The Office of the National Coordinator for Health Information Technology

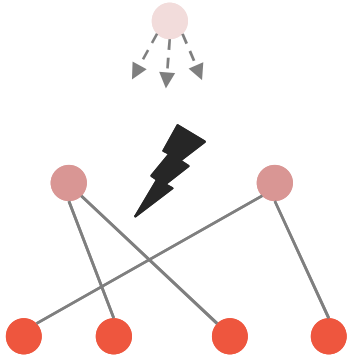
State HIE Strategic and Operational Plan Emerging Models

Case Studies - DRAFT

February 16, 2011

State HIE Strategic and Operational Plan
Emerging Models

Elevator

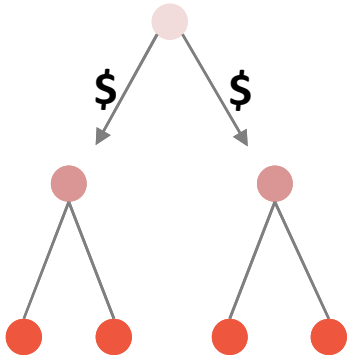


Rapid facilitation of directed exchange capabilities to support Stage 1 meaningful use

Preconditions:

- ✓ Little to no exchange activity
- ✓ Many providers and data suppliers that have limited HIT capabilities
- ✓ If HIE activity exists, no cross entity exchange

Capacity-builder

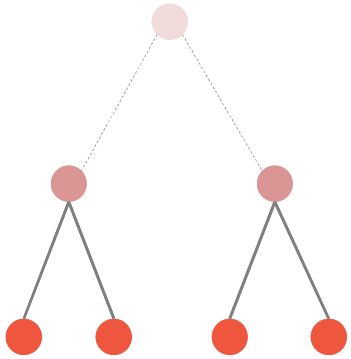


Bolstering of sub-state exchanges through financial and technical support, tied to performance goals

Preconditions:

- ✓ Sub-state nodes exist, but capacity needs to be built to meet Stage 1 MU
- ✓ Nodes are not connected
- ✓ No existing statewide exchange entity

Orchestrator

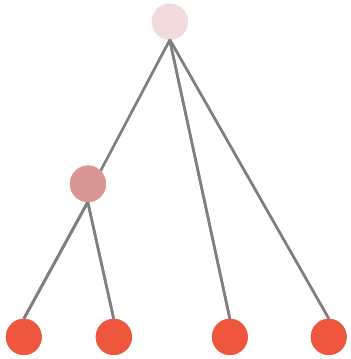


Thin-layer state-level network to connect existing sub-state exchanges

Preconditions:

- ✓ Operational sub-state nodes
- ✓ Nodes are not connected
- ✓ No existing statewide exchange entity
- ✓ Diverse local HIE approaches

Public Utility



Statewide HIE activities providing a wide spectrum of HIE services directly to end-users and to sub-state exchanges where they exist

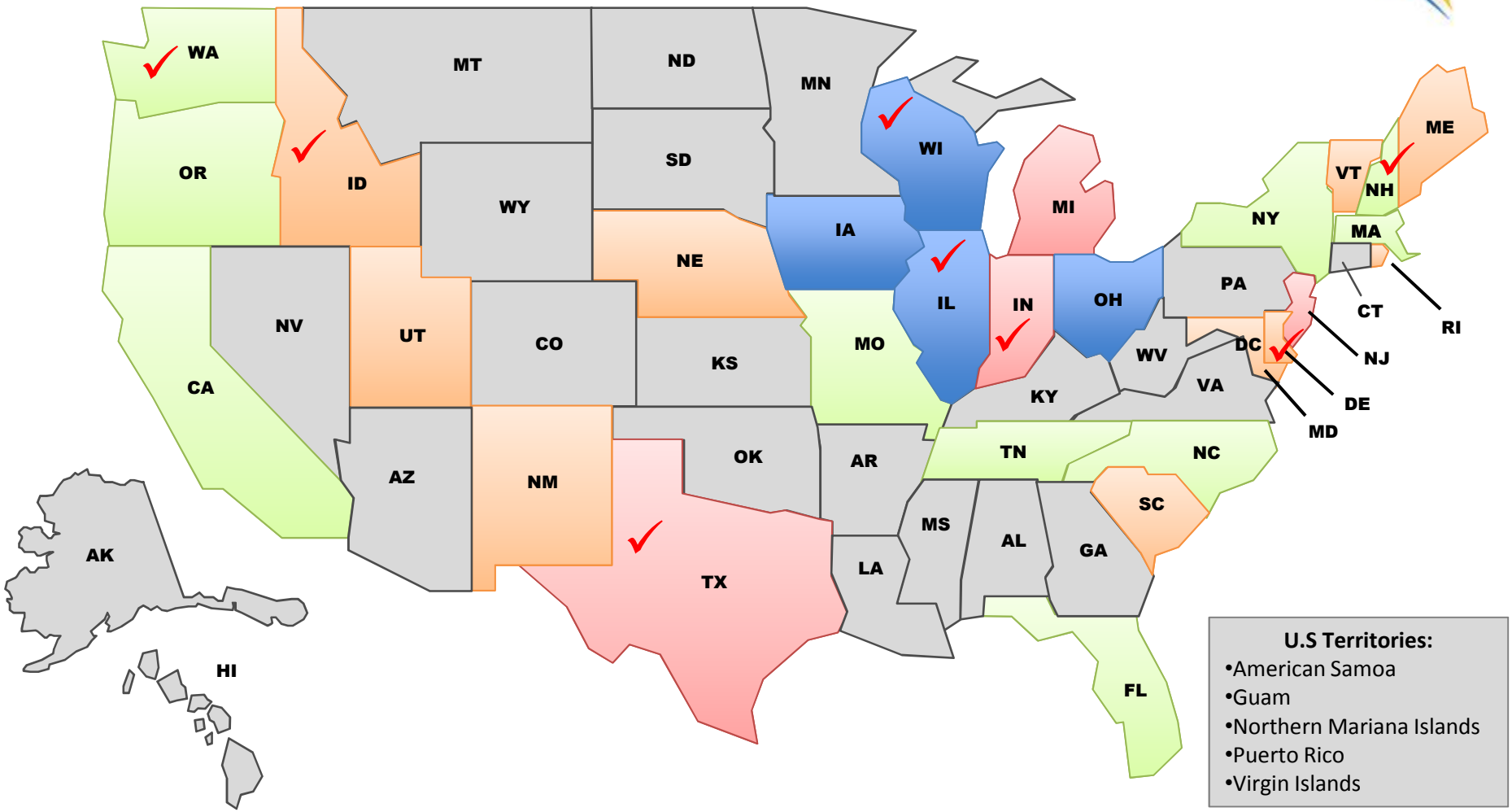
Preconditions:

- ✓ Operational state-level entity
- ✓ Strong stakeholder buy-in
- ✓ State government authorities/financial support
- ✓ Existing staff capacity

Case Study Assumptions

- Case studies do not include all approved State HIE Strategic and Operational plans.
- Some states used for case studies display characteristics of more than one model. Case studies that highlight a characteristic from another model will be identified with a ★ .
- Case studies are not comprehensive and generally include characteristics that highlight aspects of each model. For more detail on a state's specific strategies, please refer to plan summaries or Strategic and Operational plans.
- Grantees may not necessarily align with *all* the key principles or key conditions of a particular model, but may exhibit attributes of one or more models.

Approved State Plans by Model - Map



U.S Territories:
- American Samoa
- Guam
- Northern Mariana Islands
- Puerto Rico
- Virgin Islands

Elevator ***Capacity-builder*** ***Orchestrator*** ***Public Utility***

✓ Indicates states highlighted in case studies

***Please note that most grantees display characteristics of more than one model*

Approved State Plans by Model - Grid

State	Elevator	Capacity-builder	Orchestrator	Public Utility
California	X		X	
Delaware				X
Florida			X	
Idaho				X
Illinois	X		X	
Indiana		X		
Iowa	X		X	
Maine				X
Maryland				X
Massachusetts			X	
Michigan		X	X	
Missouri	X		X	
Nebraska				X
New Hampshire			X	
New Jersey		X	X	
New Mexico				X
New York			X	
North Carolina	X		X	
Ohio	X		X	
Oregon	X		X	
Rhode Island	X			X
South Carolina				X
Tennessee			X	
Texas		X	X	
Utah				X
Vermont	X			X
Washington			X	X
Wisconsin	X		X	

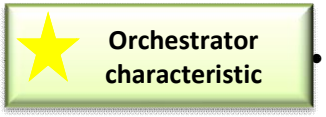
Elevator Case Study

Illinois

Background and Current State

- No existing statewide operational HIE services organization, but in 2010 state statute created IL HIE Authority to govern and operate statewide exchange
- 2009 planning grant ($3M) to 16 Medical Trading Areas (MTAs)
  - Four to six local HIEs in advanced planning stages
  - Strong stakeholder buy-in, governance models, plans to become operational by 2011
- IL Office of Health Information Technology (OHIT) mandate to ensure every provider in state can meet meaningful use in 2011

Technical Phasing Strategy



- Initial phase focuses on Direct to achieve Stage 1 MU requirements
  - Creation of statewide HISP to facilitate Direct, once available
  - HISP supplementation services – individual-level provider directory; centralized, statewide certificate authority
- Future phase includes creation of state-level backbone services
  - Enable secure routing between HIOs, other states, NWHIN (push)
    - Security services (authentication, audit, access)
    - Directories (provider and organizational)
    - Routing (message acknowledgment, potential translation, de-identification)
- Expand core infrastructure to support advanced HIE (query/retrieve or pull)
  - Master patient index/record locator service; payer directory; public health entity directory

IL's characteristics that fit Elevator model:

- ✓ Initial focus on facilitating use of directed exchange for achievement of MU
- ✓ No existing statewide HIE services organization
- ✓ Centrally orchestrated services deferred pending greater adoption of basic HIE services through Direct
- ✓ State mandate to ensure providers can meet MU in 2011
- ✓ Local exchanges mostly in planning phase

Elevator Case Study

Illinois

Operational Strategy

- Direct services
  - Contracted entity to serve as HISP for state to facilitate Direct
  - Utilize local HIE networks to register providers for Direct services
  - Encourage EHR vendors to implement Direct specifications into products
  - Work with REC to provide boots-on-the-ground technical assistance to providers and data suppliers that have limited HIT capabilities

Orchestrator characteristic

- Strategy to connect un-tethered providers/white space
  - Require local networks to provide HIE services to providers in state that currently do not have access to HIE services (regardless of location)
- Certification of local networks to participate in state-level HIE including criteria for compliance with standards, policies, etc.

Legal/Policy Strategy

- Policies to ensure oversight of certified local networks
- Certified networks expected to develop own legal/policy frameworks in accordance with statewide standards and policies for HIE, including participation agreements and contracts with members

Financial Strategy

- Initial Direct phase costs estimated to be lower than future state-level shared services costs
- IL HIE Authority to adopt business plan in 2011 to sustain capacity and services developed in phased approach to deliver value to participants

Elevator Case Study

Wisconsin

Background and Current State

- No existing statewide operational HIE services organization, but will build on an existing HIE organization (WHIE)
- Various entities offering HIE services in state (regional/community HIOs, health-systems, or EHR-sponsored networks), but currently no option to meet Stage 1 MU for providers not affiliated with one of these entities
- Identified gaps in HIE capacity, particularly among rural providers or solo providers

Technical Phasing Strategy

- Initial focus on Direct to fill gaps and enable Stage 1 MU
  - Creation of statewide HISP to facilitate Direct, once available
  - HISP supplementation services
    - Individual-level provider directory
      - Leverage existing provider directory (Wisconsin Medical Society)
    - Centralized, statewide certificate authority
    - Adaptors to enable Direct-compliant messaging (SMTP, XDD)
- Future phase includes multi-layered, modular state-level backbone infrastructure once initial performance goals are achieved
  - Network-of networks architecture to connect sub-state nodes
  - MPI/RLS to support query/retrieve
  - Connection to NWHIN
  - Other directories (payer and consent)
  - Connecting to public health through statewide HIE

Orchestrator characteristic

WI's characteristics that fit Elevator model:

- ✓ Initial focus on facilitating use of directed exchange for achievement of MU
- ✓ No existing statewide HIE services organization
- ✓ Gaps in sub-state network capabilities
- ✓ Identified white space, predominately rural areas
- ✓ Gaps in ability to support Stage 1 MU

Elevator Case Study

Wisconsin

Operational Strategy

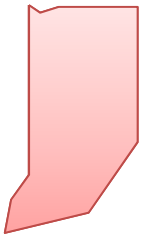
- Direct services
  - Local HIO (WHIE) to serve as HISP for state
  - Work with REC/HISP to provide boots-on-the-ground support to independent/small practice providers, critical access hospitals and data suppliers
  - Use HISP and local HIE networks to register providers for Direct services
  - Encourage EHR vendors to implement Direct specifications into products
  - Subsidize technical assistance to rural/underserved stakeholders to implement Direct
- State-level services
  - Several options for connecting to state-level services including
    - Via sub-state networks
    - Direct access options to state-level exchange (providers connect directly to state-level services and not via sub-state networks)

Legal/Policy Strategy

- Use of contracts to govern participation in state-level exchange
- Oversight and accountability mechanisms to ensure compliance with state-level legal/policy framework

Financial Strategy

- First-year costs reflect approximate estimates to implement Direct
- Voluntary and subscription-based approach that help drive adoption
  - Focusing on shared services that support high-priority use cases
- Breakeven point anticipated between years five and six



Capacity-builder Case Study

Indiana

Background and Current State

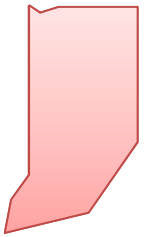
- Five mature geographically-focused operational local exchanges
  - Each provides own set of HIE services (secure routing, applications, data storage)
  - Some bi-lateral cross-entity exchange among HIOs; two operate across state borders
  - All sustainable for past four years
- Good coverage across state, but identified gaps in HIE connectivity for providers and data suppliers that have limited HIT capabilities

Technical Phasing Strategy

- No state-level infrastructure or shared services
- Initial phase to expand existing HIO services and fill gaps to enable Stage 1 MU:
  - Subsidize interface development between the neediest providers/data suppliers and local networks through Connectivity Matching Grant Program
  - Promote use of CONNECT to enable transfer of clinical care summaries across HIOs
  - Bi-directional interface development between providers and state immunization registry
- Future phases includes:
  - Providing more complete clinical results
  - Public health and quality reporting

IN's characteristics that fit Capacity-builder model:

- ✓ Widespread exchange capacity but Identified gaps within rural/less populated areas of state
- ✓ Major barrier to adoption include initial and on-going costs among providers /data suppliers with limited HIT capabilities
- ✓ Need for temporary financial support to fill gaps in statewide HIE



Capacity-builder Case Study

Indiana

Operational Strategy

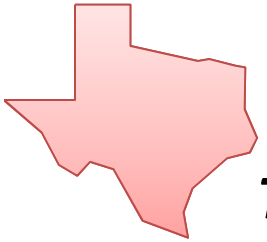
- Connectivity Matching Program
  - Eligibility based on stakeholder type (rural hospitals, etc.) and location (e.g. high need community)
  - Grant awards on first come, first serve basis using letters of intent
  - Requirement to enter into contract with state and provide matching funds (10% of award)
- HIO-to-HIO Connectivity Program
  - Potential to contract with vendors for functionality
  - Financial incentives to local networks to deliver patient summary record that incorporates cross-network data
- Immunization Program – Develop interfaces between state immunization registry and local HIOs

Legal/Policy Strategy

- Local HIOs adhere to policies, agreements, procedures developed individually
- State to develop legal/policy framework to promote statewide HIE, leveraging local policies where possible
- State to regularly monitor, oversee, and consult with local networks to ensure compliance with statewide and national approved technology, interoperability, security and privacy standards

Financial Strategy

- Existing HIOs are all sustainable
- Required grantee matching funds (10%) to support implementation



Capacity-builder Case Study

Texas

Background and Current State

- Geographically large state with diverse regional healthcare systems
- Pockets of existing sub-state exchange ranging from planning phase to operational
  - Many have momentum, but lack ability to fully enable MU without assistance
  - Sub-state nodes not connected
- Large white space that lacks coverage by existing sub-state nodes

Technical Phasing Strategy

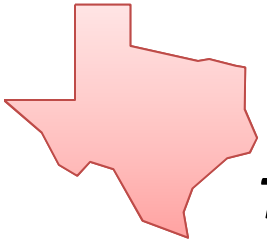
- Initial phase focuses on funding program to build capacity of sub-state nodes and fill gaps
  - Competitive grants program to bolster existing sub-state exchange efforts
  - Competitive state-sponsored RFP to enable HIE services to white space
- Assist grantees/awardees through implementation blueprints and ad-hoc consulting services
- Future phase (2012) focuses on state-level shared services to connect sub-state nodes

Orchestrator characteristic

- Record locator service, provider directory, NWHIN connectivity
- Continuity or last resort services in the case a sub-state node fails

TX's characteristics that fit Capacity-builder model:

- ✓ Pockets of existing exchange with momentum, but not fully operational
- ✓ Existing nodes cover a substantial portion of state, but gaps remain
- ✓ Need for temporary financial support to fully operationalize sub-state nodes
- ✓ Diverse regional culture with varying HIE priorities and needs
- ✓ Creation of statewide network deferred pending creation of more robust local HIE capacity



Capacity-builder Case Study

Texas

Operational Strategy

- Grants qualifying criteria:
  - Compliance with technical standards/ adherence to privacy/security policies
  - Service offerings that enable providers to achieve MU
  - Participation commitments from stakeholders
  - Matching funds requirements
- RFP evaluation criteria:
  - Quality and cost
  - Coverage and willingness to deliver core services
  - Adherence to policies and standards
- Funding formula for grants program includes base amount plus funding proportionate to number of providers each will serve

Legal/Policy Strategy

- Contractual model and necessary agreements between grantees/awardees and state
- Oversight and enforcement policies to ensure compliance with state/federal law and state-level policy infrastructure

Financial Strategy

- State support transition sub-state nodes from grants funding to sustainable operations including development of value-proposition plan
- Required grantee matching funds (25%) to support implementation

Orchestrator Case Study

New Hampshire

Background and Current State

- Operational, sub-state hospital-based nodes that provide HIE services to the majority of stakeholders across state
- Heterogeneity in HIE approaches due to diverse needs and priorities
- Gaps in HIE capabilities of sub-state nodes including little cross entity exchange and inability to fully support MU

Technical Phasing Strategy

- Phase 1 focuses on backbone of services to support secure routing across nodes
  - Authoritative directories
  - Audit/logging
  - Security services
  - NWHIN gateway
  - Direct services (when available)
- Phase 2 focuses on layering of services to facilitate enhanced HIE capacity
  - Master patient index/record locator service
  - Connections to additional stakeholders (e.g. long term care)
  - Secure routing to public health

NH's characteristics that fit Orchestrator model:

- ✓ High level of existing exchange that covers substantial portion of providers
- ✓ Little cross-entity exchange
- ✓ Gaps exist in sub-state nodes' current HIE capabilities
- ✓ No existing statewide HIE services organization
- ✓ High degree of HIE variation in the state due to diverse priorities and needs

Orchestrator Case Study

New Hampshire

Operational Strategy

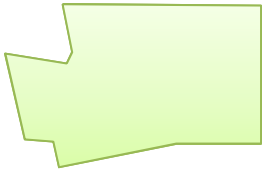
- Rely on sub-state nodes to provide connectivity for un-tethered providers/white space
- Certify sub-state nodes in order for them to participate in state-level network
  - Provide a minimum level of services
  - Comply with state and federal privacy and security rules
  - Adhere to content, vocabulary, and security standards
  - Test fulfillment
- Assistance from state to assess sub-state node technical readiness, capability gaps, and roadmap creation

Legal/Policy Strategy

- Existing state law restricts statewide HIE function to exchange among providers for treatment purposes
- Phase 1 push services allowed by current law, but expansion to public health or data aggregation or query/retrieve functions is likely to require change in state law
- Sub-state nodes will be responsible for compliance with state/federal law regarding exchange that occurs within own network

Financial Strategy

- Strategy to reduce costs by phased implementation (least complex and costly services first), in-kind support, and shared services approaches (e.g., regional provider directories)



Orchestrator Case Study

Washington

Background and Current State

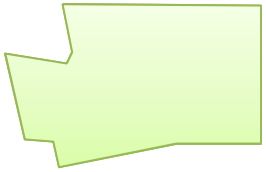
- A variety of existing entities (regional/communities, hospital networks, etc.) providing differing levels of service to stakeholders
- Gaps in existing HIE capacity including little cross entity exchange; many stakeholders not connected to any entity providing HIE services
- Existing health orgs. see HIE/HIT as a component of building care systems – some will create their own, others will look to state HIE, some will do both

Technical Phasing Strategy

- Lean state-level infrastructure (the Hub) to facilitate secure routing of clinical and business data
- Focused strategy to centralize message handling, master patient index/record locator service only
- Phase 1 includes:
  - Implementation of the Hub with limited data transformation
  - Provider directory
- Future phase includes:
  - MPI/RLS (pending determination of need and feasibility)
- Market/private entities to provide:
  - Data storage and transformation/translation services
  - Applications for viewing and using data

WA's characteristics that fit Orchestrator model:

- ✓ Leverage existing, operational sub-state nodes to achieve statewide interoperability
- ✓ Little cross entity exchange
- ✓ High degree of HIE variation in the state due to diverse priorities and needs
- ✓ Strong buy-in for HIE from stakeholders
- ✓ No existing statewide HIE services organization



Orchestrator Case Study

Washington

Operational Strategy	• Leverage existing operational capabilities and resources of private-sector lead organization (OneHealthPort) • Build critical mass of trading parties by focusing on connectivity with key content holders • Provide flexible solutions that add value to existing HIOs, etc. and deliver basic services to providers not currently connected
Legal/Policy Strategy	• Light legal infrastructure to align with thin-layer architecture • Standardized subscription agreement between lead entity (OneHealthPort) and participating sub-state nodes • Sub-state nodes will be responsible for privacy/security within their own perimeter, consent secured by trading partners
Financial Strategy	• Use ONC funds to reduce set up costs, all trading partners pay an annual subscription fee based on size of organization • Offer significant financial incentives to early adopters • Reduce costs through phased implementation – least complex and costly services first

Public Utility Case Study

Delaware

Background and Current State

- Delaware Health Information Network (DHIN) – existing statewide HIE network and SDE created in 1997
- Strong state government support
  - $8M in funding from capital budget over past four years
- Operational since 2007
  - Currently connects 75% of providers, hospitals and nearly 100% of reference labs
  - Support services including secure delivery of lab/pathology results, radiology and transcribed reports, patient record inquiry, public health reporting
- Broad stakeholder buy-in and financial support

Technical Phasing Strategy

- Current work includes:
  - Master patient index/record locator service
  - Results distribution and EHR integration
  - Summary document exchange
  - Security services
  - Vocabulary services
  - Public health reporting
- Future phases include:
  - Hosted EHR application, federal agency connectivity (via NWHIN Gateway), payer connectivity, and quality indicator reporting

DE's characteristics that fit Public Utility model:

- ✓ Existing operational statewide exchange/entity covering majority of providers
- ✓ Strong support from state government
- ✓ Buy-in from stakeholders to participate; agreements with data suppliers in place
- ✓ Implementation boots-on-ground to provide rollout of state-level HIE services and tools
- ✓ Permanent staff to facilitate day-to-day operations of state-level infrastructure and services

Public Utility Case Study

Delaware

Operational Strategy

- Relationship with REC to support integration at practice office EHRs and DHIN
  - REC requires interface to the DHIN for all EHR vendors who participate with the REC
  - Negotiated discounted rates with EHR vendors to support provider adoption of DHIN integrated EHRs
  - Participants maintain a single interface to the HIE for all results/reports distribution and receipt into the practice EHR
- DHIN to provide scheduling, training, and post training support for end-users, including Help Desk
- Robust marketing strategy to drive participation in statewide exchange and provisioning of EMR Primer
- Permanent staff to oversee day-to-day operations of DHIN, led by Executive Director with guidance and oversight from Board of Directors, Advisory Committee, and workgroups

Legal/Policy Strategy

- Existing DHIN legal framework
  - Includes procedures and/or protocols for privacy and security, provider relations and user management, and system monitoring
  - Liability protections for appropriate use of the system are built into the DHIN statute
- State regulations establish participation requirements and structure of HIE oversight

Financial Strategy

- On-going funding from state government and private sector

Public Utility Case Study

Idaho

Background and Current State

- Idaho Health Data Exchange (IHDE) – existing statewide HIE and SDE
- Strong state government support
  - Established with state appropriation for initial implementation costs
- Operational since 2009
  - Services include clinical messaging of labs results, e-Prescribing, ability to view CCD, and medication history
- Permanent staff oversees day-to-day statewide HIE operations

Technical Phasing Strategy

- Initial phase includes:
  - Clinical summary exchange
  - Connection of hospitals and health providers
  - Lab and radiology ordering gateway
  - Immunization gateway
- Future phases includes:
  - Two-factor authentication
  - Administrative data exchange
  - Quality reporting
  - NWHIN gateway

ID's characteristics that fit Public Utility model:

- ✓ Existing operational statewide exchange/entity covering majority of providers
- ✓ Strong authority and financial support from state government
- ✓ History of competitors working together towards a common approach to HIE
- ✓ Implementation boots-on-ground to provide rollout of state-level HIE services and tools
- ✓ Policy and contractual levers to keep state-level network moving forward

Public Utility Case Study

Idaho

Operational Strategy

- Use policy and contractual levers to reduce amount of interfaces to state-level network and speed adoption of HIE
  - Leverage existing regional and enterprise exchange efforts to connect their stakeholders via one interface
  - Work with REC to require EHR vendors to provide interface to IHDE
  - Focus on expanding participation of high-volume hospitals
  - Propose Medicaid requirement in provider agreements to share electronic clinical results with IHDE
- Provide training and technical support (help desk) to end-users

Legal/Policy Strategy

- Use existing IHDE legal framework to support statewide exchange, including privacy and security policies, program manual, and terms and conditions

Financial Strategy

- Plan to supplement initial year cost of connecting with Cooperative Agreement funding to bolster stakeholder buy-in and support