



Leveraging Health Information Exchange to Improve Quality and Efficiency

**Presentation for the TIGER Initiative
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Joyce Sensmeier MS, RN-BC, CPHIMS, FHIMSS

Objectives

- ▶ Examine the role of standards in providing a foundation for interoperability
- ▶ Describe the current landscape for health information exchange
- ▶ Explore the potential impact of the HITSP Interoperability Specifications on consumers and healthcare systems

Health Informatics Standards Are Needed

- ▶ To improve the quality of patient care
- ▶ To decrease the number of errors
- ▶ To improve the cost effectiveness and efficiency of day-to-day healthcare operations
- ▶ To provide the tools for world class clinical research



Romano, 2004





What is a Standard?

- ▶ A standard specifies a well defined approach that supports a business process and . . .
 - has been agreed upon by a group of experts
 - has been publicly vetted
 - provides rules, guidelines, or characteristics
 - helps to ensure that materials, products, processes and services are fit for their intended purpose
 - is available in an accessible format
 - is subject to ongoing review and revision process

- ▶ Harmonization is required when a proliferation of standards prevents **progress rather than enables it**



What is a Standard?



A definition or format that has been approved by a recognized standards organization or is accepted as a de facto standard by the industry. Standards exist for programming languages, operating systems, data formats, communications protocols, and electrical interfaces.

*HIMSS Dictionary of HIT
Terms 2006*



Globally Recognized Standards: Critical to Improvements in Healthcare Delivery

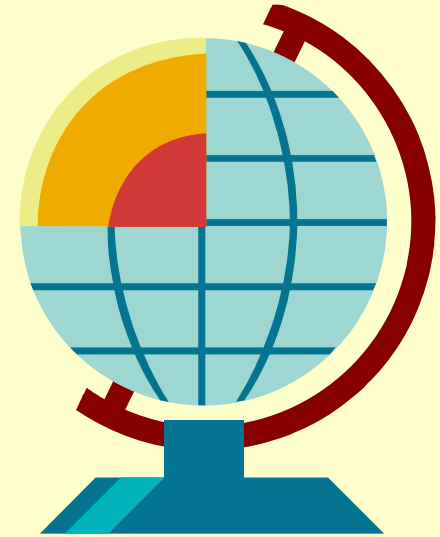
▶ Standards

- Establish a common terminology
- Facilitate interoperability and integration
- Create structured information models for data structure and interchange
- Enhance security and privacy



Standards: Necessary... not Sufficient

- ▶ Standards are:
 - *Foundational* - to interoperability and communications
 - *Broad* - varying interpretations and implementations
 - *Narrow* - may not consider relationships between standards domains
 - *Plentiful* - often redundant or disjointed
 - *Focused* - standards implementation guides typically focus on a single standard



ANA Recognized Terminologies to Support Nursing Practice



▶ *Nursing Terminologies*

- ▶ CCC - Clinical Care Classification
- ▶ ICNP® - International Classification of Nursing Practice
- ▶ NANDA - NANDA International
- ▶ NIC - Nursing Intervention Classification
- ▶ NOC - Nursing Outcome Classification
- ▶ OMAHA SYSTEM - Omaha System
- ▶ PCDS - Patient Care Data Set
- ▶ PNDS - Perioperative Nursing Data Set

▶ *Multidisciplinary Terminologies*

- ▶ ABC Codes ABC Codes
- ▶ LOINC® Logical Observation Identifiers Names and Codes
- ▶ SNOMED CT Systematic Nomenclature of Medicine Clinical Terms





SNOMED CT[®]

Systematized Nomenclature of Medicine
Clinical Terms[®]

One example.....

- A **comprehensive**, scientifically validated **terminology** and infrastructure for **healthcare**
- Allows for a **consistent** way of indexing, storing, retrieving and aggregating clinical **data across specialties and sites** of care

www.snomed.org

SNOMED CT[®]

Systematized Nomenclature of Medicine
Clinical Terms[®]

- ▶ Helps to structure and computerize the electronic health record, **reducing the variability** in the way **data is captured, encoded and used** for clinical care of patients and research

www.snomed.org

Standards Harmonization Objectives



- ▶ In order to achieve the primary goal of full healthcare interoperability, harmonization must be achieved in five major areas:
 - **Context/Information Model** – establishing a common reference information model to support clinical, public health, financial, and administrative healthcare functions
 - **Terminology/Content Definition** – establishing common reference terminology models and data content specifications that are integrated with the information model
 - **Privacy and Security** – establishing a common security framework
 - **Methodology** – establishing a common methodology/process that all standards organizations and code set maintainers will follow to achieve standards harmonization
 - **Information Interchange** – establishing a common information interchange format and standards-based application roles and interactions in a comprehensive dynamic model

- ▶ **Achievement creates a Common Standards Harmonization Framework**

What is Interoperability?

The ability of two or more systems or components to exchange information and to use the information that has been exchanged.

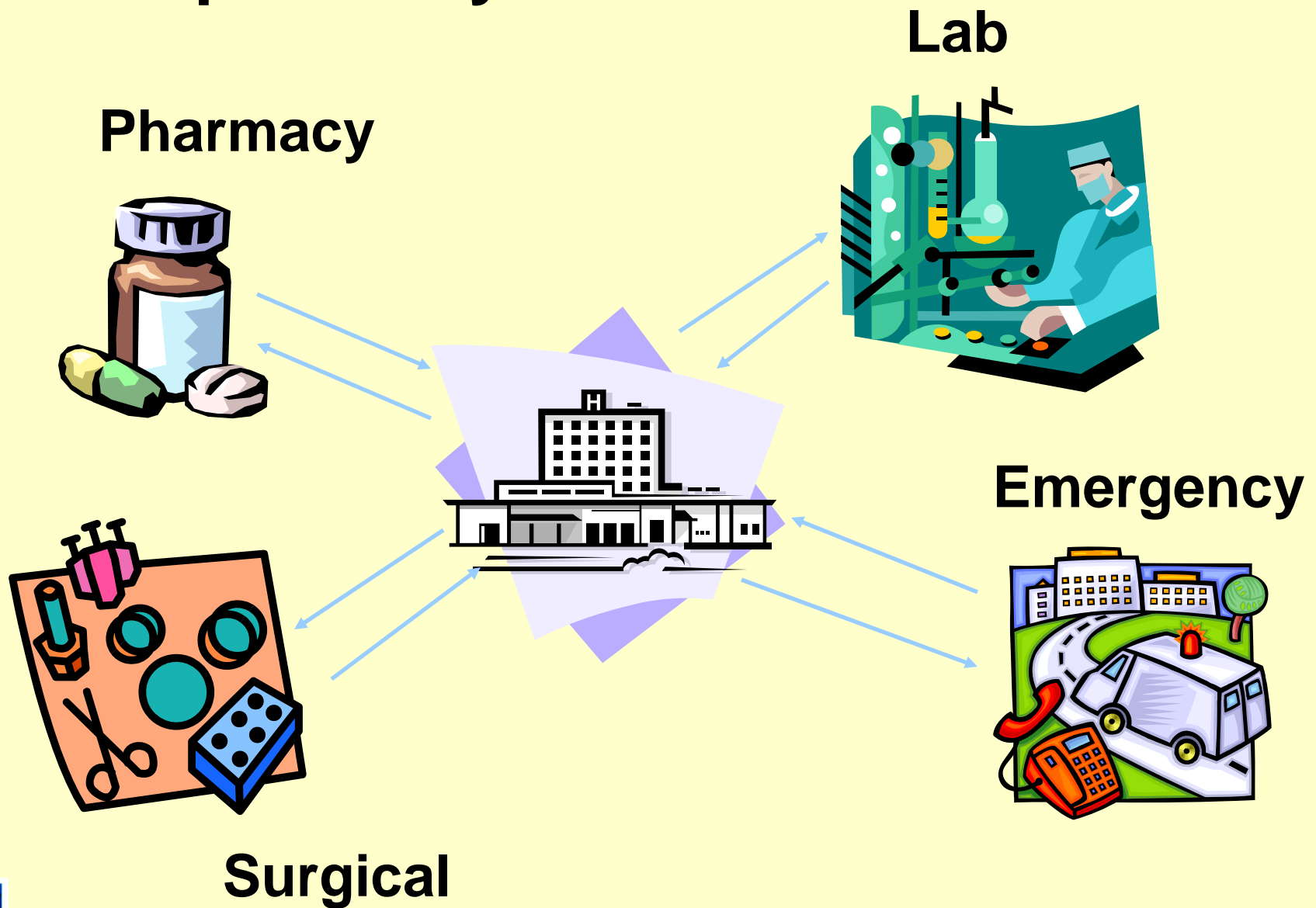
Semantic Interoperability

IEEE dictionary

Functional Interoperability



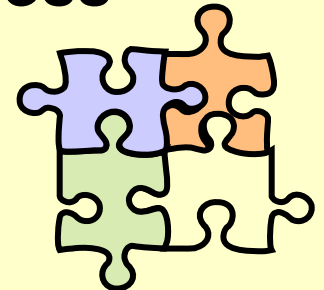
Interoperability



Current Landscape:

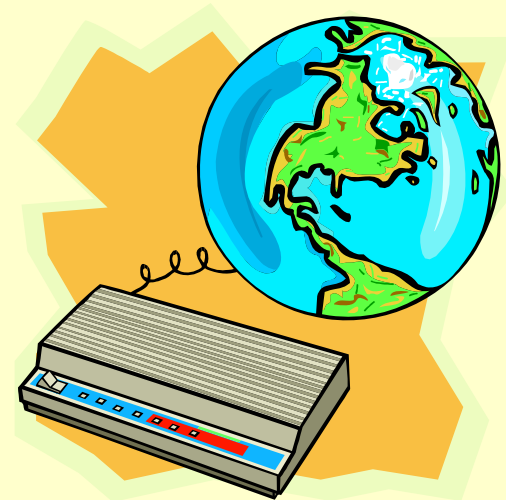
Disparate vendor systems, applications, and connectivity suites

- ▶ Historically, “unique” market needs within the healthcare community were addressed with ***customized systems, applications and standards***
- ▶ ***More than a dozen standards-setting organizations***
 - from ANSI-accredited bodies to industry consortia and other forums – have developed a plethora of standards to meet the needs of specific sectors within the healthcare IT market
- ▶ However, the disparate messaging systems, data elements and vocabulary now ***prevent the cross-system of health information exchange.***

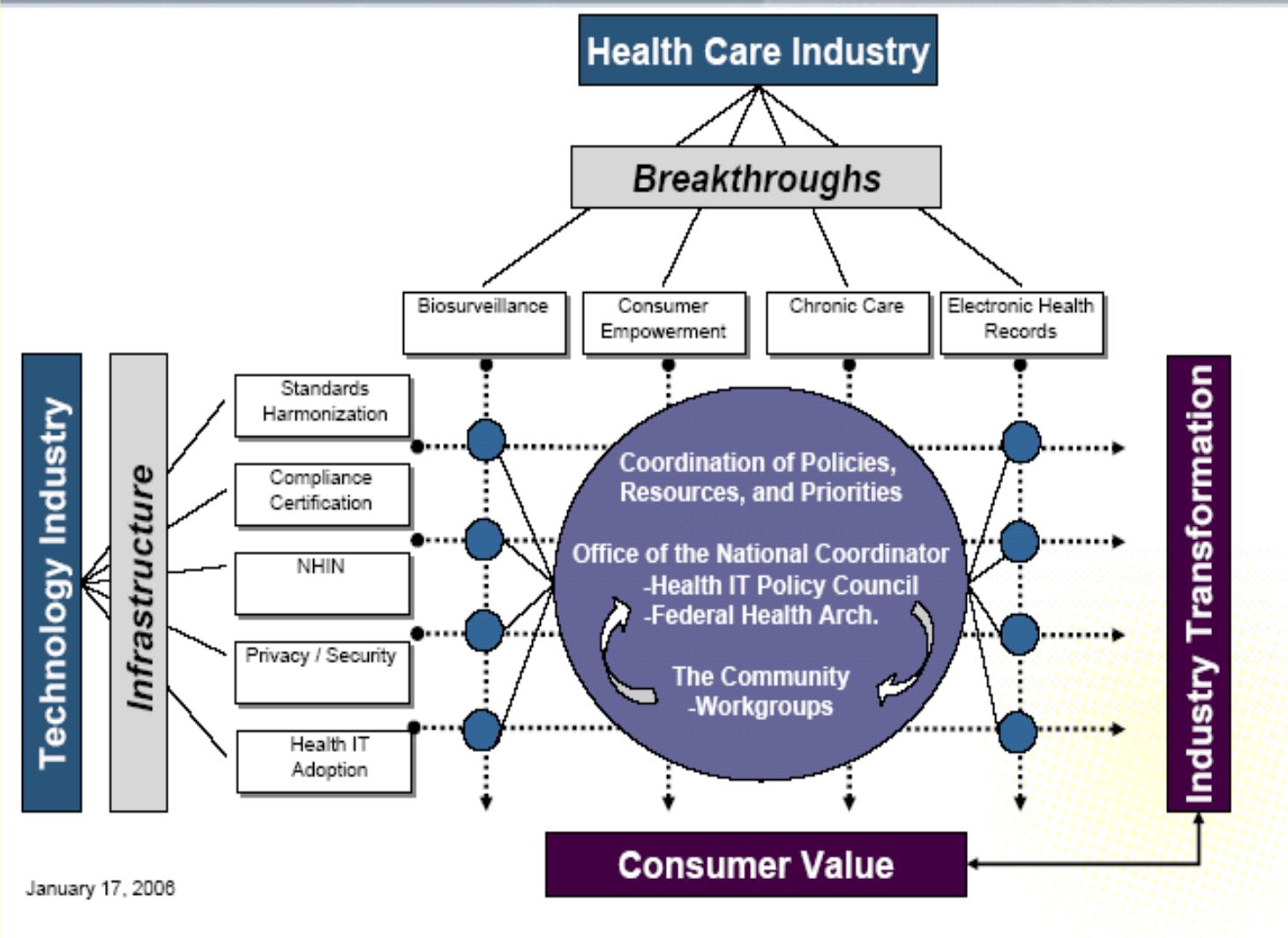


Impact on Healthcare IT

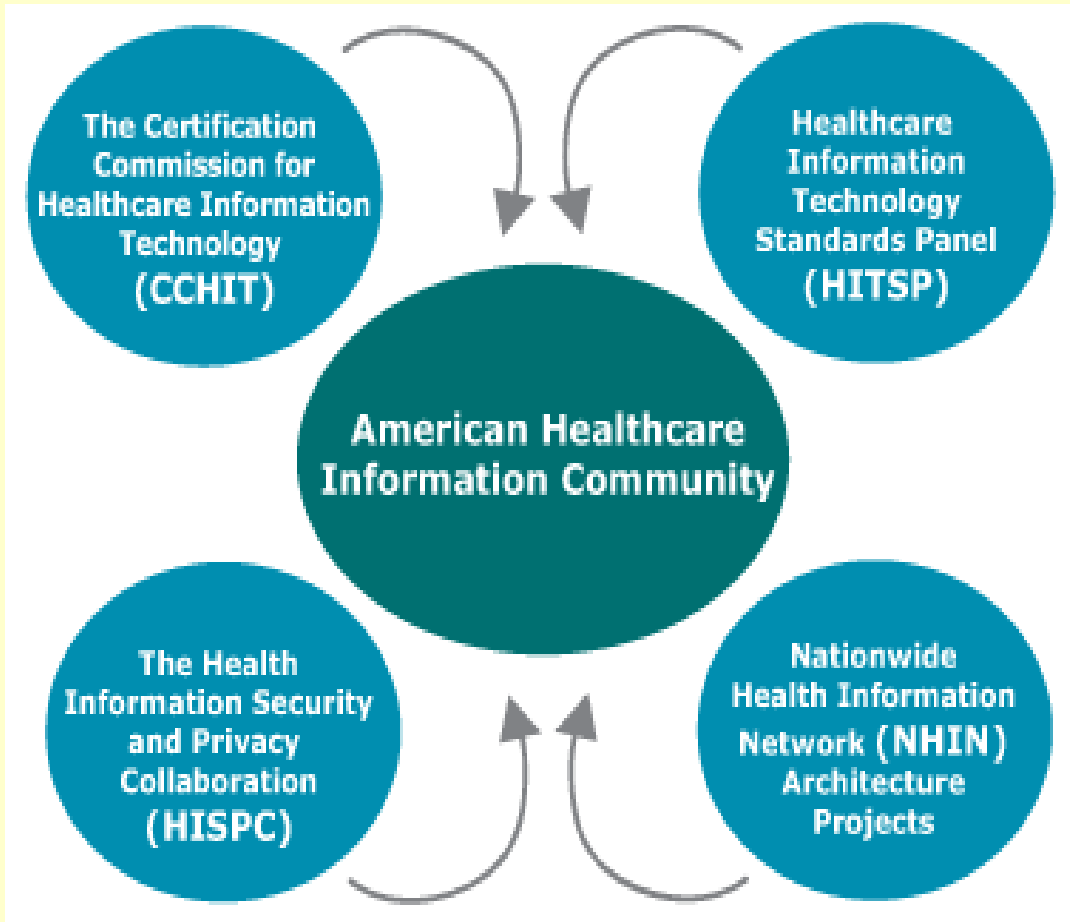
- ▶ Technology trends can no longer develop in a void
- ▶ Systems must connect with each other
 - Organizational
 - Local
 - National
 - Global
- ▶ Public/Private partnerships needed



In 2005, HHS awarded contracts to seed a public-private effort to build a nationwide health information network



A public-private “Community” was then established to serve as the focal point for America’s health information concerns and drive opportunities for increasing interoperability



HITSP includes 351 different member organizations and is administered by a Board of Directors

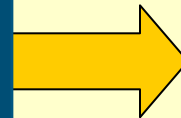
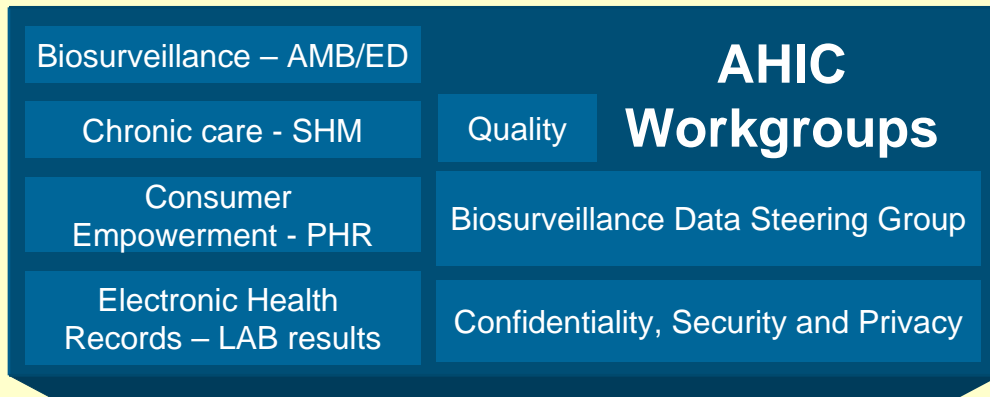
- 24 SDOs (7%)
- 248 Non-SDOs (71%)
- 30 Govt. bodies (9%)
- 13 Consumer groups (3%)
- 36 Project Team and Undeclared (10%)

The Community is a federally-chartered commission and will provide input and recommendations to HHS on how to make health records digital and interoperable, and assure that the privacy and security of those records are protected, in a smooth, market-led way.

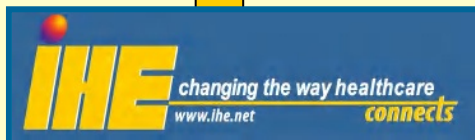
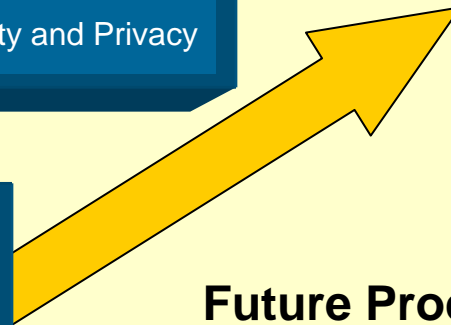
AHIC to HITSP to CCHIT Affect on Vendor Product Roadmaps

*The Journey to “an interoperable EHR for most Americans” by 2014 . . .
to improve the quality and efficiency of health care*

American Health Information Community



HIT Certified Products



Future Product Road Maps with Requirements to Support Four Use Cases

Biosurveillance - Ambulatory/ED Visits

EHR - Lab Results

Consumer Empowerment - Personal Health Record

Chronic Care - Secure Health Messaging

Raiford, 2007



A Framework for Interoperability



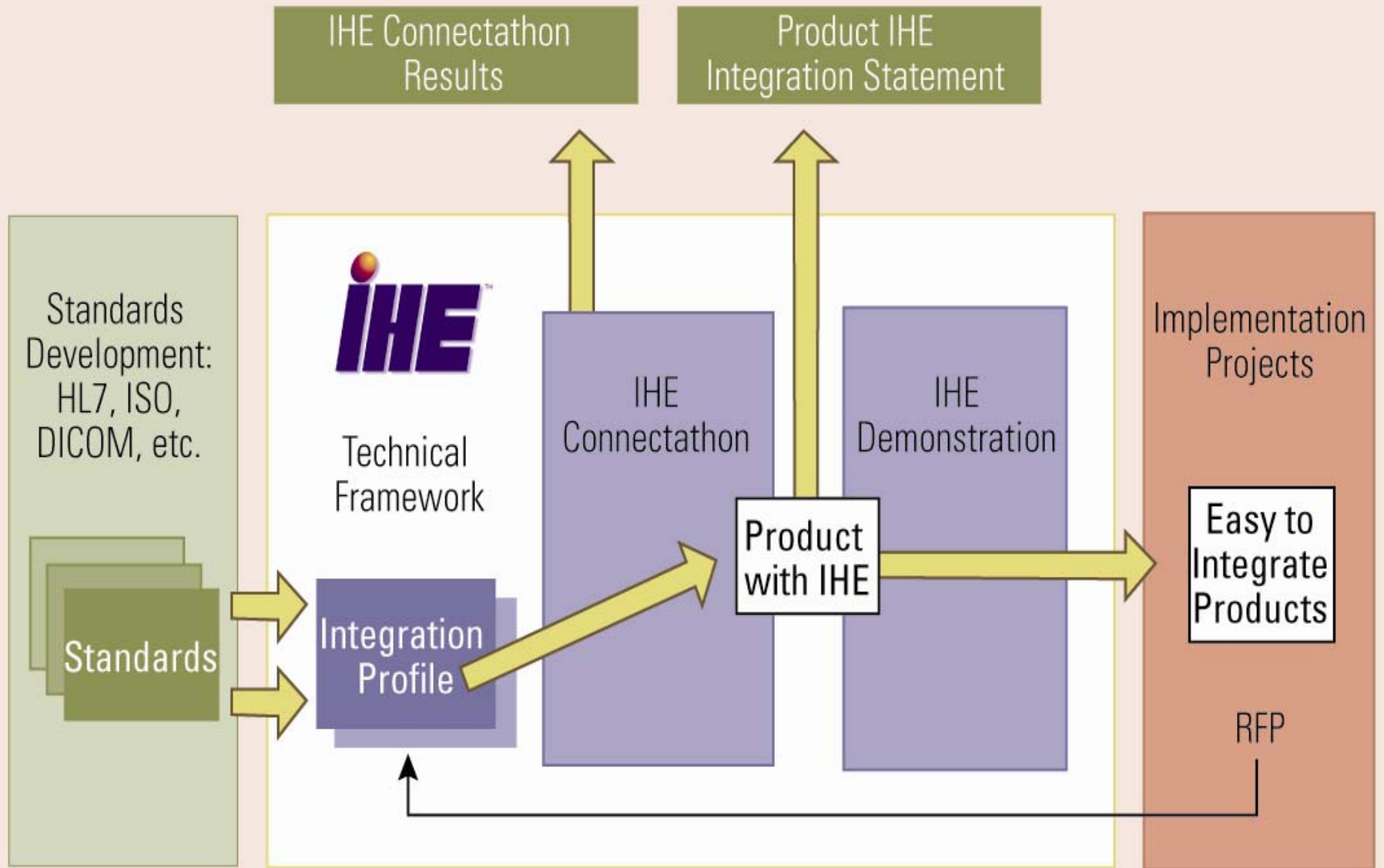
▶ Integrating the Healthcare Enterprise:

- An initiative that improves patient care by harmonizing healthcare information exchange
- Provides a common framework for implementing standards to seamlessly pass health information among care providers, enabling local, regional and nationwide health information networks
- Promotes the coordinated use of established standards—Health Level 7, ASTM, DICOM, CDISC, W3C, IEEE, etc.—to address specific clinical needs



What Is IHE?

- ▶ IHE is a *collaborative response* to healthcare IT market requirements for system integration.
- ▶ Develop standards-based implementation specifications called *profiles*.
 - Useful subsets of one or more standards
 - Tested at *Connectathons*
 - Demonstrated at *HIMSS, RSNA* conferences
 - Correct known integration problems.
 - Intra-enterprise and multi-enterprise scope
 - Constrain optionality
 - Build *trust, collegiality, effectiveness* among vendors, providers, and other stakeholders.



IHE: Connecting Standards to Care

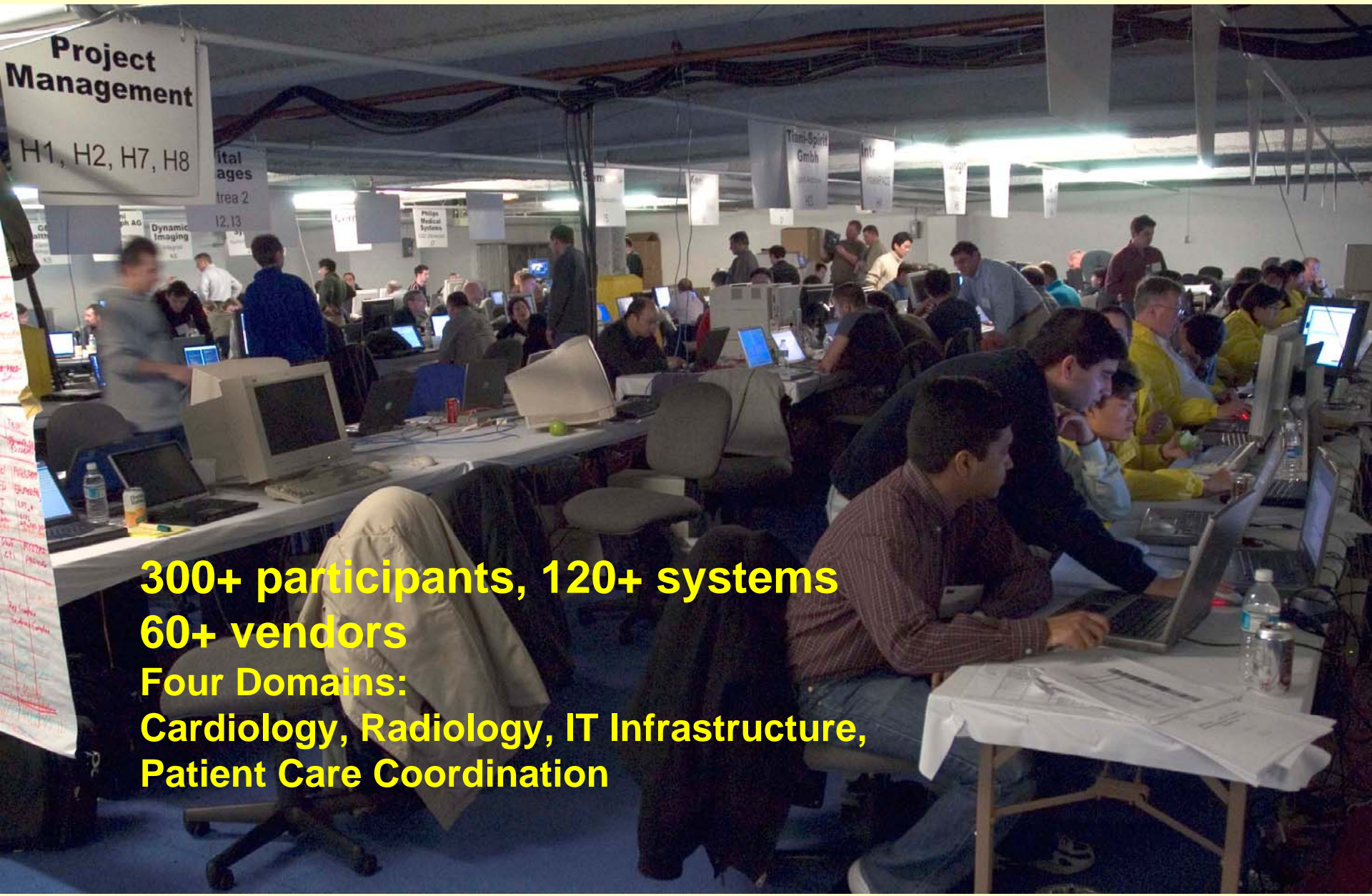


- ▶ Healthcare professionals working with industry
- ▶ Coordinate implementation of standards to meet clinical and administrative needs
 - **Clinicians and HIT professionals identify the key interoperability problems they face**
 - **Providers and industry work together to develop and make available standards-based solutions**
 - **Implementers are able to follow common guidelines in purchasing and integrating effective systems**

IHE: A forum for agreeing on how to implement standards and processes for making it happen



IHE Connectathon, January 2006



300+ participants, 120+ systems

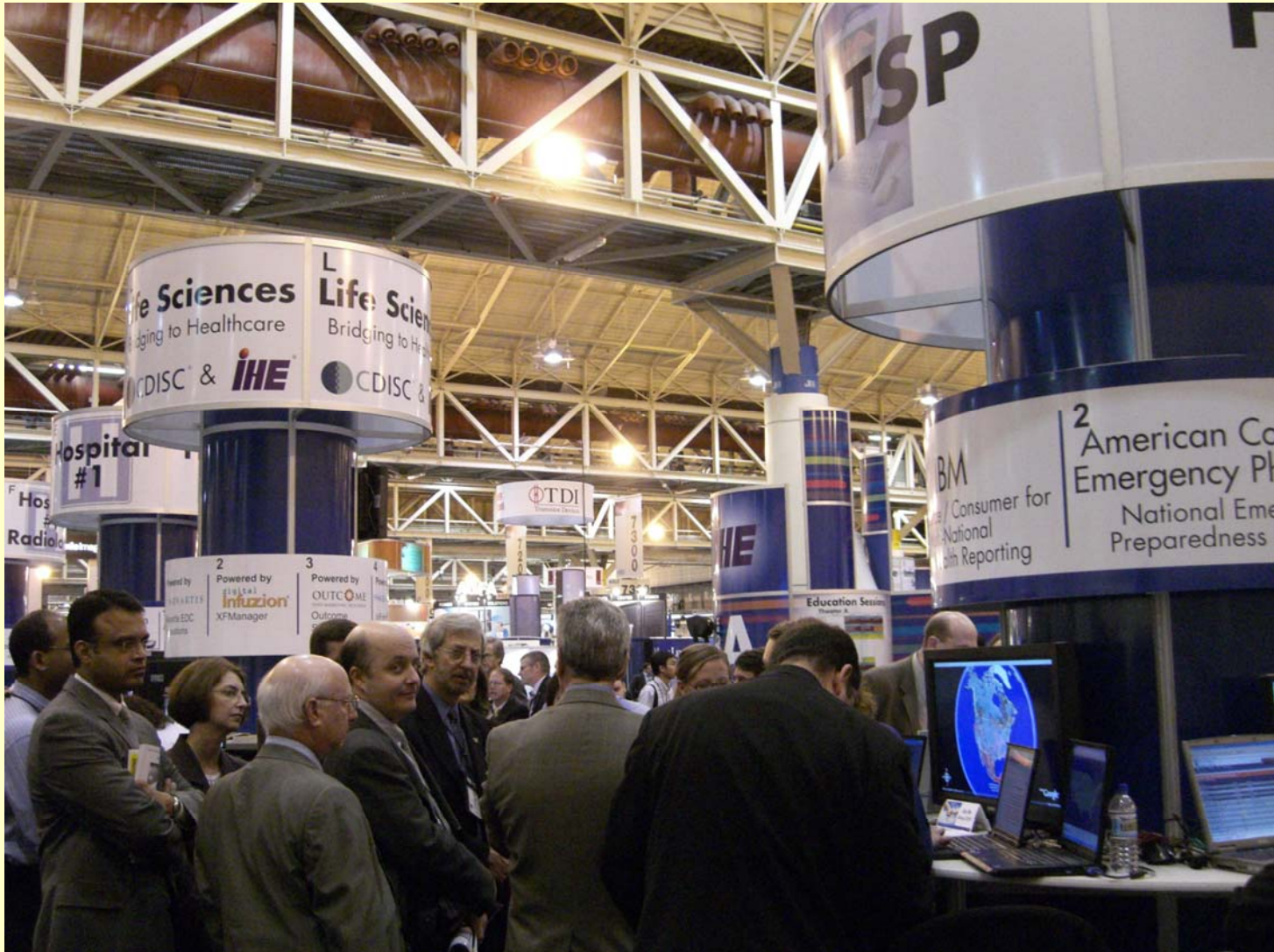
60+ vendors

Four Domains:

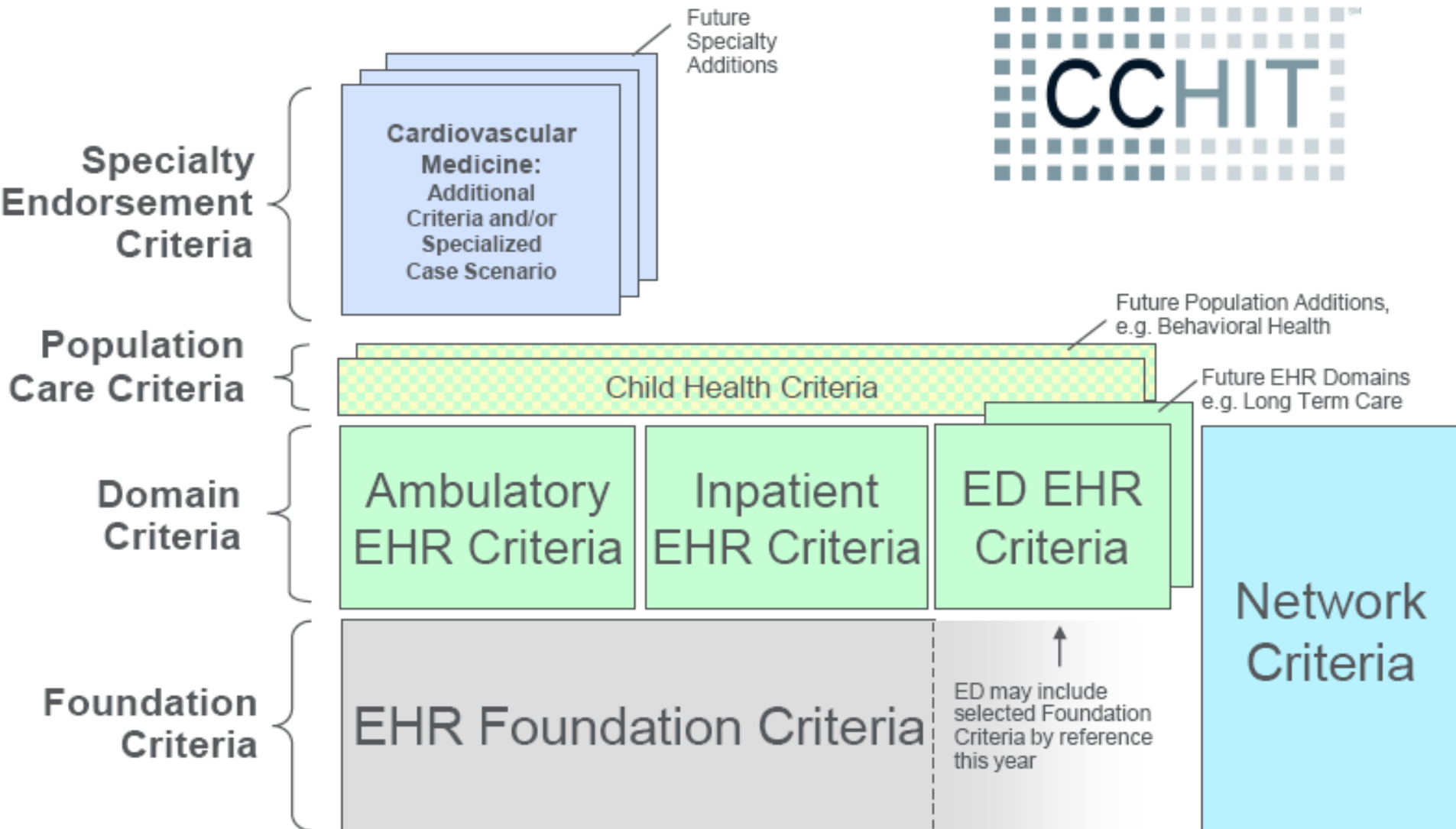
Cardiology, Radiology, IT Infrastructure,

Patient Care Coordination

HIMSS 2007 Interoperability Showcase



CCHIT – Modular Certification Structure



CCHIT Interoperability Criteria

- ▶ HL7 V3
 - Clinical Document Architecture (CDA)
 - Continuity of Care Document (CCD)

Blending of the CDA and CCR standards

- ▶ ASTM standard
 - Continuity of Care Record (CCR)
- ▶ Standardized vocabulary
 - SNOMED
 - LOINC



- ▶ IHE Profiles

More info at www.cchit.org



Presidents Executive Order

*For Immediate Release
Office of the Press Secretary
August 22, 2006*

Executive Order: Promoting Quality and Efficient Health Care in Federal Government Administered or Sponsored Health Care Programs

Sec. 3. Directives for Agencies. Agencies shall perform the following functions:

Health Information Technology -

For Federal Agencies. As each agency implements, acquires, or upgrades health information technology systems used for the direct exchange of health information between agencies and with non-Federal entities, it shall utilize, where available, health information technology systems and products that meet recognized interoperability standards.

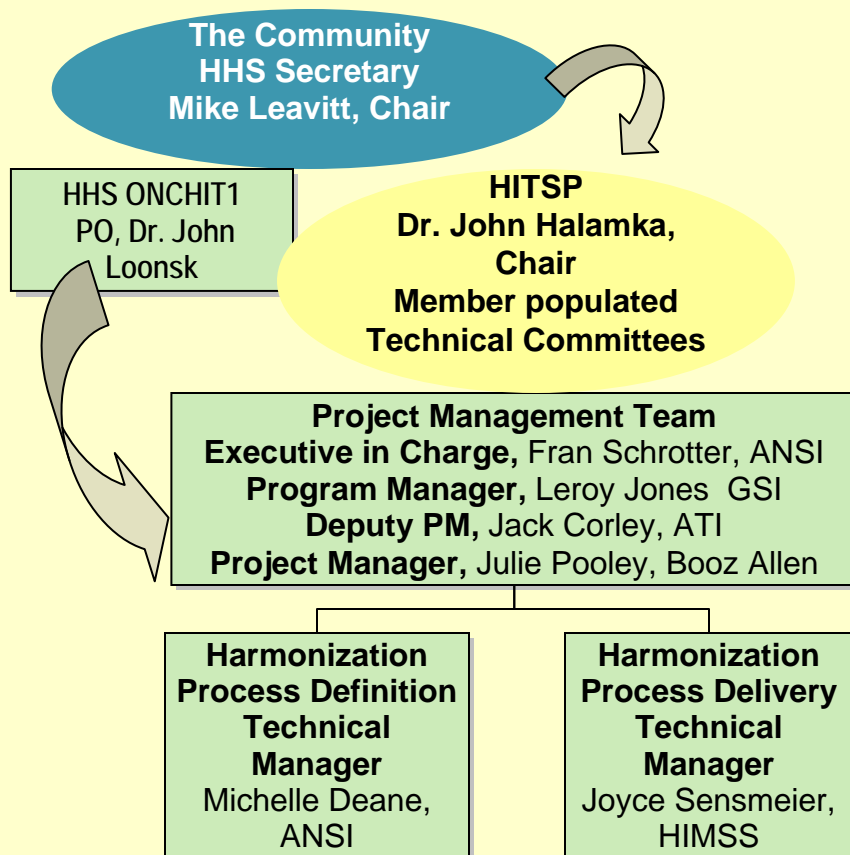
What is the Healthcare Information Technology Standards Panel?

- ▶ The Healthcare Information Technology Standards Panel (HITSP) is a volunteer, consensus-driven organization
- ▶ The Panel brings together experts from across the healthcare community – from **consumers to doctors**, nurses, and hospitals; from *those who develop* healthcare IT products to **those who use them**; and from the **government agencies** who monitor the U.S. healthcare system to **those organizations who are actually writing the standards**



The HITSP team is charged with completing eleven different tasks, with current efforts focused on the harmonization process

Eleven Tasks included in this contract:



1. Comprehensive Work Plan
2. Conduct a Project Start Up Meeting
3. Deliver Recommended Use-Cases
4. Participate in related meetings and activities, including the AHIC Meetings
5. Develop a Gap Analysis
6. Standards Selection, Evaluations and Testing
7. Define a Harmonization Approach
8. Develop Interoperability Specifications
9. Develop and Evaluate a Business Plan for the self-sustaining processes
10. Submit Monthly Reports – ongoing efforts
11. Assist with communications – ongoing efforts



HITSP Standards Harmonization Process

Mission:

To harmonize relevant standards in the health care industry to enable and advance interoperability

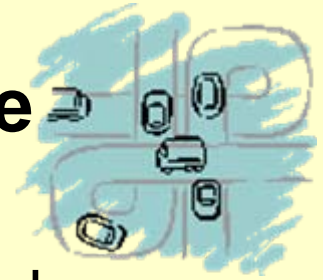
The standards harmonization process is an open, inclusive, collaborative, use case driven process

www.hitsp.org

1. Identify a pool of standards for a general breakthrough area
2. Identify gaps and overlaps for a specific context
3. Make recommendations to the HITSP for resolution of gaps and overlaps
4. Develop interoperability specifications for using the selected standard for a specific context
5. Test the instruction for using the standard



Harmonization Initiatives: Laying the Foundation for the Nationwide Health Information Network (NHIN)

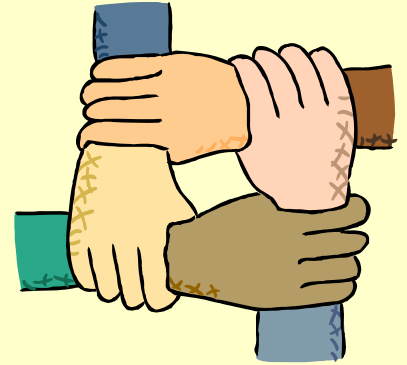


- ▶ HITSP members and experts have committed themselves to setting and implementing standards that will ensure the integrity and interoperability of health data
 - In some cases, redundant or duplicative standards will be eliminated
 - In other cases, new standards may be established to span information gaps
 - In all cases, the resulting standards serve the consumer and other healthcare stakeholders by addressing issues such as data accessibility, privacy and security



What did HITSP do in 2006?

- ▶ Established the HITSP Organization, Panel and its Committees
- ▶ Created the standards harmonization process including all coordinating committee sub-processes
- ▶ Harmonized 3 Use Cases and resolved three controversies along the way
- ▶ To align HITSP interoperability specifications with CCHIT functional criteria, the CCHIT/HITSP Joint Working group is establishing a joint timeline for the next 3 years – Memorandum of Understanding signed.



Interoperability Specification Process

- ▶ The specifications are intended to be used by architects and system designers as a way to guide future implementation efforts based on health IT
- ▶ The specifications represent an ongoing effort to create a framework/template that represents a solution set for solving the known problems related to a Use Case



Impact of 2006 HITSP Interoperability Specifications

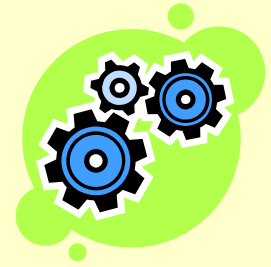
HHS Secretary Michael Leavitt..



- “Accepted” all three HITSP Interoperability Specifications – December 2006
- Will “recognize” them in December 2007 assuming “minor changes of a technical nature”
- “Recognition” triggers Executive Order expectations
- Several states including Texas have introduced laws to require implementation of HITSP Interoperability Standards



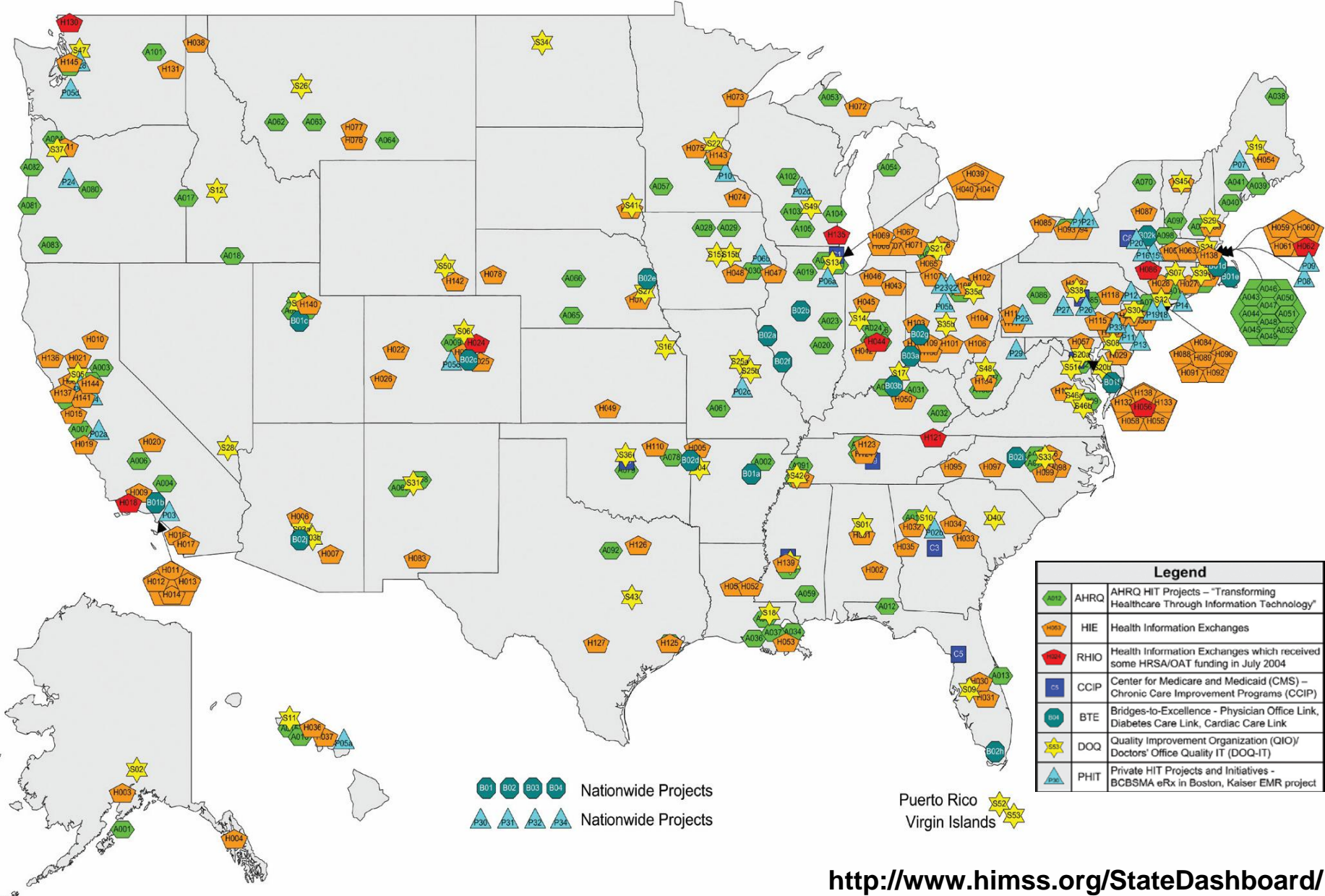
2007 – The second turn of the crank



- ▶ Privacy and Security standards
- ▶ Emergency Responder EHR
 - Emergency summary record exchange
 - Provider authentication, authorization and credentialing
- ▶ Consumer Access to Clinical Information
 - Lab results as needed by patient
 - List of conditions and allergies
 - Health problems
 - Diagnosis codes
- ▶ Medication Management
 - Medication reconciliation
 - Pharmacy/Allergy
 - Monitoring of medications
- ▶ Quality
 - Inpatient Quality Measures (core set)
 - Ambulatory measures (core set)
 - Clinician access (self-assessment)
 - Public reporting



HIMSS State Dashboard National Projects



Legend		
	AHQR	AHQR HIT Projects – “Transforming Healthcare Through Information Technology”
	HIE	Health Information Exchanges
	RHIO	Health Information Exchanges which received some HRSA/OAT funding in July 2004
	CCIP	Center for Medicare and Medicaid (CMS) – Chronic Care Improvement Programs (CCIP)
	BTE	Bridges-to-Excellence - Physician Office Link, Diabetes Care Link, Cardiac Care Link
	DOQ	Quality Improvement Organization (CIO)/ Doctors’ Office Quality IT (DOQ-IT)
	PHIT	Private HIT Projects and Initiatives - BCBSMA eRx in Boston, Kaiser EMR project

Nationwide Projects
 Nationwide Projects

Puerto Rico
 Virgin Islands

Health IT Standards and Interoperability Collaborative Action Items:

- ▶ Identify the most relevant Health IT standard setting efforts that are important to the TIGER mission.
- ▶ Assess whether there is adequate representation/input of the TIGER mission/perspective on said efforts.
- ▶ Take action to close gaps that exist.
- ▶ Communicate the existence and importance of Health IT standards and initiatives to the broad nursing community.
- ▶ Create tutorials on standardizing data elements, implementing electronic health records, using nursing terminology, and using evidence-based practice tools.

Next Steps

1. Identify smaller work groups to address:

Catalogue the most relevant Health IT standard setting efforts

Inventory and analysis of:

Publications, Research, Ongoing Projects

Identify subject matter experts and constituent targets

2. Create tutorials on:

Standardizing data elements

Implementing electronic health records (adoption, configuration, lessons learned)

Using nursing terminology

Using evidence-based practice tools / decision support

3. Awareness Campaigns

Standards

4. Review work from the nursing and healthcare environments to

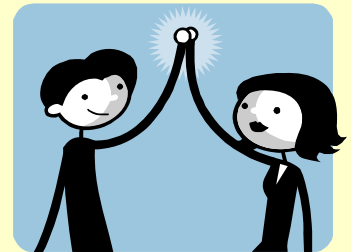
Define standards and interoperability

Collect standards and interoperability examples within nursing, healthcare, and other industries



Advancing the Agenda for Patient Care

- ▶ **Understand and embrace these initiatives**
- ▶ **Get involved with Use Case development**
- ▶ **Respond to public comment opportunities**
- ▶ **Attend educational workshops**
- ▶ **Include Standards and IHE Profiles in your RFP's**
- ▶ **Participate in the Committees**
- ▶ **Join the TIGER Health IT Standards and Interoperability Collaborative**



Questions?



Thank you!



- ▶ Joyce Sensmeier MS, RN-BC, CPHIMS, FHIMSS
 - Vice President, Informatics, HIMSS
- ▶ Elizabeth C. Halley RN MBA
 - The MITRE Corporation
 - Center for Enterprise Modernization, Health Mission Area
- ▶ Joyce@tigersummit.com
- ▶ Beth@tigersummit.com
- ▶ Website www.tigersummit.com/standards