



IBM Approach to Health Information Network Service Provider Business Model

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Friday, January 26, 2007



NHIN sustainability depends on successful evolution in the following areas:

- RHIOs fostering leadership and developing social capital to collaborate for the “community good”
- Consumers demanding availability of and accountability for their healthcare data
- Government participating as stakeholder (purchaser) in addition to being regulator
- Active support for a non-proprietary NHIN by nationwide companies (i.e., payors, employers, labs, research, etc.)
- Developing a market and control mechanisms for secondary uses of data

Necessary to create an attractive market for Health Information Network Service Providers

¹ *Based on findings within the NHIN Revenue and Cost Models deliverable developed for the NHIN Architecture Prototype project. The deliverable required each consortia vendor to develop business revenue and cost models and 5-year sustainability scenarios from the perspective of a HIN Service Provider in relation to their direct customers. RHIOs of varying sizes are the primary direct customers for Service Providers as they broker for HIN services on behalf of their membership.*

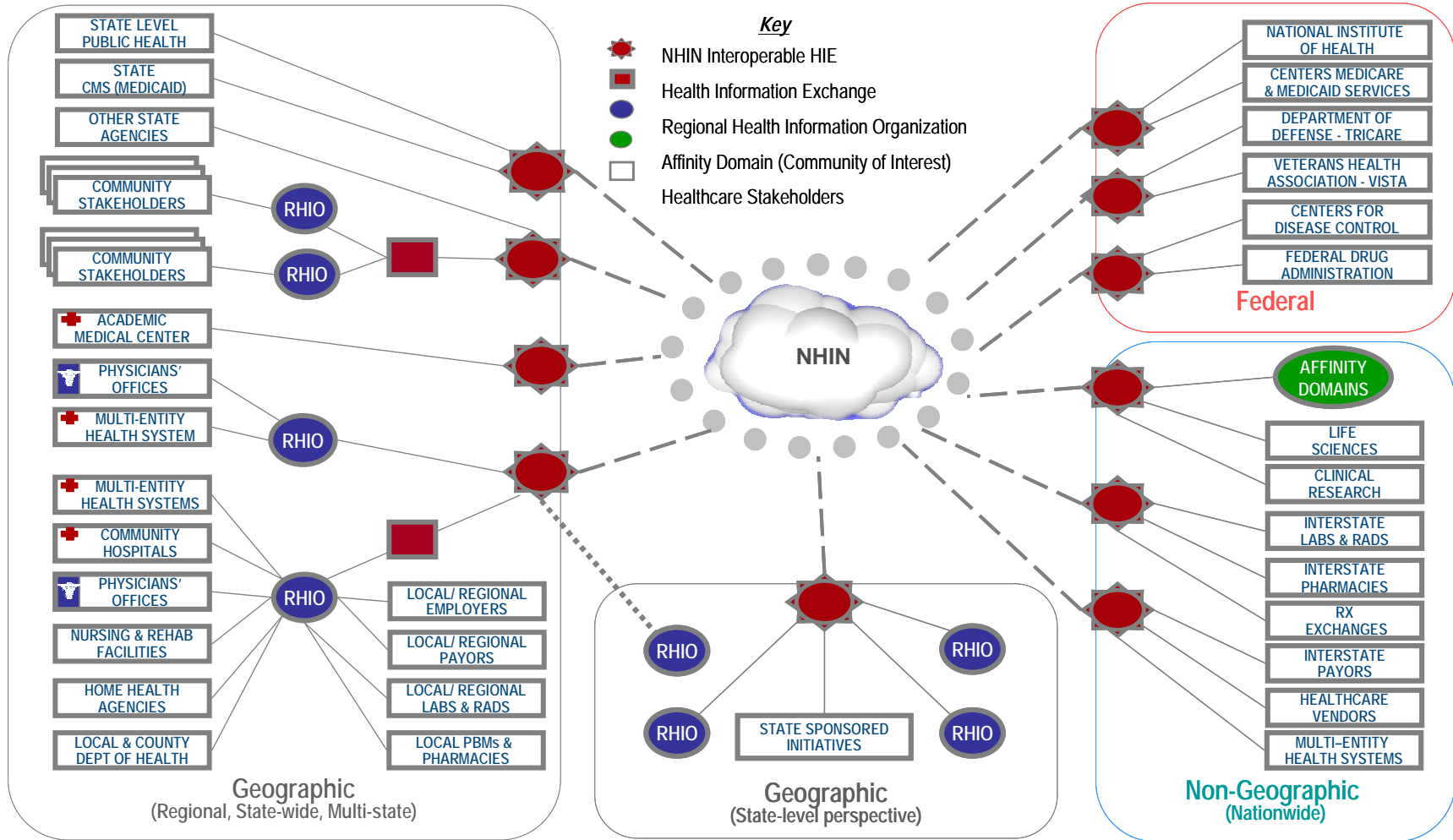


Complexity in relationship of stakeholders across two dissimilar interoperability markets



Geographic “Communities”

Non-Geographic “Companies / Agencies”



Communities are heterogeneous; Non-geographic entities are monolithic



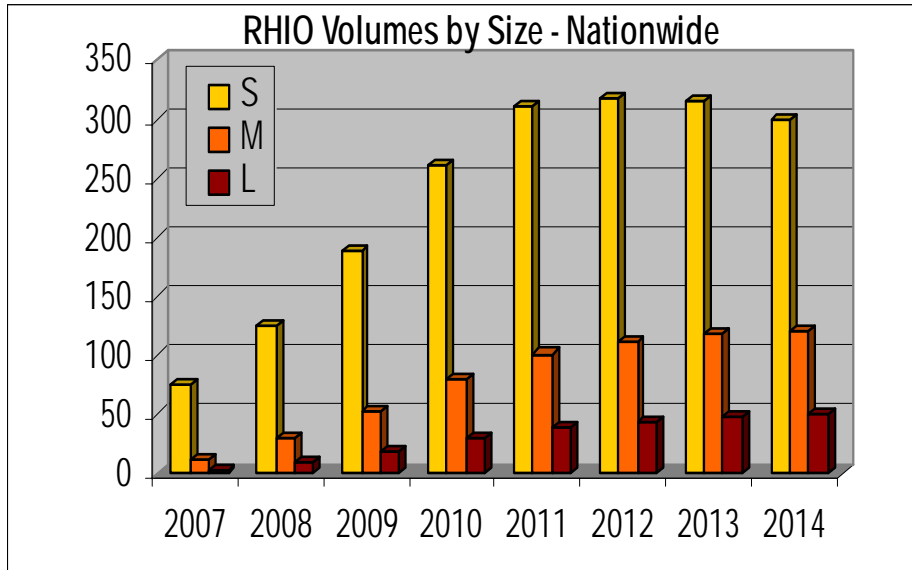
Simulator Navigation Screen						
<u>RHIO Market Simulator</u>	<u>RHIO Initiatives Simulator</u>	<u>RHIO Member Fees Simulator</u>	<u>HIN Financial Summary</u>	<u>HIN Fin. Detail Small RHIO</u>	<u>HIN Fin. Detail Medium RHIO</u>	<u>HIN Fin. Detail Large RHIO</u>
<u>RHIO Market Sizing Analysis</u>	<u>RHIO Initiatives Small RHIO</u>	<u>RHIO Fees Graphical Profile</u>	<u>HIN Finan. Sum. Small RHIO</u>	<u>HIN Core. Value-Add, and Operate</u>	<u>HIN Core. Value-Add, and Operate</u>	<u>HIN Core. Value-Add, and Operate</u>
<u>RHIO Revenues & Costs Analysis</u>	<u>RHIO Initiatives Medium RHIO</u>	<u>RHIO Budget & Fees Simulator</u>	<u>HIN Finan. Sum. Medium RHIO</u>	<u>HIN Services Financial Sum.</u>	<u>HIN Services Financial Sum.</u>	<u>HIN Services Financial Sum.</u>
<u>RHIO Customer Segmentation</u>	<u>RHIO Initiatives Large RHIO</u>	<u>RHIO Adoption Rates Simulator</u>	<u>HIN Finan. Sum. Large RHIO</u>	<u>HIN Client-Based Financial Detail</u>	<u>HIN Client-Based Financial Detail</u>	<u>HIN Client-Based Financial Detail</u>

Complexities within “Geographic” RHIO market:

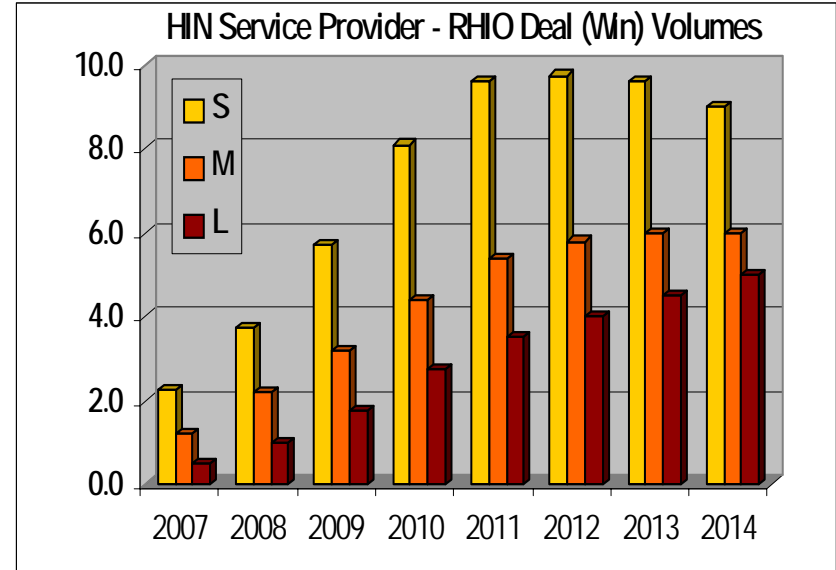
- Varying sizes and alignments of communities (small, medium, large)
- Varying requirements depending on state of development
- Adoption factors
- Variable customer buying behavior



Smaller RHIOs are greater in number but medium and large RHIOs combined generate more revenue



Sample Trend in Small, Medium, and Large RHIOs

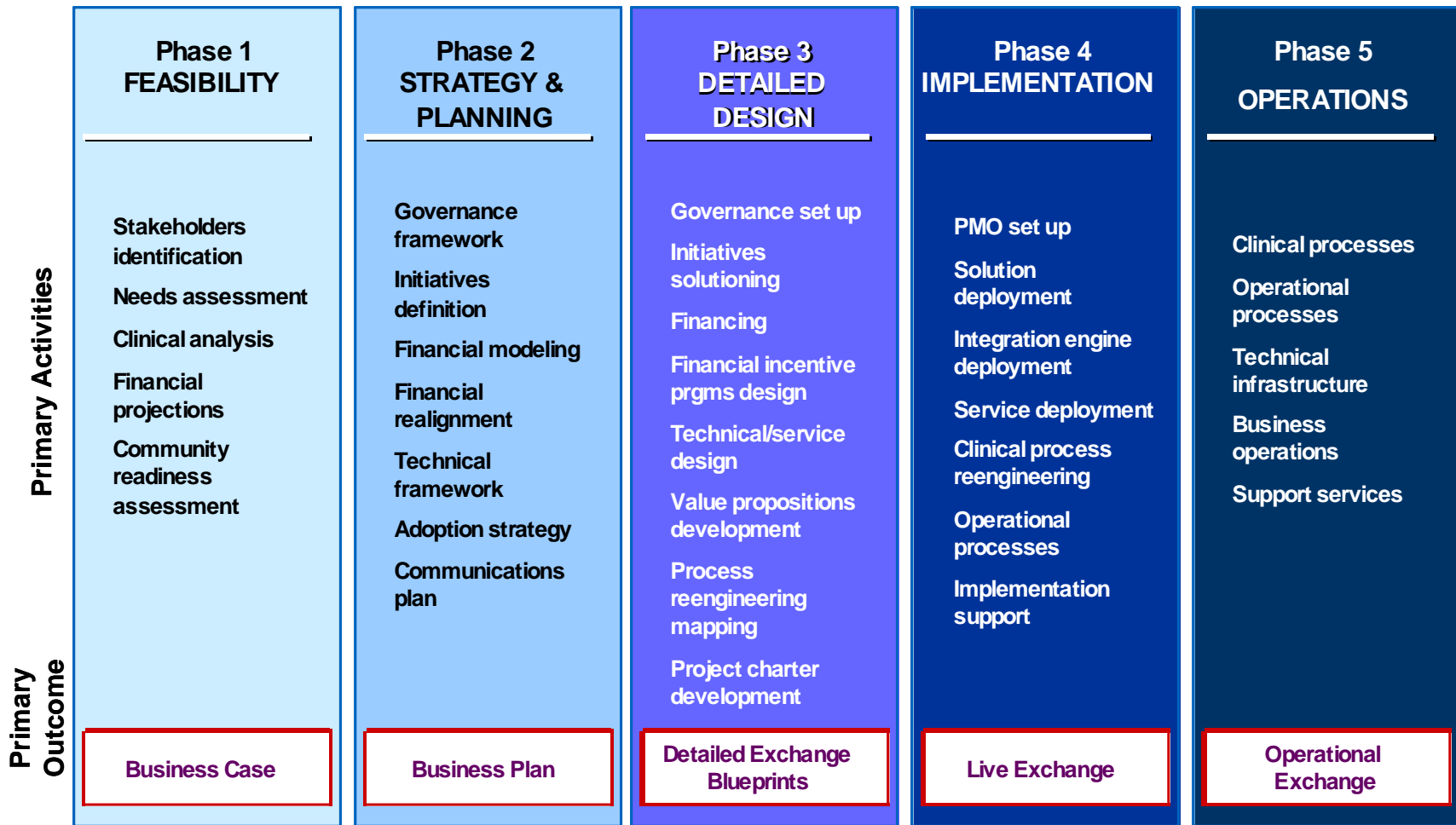


Sample Portfolio Profile of Interoperability Projects for a Typical HINSP

As RHIO market becomes saturated around 2011, a projected consolidation into larger entities is likely to take place



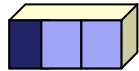
Deployment and Operation of RHIO-based HIN services is based on a five-phase methodology



Phase 4 implementation needs to be customized to the requirements, size and readiness of each RHIO



Phase 4 may be split into three or more stages to align highest value priorities with RHIO readiness



Stage One HIN-in-a-Box – Basic

Core Services

- Patient ID Crossmatching
- Record Locator Service
- Shared Document Storage
- Physician Access Management
- Regional Lab Integration (Gateways and Adapters)
- Audit Logging and Security
- Normalization Services and Claims Coding

Core Service Functionality

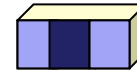
- Regional Lab Results
- Physician Viewer
- Portable PHR

Value-Add Options

- Regional Payor Passive EHR
- ePrescribing/Med Reconciliation



- Offer entry-level services
- No disruption of care processes
- Encourage adoption



Stage Two HIN-in-a-Box – Plus

Core Services

- Major Stakeholder and Labs, Rad, Rx, Integration (Gateways and Adapters)
- Authorized User Identification and Access Management
- IHE and CHF Compatible EMR Integration
- Triggered Data Collection from All Major Entities

Core Service Functionality

- All Lab/Rad/Rx/Payor Partners Data Availability
- Physician OpenEMR/EHR Interoperability (Edge EMR)

Value-Add Options

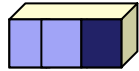
- Denials Documentation Automation
- Pay for Value – Automated
- Reporting/Reimbursement
- PH Biosurv ER/Clinic Data Extraction
- Retrospective Data Meta-Indexing



- Process efficiencies
- Meta-data indexing of secondary use data
- Biosurveillance data collection
- Public Health Reporting



Phase 4 offers three stages of implementation options



Stage three HIN-in-a-Box – Advanced

Core Services

- Major Stakeholder and Labs, Rad, Rx, Integration
- Cross-Community Data Sharing (NHIN Compatible)
- Secondary User Data Use Tools
- PHR/EHR Integration
- Consumer Integrated Consent Management
- Provider/Payor Secure Messaging and Workflow
- Provider/Consumer Secure Messaging
- Integrated Real-time Messaging and Alerts

Core Functionality

- Secondary Use Data - Data Set Acquisition Tools
- NHIN EHR Interoperability
- Payor/Provider Secure Messaging and Workflow
- Real-time Alert Notification of Abnormal Lab/ Rad Results
- PHR/EHR Integration
- Consumer PHR/EHR
- Integrated Demographics and Consent Management

Advanced Value-Add Options

- Point-of Care Claims Adjudication/Payment
- Integrated Patient Case Management
- Emergency Response Secure Communications
- Retrospective Data Acquisition, Transformation and Provisioning
- Health Bank with EHR Consent Integration
- Clinical Trials Recruitment and Tracking thru PHRs
- Retrospective Data Meta-Indexing



- Transition to Patient-centric, integrated care
- Increase in safety and quality of care
- Consumer adoption
- Chronic Care management
- Biosurveillance data collection
- Public Health Reporting

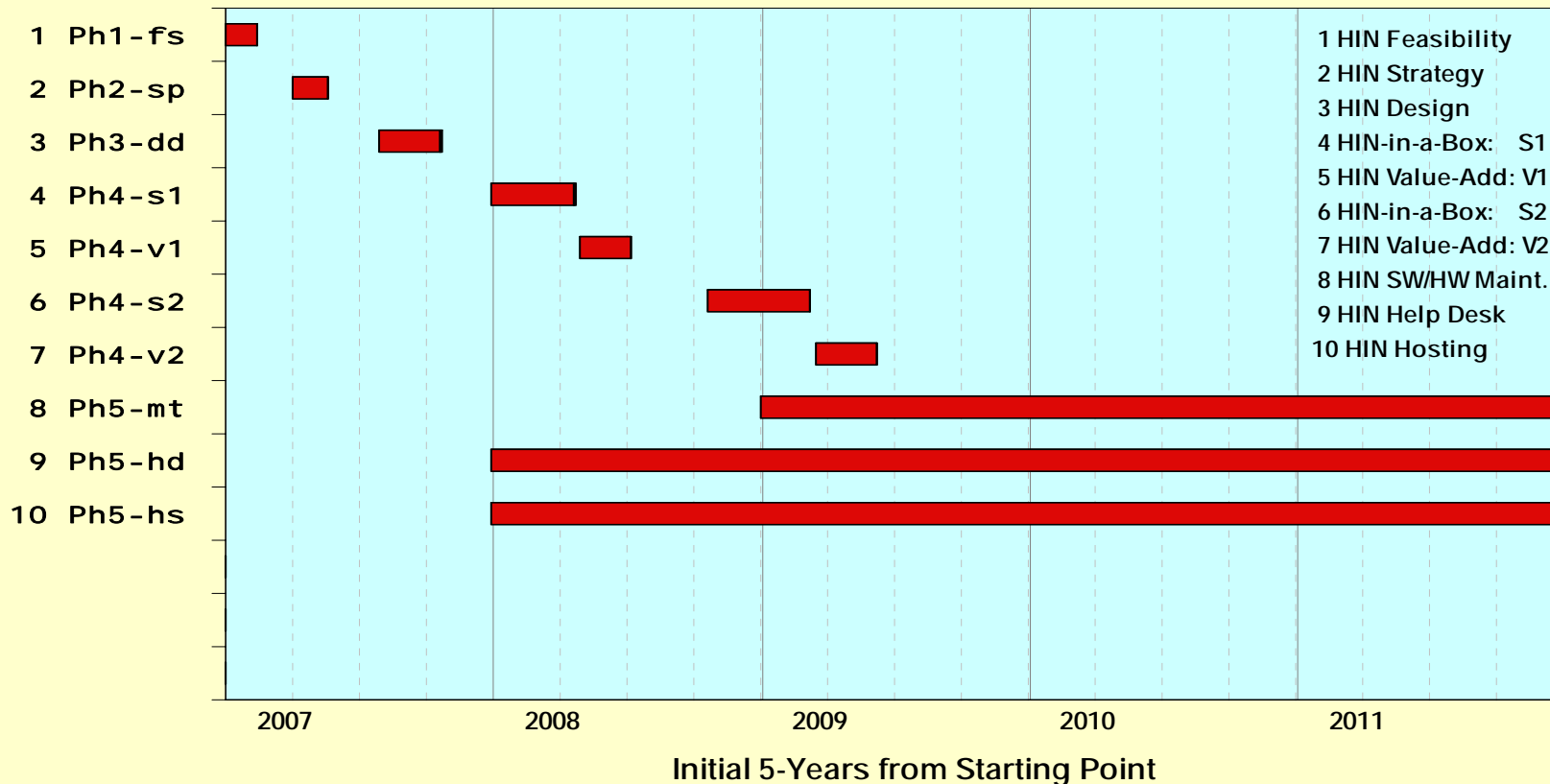


Hypothetical example for small RHIO stages 1 and 2

Simulated timeline for implementation and operation

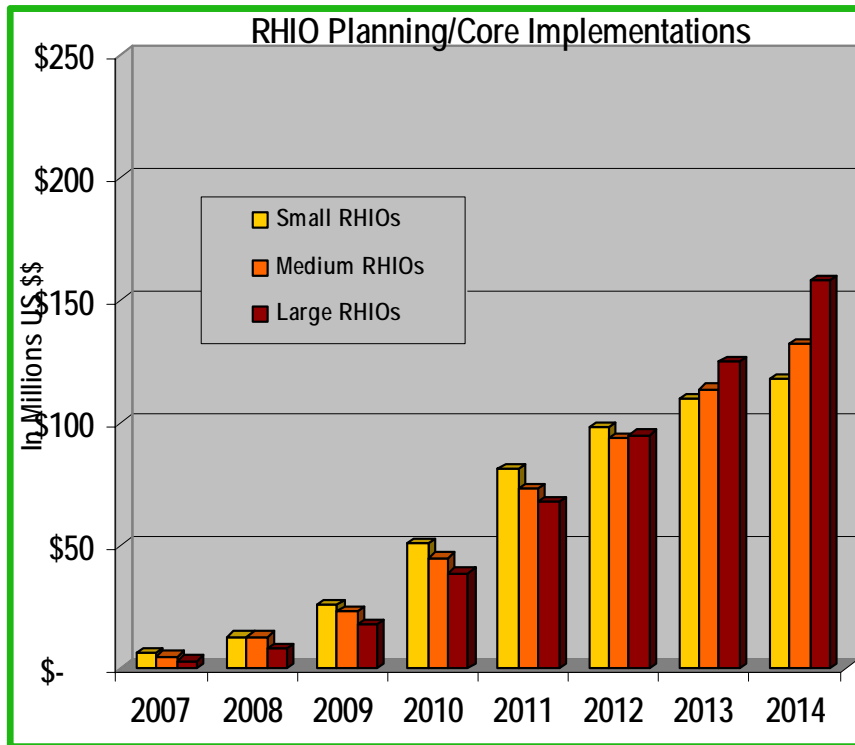


SIMULATED TIMELINE OF INITIATIVES FOR A REPRESENTATIVE SMALL SIZED RHIO

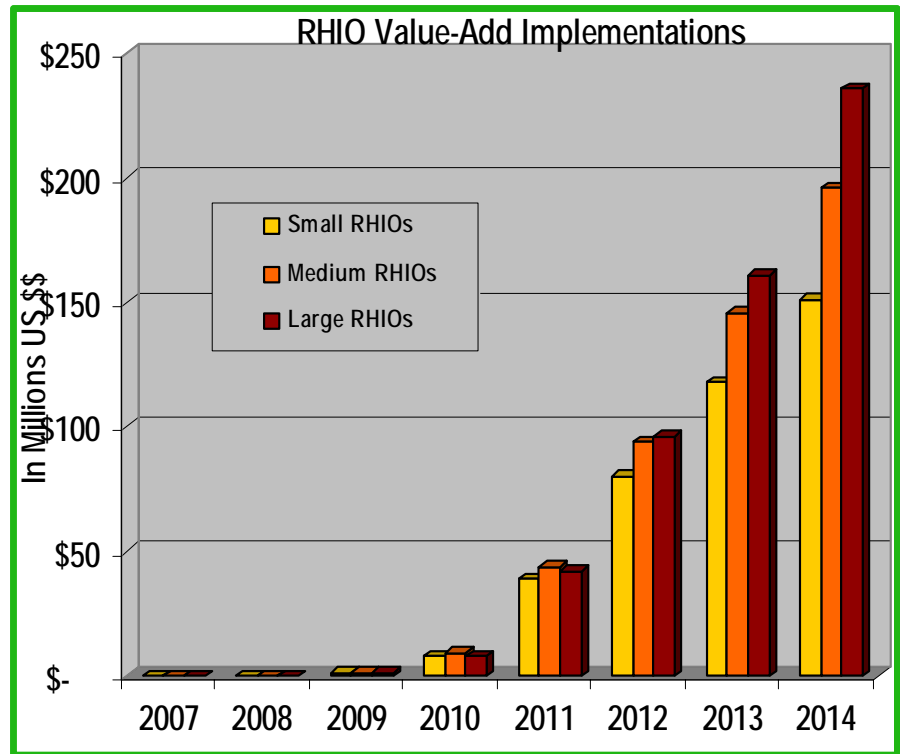




Core Implementations



Value-Add Implementations



Early years – maximize value and spur adoption through core implementations for RHIOs

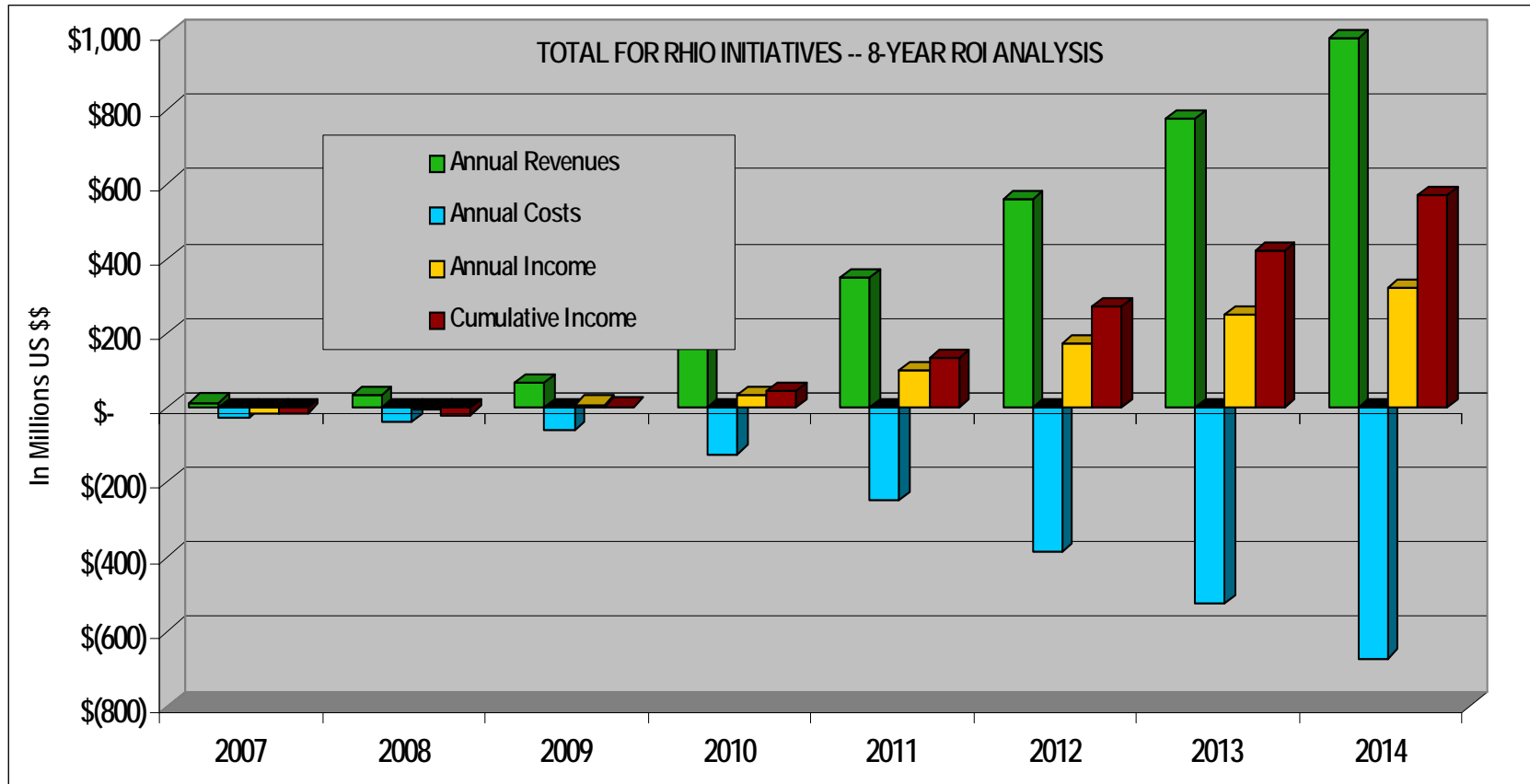
Later years – leads to strong potential for value-add services



The RHIO Market for large service providers is fairly limited in the first five years of operation



Projected Cash Flows for Core Infrastructure and Value-Add Clinical Services¹



Break even in year two, and ROI is minimal in year five and only moderate by year eight

¹Projections for a hypothetical large systems integrator developed using IBM Cost and Revenue Simulator developed for NHIN Prototype Architecture Project.



The Non-Geographic domains provide the most long-term potential for large HIN Service Providers



Nationwide Companies

- **Type:** Payors, Lab companies, Pharmacy Chains,
- **Current solution:** Proprietary networks, fax
- **Options:** Participate in multiple RHIOs, Build exchange, Continue with proprietary solution

Federal Agencies

- **Type:** CMS, VA, MHS, CDC
- **Current Solution:** Proprietary or Paper
- **Options:** Participate in multiple RHIOs; Build government exchange

Federal Agencies

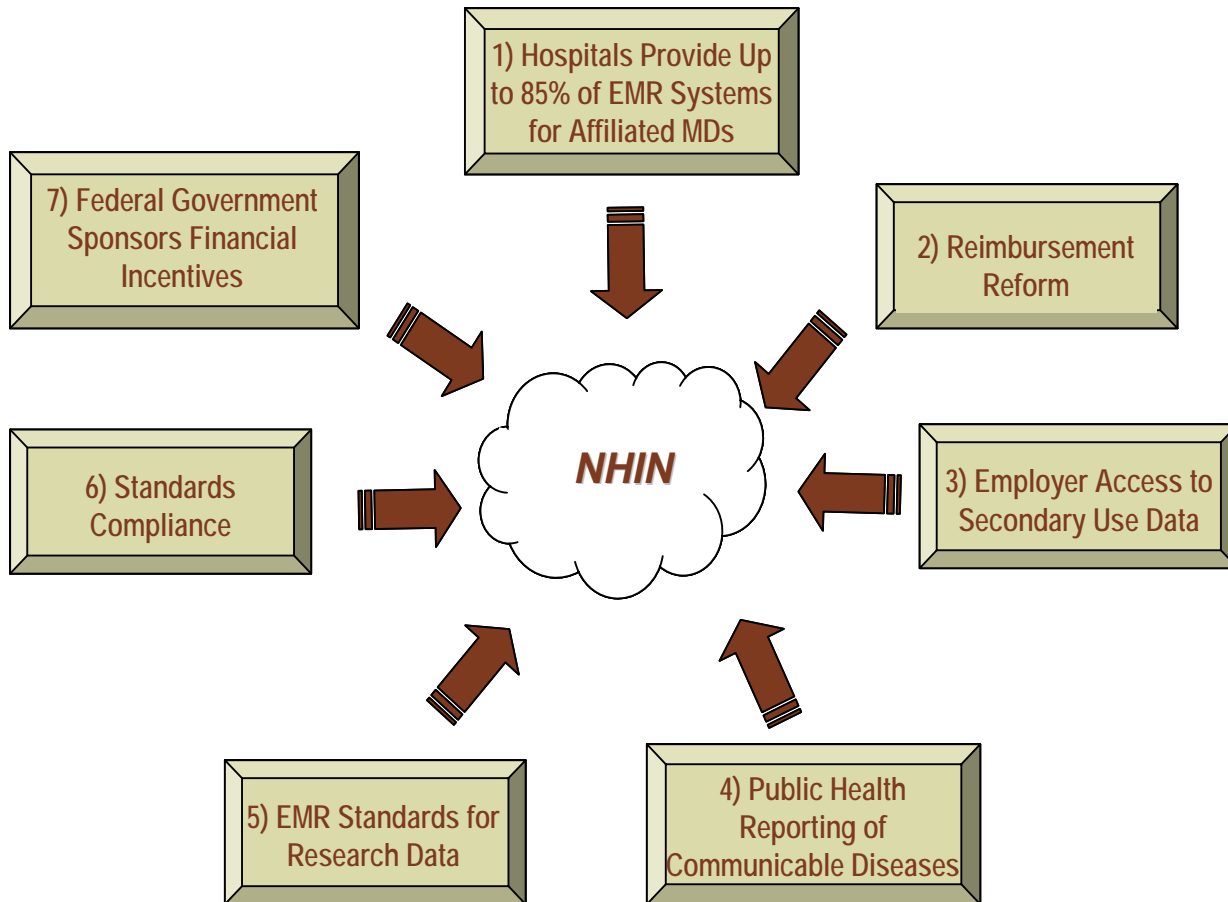
- **Type:** CMS, VA, MHS, CDC
- **Current Solution:** Proprietary or Paper
- **Options:** Participate in multiple RHIOs; Build government exchange

Affinity Groups/Associations

- **Type:** Specialty Physician/Hospital Networks
- **Current solution:** Proprietary networks
- **Options:** Participate in multiples RHIOs, Build exchange, Continue with proprietary solution



Policy levers will strongly influence the trajectory of the market and might accelerate NHIN adoption



1. Improve patient care and efficiency of physicians
2. Increase in Quality of Care, Accelerate Provider, Physician and Payor Adoption
3. Geographic specific chronic disease management in workplace
4. Improve population health; rapid identification of communicable diseases
5. Accelerate development of cures and convergence of bio- and information technology
6. Create the National Health Information Network
7. Accelerate Physician Adoption



For NHIN Adoption:

- **Lack of trust creates perception of high risk for data sharing (especially beyond local community)**
- **Architectures designed primarily for point-of-care data sharing are not optimal for secondary data use requirements**
- **Providers will/can be primary producers of data for biosurveillance and secondary use but this opportunity will take some time to mature**
- **Smaller proprietary vendors will continue to hold market-share (especially for small RHIOs) and may not in the near term be persuaded to invest in standards-based replatforming of their architectures**
- **Hospital portals are growing and may take priority over/delay participation in RHIOs and intercommunity data sharing**



Advanced NHIN Services:

- **Tools to support secondary data uses**
- **Digital Rights Management issues**
 - **Consent management**
 - **Metadata**
 - **Role-based access**
- **Health Data Banks**
- **Nationwide alliances of large players (e.g., employers, payors, pharmaceuticals) could produce a strong demand for open standards-based HIN Service Providers**
- **Linkage to consumers – directly linking users of data with originators of data for consents, permissions and micro-payments (no middlemen)**



- **Trends do not strongly favor large HIN Service Provider companies**
 - **Challenges with managing many small emerging RHIOs with small projects**
 - **Limited ability to implement later stage value-add services before year five**
- **Modular/flexible service offerings are best suited to current RHIO market (incremental model)**
- **Non-geographic domains are key for creating a sustainable HIN Service Provider market**
- **Secondary Use Data provides greatest long-term revenue growth potential**