

# ***Existing concepts and experiences with interoperability initiatives***

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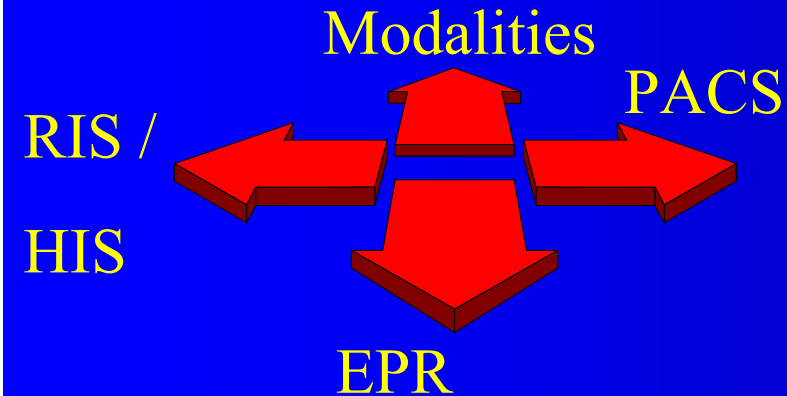
# Topics

- Interoperability problems in healthcare
- IHE – process & architecture
- IHE and Electronic Health Record
- Recommendations for policy makers



# Interoperability problems in healthcare

- Different information islands : PACS, HIS, RIS, EPR, .
- Different standards and information models : DICOM, HL7, XML
- Different (proprietary) interpretations and implementations



# The IHE Initiative

## Integrating the Healthcare Enterprise

- Goal : Improve the efficiency and accuracy of clinical practice through:
  - Improve Clinical Workflow within healthcare enterprise
  - Improve Information Access (images, reports,..)
- Prove that integration is attainable based on existing standards
  - IHE is not a standardization body
- Enable cross-vendor environment
- Started in radiology and migrating to healthcare enterprise
- Participants:
  - Representatives of Healthcare Providers (hospitals, end-users, government)
  - Vendors of healthcare Information Systems and Imaging Systems
  - Standardization Groups



# IHE in Europe



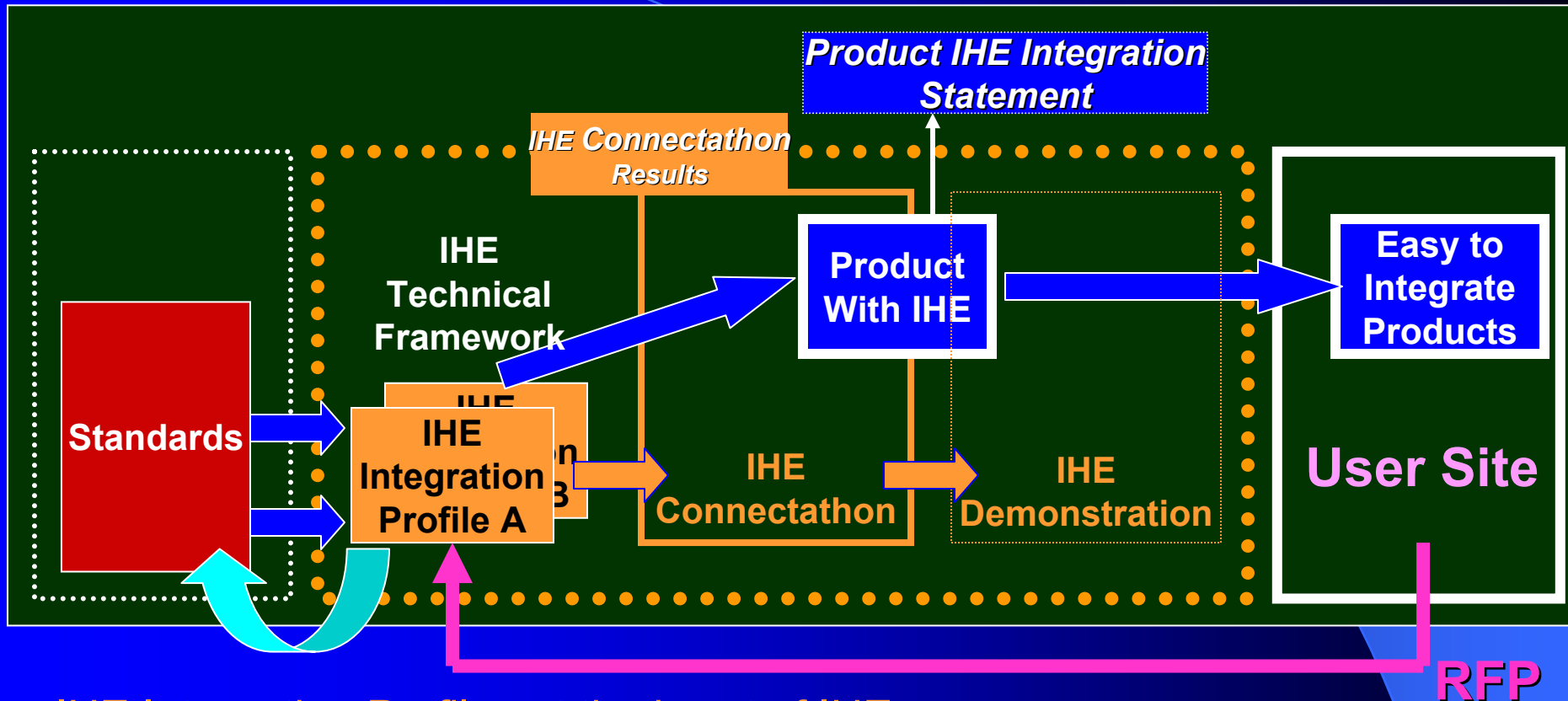
- National IHE Committees in France, Germany, Italy, UK, Norway, Denmark, Netherlands, Spain
- Similar initiatives in USA, Canada, Japan, South-east Asia
- More info : [www.ihe-europe.org](http://www.ihe-europe.org)

# IHE Process

- Users and vendors work together to identify and design solutions for real-world integration problems
- Intensive process with annual cycles:
  - Identify key healthcare workflows and integration problems
  - Research & select standards to specify a solution
  - Write, review and publish IHE Technical Framework
  - Vendors implement Technical Framework in products
  - Perform cross-testing at “Connectathon” (validation session)
  - Demonstrations at tradeshow (HIMSS, ECR, national demos)
- Document implementation in products (integration statement)



# A Proven Standards Adoption Process

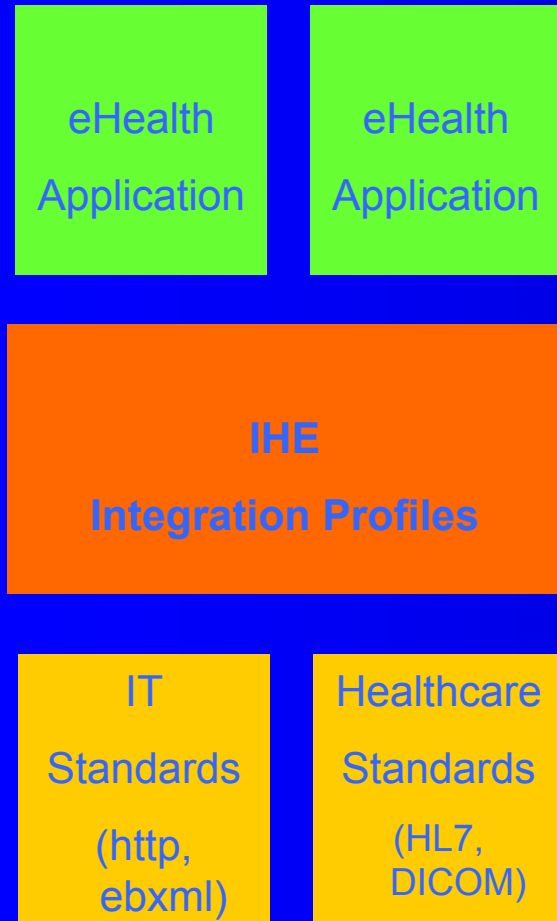


- IHE Integration Profiles at the heart of IHE :

- Detailed selection of standards and options each solving a specific integration problem
- A growing set of effective provider/vendor agreed solutions
- Vendors can implement with ROI
- Providers can deploy with stability



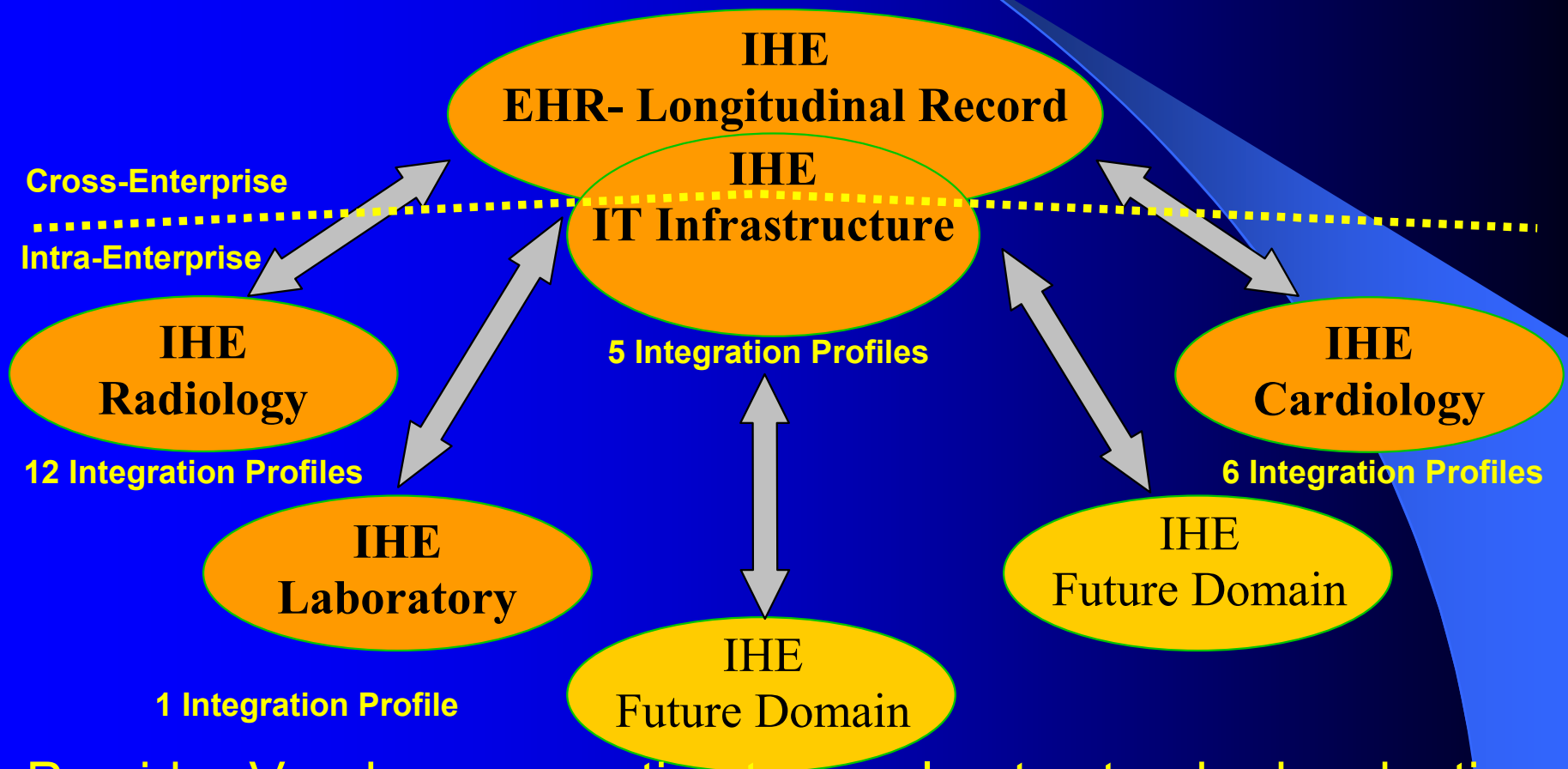
# IHE Architecture



- IHE Integration profile : coherent set of integration functionality
- Sequence of messages between logical entities (actors)
- Profiling of existing standards (restrict options, clarify semantics)
- IHE Technical framework :
  - 750 pages (5% is country specific)

# IHE achievements and expanding scope

Over 80 vendors involved world-wide, 4 Technical Frameworks  
24 Integration Profiles, Testing at yearly Connectathons,  
Demonstrations at major exhibitions world-wide



Provider-Vendor cooperation to accelerate standards adoption



# IHE Integration profiles - Facts

- 4 Domains :
  - radiology, clinical lab, cardiology, enterprise
- 26 Integration Profiles (up to 2004)
- Examples :
  - Workflow :
    - E.g. scheduling workflow
  - Access to clinical parts of hospital's patient record
    - E.g. reports, lab results, images
  - Security :
    - authentication, auditing
  - Reporting :
    - create, store, manage reports
  - Cross referencing patient id's among hospitals (MPI)



# IHE Validation process



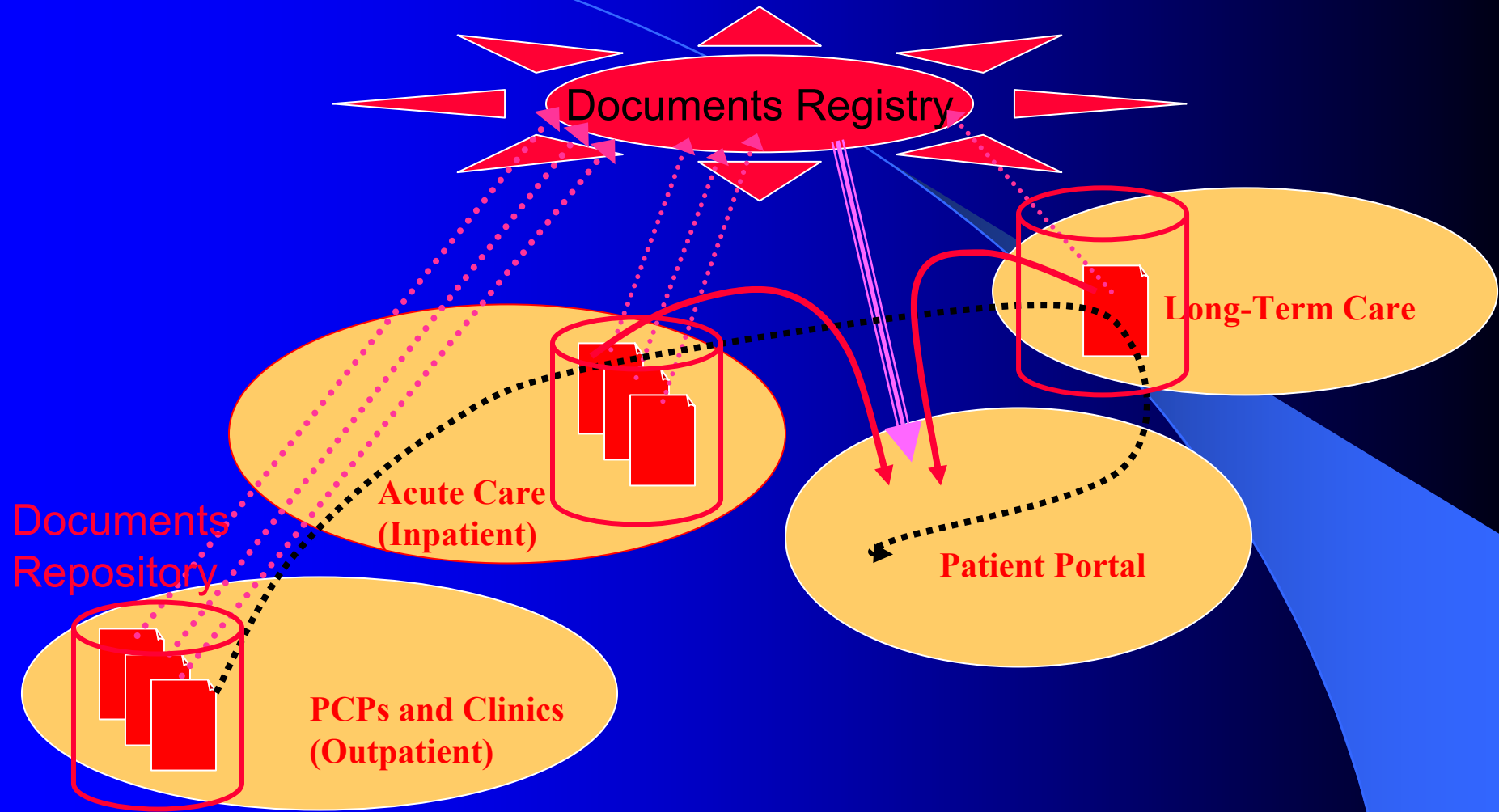
- IHE stimulates auto-validation; IHE is not a certification authority
- Validation tools :
  - MESA test toolkit
- Connect-a-thon :
  - 1 week validation session in Europe, USA and Japan
  - Validate the Integration Profiles
  - 2004 : 50+ companies, 100+ products
  - Results are published

# IHE and Electronic Health Record (EHR)

- Focus:
  - Clinical Information Exchange between EHR-Systems in healthcare providers to establish a shared longitudinal health record.
- Key elements of proposed architecture
  - Distributed
  - Cross-enterprise
  - Document centric sharing of patients records



# IHE EHR Architecture



# IHE process for EHR

- Define a well-defined set of practical scenarios
  - Focus on the interoperability problems among EHR systems
  - Multi-year roadmap (2004-2008) of EHR Integration Profiles
- Select and profile existing standards :
  - Messages : ebXML
  - Document structure : HL7 CDA (Clinical Document Architecture)
  - Document content : ASTM CCR (Continuity of Care Record), EHRCOM Compositions and others
- Create a complete specification of the messages involved
- Co-operate with established standards bodies (Eurorec, CCR) to fill gaps in existing standards
- Demonstrate the individual Integration profiles at yearly demonstrations



# Recommendations for policy makers

- Involve users and industry in standardization process
- Follow iterative approach with yearly release cycle
- Demonstrate results at healthcare congresses & exhibitions+ gathering feedback from end-users & industry
- Encourage profiling of existing standards
- Don't forget validation of interop standards in products
- Domains for European sponsorship :
  - User/industry associations to participate in standardization process (not individual members)
  - Standards process infrastructure : e.g. secretariat
  - Validation sessions
  - Marketing and promotion