



The Office of the National Coordinator for  
Health Information Technology



# Health IT on the National Level: Update from the Office of the National Coordinator for Health Information Technology

IHTSDO SNOMED CT Implementation Showcase - Keynote  
October 10, 2013

*Presented by Andy Wiesenthal (IHTSDO Management Board) using materials provided by  
Doug Fridsma, MD, PhD, FACP, FACMI  
Chief Science Officer & Director, Office of Science & Technology*

Putting the **I** in **HealthIT**  
[www.HealthIT.gov](http://www.HealthIT.gov)



## Better healthcare



Improving patients' experience of care within the Institute of Medicine's 6 domains of quality: *Safety, Effectiveness, Patient-Centeredness, Timeliness, Efficiency, and Equity.*

## Better health



Keeping patients well so they can do what they want to do. Increasing the overall health of populations: address behavioral risk factors; focus on preventive care.

## Reduced costs

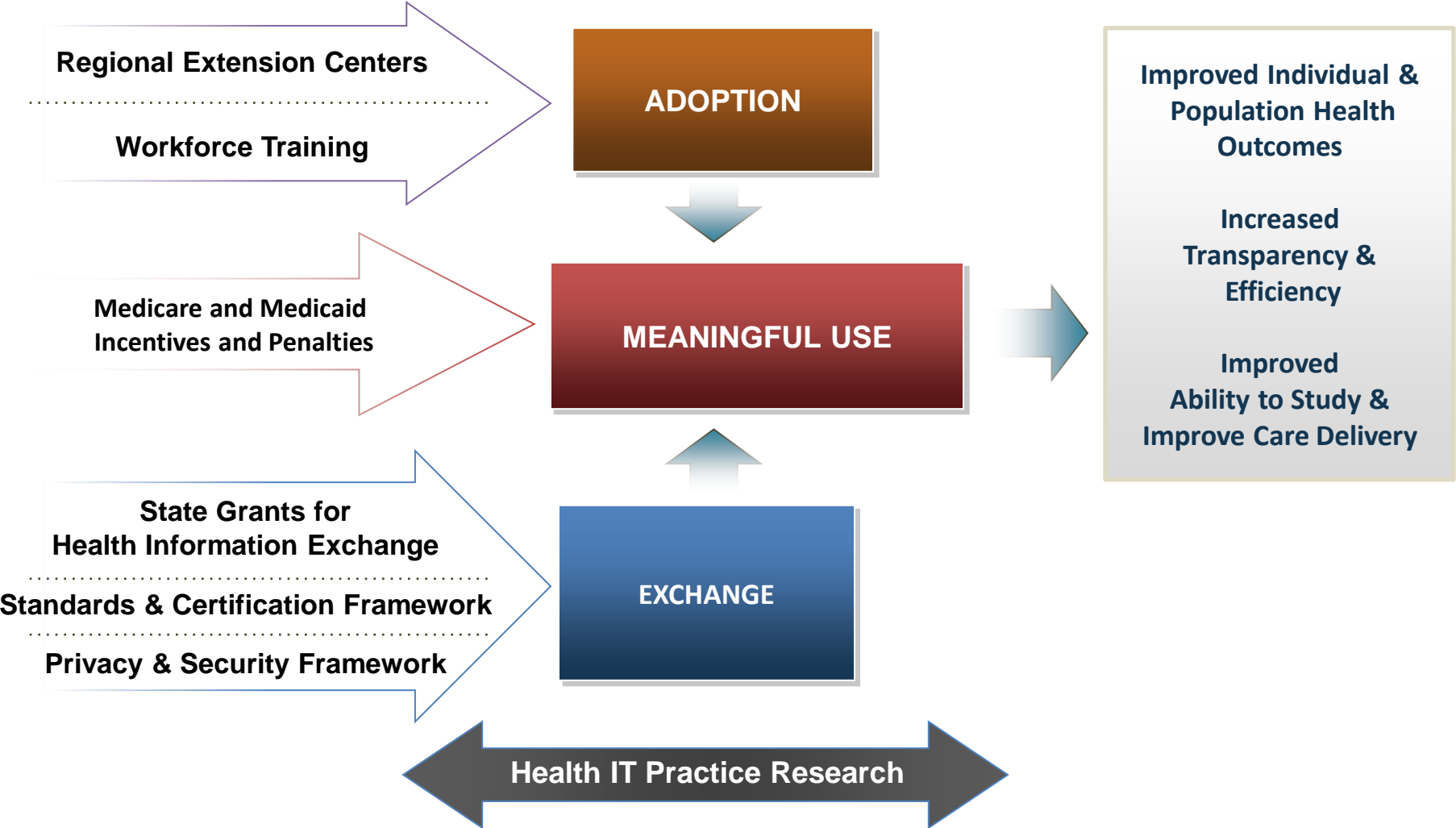


Lowering the total cost of care while improving quality, resulting in reduced monthly expenditures for Medicare, Medicaid, and CHIP beneficiaries.



***Health Information Technology***

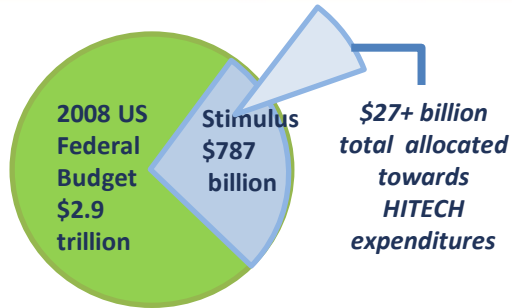
# HITECH Framework: Meaningful Use at its Core



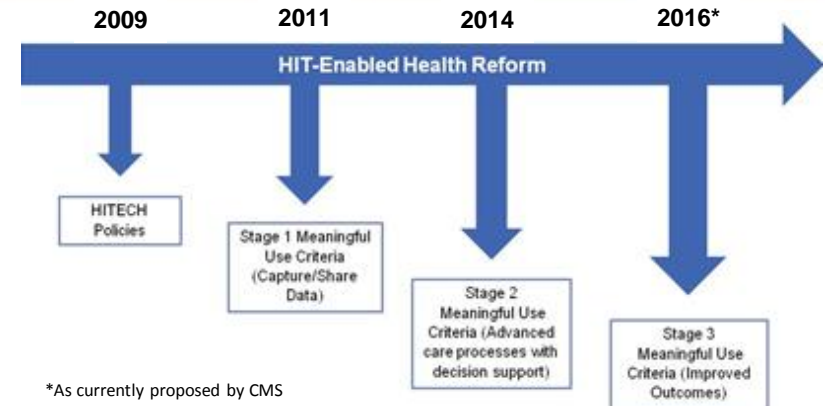


- NOT part of National Health Reform legislation
- Key Components:
  - Requires use of certified electronic health record (EHR) technology
  - Provides monetary incentives for adoption by *Eligible Hospitals* and *Eligible providers* through 3 stages of
  - Meaningful use
    - A staged, increasingly more demanding, demonstration of capability over 5 years, followed by penalties for failure to comply
  - Supports Regional Extension Centers
  - Supports Increased training in informatics

## HITECH Overview

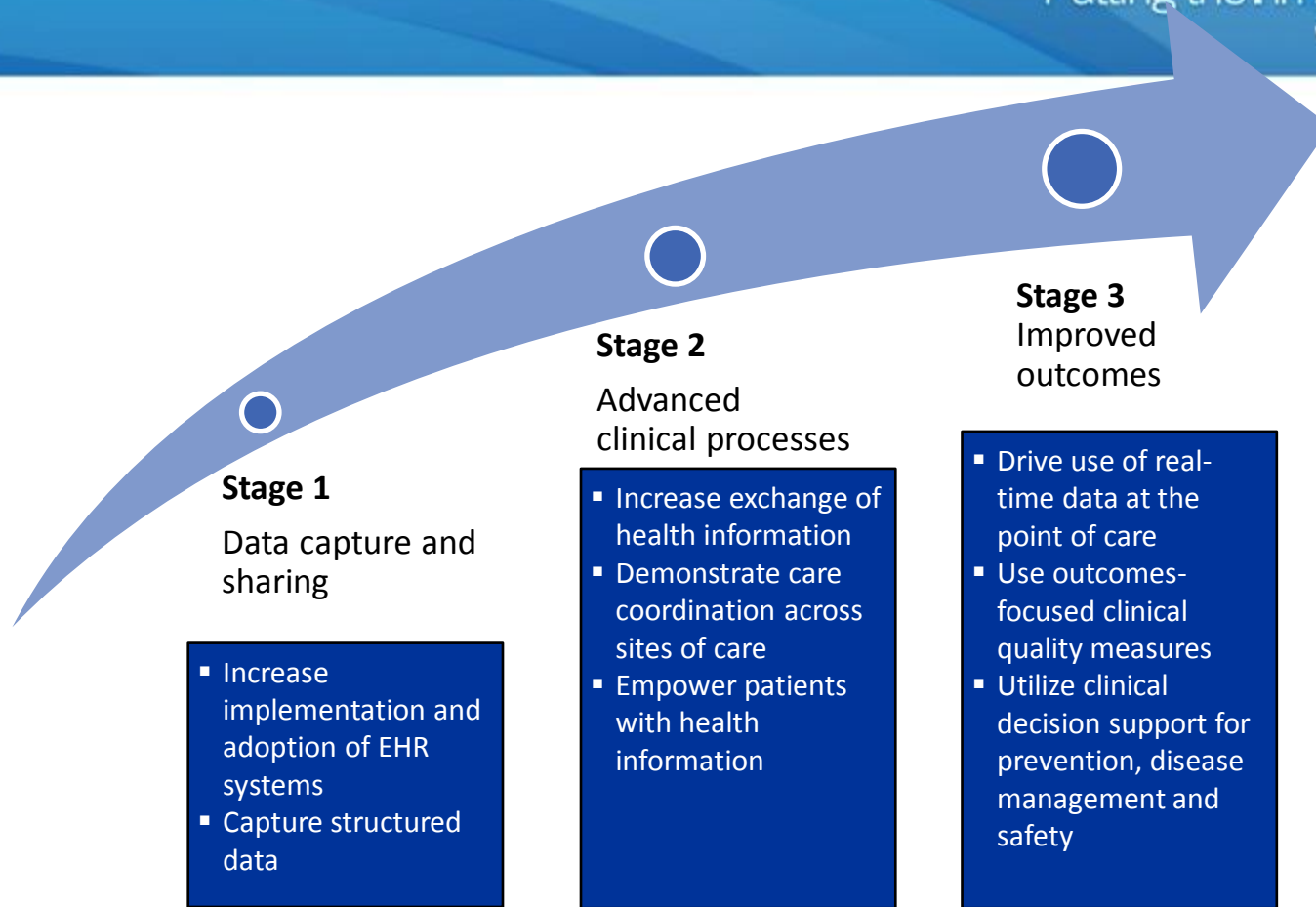


## HITECH Meaningful Use



## HITECH Overview

- The American Recovery and Reinvestment Act (ARRA) includes the Health Information Technology for Economic and Clinical Health (HITECH) Act to accelerate the adoption of interoperable electronic health records and other health information technology.
- The HITECH Act allocated \$27 billion dollars of payment incentives to physicians and hospitals for achieving “Meaningful Use” (MU) of certified Electronic Health Records (EHRs).
- To obtain Medicare incentive funding, providers must commence “Meaningful Use” of EHR technologies between 2011 and 2015. Medicaid funding is available between 2011 and 2021, with the last year to receive the first Medicaid incentive payment and qualify for maximum amount being 2016.
- Hospitals are eligible to receive both Medicare and Medicaid Incentives simultaneously. Physicians who are eligible for both Medicare or Medicaid incentives must choose one.



***On Tuesday, September 4, 2012:***

- ***CMS released the Stage 2 Final Rule of the Medicare and Medicaid Electronic Health Record Incentive Programs***
- ***ONC released the 2014 Edition Standards and Certification Criteria Final Rule***

# Overview of Stage 2 Criteria

Stage 2 of Meaningful Use will include the same concept of Core, Menu, and Clinical Quality Measures (CQMs) as in Stage 1, however there are a few key differences, as outlined below:

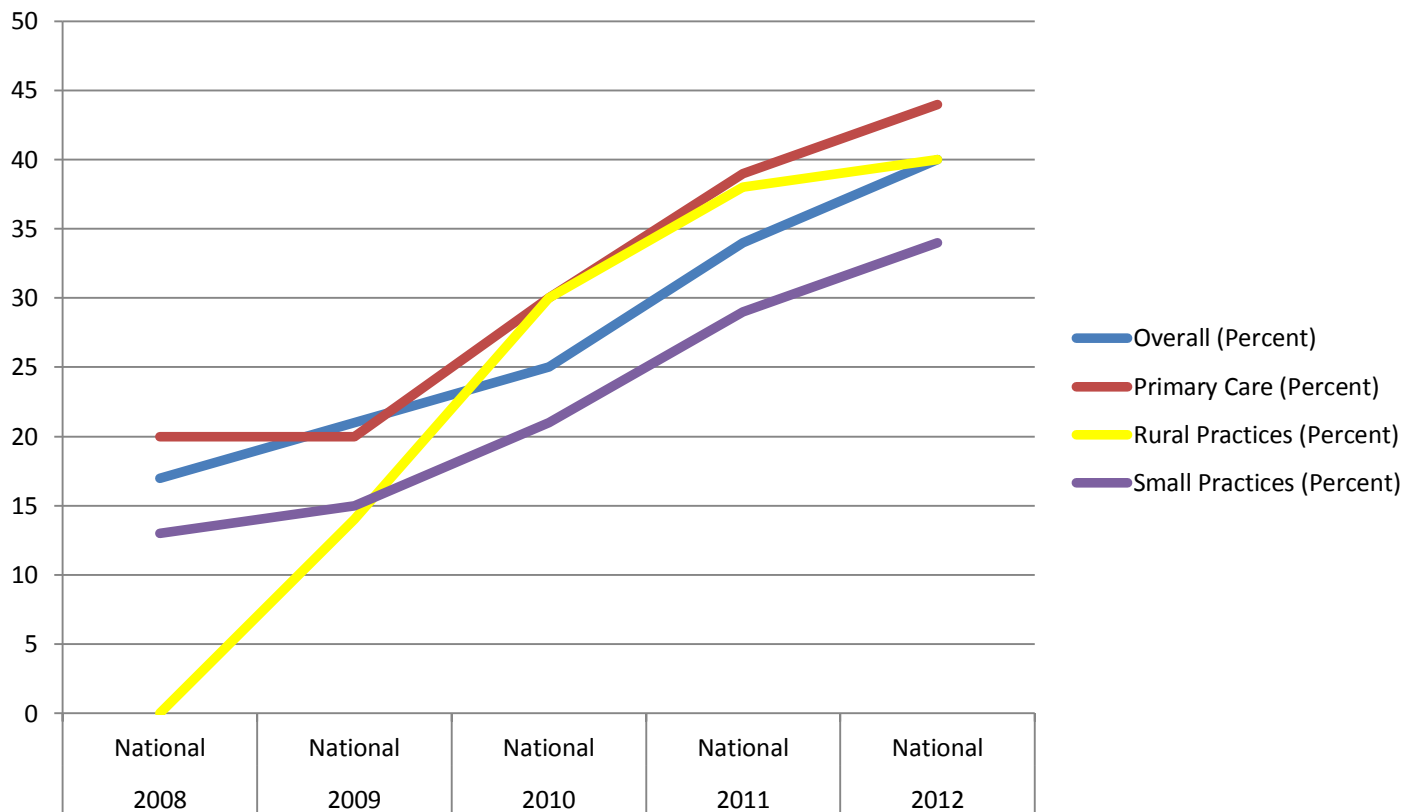
- The CQMs are no longer a core objective, but simply a requirement to meet Meaningful Use (e.g., the 2014 CQMs are independent of MU Stage)
- **With Stage 2, complexity has increased and many objectives now have multiple measures to achieve**

| MU Stage 1 Objectives   | MU Stage 2 Objectives  |
|---|--|
| <p><u>Eligible Professionals</u><br/>15 core objectives<br/>AND<br/>5 of 10 menu objectives<br/>= <b>20 total objectives</b></p>        | <p><u>Eligible Professionals</u><br/>17 core objectives<br/>AND<br/>3 of 6 menu objectives<br/>= <b>20 total objectives</b></p>        |
| <p><u>Eligible Hospitals &amp; CAHs</u><br/>14 core objectives<br/>AND<br/>5 of 10 menu objectives<br/>= <b>19 total objectives</b></p> | <p><u>Eligible Hospitals &amp; CAHs</u><br/>16 core objectives<br/>AND<br/>3 of 6 menu objectives<br/>= <b>19 total objectives</b></p> |



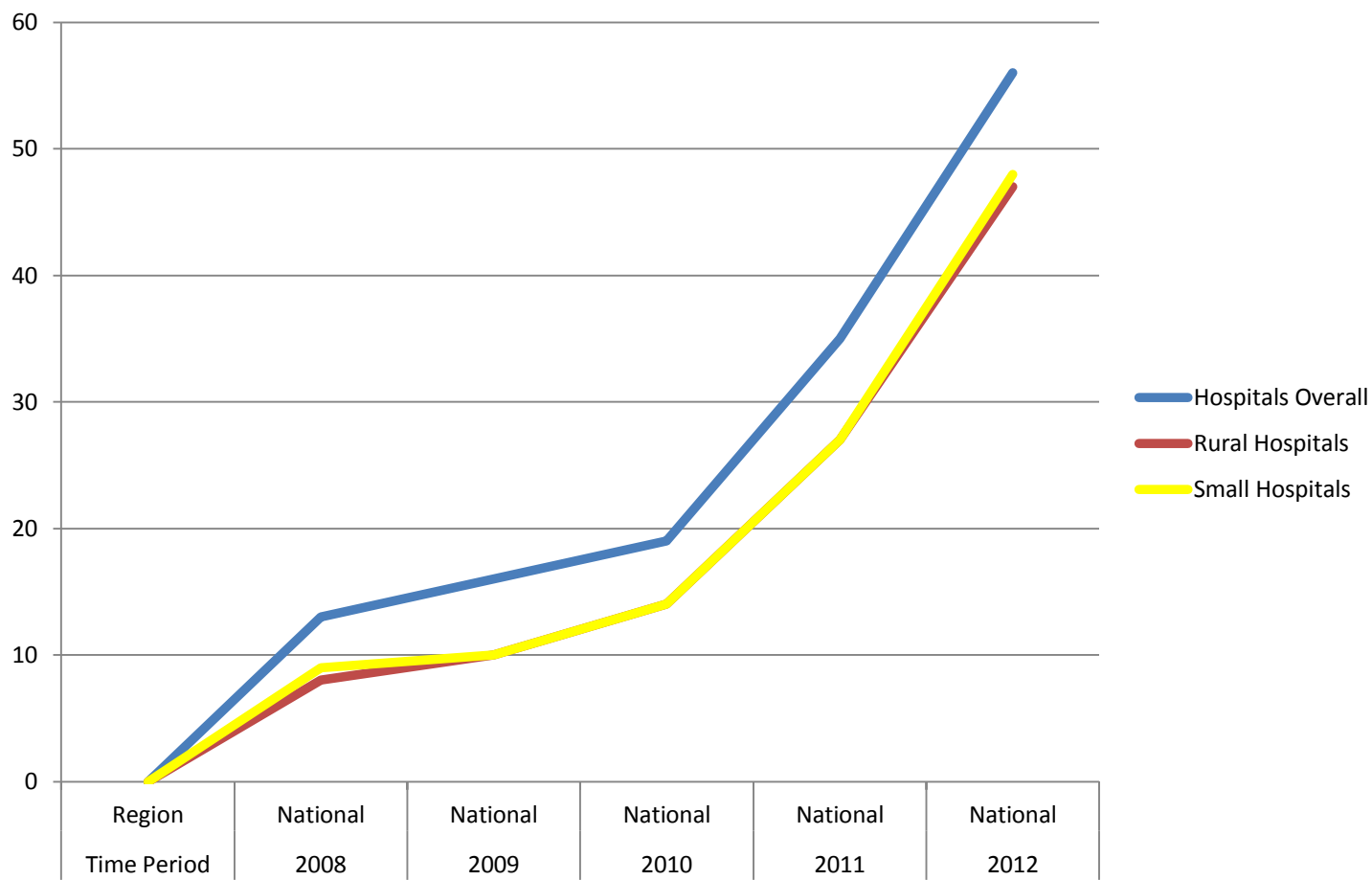
# Progress to Date in the US

- Adoption of Basic EHRs by Office-Based Practices



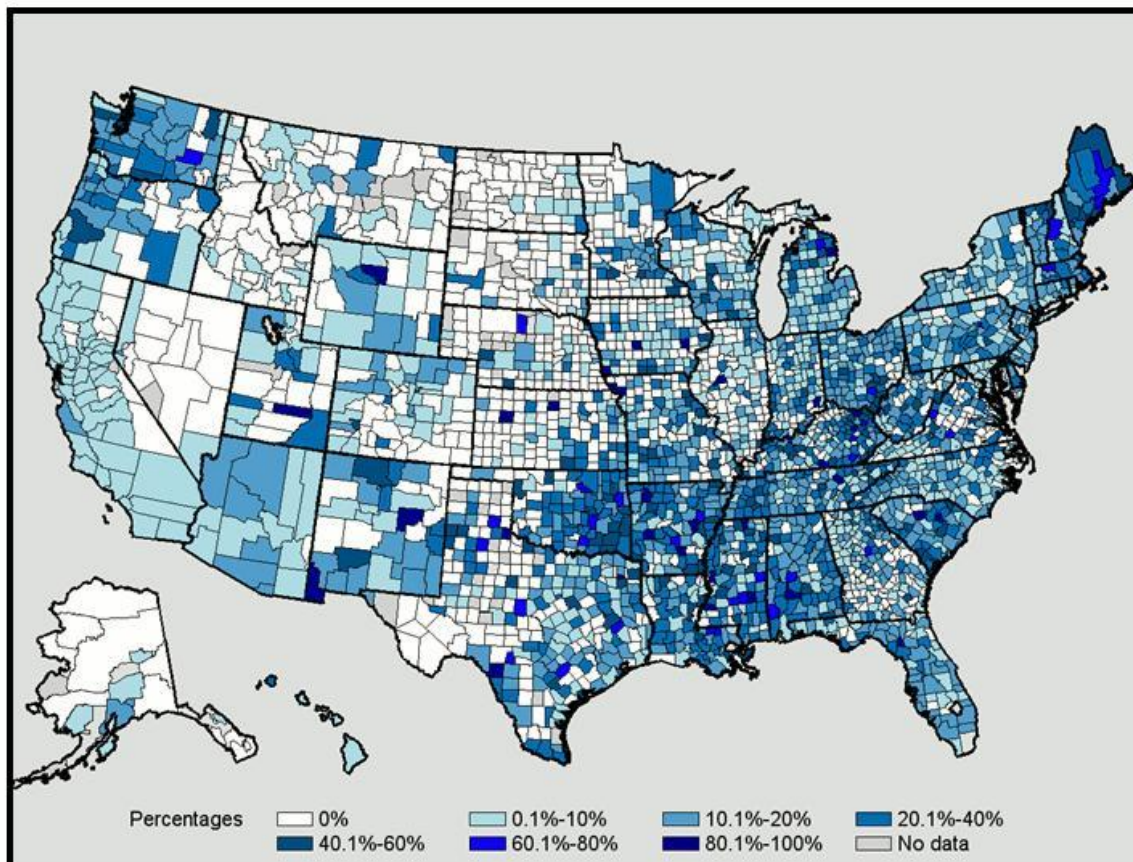
# Progress to Date in the US

## Hospital Adoption of EHRs



# EHR Incentive Program Payments

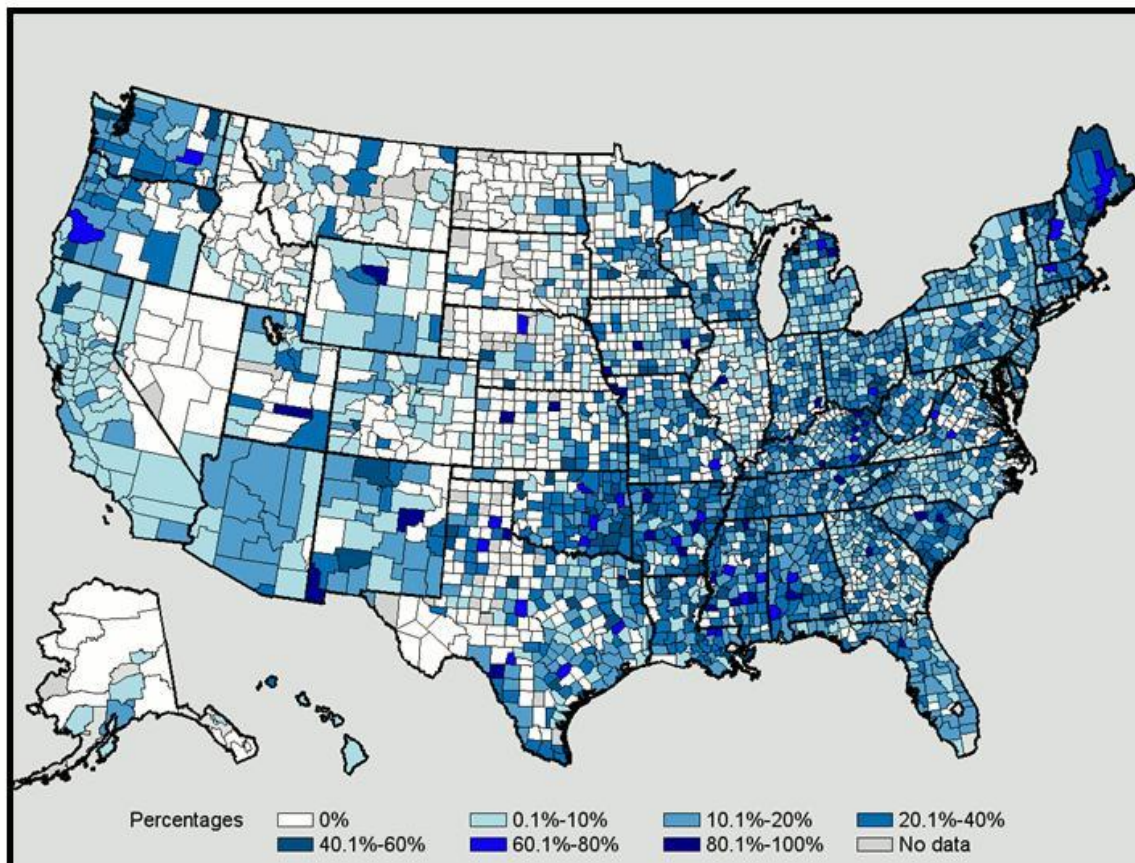
## Medicare and Medicaid Electronic Health Record (EHR) Incentive Programs Share of All U.S. Physicians, NPs, and PAs Paid under Medicare or Medicaid



May 2012 June 2012 July 2012 Aug. 2012 Sept. 2012 Oct. 2012

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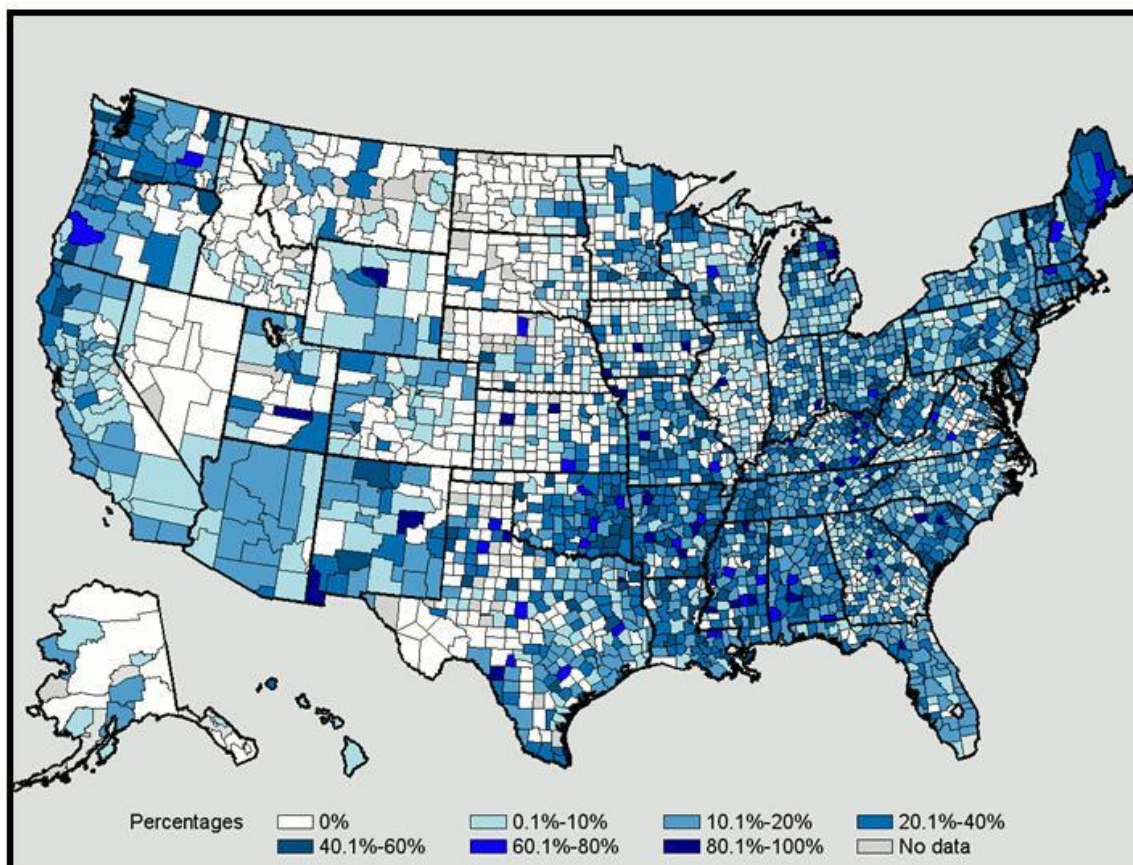


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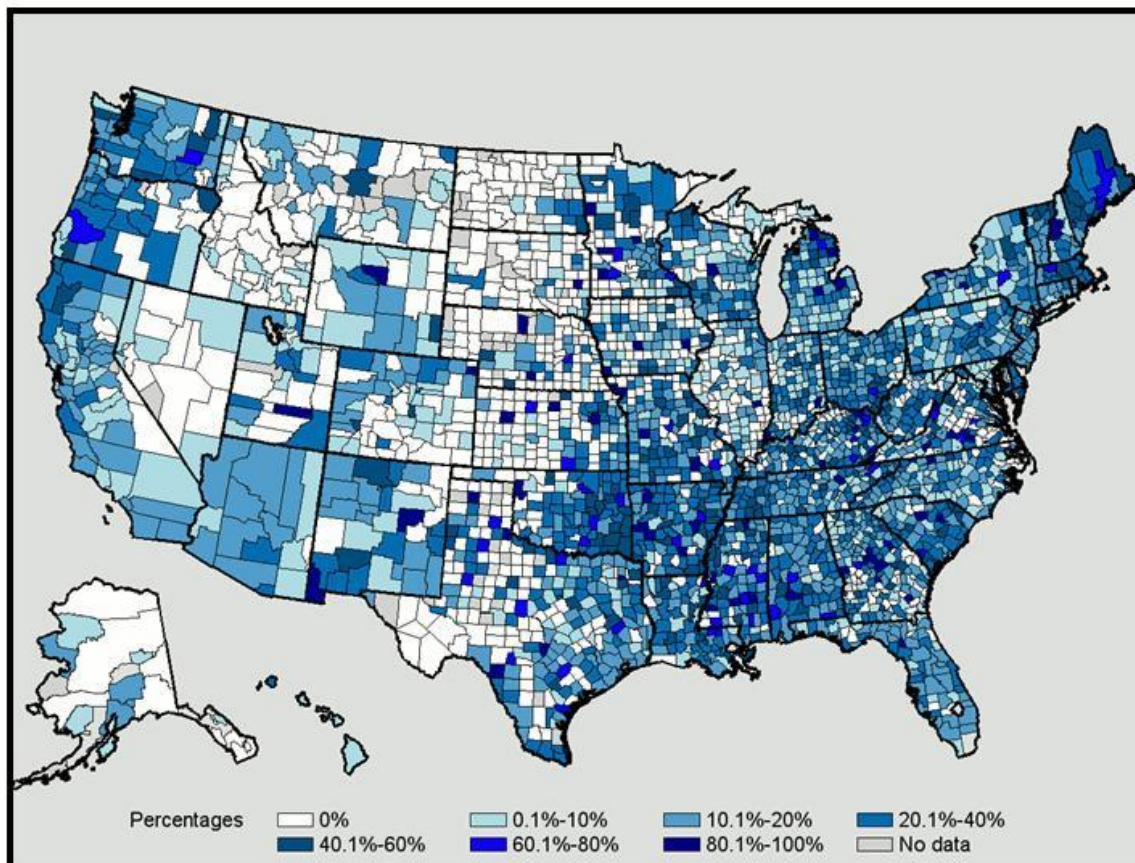
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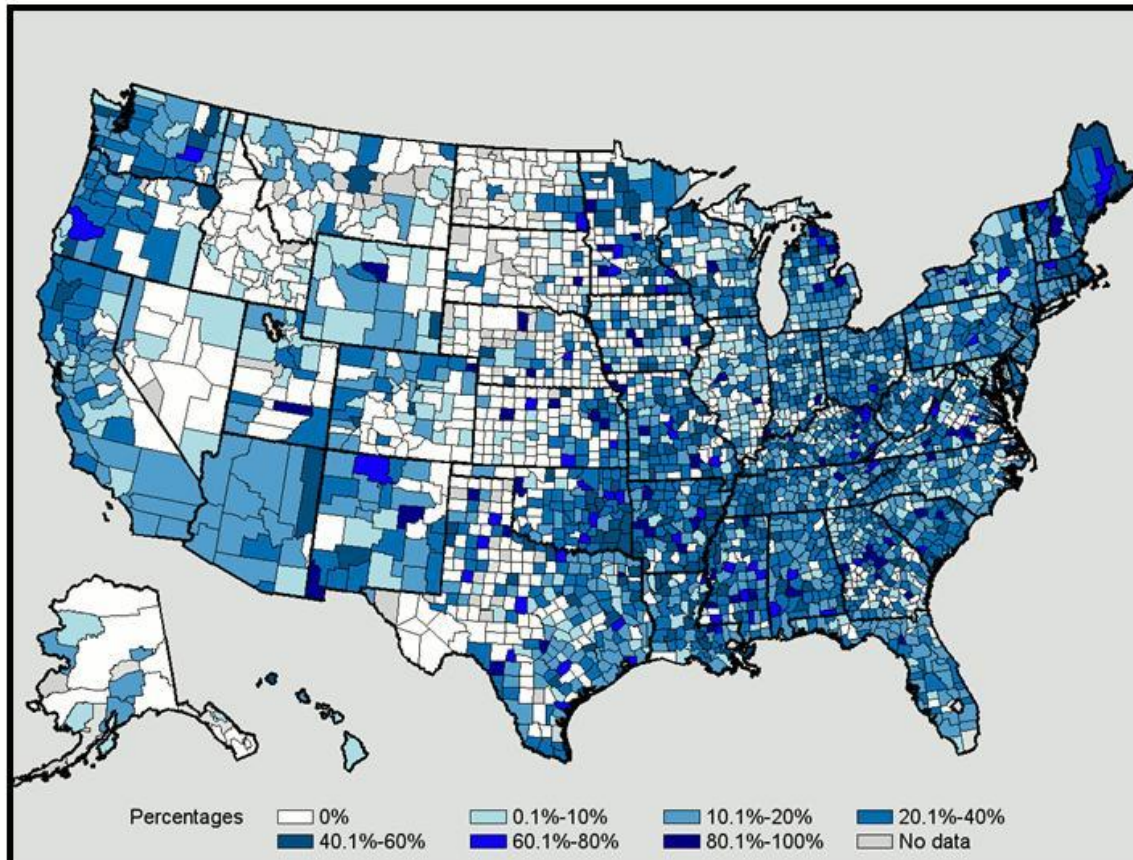


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# EHR Incentive Program Payments

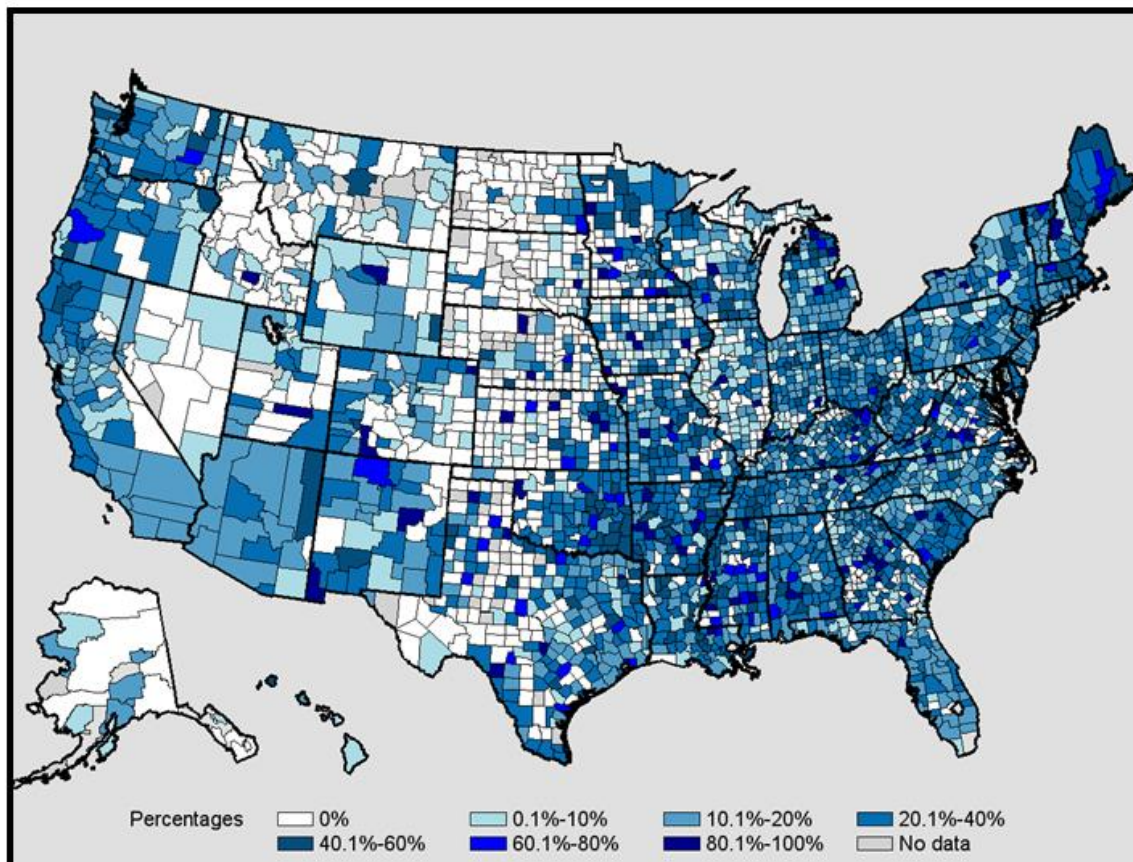
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# Progress to Date in the US

- CMS routinely releases key statistics that result from the adoption of EHRs through Meaningful Use requirements. As of the end of **June 2013**,
- More than 309,000 health care providers have been paid by the Medicare and Medicaid EHR Incentive Programs
- Over 405,430 health care providers (including eligible professionals, eligible hospitals and critical access hospitals) are actively registered for the Medicare and Medicaid EHR Incentive Programs
- Total of over \$15.2 billion in Medicare and Medicaid EHR Incentive Program payments since May 2011
  - Over \$9.35 billion in Medicare EHR Incentive Program payments have been disbursed between May 2011 and the end of June 2013
  - Over \$5.83 billion in Medicaid EHR Incentive Program payments were disbursed between January 2011 (when the first states launched their programs) and the end of June 2013
- As of June 2013, over 76 percent of EPs have registered for the Medicare and Medicaid EHR Incentive Programs and almost 55 percent have been paid
- As of June 2013, over 89 percent of hospitals have registered for the Medicare and Medicaid EHR Incentive Programs and over 80 percent have been paid

# Office of Science and Technology

So how do we get our work done?

## Enable stakeholders

to come up with simple, shared solutions to common information exchange challenges



**Collaborate** with federal agencies to coordinate federal health IT priorities as manager of Federal Health Architecture



**Curate a portfolio** of standards, services, and policies that accelerate information exchange

**Support Innovation** through SHARP program, Innovation/Challenge Grants, and interfacing with international Standards community

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# What is the S&I Framework?

- The Standards and Interoperability (S&I) Framework represents one investment and approach adopted by the Office of Science & Technology (OST) to fulfill its charge of prescribing health IT standards and specifications to support national health outcomes and healthcare priorities
- The S&I Framework is an example of “government as a platform”– enabled by integrated functions, processes, and tools – for the open community\* of implementers and experts to work together to standardize

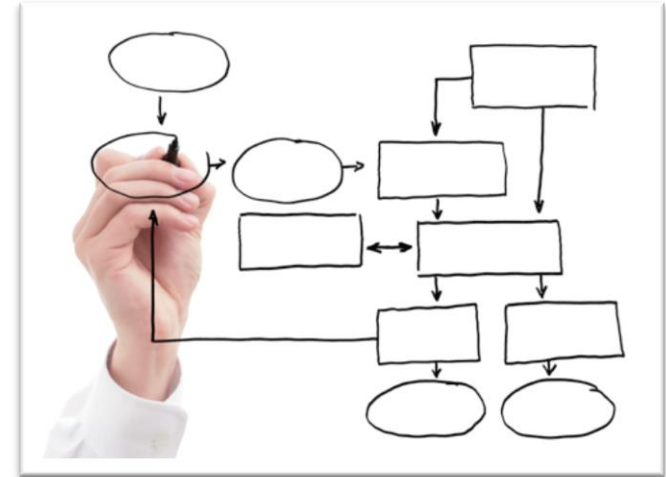


*\* As of April 2013, 1100+ people had registered on the S&I Framework wiki, and 450+ people representing 300+ organizations had committed to the S&I Framework*

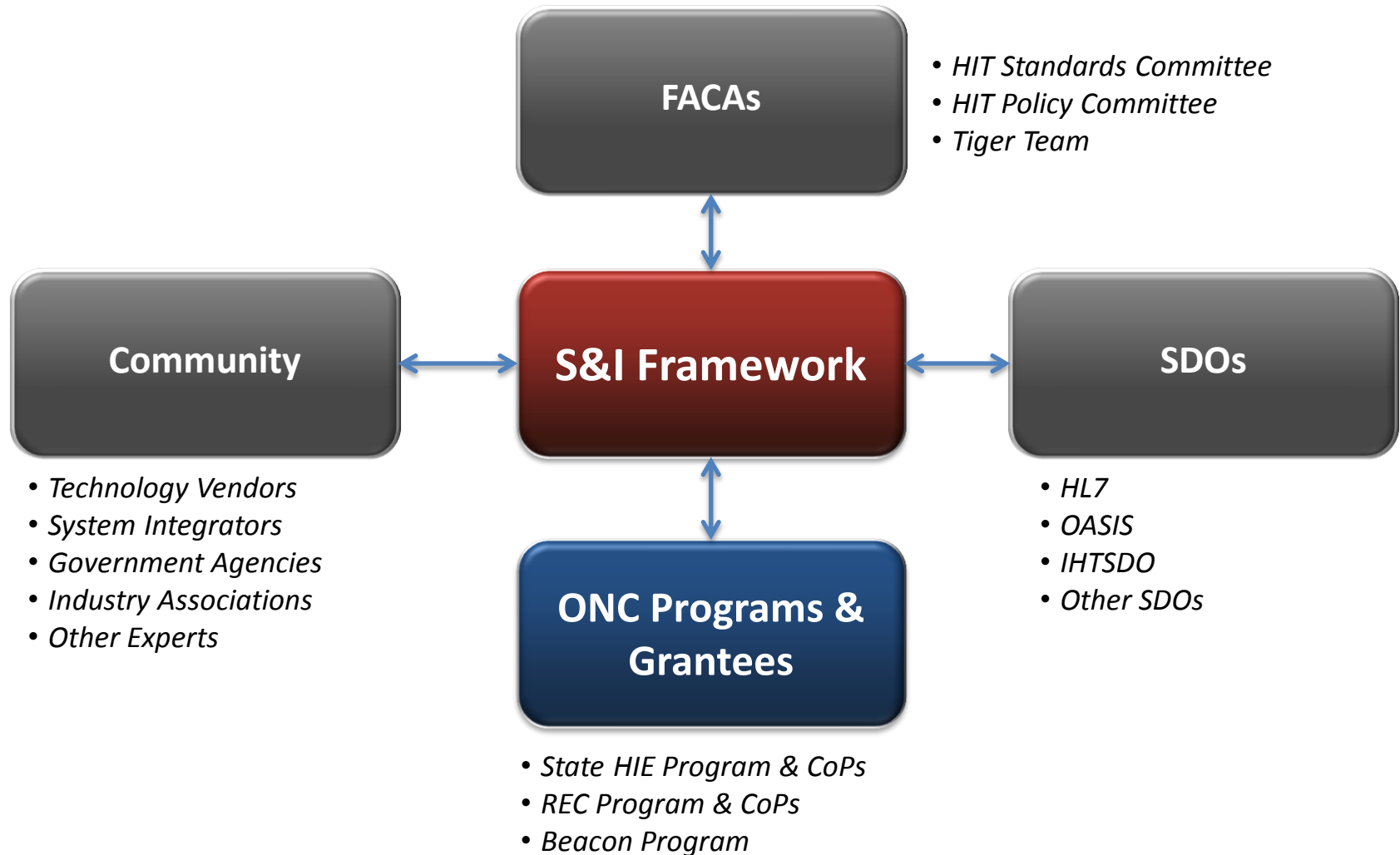
# S&I Framework: Scalable Platform for Developing Standards

- **S&I Framework Approach:**
  - Create a collaborative, coordinated incremental standards process,
    - ... guided by ONC, with input from Federal Advisory Committees,
    - ... enabled and led by the an open community of industry participants
    - ... who are interested in solving real world problems
- **Value created through this approach:**
  - Solve real-world issues to enable health information exchange
  - Create leverage for ONC and other initiative sponsors by harnessing the expertise and passion of the community to solve problems
  - Empower the community to create the best solutions for interoperability and standards adoption

- Leverage *government as a platform* for innovation to create conditions of interoperability
- Health information exchange is *not one-size-fits-all*; create a portfolio of solutions that support all uses and users
- Build in *incremental steps* – “don’t let the perfect be the enemy of the good”



# S&I Framework Community Participation





## Vocabulary & Code Sets

How should well-defined values be coded so that they are universally understood?

## Content Structure

How should the message be formatted so that it is computable?

## Transport

How does the message move from A to B?

## Security

How do we ensure that messages are secure and private?

## Services

How do health information exchange participants find each other?

# S&I Framework Operating Metrics

## Timing

|  |              |
|--|--------------|
| Framework Launch Date                              | Jan 7, 2011  |
| First Initiative Launch Date                       | Jan 31, 2011 |
| Elapsed Time since Initiative Launch (as-of today) | 28 months    |

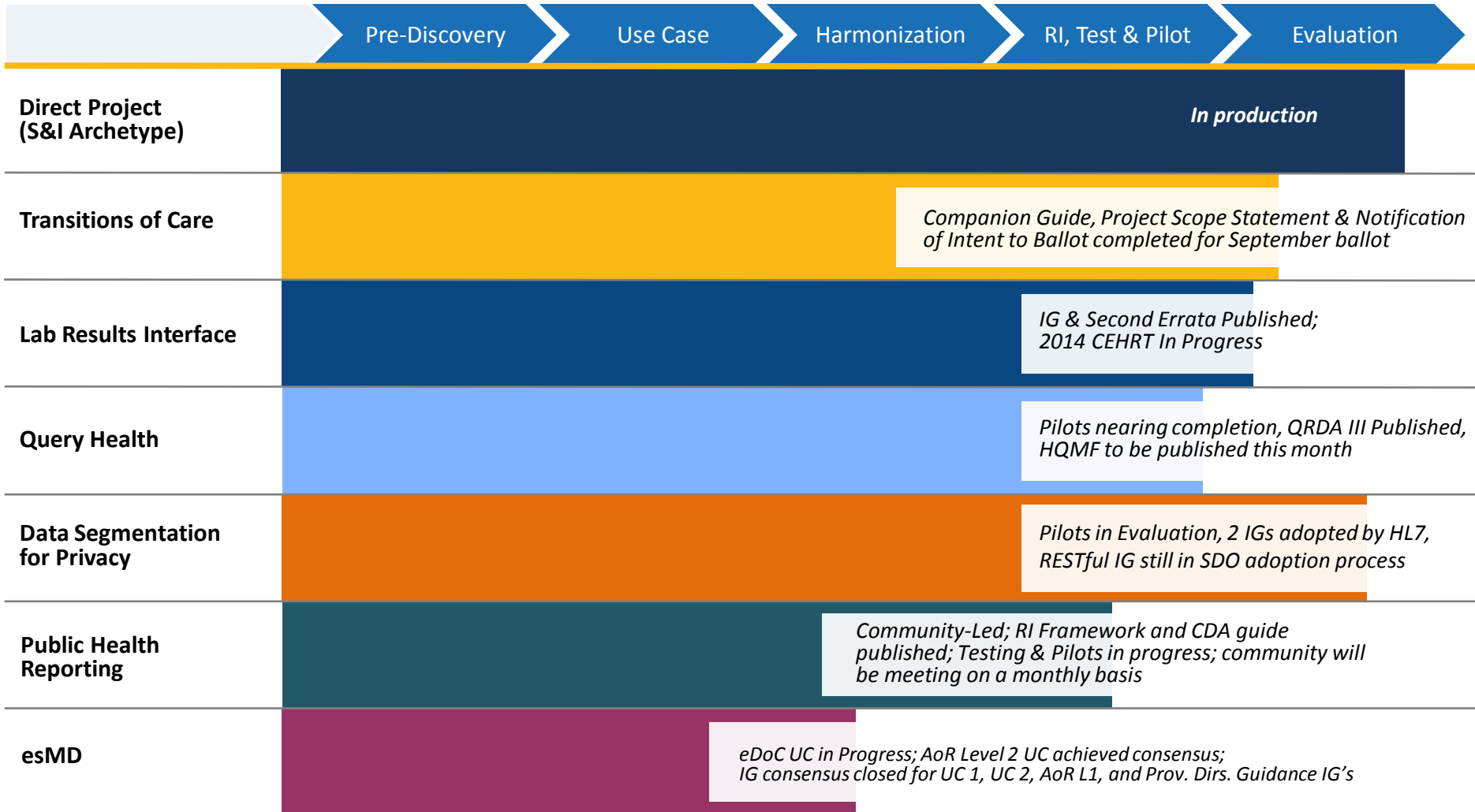
## Participation & Process

|                                 |       |
|---------------------------------|-------|
| # Wiki Registrants              | 2358  |
| # Committed Members             | 727   |
| # Committed Organizations       | 556   |
| # Working Sessions Held         | 1,630 |
| S&I Face to Face meetings       | 3     |
| Standards Organizations engaged | 35    |
| S&I Monthly Newsletter Editions | 17    |
| SDS Newsletter Subscribers      | 1,908 |

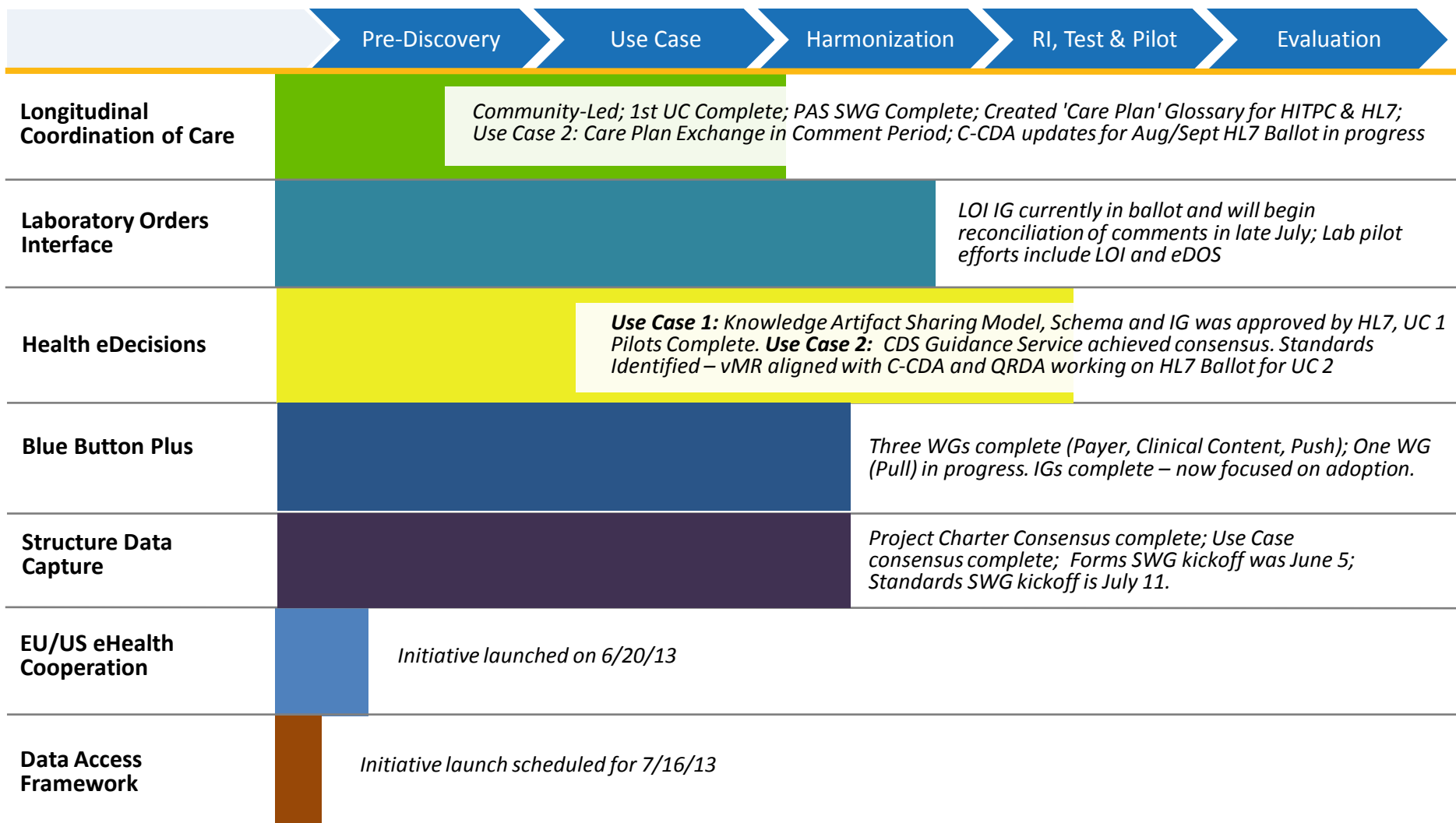
## Outputs

|                                      |       |
|--------------------------------------|-------|
| # Consensus Approved Use Cases       | 18    |
| # Pilots Committed                   | 33    |
| # Pilot Vendors                      | 42    |
| Total Ballots                        | 11    |
| # Total HL7 Ballot Comments Received | 2,953 |
| # HL7 Ballot Comments Resolved       | 2,882 |

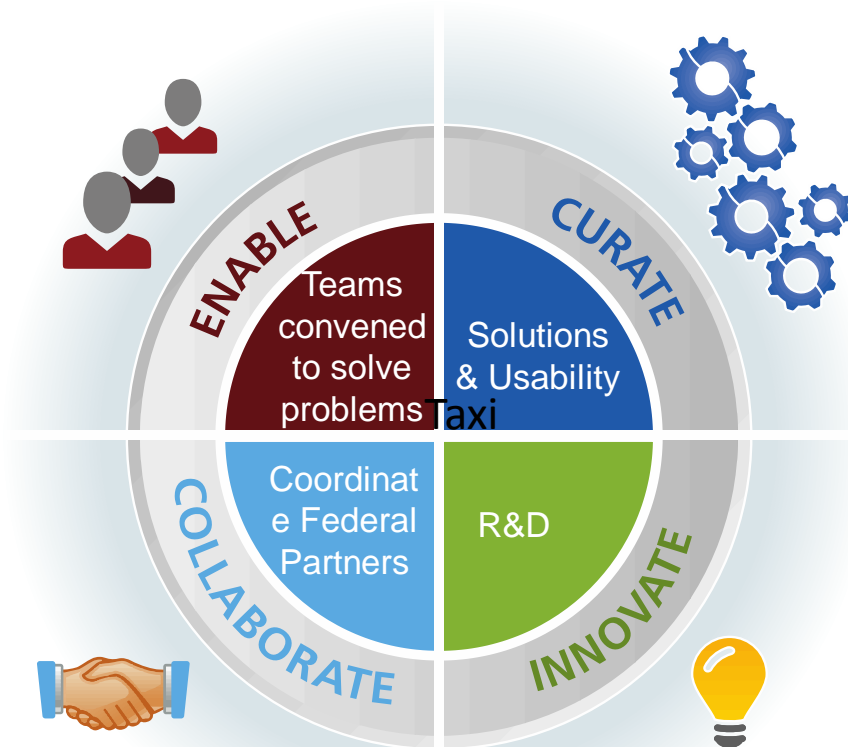
# S&I Initiative Portfolio Snapshot



# S&I Initiative Portfolio Snapshot, continued



**Enable** stakeholders to come up with simple, shared solutions to common information exchange challenges



**Curate a portfolio** of standards, services, and policies that accelerate information exchange

**Collaborate** with federal agencies to coordinate federal health IT priorities as manager of Federal Health Architecture



**Support Innovation** through SHARP program, Innovation/Challenge Grants, and interfacing with International Standards community

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*A portfolio of **services**,  
**standards** and **policies** that  
enable secure health  
information exchange over  
the Internet.*

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**Services**



**Standards**



**Policies**



**Trust Fabric**

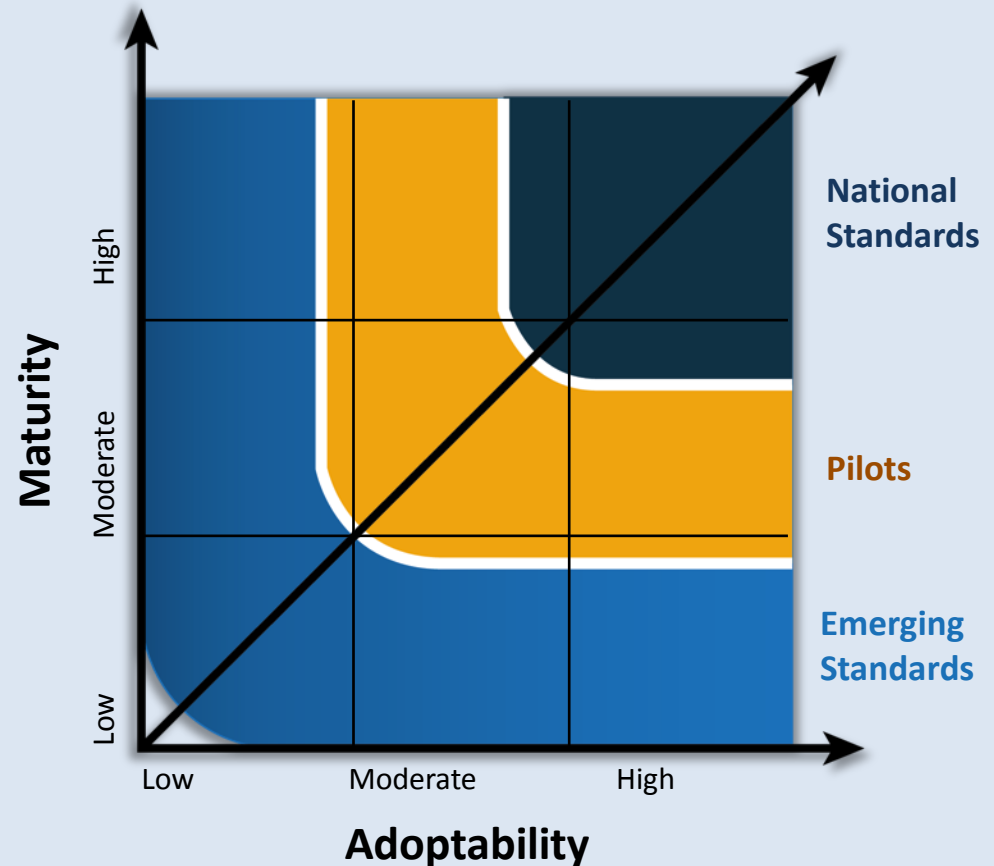
# Readiness Evaluation and Classification Criteria for Technical Specifications

## Maturity Criteria:

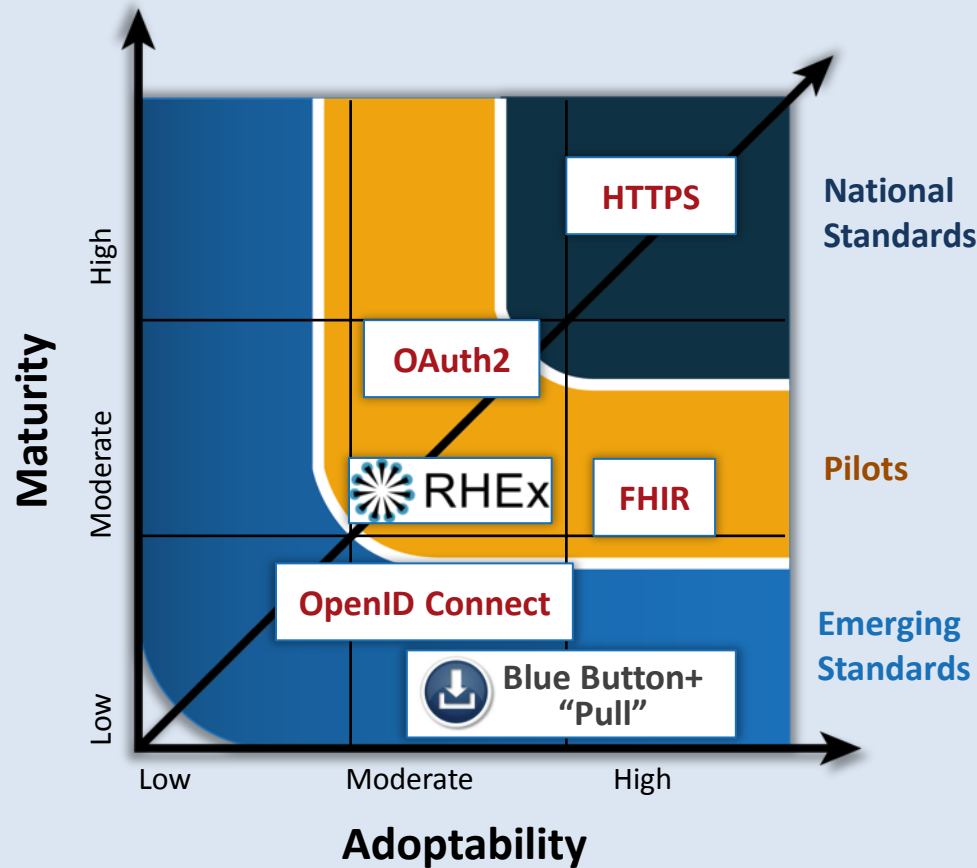
- Maturity of Specification
- Maturity of Underlying Technology Components
- Market Adoption

## Adoptability Criteria:

- Ease of Implementation and Deployment
- Ease of Operations
- Intellectual Property



# Readiness Evaluation



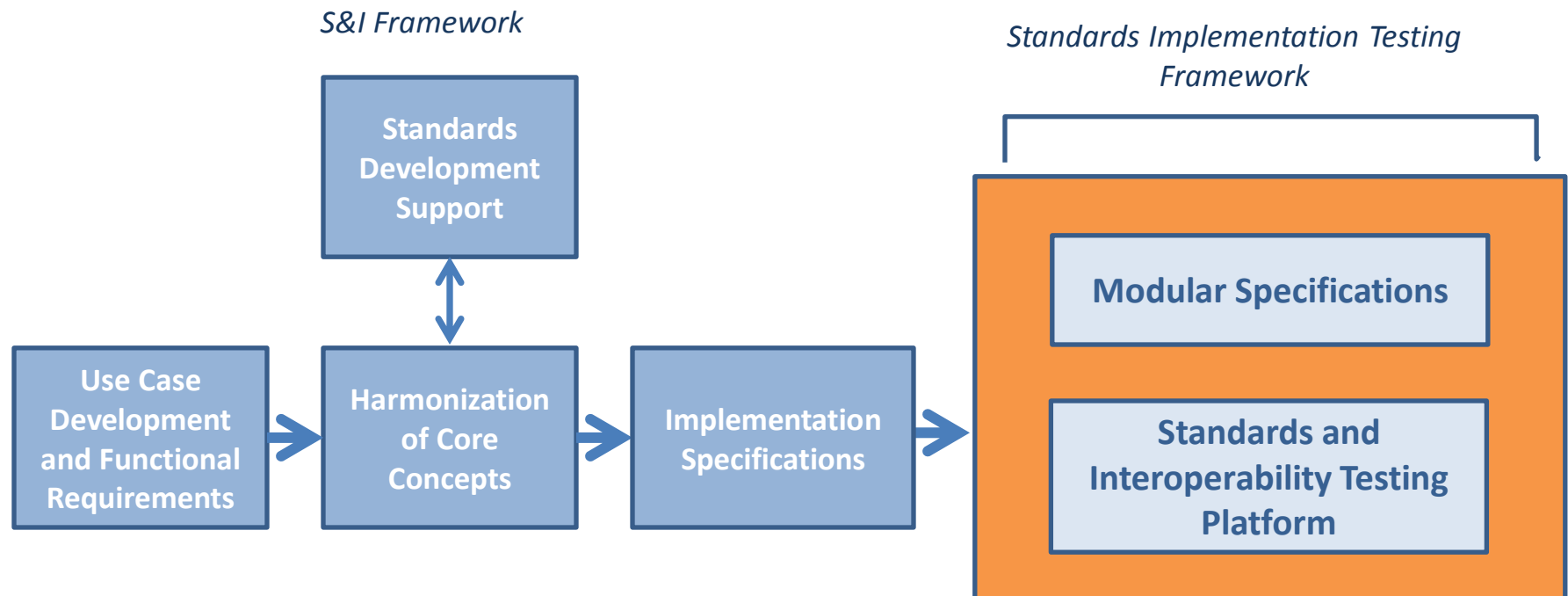
Red Type - Building Blocks



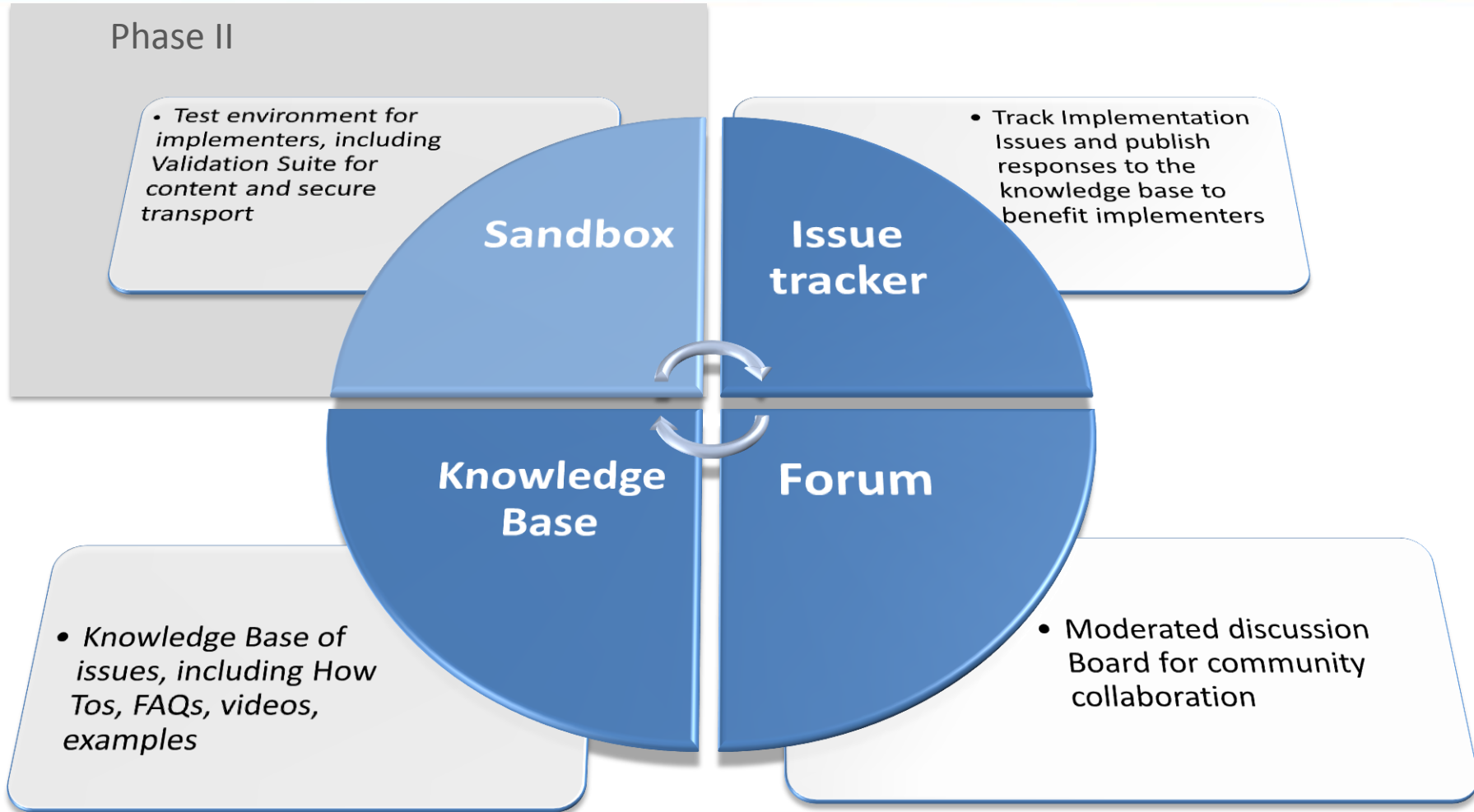
- There is an urgent need to support implementers of standards in Meaningful Use Stage 2, for transitions of care
- There is a long term need to establish a mechanism for rapid collaboration between implementers and the standards development community to make standards ready for implementation
- There is currently no centralized mechanism where implementer's questions on standards can be answered by standards community, and standards can be tested as they are being developed

# Supporting Meaningful Use Stage 2

- Continue to enhance the **S&I framework** to provide a scalable platform that enables rapid development of needed standards
- Develop a **Standards Implementation testing Framework** to ensure the testability and implementability of standards
- Continue providing **technical resources**, such as validation tools to support industry adoption of standards



# Standards Implementation and Testing Platform – One-Stop for Implementers



# Selected SI framework Initiatives

# International Collaboration on Standards

- December 17, 2010: Secretary Kathleen Sebelius signed non-binding MoU with European Commission
  - Facilitate availability and routine use of international standards
  - Strengthen relationships and cooperation on mutual health ICT goals
- MoU outlines approach to foster mutual understanding of challenges faced by both sides in advancing the use of health IT



- Development of internationally recognized standards & specifications for interoperability
- Strategies to promote and develop a highly skilled health IT technical/support workforce



- Achieving interoperability across international borders is a key goal of immediate importance and immense potential.
- 3 distinct work streams:
  - Standardized terminology
  - Standard message structure
  - Standardized patient-controlled electronic exchange

- Two issues identified of having immediate importance:
  - Development of internationally recognised and utilised interoperability standards for EHRs
  - Strategies for development of skilled health IT workforces
- Further areas of cooperation such as research, innovation and policy co-ordination will be discussed in the coming months



# EU-US eHealth Cooperation Initiative: International Interoperability Standards

- Three key goals of the technical workstream:
- Identify a subset of commonly used vocabularies and terminologies that can serve as the basis of an internationally recognized subset to support semantic interoperability (shared meaning).
  - Multiple coding systems are in place in both the US and EU, and analysis of administrative, clinical, laboratory and medication coding systems
- Harmonize the formats (or structures) for how information is structure to support syntactic interoperability
  - Multiple similar formats are used in the EU member states, the epSOS project, and the US.
- A working group in this area has been established.
- Pilot projects are getting started but more need to be defined.

# EU-US eHealth Cooperation Initiative: Workforce Development

- A pool of highly proficient eHealth/health IT professionals is needed.
  - Many health IT jobs are vacant due to lack of skilled professionals.
  - Two groups within this field who need skills enhancement are health informaticians and clinicians or managers.
  - An audit of the professional workforce needs to be done to determine what kind of skills exist.
  - A profile of competencies that are needed by employers should be completed.
- Experts who can support integration of HIT into clinical environments and understand the importance of change management within these environments will be essential.

# EU-US eHealth Cooperation Initiative: Outcomes

- A set of international interoperability standards that can be used by all health care providers to easily exchange information around the world.
- A set of standards for definition of eHealth/health IT professionals, accreditation and training.

# EU-US eHealth Cooperation Initiative: Deliverables for Interoperable EHRs

- Create initial set of use cases, based on community and stakeholder input
- Compare existing US and EU vocabularies, terminologies and clinical models to identify areas of overlap and commonality
- Identify available resources and opportunities for aligning them (technology and standards to support ongoing collaboration with vocabularies, modeling, and interoperability)
- Agree on specifications, standards and architecture for the pilot projects
- Compare the data/document structures used in the US and EU by comparing the consolidated CDA (C-CDA) and the exchange standards used in epSOS

# EU-US eHealth Cooperation Initiative: Deliverables for Workforce Development

- Assess the scope, scale and characteristics of the healthcare workforce in the US and EU – current status and future trends in terms of eHealth capabilities
- Assess eHealth employers in the US and EU – current status and future trends
- Perform analysis of competencies required by the existing workforce including
  - professionals in the field
  - new professionals (pre-service) and those transitioning from other health disciplines and from mainstream ICT into the health sector
  - all staff in healthcare delivery, management, administration and support
- Identify or create curricula that addresses the competencies identified in the US and EU
- Define and agree to common standards of competence and professionalism that identify “fitness to practice” health informatics and accreditation of professionals

# EU-US eHealth Cooperation Initiative: Interoperability Milestones

- Compare existing US and EU vocabularies, terminologies and clinical models to identify areas of overlap and commonality
- Identify available resources and opportunities for aligning them (technology and standards to support ongoing collaboration with vocabularies, modeling, and interoperability)
- Agree on specifications, standards and architecture for the pilot
- Compare the data/document structures used in the US and EU by comparing the consolidated CDA (C-CDA) and the exchange standards used in epSOS

# EU-US eHealth Cooperation Initiative: Workforce Milestones

- Complete analysis of role based competencies.
- Identify or create curricula based on competency analysis.
- Definition and agreement on common standards of competence and professionalism that identify “fitness to practice” health informatics and accreditation of professionals

- **For additional information please consult the EU-US MOU Roadmap wiki pages**
  - **Homepage:** (<http://wiki.siframework.org/EU-US+MOU+Roadmap+Project+Sign+Up>) – for Announcements, Meeting Details
  - **Interoperability Work Group:** (<http://wiki.siframework.org/Working+Group+-+International+interoperability+of+health+records>) – for updates, meeting schedules and materials for this work group
  - **Work Force Development Work Group:** (<http://wiki.siframework.org/Working+Group+--+eHealth+health+IT+workforce>) for updates, meeting schedules and materials for this work group
  - **Join:** (<http://wiki.siframework.org/EU-US+MOU+Roadmap+Project+Sign+Up>) – to sign up and see fellow participants
  - **Reference Materials:** (<http://wiki.siframework.org/EU-US+MOU+Roadmap+Project+Reference+Materials>) – for materials pertinent to this initiative

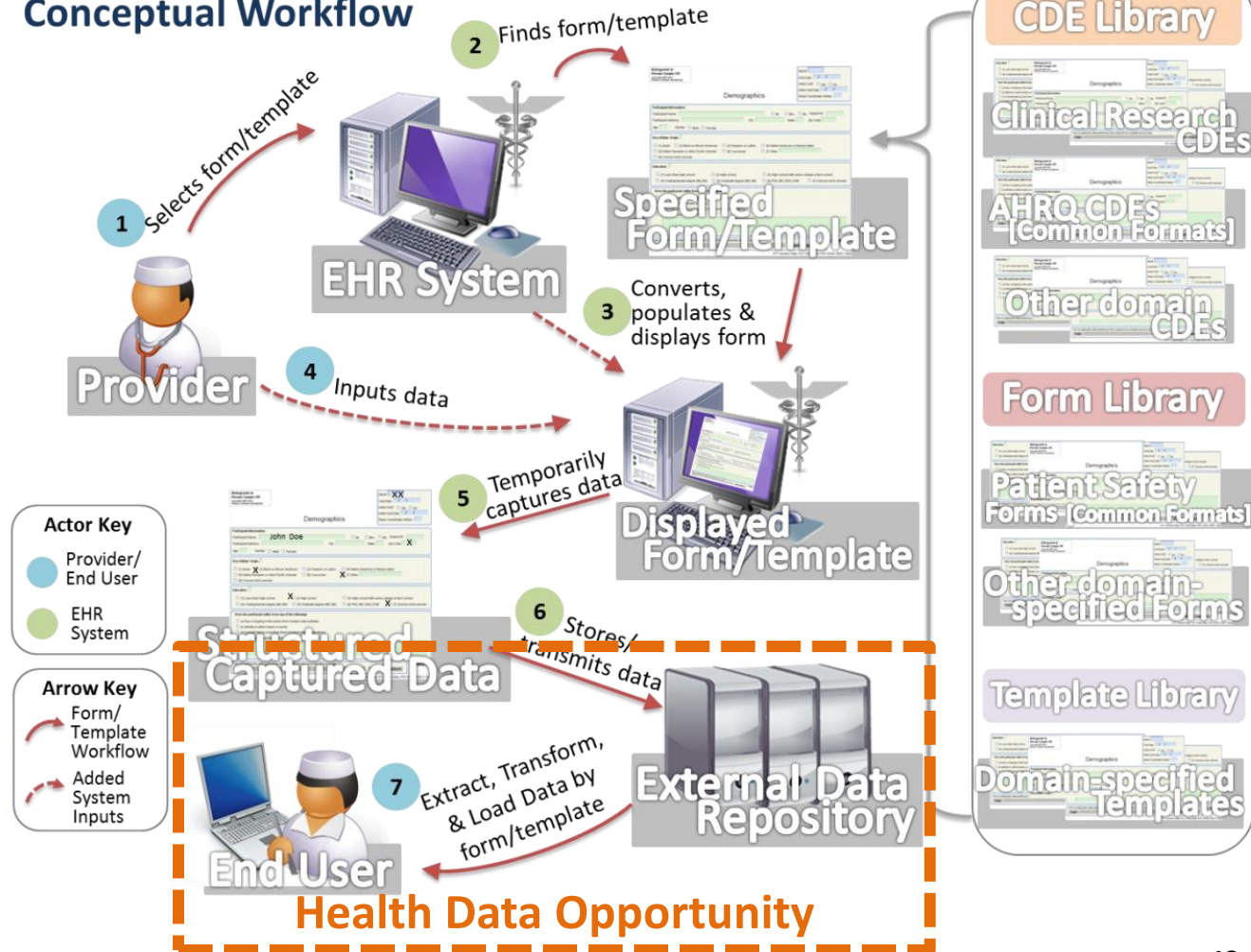


# Structured Data Capture (SDC) & Health IT Standards

The Structured Data Capture (SDC) initiative focuses on displaying and filling out any kind of form or template within in an Electronic Health Record (EHR) System to facilitate the save & store of standard, structured data which can then be used for analytics.

SDC is working with a community of EHR vendors, standards development organizations, providers, payors, & federal partners to produce consensus standards for data exchange.

## Structured Data Capture Conceptual Workflow



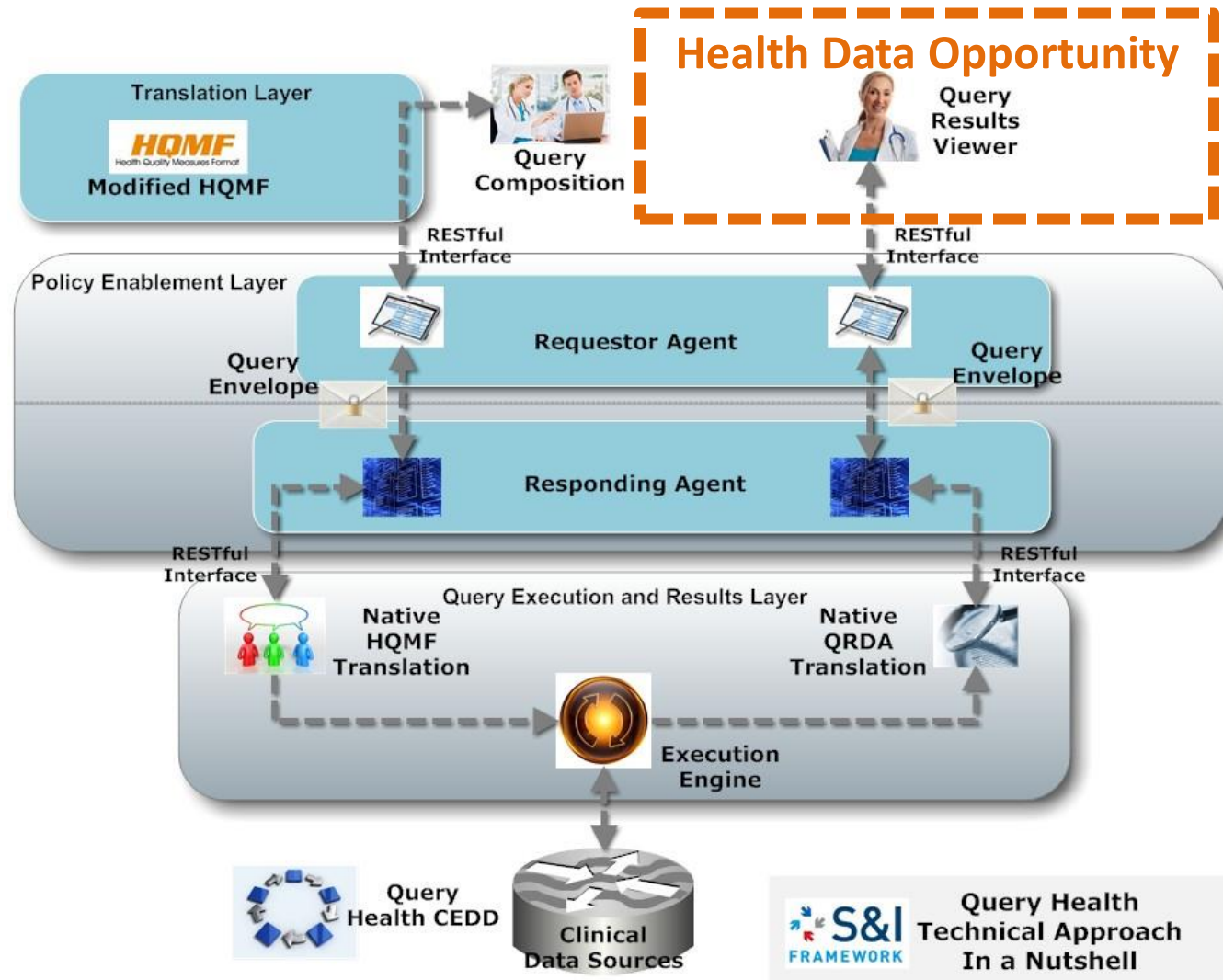
# Query Health (QH) & Health IT Standards: Distributed Query Networks

The Query Health initiative facilitates posing a “question” to a clinical information center and receiving an “aggregate result” of de-identified patient data, outcomes, or other helpful data – enabling the Learning Health System.

*QH makes health data useful.*

## Standards:

- Query Envelope
- Healthcare Quality Measures Format (HQMF)
- Quality Reporting Document Architecture (QRDA) Cat I & III



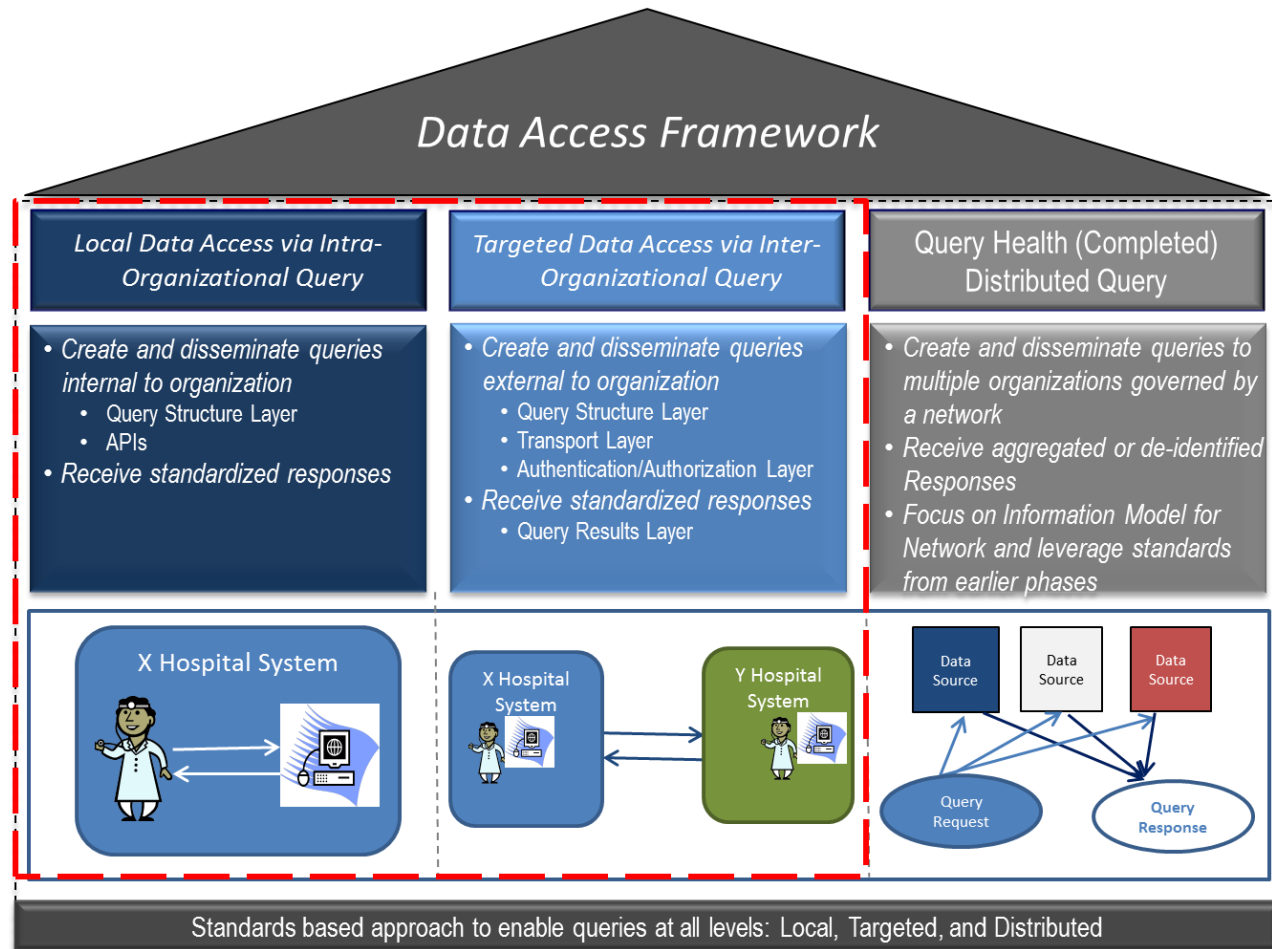
# Data Access Framework (DAF) & Health IT Standards

ONC would like to establish a set of standards around Queries for a variety of use cases to facilitate health information exchange using the help of existing SDO's/Profiling organizations.

Launching in July 2013  
Participate: [wiki.siframework.org](http://wiki.siframework.org)

## Example queries:

- Enable providers to query within their organization for a/all diabetic patient(s) with A1C > 8%
- Enable provider to query the complete medical history of a patient, or patients, to improve decision making & care
- Tools include predictive modeling, comparison with existing data sets etc.
- Build an Extraction capability from EMR's to perform population analysis and other clinical research studies



# Data Access Framework (DAF) & Health IT Standards: Sample Queries

| Query Basics (Queries Within an Organization a.k.a Enterprise queries)   | Targeted Query (Query across one organization a.k.a cross enterprise)   | Distributed Query (Query across multiple organizations)   |
|--|---|---|
| Query Patient diagnosis, labs, allergies, and medications data using their MRN #   | Query a Patient's latest clinical data using their MRN #  | Query the health of the population by diagnosis such as (Diabetes, Obesity, Smoking Status etc) stratified by Zipcodes, Gender, Age Groups etc. |
| Query all lab results for a patient over a period of time using MRN#   | Query the list of lab results for a patient over a period of time using MRN#  | Query Providers performance using Quality Measures and provide comparisons back to Providers  |
| Query patient visit history over a period of time using MRN# or demographic information  | Query a Patient's data using their MRN# or demographic information  | Query Chronic Disease control trends such as BP, Heart Disease, Diabetes, Cholesterol etc stratified by Genders, Age Groups, Zipcodes           |
| Query the list of all patients who have hbA1C > 8% and all diabetes related labs over a period of time   | Query if Patient had a recent encounter at the targeted organization for a specific condition   | Query Unstructured data for specific diagnoses, problems, meds across the population and stratify by demographics                               |
| Query a list of all patients who are due for a certain Immunization and their contact information  | Query an immunization registry for immunization History information about a single patient  | Query Patients recovery rates, readmission rates, side effects etc stratified by providers  |
| Query patient's data and use third party applications to improve patient care such as Medication Tracking, Predictive modeling, Long Term Care Management, | Query an PDMP database for information about a single patient   | Send Clinical Quality Measures for comparative effectiveness research   |
| Allow clinical research/population analysis tools to function alongside the EHRs by querying the necessary data from the EHR.                              | Query an EMR for a single patient's longitudinal clinical information (ie. Allergies, medications, procedures, problem list across multiple encounters) | De novo queries for clinical research and analysis  |



# How S&I can support U.S. healthcare goals

## ***Goals of healthcare industry***

- Improve quality & patient care
- Control cost
- Proprietary or customized data collection and aggregation
- Move away from closed data sets



## ***Developed approach to achieve goals***

- Aggregated data sources
- Health IT standards
- Patient engagement
- Population awareness and education
- Open data & application development

## ***Results achieved through S&I***

- Engaged & aware patient population
- Decreased costs of chronic illness on the health care system
- Population awareness and education
- Searchable & processable data sources for predictive-analytics
- Standardized health information exchange and data
- Developed applications for patient & public/private organization empowerment

## Learn more at:

ONC website:

[www.healthit.gov/](http://www.healthit.gov/)

S&I Framework Wiki:

<http://wiki.siframework.org/>

Putting the I in HealthIT 

 **S&I FRAMEWORK**