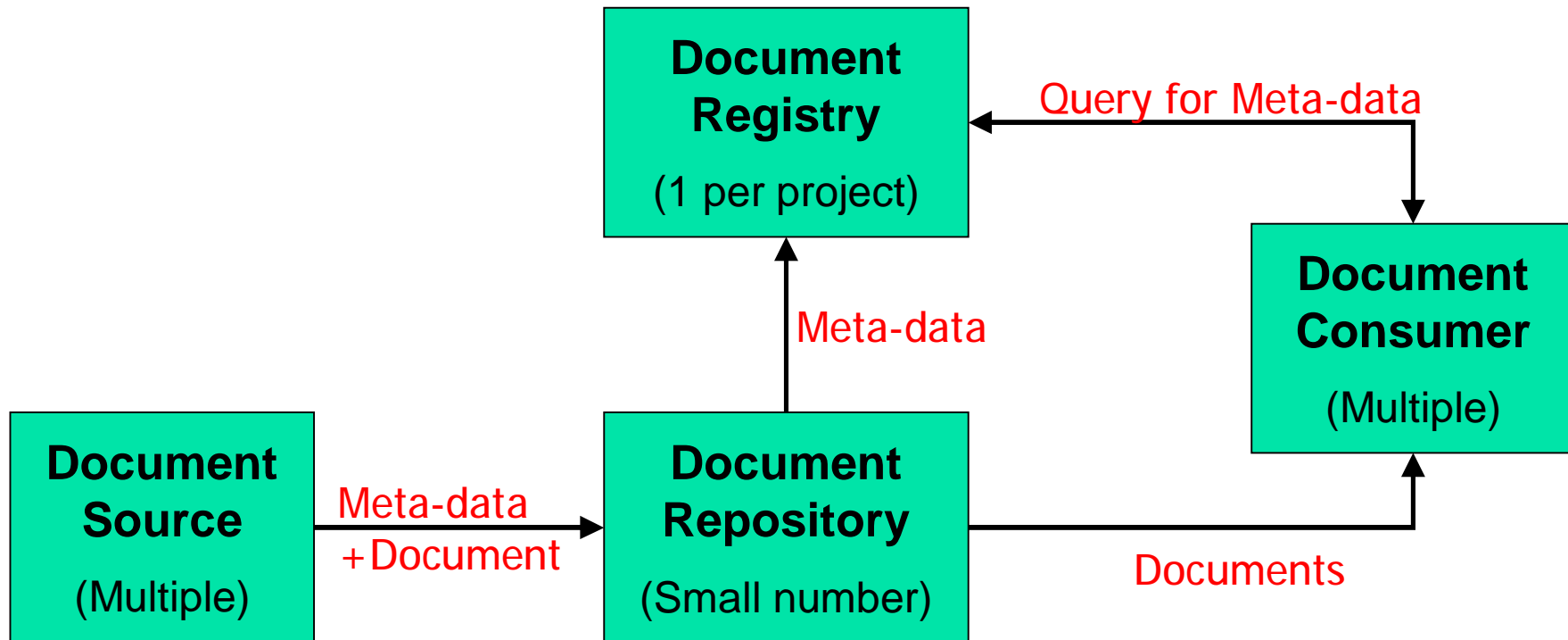
# The IHE XDS Profile

- n “Generic” means of sharing clinical documents
- n Part of ITI domain (not Radiology)
- n Based on clinical and non-clinical standards:
  - n Transmission: http/https + SOAP
  - n Indexing: ebXML
  - n Documents: CDA v2  
PDF  
etc.

# XDS

- n Models:
  - n Publication model
  - n Distributed architecture
  - n Structure Neutral (Unstructured or structured)
  - n Document centric
- n Open Standard
- n Definition
  - n Primarily a messaging standard
  - n Initially content neutral, but with “content” profiles added on top
    - n increasing preference for CDA

# XDS Overview



# Conclusions

- n “The great thing about standards is that there are so many to choose from”
- n No system will ever be perfect
- n Take a long-term view and avoid vendor lock-in
- n Be prepared for change!