



Standards Insight

An Analysis of Health Information Standards Development Initiatives

June 2002

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Introduction and overview

The *Standards Insight* is a bi-monthly business review of interoperability initiatives for healthcare leaders within the Healthcare Information and Management Systems Society (HIMSS). This month we will review the impact of Web standards on the healthcare domain and on interoperability standards. Additionally, we will begin to explore a unique opportunity presented to HIMSS to help frame and lead the interoperability agenda.

The American Hospital Association has spearheaded the formation of the National Alliance for Health Information Technology to “improve quality and performance through standards-based information systems.” It has invited HIMSS and other key stakeholders to participate.

We have looked at “interoperability acceleration initiatives” in the past and mostly found them to fail, primarily because of fatal exclusions — those front-end short cuts taken to speed things up. Fatal exclusions include defining essential complexity out of scope, narrowly limiting participants or freezing technologies. These exclusions often allow the initiative to show “rapid” early progress against milestones, but generally foreclose widespread acceptance at the time of implementation because “things do not fit together” with the existing world of complexities, technologies and interests. For example, it may seem faster at the onset to treat security issues as out-of-scope of clinical document standards. However, at the point of implementation it may become a showstopper for end users. Similarly, freezing technologies may provide a stable base upon which to build standards, but these may not be adaptable to rapidly evolving technology. On the other hand, targeting too broad a problem or too diverse a set of interests leads to endless discussion without tangible progress.

The National Alliance, to the extent that it can set business goals and priorities and not develop the technical solutions, can succeed in advancing its objectives. To the extent that the National Alliance brings resources to the technical problem solvers, it will accelerate its success. Because HIMSS membership is the link between the business and technical side of healthcare information systems, we have a unique opportunity to contribute to the National Alliance.

National Alliance for Health Information Technology

Background

Healthcare providers, particularly hospitals, are under pressure to demonstrate the quality of their services. In response to a series of reports from the Institute of Medicine and others highlighting quality problems and medical errors and suggesting that the “system” is broken, many quality and process improvement initiatives have sprung up — from new Joint Commission on Accreditation of Healthcare Organizations (JCAHO) initiatives to the Quality Interagency Coordination Task Force (QuIC) to Leapfrog. Underlying this emphasis on improving quality and processes is the belief that this is the only way to control costs.

The common theme among the recommendations is more investment in information systems, process improvement and implementing best practices. Such IT-based solutions start with the need for interoperability standards.

Using information systems to improve healthcare

The National Alliance’s mission is to “mobilize the field to address the fragmentation and lack of coordination in health care...improving quality and performance through standards-based information systems.”

Its action plan calls for:

- Convening the right players
- Targeting real, understandable benefits
- Creating and implementing discrete projects

It has chosen to first focus on bar coding standards for healthcare. Such standards would provide great leverage in improving quality and care processes, such as medication administration, and reducing inventory costs. It also seeks to determine its future agenda.

The American Hospital Association (AHA) has invited key stakeholders including HIMSS to participate in a launch meeting on June 25 in Washington.

Defining the Problems

As in any new project, this is the point of greatest leverage and risk. If the National Alliance gets the problem right, the effort will make progress. If it defines the problem incorrectly, the initiative will cause confusion and fail. The fundamental strength of the National Alliance is that it represents the users and buyers of healthcare information technology.

As any long-time follower of healthcare information standards realizes, the technical solutions to interoperability depend on how one defines the scope of the problem. For most of the last 15 years, we have focused on interoperability of systems within an enterprise, often a hospital or a health system. We have succeeded to a large extent in passing data messages between systems, although at no small cost. Externally, we depended primarily on clearinghouses and proprietary electronic data interchange (EDI) systems to communicate electronically. The Health Insurance Portability and Accountability Act (HIPAA) and the Internet, with its associated technologies, such as extensible mark-up language (XML), have broadened the problem of interoperability. But one could argue that if one can interoperate internally using "standards" one could technically interoperate externally with little more than automated mapping and transforms.¹ The technical interoperability challenge is not substantially different. What grows exponentially is the business interoperability challenge: the need to establish and pay for trading partner agreements, trust relationships, security infrastructures and directory and repository services. This is an important point for the National Alliance to consider in forming its role.

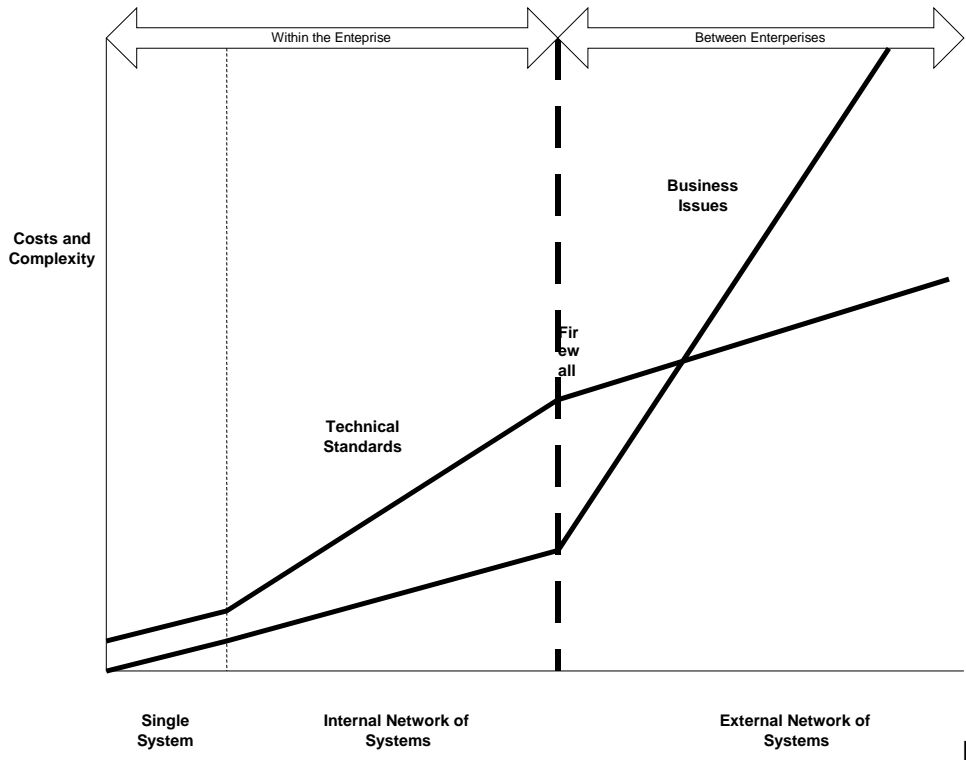


Figure 1

¹ This is an important principle in focusing on interoperability leverage. The data is no better or secure than when it is created. The place to solve interoperability is at the source of the data. Every step after this point is extraneous.

Convening the Stakeholders

At a simplistic level there are four principal stakeholders in healthcare: (1) individuals – patients and consumers, (2) providers, (3) payers and (4) all of the secondary or indirect participants, such as public health agencies and researchers. The government is central in three of these roles and needs special attention. These four entities have both common and differing interests and constantly evolving relationships with their own peers and with the other entities. This creates diverse information needs and resources both within each individual entity and between them. In addition there are two other important stakeholders to be considered: the standards developers and the vendor community.

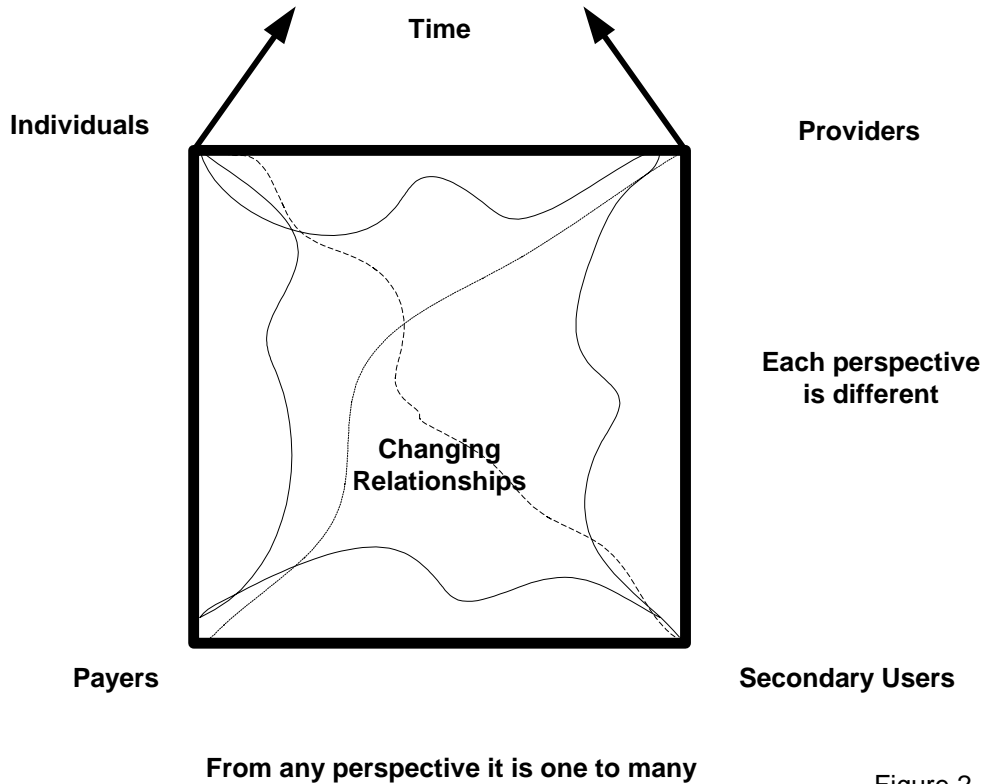


Figure 2

- Direct Stakeholders
 - Individuals - patients and consumers

We all know our interest in receiving affordable, high-quality healthcare, in having a choice of providers and, increasingly, receiving better service from both providers and payers. We, as individuals, are the only constant in our medical record. As costs are shifted back to us and with much greater access to health information, we will have an increasing role in determining provider and payer priorities.
 - Providers

Providers generate healthcare source data. The provider community can be roughly divided into hospitals, physicians, and other care providers and services. Hospitals remain the single largest cost center within this universe and similarly spend the most on information systems. However, physician practices, which spend less on information systems per entity, possess a disproportionate amount of healthcare information. Finally other care providers represent both small segments and small IT spenders but they also have in-depth information about chronic disease. Since healthcare information is the

business of each entity and is maintained in different, discrete record systems (many paper-based), it is difficult to develop a unified model for either individual patient records or aggregated population data.

- Payers

Like providers, payers represent a multiplicity of entities and organizational forms, including government plans such as Medicare and Medicaid, self-insured employers and health insurers. Most use some intermediate health plan or administrator to actually manage care and payments. HIPAA will standardize provider-payer-other party transactions, which once implemented will ease interoperability issues in this domain.

- Secondary users

Many others, besides direct care providers and payers, use healthcare information to improve health and healthcare within the population. These secondary users include quality and accreditation bodies, clinical investigators, researchers, public health officials and our public policy makers. We have all become aware of the need for better disease surveillance and emergency response coordination. The challenge faced by secondary users is that they did not pay for and do not own the data to which they want access. Thus they must offer some service or payment, or make it a legal reporting requirement.

- Government

The federal and state governments have a major role in healthcare. Both are large payers and — in some cases — providers of healthcare. The federal government frames national healthcare policy directly and indirectly, i.e., through tax laws. It regulates providers, payers and product vendors. It sets standards, as in the case of HIPAA, and it oversees significant research and public health efforts. States also regulate and license providers and payers. State laws set most medical legal requirements, including use of electronic signature and documents.

- Standards Development Organizations (SDOs) and other interoperability initiatives

- Health Level 7 (HL7)

It is difficult to overstate the central role of HL7 in healthcare information interoperability standards. Its current 2.X versions are the primary basis for system interfacing within provider organizations. That is not only true of the United States, but of many other countries that have adopted HL7. Version 3.0, which is now in development, offers the promise of “plug and play,” although initial releases will “only” reduce needs for manual customizations. However, HL7 is much more than messaging standards. The Clinical Document Architecture is an XML-based standard for medical documents. HL7 hosts specific electronic health record projects, the Logical Observation Identifiers Names and Codes (LOINC) and Arden syntax for decision support. It is doubtful that any new meaningful healthcare interoperability initiative, such as the National Alliance, can succeed without partnering with HL7. The National Committee on Vital & Health Statistics (NCVHS) affirmed this assertion in its recommendation to the Secretary of the Department of Health and Human Services (HHS) that HL7 be adopted as both a current and future standard for clinical messaging.

- ASC X12N

Like HL7 in the clinical domain, ASC X12N is the acknowledged leader in the healthcare financial domain. Its transactions were the basis for the HIPAA transactions.

- Others

There are many other important formal and ad hoc standard initiatives within healthcare, too numerous to review here, but all of which have important niche roles. See Figure 3 below.

- Vendors

Most healthcare organizations purchase their software from healthcare information systems (HCIS) vendors. Thus interoperability standards depend on support from the vendor community. Interoperability standards and how they work in the information value chain are critical business issues for vendors. Some see competitive advantage in proprietary approaches; others depend on open interfaces. In general large incumbent vendors have the least to gain by advancing interoperability standards. In all cases, vendors will generally only adopt standards for which there is market demand. All HCIS vendors today would claim HL7 compatibility just as all imaging and PACS vendors would support DICOM standards.

Defining the Perspective

Any alliance brings together diverse interests. In the case of the National Alliance it would appear to be oriented toward providers, particularly hospitals and health systems. Announced members, besides the AHA, include HIMSS, the Healthcare Financial Management Association, the American Society of Health-System Pharmacists, the Consortia Catholic Resource Partners, VHA and Premier. Additionally the American Medical Group Association provides representation from physician group practice. We will know more about the Alliance's make-up after the June 25 meeting. The list of stakeholders above is too large and too diverse to be fully represented within an action-oriented National Alliance. But how does an alliance focus on meaningful problems without "fatal exclusions"? For example, without strong physician practice participation, it is unlikely that a hospital-focused alliance could succeed in establishing an electronic medical record (EMR) standard. On the other hand, it could establish computer physician order entry (CPOE) and decision support standards. The Alliance must appreciate its perspective and leverage it within the healthcare industry. Conversely it is important that it recognize others' perspectives and how these interact.

Defining the Scope

Once the National Alliance is fully formed and has established its perspective it can move forward in targeting which interoperability solutions to pursue. It is important at this step for the Alliance to show discipline in defining its role:

- Identify and prioritize business problems
 - Priorities depend on benefits and subsequent benefits depend on the perspective. Viewing the simple model presented above, one can quickly see that problems and values change dramatically from one corner to another.
 - Fulfilling this role may be the greatest contribution the National Alliance can make to the standards developers and vendors.
- Evaluate technical solutions
 - Here the National Alliance must involve the key SDO leadership to avoid redundancy. The Alliance must present its business requirements to those that can deliver technical solutions.
 - The technology of interoperability is shaped and enabled by many underlying information technologies and medical informatics. It would be a mistake for the Alliance to jump from stating requirements to specifying solutions.
- Marshall necessary commitment and resources

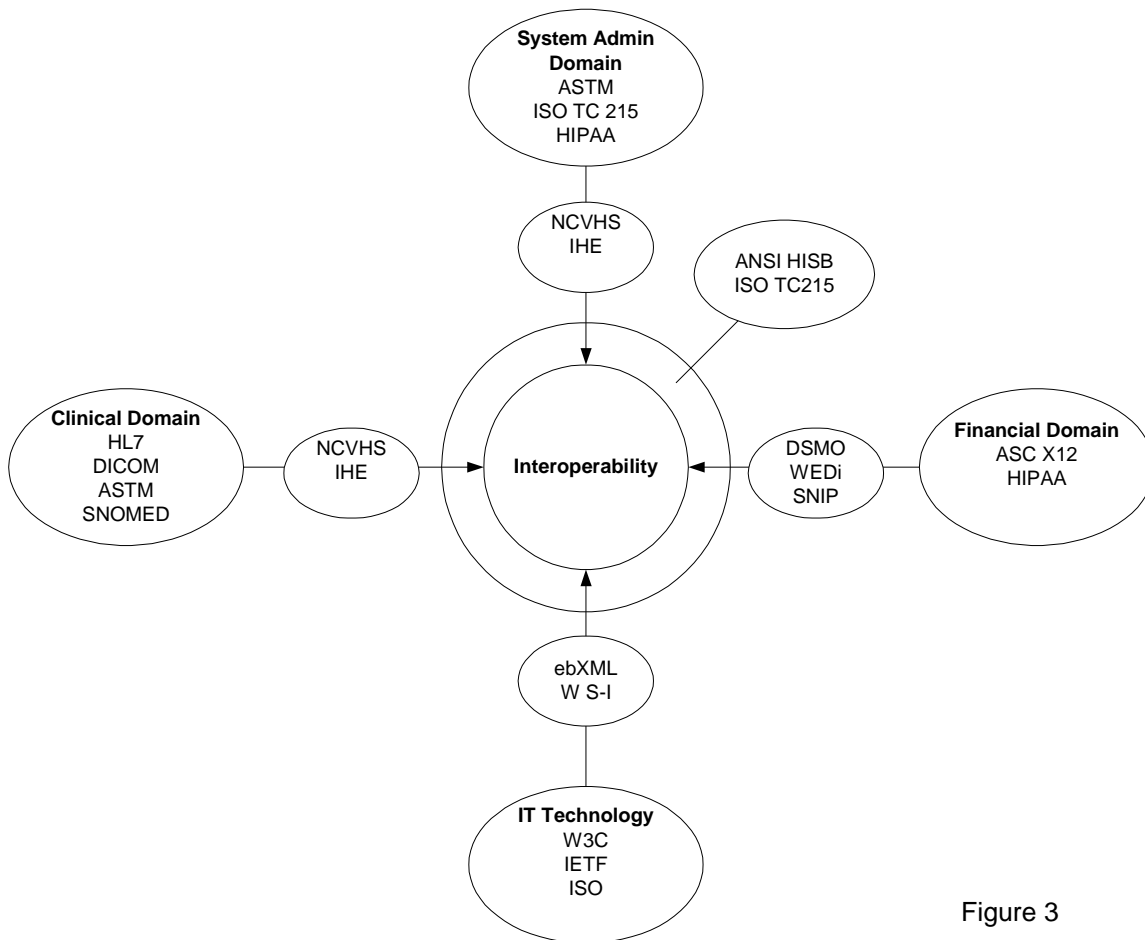


Figure 3

- o While business direction and support are necessary and welcome, helping to solve the resource problems inherent in standards development will give the National Alliance much greater leverage. As discussed below, it is not the technical issues that slow interoperability standards as much as business and economic issues. Can the Alliance deliver the market place demand?

What are the status and resources of current standards initiatives?

Within the problem space selected by the National Alliance, there will already be some standards initiatives underway (unless the problem is trivial). In fact there will be layers of often overlapping national and international standards as well as standards bodies. Understanding the objectives, methods, participants and dynamics of existing SDO efforts is essential to meaningful participation. After all it has been 11 years since the IOM report on the value of a computer-based patient record and 15 years since HL7 began developing interoperability standards. Even Congress recognized the importance of both financial and *clinical* data standards six years ago in the HIPAA legislation. Interoperability is not exactly a new concept in healthcare information systems.

What are interoperability standards?

Interoperability is a loose term for computers and systems working together seamlessly. However, it occurs at four levels: user, function/application, data and systems. We often focus primarily on the data level: the ability for one computer to send and receive data from another. Instead, we must also recognize interoperability at the user level, which shifts the focus to document interoperability, and the business application level. Finally we must also recognize that

basic system level interoperability has become much more complex as we try to broadly connect everything and concomitantly increase the security of our systems.

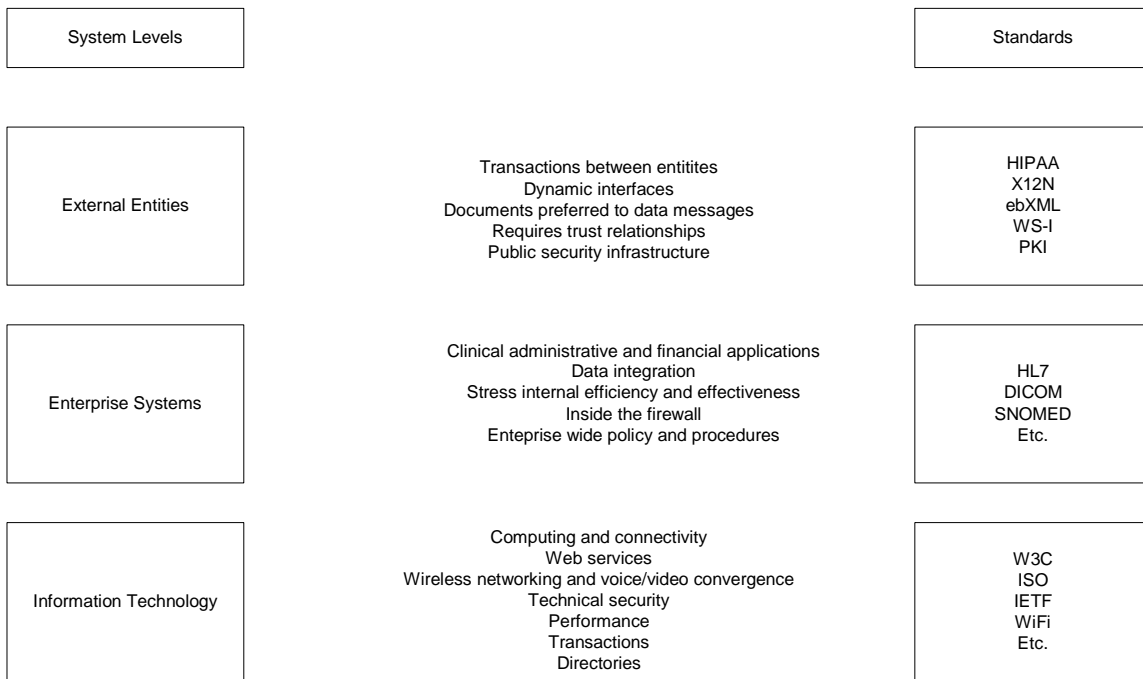


Figure 4

How to coordinate and implement standards across SDOs?

One of the interesting phenomena in interoperability standards is the growing importance of standards coordinators and implementers. We discussed this in the December 2001 issue of *Standards Insight* in regards to WEDi SNIP's role in HIPAA standards implementation. One might imagine that vendors and end-users could adapt a well-developed interoperability standard in a straightforward manner. In fact that appears to be less and less the case. We alluded earlier to the issue of the scope that a standard addresses — it must have the critical mass to solve an important problem without too much extraneous breadth that impedes consensus. Thus no standard will be all-encompassing. It must be coordinated and able to fit into a “framework” of interoperability standards in order to be implemented. For example, HL7 provides very limited code sets and must link to other standards, such as the Systematized Nomenclature of Medicine (SNOMED). Similarly, HL7 does not implement end-to-end security (E2E) and thus looks to external standards. HIPAA does not cover technical connectivity or underlying trading partner agreements² and looks to external standards for best/good practice implementations and guides, such as those advanced by WEDi SNIP.

² This is one of the less appreciated limitations of HIPAA. Most entities will need bi-lateral agreements for direct transactions with other covered entities to conduct HIPAA transactions. In a future state, one might envision using ebXML or some other business transaction framework to allow automated negotiation of trading partner terms and discovery of technical requirements.

In some cases, new groups are created to coordinate among standards developers or to provide best/good practice implementation guidelines. In healthcare information standards we have official coordinators such as the ANSI HISB and ISO TC215, legally mandated entities such as NCVHS and Designated Standards Maintenance Organizations (DSMO), as well as implementing coordinators, WEDi SNIP and Integrating the Healthcare Enterprise (IHE), a standards acceleration effort jointly sponsored by HIMSS and RSNA. This mirrors similar initiatives in the general IT world, such as ebXML and the Web Services Interoperability Organization (WS-I) efforts to integrate W3C Web standards. These supernumerary organizations are necessary intermediaries between multiple standards developers and actual system developers and users.

The Problem Set

Technical problems can easily be listed. Some are left over from HIPAA, which mandated standard financial transactions and codes. Most can be solved technically but have not been for business and economic reasons. A potential list of interoperability targets:

- National health information infrastructure
- E2E security framework including standards privacy policies and trust relationships
- Unique person identifier
- Digital signature
- Electronic medical record
- Standard documents and structured reports
- Plug-and-play application interfaces
- Standard nomenclature and code sets
- Cost accounting and enterprise resource planning standards

But business problems must be solved first. Most of the “interoperability” problems are not technical but business- or economic-based. What is the business case for applying resources to an interoperability initiative?

- Reduce medical errors
- Reduce prescription errors
- Lower (whose) operating costs
- Establish seamless integrated delivery networks
- Provide better consumer service
- Ensure continuity of care for patients
- Develop a national network for transferring clinical data or collecting public health data

All are valuable but one’s business priorities and resource commitment depends on the perspective. Let us examine the business side of the technical problems

Electronic medical record

- What is its purpose?
 - Patient-centric longitudinal record
 - Provider business record
 - Legal record
 - Payment justification
 - Quality review/case study

- Who owns it?
 - Right now it is owned by each healthcare organization that produces it.
- Who pays for it?
- Who assembles and maintains it over time?

HIPAA has provided patients certain rights to examine and request corrections to their records but it does not change ownership or form the basis for integrating records from multiple health organizations.

National health information infrastructure

- What is its purpose?
 - Access patient information in an out-of-town emergency?
 - Disease surveillance
 - Emergency response
 - Research communications
 - Population studies
 - Clinical trials
 - Connect providers, payers, etc.
- Who owns it? Who uses it? Who pays for it?

Digital signature

- What is its purpose?
 - DEA-regulated prescriptions
 - External security device for sending secure documents
 - Analog for a wet signature on medical documents
 - Internal security device
- Who pays for it?
 - Significant technical, legal, and business infrastructure needed to support public key infrastructure.

Unique patient identifier

- What is its purpose?
 - Is it universally used for care and payment? Only by HIPAA-bound entities? By secondary users?
 - What are security and privacy rules?
 - Are there alternative technical means of identifying individuals within domains or federations that avoid a nationally unique ID?
- Who issues it and maintains the secure directory service?

End2End (E2E) security framework

- Who establishes and enforces trust relationships? (Contractual agreements, laws, and regulations?)
- How are legal liabilities apportioned?

- How is the framework kept in synchrony? (Access lists, version control, authorizations?)
- Who pays for the inter-enterprise framework?

How to pay for creation and maintenance of interoperability standards?

If we can establish the end-user business case for system interoperability, we must still determine how we actually pay for the development and maintenance of the standards. At one extreme, end-users could buy or build a single integrated solution. But for many reasons, not the least of which is that such systems do not exist, we opt for interoperability standards so that we can integrate/interface systems from different times and vendors. It is impractical for even large organizations to develop and maintain unique interfaces. Interface engine or application integration vendors can help but we need to start with some common representation of the data and message purpose.

Open standards contribute to a common good, but there are the associated problems of equitable funding (the freeloader issue). Ultimately, end-users or the government will pay for standards but this mechanism does not provide direct funding to the standards developers. Vendors, in responding to the market demand of their end-users, will provide some funding and resources but again there are the issues of equity and proprietary interests.

Voluntary or mandatory standards

The United States has primarily depended on consensus-based, volunteer standards development organizations (ANSI-approved) or ad hoc standards from broad-based initiatives such as W3C or OMG and from leading vendors, such as Microsoft, IBM, or Sun.

The formal SDO process has generally ensured broad acceptance, but at times consensus-building may seem slow. Directions may also reflect the objectives of those that do the work. Moreover, work only progresses as fast as volunteers will contribute.

Alternative approaches, such as government-mandated standards like HIPAA can give clear direction up front but do not solve technical or business issues any faster. Thus HIPAA is unlikely to prove to be a quicker means of fostering standards than HL7 and its market-based acceptance, for example. In the case of government-mandated standards, all the complexity has been moved to the back end during "implementation." The SDO process, on the other hand, spends a great deal of time on the front end for modeling and testing in the attempt to avoid lengthy delays in moving the standard into practice. Government involvement also tends to freeze new technology developments since industry waits for government guidance before investing. This is part of the problem with digital signature now. In the end neither is faster.

There have been numerous attempts within the HCIS industry to accelerate standards creation and adoption. They have generally failed for reasons we discussed earlier. Consortia, such as CorbaMed, Andover Group, ActiveX for Healthcare, CPRI and any number of e-health initiatives have all failed to gain traction. Certainly there is no market leader that can provide widely accepted de facto standards within healthcare. The path to success for such ad hoc efforts is to become an open standards group, focused on a user-valued problem set that creates market demand, and that is commercially neutral. DICOM is a recent example, and HL7 began in the same way.

Proprietary versus open and free

Intellectual property continues to be a thorny issue within standards development groups. Who does the work? How are they compensated? Who controls the "standard"? On one hand we want open and free standards. There is general concern about mandating the use of a proprietary standard, e.g., current procedure terminology (CPT) or SNOMED, because it creates a legal monopoly. On the other hand, we want them to be well maintained and updated without paying. What is the business model? Coming up with the right answers would be a valuable contribution of the Alliance. We examine this further in the next section with regard to Web standards.

Central or distributed

We have developed most healthcare standards around a “fixed” information model, i.e., there is an *a priori* definition of the system and taxonomies that can be modeled. The new Web technologies are changing our understanding of models, of the need for single standards and central repositories, and of many other concepts that have shaped our ideas of key constructs, such as the electronic medical record or unique patient identifiers. This is a good point to jump to a brief look at the Web.

The Impact of the Web on Healthcare Interoperability

The Web and its associated set of technologies and standards are having a profound impact on information technology both within and outside healthcare. The collapse of dot-coms and some e-health companies does not reflect the rapid and pervasive uptake of web technologies into information systems. Just as the PC and LANs became the underlying technology for client/server systems a decade ago, Web technologies are defining new system architectures — a new paradigm past client/server and our first-generation Web servers and portals. The Web is more than the sum of its technologies. The Web presents an alternative to traditional unifying information models — dynamic layers of distributed meta data, directories, repositories, and the smart agents to transverse them. Perhaps we do not need a single common data and format standard when we go outside our firewall but rather smart mappings and transforms.

The challenge for healthcare standards developers and vendors is what part of the Web to embrace and when to do it. There are a series of moving technology curves. In response to these challenges, many ad hoc vendor groups have begun to provide organizing frameworks and best practice guidelines for integrating and using the multiple standards. For example, ebXML is a five-layer framework for using standards for end-to-end e-commerce transactions. It not only specifies transaction services but also trading partner agreements with standard terms. The new Web Services Interoperability Organization (WS-I) hopes to provide developers with profiles to show how to implement services based on standards from standard developers. Their first profile includes use of XML Schema, SOAP, WSDL, and UDDI, each from a different standards body. Such frameworks and working groups perform an important intermediary role in coordinating standards into implementable systems. As noted earlier, WEDI-SNIP has assumed such a role in implementing the HIPAA standard transactions.

Intellectual Property Policies

The W3C is trying to develop a satisfactory policy to deal with intellectual property of its members. Understandably, if a company has invested heavily in developing unique and valuable approaches to solving technical problems, it may be reluctant to donate them freely for public use. For example, Microsoft and IBM have developed important components of Web standards, such as SOAP and UDDI. At the least, intellectual property holders would seek some control over modifications and use by competitors. At the most they may want cross licenses and royalties for their use. There have been recent incidents where a company, with an undisclosed intellectual property claim, has participated in incorporating these into “open” standards. After the standard is adopted, the companies have come forward with their claim and asked for special control or royalties. Such actions have been subject to lawsuits and FTC investigations.

The W3C has adopted its Current Patent Practice policy, which sets as a goal royalty-free use of any incorporated intellectual property. It also encourages maximum disclosure of any intellectual property interests in the early stages of standards work. In the worse case, it attempts to negotiate a reasonable and non-discriminatory (RAND) license. However, even RAND licensing is very controversial among the W3C members. Currently, W3C would set up a Patent Advisory Group (PAG) to deal with any unresolved intellectual property claim, but the PAG does not have authority to negotiate or accept anything other than royalty free licensing. Thus it is unclear how W3C will proceed in dealing with the issue of adopting intellectual property of a member as open standards.

The Web's Impact on Clinical Documents, HL7 and ASTM E31

HL7 and ASTM Committee E31 are the two principal SDOs pursuing Web-based standards for clinical documents. As such, they provide an interesting comparison of how the Web is influencing healthcare standards. First, we should present an overview of the challenge of clinical documents and the opportunity presented by Web technologies.

There are four prototypical use cases envisioned for a clinical information system.

- **Structured and Coded Input:** Human-to-machine input which should be structured and coded to permit further machine processing
- **Transaction:** Machine-to-machine messaging and transactions of data and documents
- **Decision Support:** Machine-to-human alerts and decision support
- **User-to-User Documents:** Human-to-human communication of documents (data in context) stored in computers

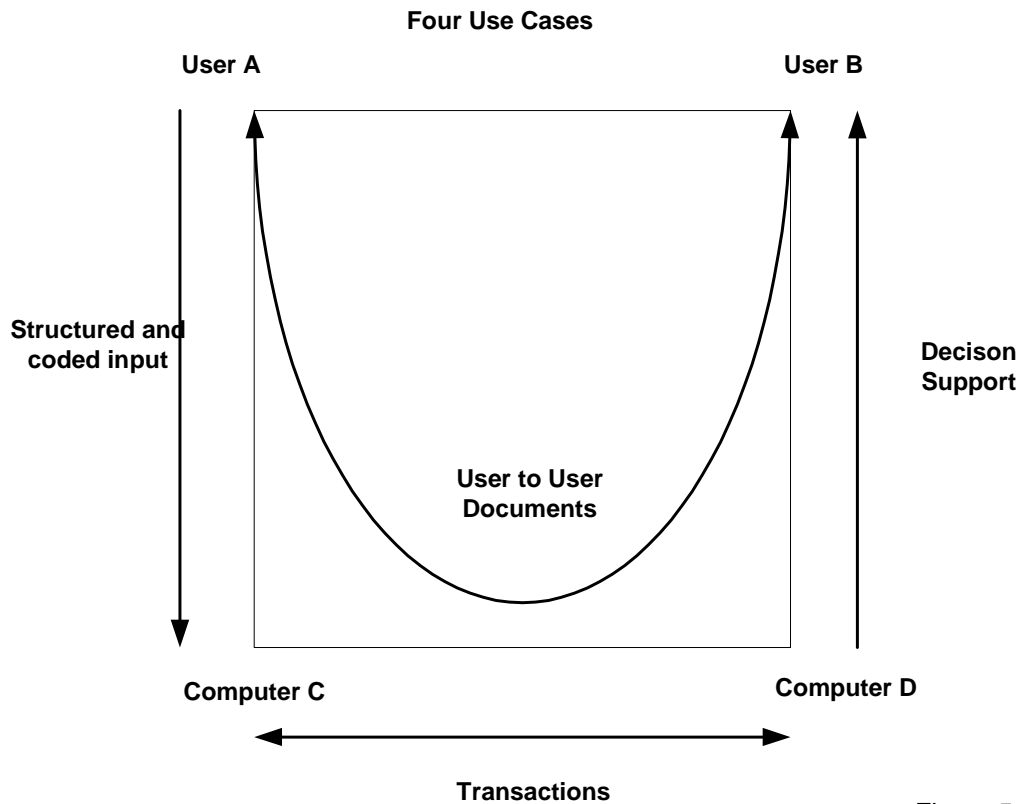


Figure 5

In the past, interoperability standards primarily concerned data messaging between computers. Each computer processed or stored the incoming data based on its application. Human input/output was structured by each computer application. Advanced applications based on data interoperability were expected to provide not only comprehensive views of data but also provide decision support. Meanwhile, an orthogonal concept of computerizing of clinical documents, structured containers of organized and readable data, also became a design model. How to do both? XML became a catalyst as a technology that could be used to support both human readability and computer processing. The nature of interoperability changes when one explicitly expects both humans and machines to be able to “process” the same information. Humans deal in narrative, with structure and context (often described as a “document”), and with limited tolerance for coded data. Computers have difficulty with narrative, want structured hierarchies or “containers,” and do best with encoded data. XML may be the tool to bridge the gaps.

HL7 came to the Web by an early recognition of the importance of XML for enabling messaging interoperability. Contemporaneously, the KONA group, which very early saw the application of SGML/XML mark-up to clinical documents, chose to come under the HL7 brand. This dichotomy in HL7 between messaging and documents continues to be an important creative dynamic.

HL7 has developed a healthcare reference information model (RIM). It is abstract and becoming more so. The RIM is expected to be the basis for unambiguous Version 3 messages and the Clinical Document Architecture (CDA). To move from the abstract model to an instance of a message or document requires adding domain-based constraints. In the case of messages these are clustered around “good practice” applications that determine what triggers and actions must be supported in messages.

Documents are different. They, too, are to be constrained by a three-level architecture, by the evolving document ontology, and by templates shared in common with V3 messages. It is an interesting construct — messages to send documents that contain narrative and coded data that could have been sent as messages.

Like HL7, ASTM Committee E31 recognized the importance of XML for healthcare interoperability. Moreover, it was “unencumbered” by conforming to a RIM. Thus its XML subcommittee collected and analyzed many paper forms of reports and documents. This bottom-up approach allowed them to quickly develop DTD standards for specific documents, such as surgical or discharge reports. However, E31’s work was not widely accepted, certainly compared to HL7, and it chose to jump to creating standards for the Semantic Web for Healthcare. The Semantic Web is an extension of the current web and XML, in which information is better defined so that both humans and machines can cooperatively process it. It explicitly looks to support automated tools “agents” to resolve definitions and links through standard reference description framework (RDF) dynamically. In concept, the Semantic Web does not require “the RIM” but deals in the constraining artifacts like profiles and templates as needed. Whether this initiative is complementary or competitive to the CDA will unfold over time. However, it represents a different perspective of how to solve the problem of human-machine sharing clinical information. It is also an illustration of how rapidly the Web is changing the problem-solution set in interoperability standards.

Lessons Learned

We have devoted most of this issue to providing the National Alliance with a high-level survey of the state of healthcare interoperability standards and lessons learned about “accelerating” them. In summary, we have found:

- New standards initiatives designed to accelerate adoption of standards usually fail because of the key exclusions they make on the front end to “move faster” than the existing standards bodies.
- The biggest impediment, and hence the biggest opportunity for the National Alliance, is lack of clear business priorities, resource allocation, and market validation for existing standards developers.

- Business priorities depend on your perspective. Business priorities should not be confused with technical solutions. The Web is changing our options rapidly.
- There is a galaxy of standards initiatives in every facet of healthcare. A new initiative needs to decide where it has leverage. Certainly HL7 is the premier clinical interoperability standards body and must be a partner in that domain. But it alone does not provide end-to-end healthcare information solutions.
- There is a clear need for standards implementation organizations in the clinical realm to provide a useable framework of standards from multiple initiatives including best-practice guidelines. Both WEDI-SNIP and IHE might be partners in such an endeavor.

As the premier organization in the healthcare information technology industry, HIMSS seeks to utilize the expertise and knowledge of its members to frame and lead interoperability initiatives. HIMSS welcomes the opportunity to participate in the National Alliance, and will work closely with its members to develop and implement its agenda.

Please direct any questions, suggestions or comments regarding *Standards Insight* to Joyce Sensmeier, HIMSS Director of Professional Services (jsensmeier@himss.org), or its author, Ed Larsen (erlarsen@erlinc.com).

About the Healthcare Information and Management Systems Society (HIMSS)

The Healthcare Information and Management Systems Society (HIMSS) provides leadership in healthcare for the management of technology, information, and change through member services, education and networking opportunities, and publications. Members are kept abreast of the latest industry information and research, as well as legislative and policy issues. Based in Chicago with an office in Ann Arbor, Michigan, HIMSS has 37 chapters and more than 12,000 individual members working in healthcare organizations throughout the world. Individual members include healthcare professionals in hospitals, corporate healthcare systems, clinical practice groups, HIT supplier organizations, healthcare consulting firms, and government settings in professional levels ranging from senior staff to CIOs and CEOs. HIMSS also serves over 100 corporate members, which include suppliers and consultants in the health information and management systems industry. HIMSS' Web site is www.himss.org.

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Author: Ed Larsen
Keywords:
Comments:
Creation Date: 6/21/2002 7:07 AM
Change Number: 2
Last Saved On: 6/21/2002 7:07 AM
Last Saved By: jredenius
Total Editing Time: 1 Minute
Last Printed On: 6/21/2002 8:56 AM
As of Last Complete Printing
Number of Pages: 15
Number of Words: 5,695 (approx.)
Number of Characters: 32,466 (approx.)