



# Standards Insight

## An Analysis of Health Information Standards Development Initiatives

December 2002

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**NOTE:** HL7 was invited to submit comments to this issue. The HL7 response is included in the form of comments from Wes Rishel, Chairperson, HL7 Board of Directors. We invite readers to submit their comments regarding the Standards Insight and/or the HL7 response to Joyce Sensmeier (jsensmeier@himss.org) or the Standards Insight author, Ed Larsen ([erlarsen@erlinc.com](mailto:erlarsen@erlinc.com)).

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## Introduction

In this issue of the *Standards Insight*, we review the past year's developments in interoperability standards initiatives. Recall that the *Standards Insight* is aimed at management at both provider and vendor healthcare organizations. It is a business analysis of interoperability standards, which very much are the enablers or disablers of business-driven information systems strategy. Interoperability standards define and support how information systems can work together, which in turn provide the building blocks for automating documentation, processes and decisions. Interoperability standards are the leading edge of what is possible in HCIT.

We will use this annual review of past issues to summarize and annotate the key trends in 2002. These culminate in the November issue's focus on HL7 and the difficulties it is facing with Version 3. This month, we continue with some suggestions for HL7 and the industry. These lead us into an analysis of industry's responsibilities, the Integrating the Healthcare Enterprise (IHE) initiative, a joint venture between HIMSS and RSNA, and a recommendation for moving forward.

HIMSS, as the broadest based representation of the HCIT industry, has chosen to become more active in standards initiatives. HIMSS recently collected data from a sample of vendors and consultants and presented it to the Institute of Medicine (IOM) Committee on Patient Data Standards.<sup>1</sup> Although the sample was small, about 20 respondents, they represent more than 26,000 installations. Its results are telling.

Among the software companies included in this study, 91% reported that the HL7 messaging-standard was utilized in their products. Also in wide usage are ICD (82%) and CPT (73%). Used less frequently are standards that have application to a more limited scope of products, such as those used in the pharmacy (NCPDP) or laboratory (NCCLS) departments. HIMSS' Integrating the Healthcare Enterprise (IHE) initiative was identified by 59% of respondents as the standards initiative that will offer the greatest opportunity to improve applications integration for data collection. Other initiatives identified were The Leapfrog Group (47%) and NAHIT and JCAHO (41% each).

Readers should note that the *Standards Insight*, although it is sponsored by HIMSS, does not present or represent official positions of HIMSS. It is produced by an independent business strategy consultant and provided by HIMSS as a benefit to its members. Its intent is to provide accurate and insightful analysis that can assist HIMSS and its members in evaluating, supporting and using interoperability standards to meet their organizations' needs. Contact information for providing comment, rebuttal or additional information is at the end of each issue.

## 2002 Annual Review

### February<sup>2</sup>

The annual HIMSS conference became our vantage point to assess the state of the HCIT industry. We noted that there were clear shifts in the business priorities of healthcare organizations. Security and clinical systems were at the top of the lists. While HL7 is essential to

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<sup>1</sup> The full testimony is available on the HIMSS website under HIMSS News. [www.himss.org/ASP/himss\\_news\\_list.asp](http://www.himss.org/ASP/himss_news_list.asp)

<sup>2</sup> The last two years of the bi-monthly *Standards Insight* are available to all HIMSS members from their individual start page at [www.himss.org](http://www.himss.org).

the latter, there is no unified standards initiative that is addressing the need for end-to-end information security in healthcare. Without such standards, we are left with individual applications enforcing their respective views of security. The HIPAA security rules, when they are published in final form, will address requirements but not offer any interoperability standards.

### **HIMSS 2002 and an overview of HCIT**

The war on terrorism and homeland security has caused all of us, including executives and boards of healthcare organizations, to re-evaluate their plans and priorities. In a recent *HealthLeaders* poll, HIPAA, staffing shortages, reimbursement and terrorism preparedness were identified as the biggest challenges facing healthcare in 2002.<sup>3</sup> The just completed 13th Annual HIMSS Leadership Survey found that HIPAA compliance, controlling costs, gaining operational efficiencies and reducing medical errors were the top business priorities. Reducing medical errors showed the sharpest increase from the prior year, leaping from 31 percent to 44 percent agreement. Interestingly this is almost equal to the decline in improving operational efficiencies. Might the former be a better way to accomplish the latter? One can discern that HIPAA focus has shifted to security and that medical error reduction is part of a pattern of improving processes and reducing costs. These priorities are the result of management decisions, not IT preferences or government mandates.

It should also be noted that the slowing economy and double-digit increases in healthcare costs will force a new strategy for controlling healthcare costs. Perhaps the Leapfrog initiative may emerge as a successor to managed care. In the meantime, the better operating margins that hospitals have been experiencing as a result of the Balanced Budget Act (BBA) givebacks and improved contracting are the seeds of the next round of tightening. Eventually, this will work back to IT spending plans.

### **An E2E Security Framework**

The problems faced in security are not individual technologies but their integration within and between enterprise systems. Moreover, each security mechanism will impose overhead and costs on systems. How do all these point security solutions interoperate in concert within an organization, outside the enterprise and over decades of time?

An approach proposed to the ISO Technical Committee 215/Working Group 2 by Per-Se Technologies is an end-to-end framework that identifies the roles and security responsibilities of the principle actors. The latter includes the data subject, creator, editor, translator, storer, user and so forth. Conceptually, if each actor conforms to expected security norms, then all other actors can rely on the data without having to independently verify authenticity and integrity.

Without such trusted end-to-end information flows over the lifecycle of information, a significant amount of overhead must be expended to ensure all data can be validated independently. Such a framework can provide organization for the roles of the point technologies. Moreover, it provides the system structure necessary to legally defend the medical data within – a weakness in even the strongest point security mechanisms.

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<sup>3</sup> Results posted January 22, 2002 at [www.healthleaders.com](http://www.healthleaders.com).

## **April**

We conducted a critical management review of the HIPAA Administrative Simplification rules as an IT project. HIPAA's original intent may have been well meaning, but it seems unlikely to yield the anticipated benefits while the costs are very real. This pointed to the need for leadership in standards initiatives, which we consider different than standards coordination, such as the ANSI HISB forum to hear reports of the activities of the multiplicity of SDOs.

### **Leadership in Standards Initiatives**

Leadership, the ability to see important opportunities and problems, to set priorities and to marshal the resources to get results, is critical in any domain and for any successful endeavor. Healthcare interoperability standards are a segment of the HCIT industry that, in turn, supports the healthcare industry. HCIT and its standards are enablers of healthcare delivery. Thus, the opportunities and problems, priorities and resources that give purpose to the various standards initiatives are all external to the standards initiatives themselves. Interoperability standards are technical solutions to healthcare industry problems. Standards initiatives are often several steps removed from those that set healthcare priorities and control HCIT resources. This creates a challenging leadership problem – we have solutions but not necessarily the right problems and priorities, and, therefore, the necessary funding.<sup>4</sup>

Whatever the intent of HIPAA, e.g., to mandate the use of already existing standards, it has clearly shown that government leadership in the form of federal regulation is not more effective or timely in setting priorities, getting funding and implementing standards than voluntary acceptance by the market. The premise that the government can effectively mandate existing standards to accelerate their acceptance is largely disproved by the HIPAA experience.

### **Coordination of Standards**

Interoperability standards in the US are the products of an open consensus-based process staffed by volunteers. Thus, leadership has evolved into creating consensus and cooperation among those who participate. In turn, participation is based on sponsors' self-interest and shared view of the problem-solution set. We have previously described the overlapping turf and competitive positioning among the accredited SDOs and ad hoc projects. The leadership problem among such standards initiatives is more difficult: how to ensure necessary interoperability between different standards by obtaining voluntary coordination of the voluntary standards bodies. The ANSI HISB is the designated forum for such coordination in the United States.

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The ANSI HISB is seeking to re-establish its influence among the SDOs and the industry generally. To accomplish this, it intends to provide leadership, not just coordination, to national standards initiatives. Since participation is voluntary, HISB must provide value. It has just completed a strategic plan that looks to project it into a leadership role. It wants to provide vision and priorities to the rest of the standards community by producing guiding principles for:

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<sup>4</sup> Funding remains one of the most acute problems for voluntary standards development initiatives. There are two self-limiting financial principles in standards – they must be free and open.

- Common reference information model
- Common vocabulary or reference terminology model
- Common method for information messaging
- Common trust framework
- Common approach to coordination, conflict resolution, legal issues and business arrangements

These are essentially technical objectives and deliverables that facilitate interoperability standards. They will require a significant amount of effort among the leaders in standards to accomplish them. But they may not reflect the business needs, priorities and spending plans of the healthcare industry. Thus, ANSI HISB is an important technical leader within standards but it does not appear, based on its strategic directions, to be an interface between the healthcare industry and the standards initiatives. This disconnects solutions from business priorities and funding.

### **June**

We developed the theme of leadership with a discussion of the National Alliance for Health Information Technology (NAHIT), a new consortium formed by the American Hospital Association. While the standards initiatives always can use more resources, we offered a caution about standards acceleration projects.

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 found that most of them fail, primarily because of fatal exclusions — those front-end shortcuts taken to speed things up. Fatal exclusions include defining essential complexity out of scope, narrowly limiting participants or freezing technologies. These exclusions often enable 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, they have a unique opportunity to contribute to the National Alliance.

One can see the pattern that emerges – standards initiatives need business direction and resources, not necessarily technology help. We also discussed the role of coordinators and

implementers, such as WEDI SNIP and the IHE. We began to define how HIMSS, with its broad membership, can play an important role.

The June issue also looked at Web technologies' impact on HCIT interoperability. In particular, we reviewed the potential of XML to bridge the requirement for human useable and machine processable data.

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 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 Response:** While we agree with this general statement we think it is oversimplified. XML by itself is only a framework for providing help, it does not provide direct help. The HL7 CDA, the first version 3 standard, which was certified by ANSI in October 2000, provides specific help in using XML precisely to bridge this gap.

## **August**

We continued the analysis of how business requirements should drive interoperability standards and addressed the problem of technology, not business needs, driving healthcare information systems.

### **Why Interoperability?**

Like the AHA, we all start from a bias that automating business (care) processes is good but that islands of automation are bad; thus, interoperability is necessary, and achieving interoperability depends on standards. At their core, these are valid beliefs, but we need to carefully examine each. Business requirements should drive business process improvement and automation initiatives. In fact, much of the current emphasis on improving care processes and outcomes is a business initiative – based on an evaluation of value produced for resources consumed. From this premise concerning business requirements, we derive the other three beliefs based on high-level system design principles. In fact, we have enunciated four core elements of systems model:

- A framework to organize the system's scope and components;
- Key business processes automated through different applications;
- Connectors to enable the processes and applications to interoperate and share data; and

- A special process to permanently store the record of key processes, results and outcomes.

In this simple model, we spend most of the IT budget on the applications that automate the processes. However, it is really the framework that is aligned with business requirements and the connectors--the realm of interoperability standards--that create the system.

The Web and its technologies have greatly changed our concepts and expectations concerning interoperability.

Healthcare was no different, as hospitals went through steps of creating Web sites, providing physician portals, and linking themselves to their partners. IT enabled the technology, not the business requirements, to define the problems. Thus, we focused on using Web technologies to link to our external partners. We confused the supply chain for the value chain. We let the technology define the problem rather than asking what business problems the new tools could solve.

We also covered the business of standards and the impact of international standards driven by clinical information systems. We also considered the need for standard code sets and how its business model has made SNOMED, despite its technical excellence, such an enigma in the interoperability standards world.

### **Politics and Business Interests**

Most of the key issues and impediments in standards development are not technical issues, at least not technical issues unassociated with business interests. Business interests seek to gain competitive advantage or advance a particular technology or solution. In selecting one model or technology for a standard, a Standards Development Organization (SDO) rejects other approaches and is conveying something of a monopoly. Business interests are not bad – they justify the resources to get things done. However, business interests must be balanced in standards development, whether through voluntary consensus or regulatory due process.

### ***November***

We reviewed HL7 in depth and addressed the difficulties that HL7 is having in producing its reference information model (RIM) based Version 3.0. We said that Version 3.0 was late and in danger of not meeting the business needs of the healthcare industry even though it was based on great foresight and driven by the best in healthcare informatics.

HL7 is central in any map of interoperability standards in the clinical domain. Its success in bringing forward new messaging and document interoperability standards in a timely manner is important to the entire healthcare industry both in the US and internationally. There is no current viable alternative except extending the status quo.

HL7 is faced with some slippage in support and some lack of consensus on how to move forward, at least among some important membership groups. The technical and organizational challenges could probably best be solved within the context of overall purpose and priorities as determined by the end-user stakeholders of vendors, healthcare organizations and governments.

In the next issue, we will offer some suggestions on how HL7 might better align itself with external stakeholders and thus focus its strategy, technologies, resources and members on deliverables and schedules that meet end-user needs and requirements.

### **The Dilemma of HL7**

Having raised a number of controversial issues concerning HL7 and Version 3.0, we continue in this issue to suggest some solutions. We are spending this time on HL7 because it is so important to the HCIT industry. HL7 is attempting something very difficult—developing an information model of healthcare worldwide from which one can derive near plug and play interoperable implementations. HL7 faces two sets of problems – those that are internal involving its technology and the development processes and those that essentially involve its external stakeholders, i.e., a business plan. These problems are joined at the intersection of business requirements, priorities, timelines, resources and deliverables. Without internal and external alignment, HL7 will be unable continue to command its pre-eminent position within the industry or maintain its volunteer resources. The HL7 leadership already is taking many steps to address internal issues. Moreover, internal issues are for the organization and its participating members to resolve.

It is the external needs of stakeholders that are in question. The corollary of HL7's worldwide market acceptance and its sponsorship and participation by governments, vendors and providers is its responsibility to meet their needs for timely, effective interoperability solutions. HL7 has its position of trust because it has delivered in the past.

### **HL7 is not offering a business strategy to its stakeholders**

HL7 is mentioned prominently in the recent IOM Report Fostering Rapid Advances in Health Care<sup>5</sup>. This report outlines a series of demonstration projects, which the Secretary of HHS could use as test beds for national healthcare policy recommendations. Of the five major groupings, information and communication technology (ICT) projects represent one set. In the ICT section it is suggested that with more funds, Version 3.0 could be accelerated and that this would further enable many of the other initiatives. Funding always helps, but without any business plan it is hard to see why one would wait 18 months before undertaking a project to show rapid advances. This is the fundamental problem of HL7; it has not offered its external stakeholders a roadmap, framework or timeline for implementing Version 3.0 and concurrently transitioning from Version 2.X. Version 3.0 is simply not in many stakeholders' plans.

HL7 must present a strategic plan to its external stakeholders, get their feedback and buy-in (and their resource commitment) and then execute against the plan. Such a plan would include business requirements being addressed, deliverable components with functions and benefits, phases, schedules and resources needed. The plan would position Version 3.0 within the framework of existing healthcare information systems and standards, including security and Version 2.X, and outline a transition.

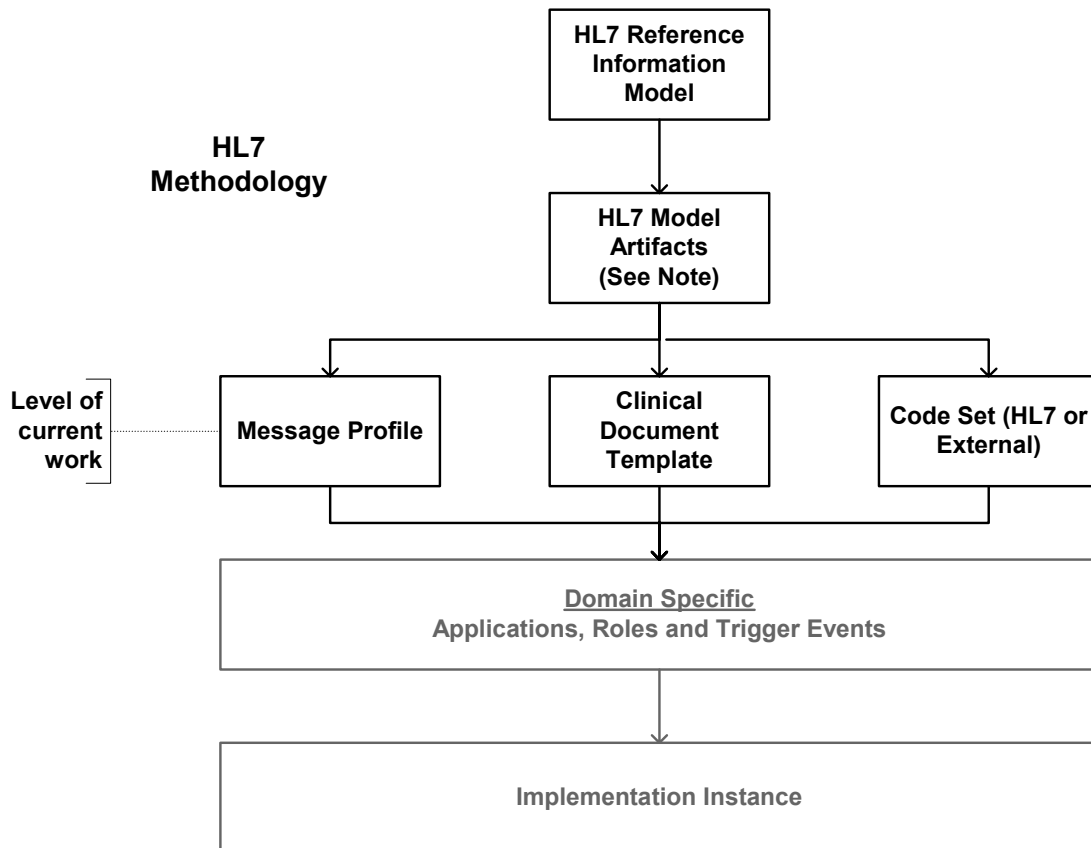
If we look at where HL7 is in its Version 3 plan, we note that it is currently trying to move from the abstract RIM to implementable technology specifications. This requires a number of levels of more and more detailed efforts. Specifically, HL7 is trying to pin down its intermediate artifacts and models, using UML and, potentially, automated model generated code methods, and to figure out how to constrain them for different clinical applications and domains. The latter is accomplished through document templates and message profiles, derived as constraints on the RIM and its artifacts, which specify what messages, message content (including code sets) and trigger events are required by an application role. Apart from this technical process is the consensus process of assembling domain experts. e.g., cardiologists, nursing, family

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<sup>5</sup> See [www.nap.edu/catalog/10565.html](http://www.nap.edu/catalog/10565.html)

practitioners, hospital critical pathways developers, all of the stakeholders in the US and internationally that determine what an information system should do to support their field of healthcare. HL7 does not have this expertise and so far has not really begun this domain specification consensus process.

**HL7 Response:** While this statement has some truth we feel it unfairly conveys the impression that we are not very far along. This stems from several misperceptions: it treats homogeneously all of version 3 -- including CDA, v3 XML messages, and some new projects in the area of Java code generation. In fact the CDA has long since been published and is beginning to find usage. V3 XML messages (end-point artifacts rather than intermediate artifacts) are in ballot, and the new initiative for Java code generation is a newer project. We do indeed have a project to make contact with various specialty groups such as cardiologists for further refinement of version 3 CDA and messaging. This is a project called "templates". The implication that the existing work in CDA or messaging is somehow held up because we are not very far along in templates is incorrect. We understand this reference to be to a reference to groups capable of representing a consensus on how the detailed information should be represented for a specific specialty. HL7 has done some outreach in this area and would do more if it had funding for the facilitation. However, we are very concerned that many readers will read this as a statement that HL7 has no representation from physicians, nurses, etc. and that is simply untrue.



## Industry's Role

We have focused on the challenges and problems faced by HL7 in developing interoperability standards. We would be remiss if we didn't discuss the healthcare industry's responsibilities to HL7. Like HL7, "industry" does not have a business strategy for system interoperability. We have many needed projects and requirements both within the US and internationally. However, we have not defined requirements clearly (what do we mean by an EHR?), or set priorities or defined a framework or infrastructure for integrating the resulting projects and implementations. Instead, we produce more lists of projects and acceleration initiatives.

Such a HCIT strategy must be the shared vision of stakeholders within some common scope of a defined domain. For example, IHE addressed radiology department workflow integration. It developed a shared vision among key users and key vendors and agreed on its scope. From these, it derived a business strategy and technical method. It worked – but it only extends to radiology. An EHR is a vision but may be seen differently if one is a hospital administrator, a primary care physician (for example, in England as in the case of the GP2GP project), a patient, and so forth. We discussed this in the August issue. This is the hard part and where leadership is needed. Thus, before the next ad hoc standards help group lists its projects, it should stop and describe its vision, scope, methods, resources, deliverables, timing and positioning within healthcare information systems frameworks.

We have discussed a number of potential industry leaders. Two issues ago, we reported on the American Hospital Association's initiative to form an industry coalition to promote adoption of interoperability standards. Based on its 76 members, it is likely that the NAHIT budget is larger than HL7's. Similarly, the RSNA-HIMSS joint venture, Integrating the Healthcare Enterprise (IHE), is into its fourth year of demonstrating plug-and-play interfaces based on HL7 Version 2 and DICOM standards with ad hoc message templates. Page: 10

**HL7 Response:** If by "demonstrating" you mean "showing at trade shows" and no more, we are concerned that some readers will take the sentence to imply that IHE has demonstrated this by years of successful implementations in real-world environments. As far as we know, this is not the case. It is an important distinction because it is easy to achieve interoperability in the controlled environment of a trade-show demonstration and far more difficult across the span of homogeneous business environments that drive the implementation of many HCIT systems. This variability is probably less of an issue for PACS systems than it is for other kinds of HCIT systems, but it is a big issue for HL7. The business (rather than technical) challenges associated with achieving interoperability within and among a wide span of healthcare organizations is very profound. Look at the backlash occurring around the HIPAA transaction standards where various healthcare organizations have to adjust their systems and business processes to be interoperable. We see moving HL7 usage from enterprise-interoperability to national interoperability as a challenge for the HCIT industry.

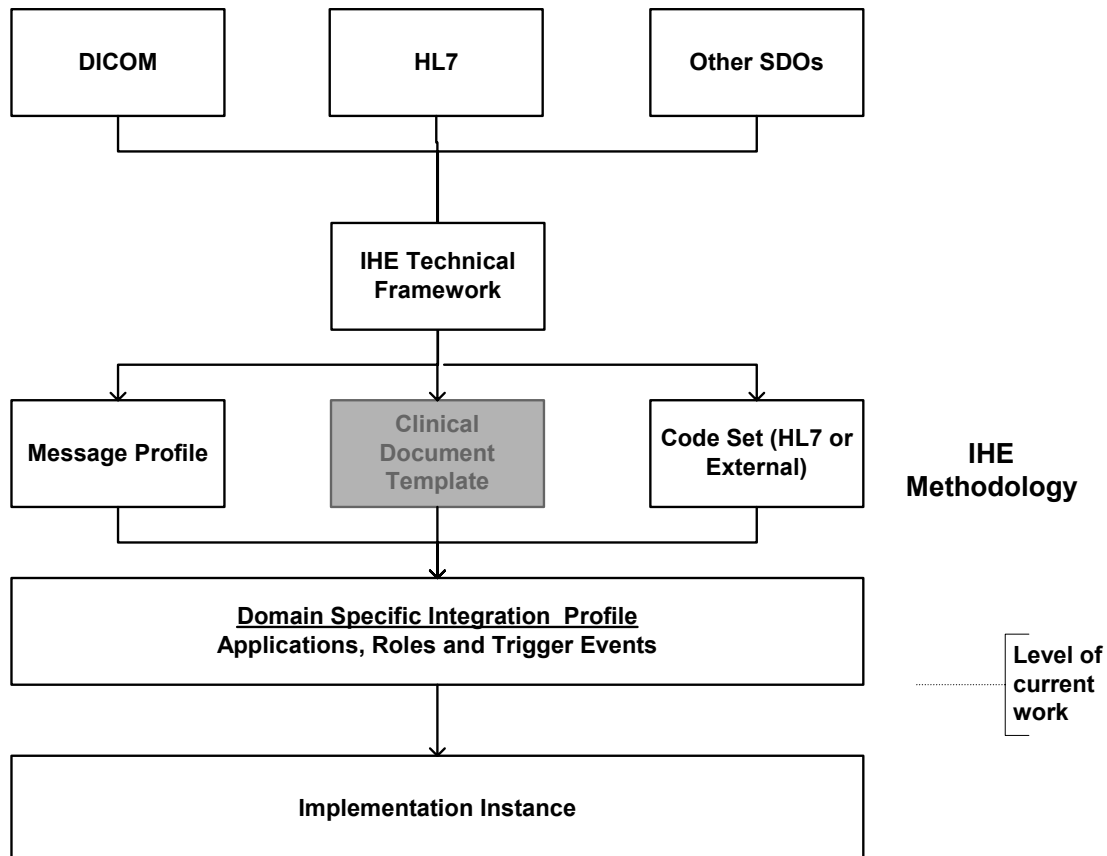
IHE now is attempting to move beyond the radiology and imaging domain. The Veterans Health and the Department of Defense, along with Kaiser, are forming a loose coalition to move certain interoperability initiatives forward. In another recent report, Leadership by Example: Coordinating Government Roles in Improving Health Care Quality, the IOM recommended such collective action to enable Federal healthcare providers to drive the market.<sup>6</sup> Other countries and international standards organizations have mixed agendas but should be heard. Finally, we see the need for the participation of domain experts, such as medical specialties and societies. Which of these can step forward as a leader based on vision, business and technical expertise, resources and market acceptance?

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<sup>6</sup> [www4.nationalacademies.org/news.nsf/isbn/0309086163?OpenDocument](http://www4.nationalacademies.org/news.nsf/isbn/0309086163?OpenDocument)

## IHE

IHE is a joint venture of HIMSS and the Radiological Society of North America (RSNA)<sup>7</sup>. Originally, IHE was to be a five-year effort to develop “plug-and-play” interoperability among imaging department systems and in their interactions with hospital information systems. IHE sees its role as coordinating implementations of standards, not as a standards development organization. IHE has created a technical framework based on existing standards, specifically HL7 version 2.3 and DICOM, which are further constrained by role-specific profiles. These profiles fully defined the message content and triggers that a vendor, claiming compliance, must support. Note that this is almost a mirror of HL7’s Version 2 message profiles and the same methodology being developed for Version 3 messages and CDA templates.



To demonstrate and test its interoperability, IHE has sponsored “connectathons,” which have been shown at the annual meetings of RSNA and HIMSS and in Europe. In 2002, the fourth year of IHE, 35 companies participated. IHE now defines ten integration profiles:

- Scheduled workflow
- Patient information reconciliation
- Consistent image presentations
- Grouped procedures

<sup>7</sup> RSNA supports advances in radiology, including sponsorship of the annual meeting, which is a preeminent educational and technical event.

- Key image note
- Simple image and numeric report
- Access to radiology information
- Post-processing workflow
- Charge posting
- Basic security

The last three integration profiles are new in 2002. These profiles cover imaging specific workflows, not just data exchange. They define not only data messages and content but also the triggers that must be supported by a participating action to complete an activity or procedure.

IHE has been exceptionally successful in its initial focus on radiology and imaging system interoperability. Its demonstrations work and it has high awareness, particularly among radiologists and department administrators. It is not clear how many live implementations that this awareness has engendered however.<sup>8</sup> Nevertheless, as IHE looks beyond year 4, it faces significant challenges.

Foremost among these is how to move IHE beyond its radiology focus. While the IHE sets as its vision and goal on enabling the electronic health record (EHR), this is so broad as to be unachievable and too narrow to meet current industry needs. Any attempt at an EHR must be defined in scope, outlined in framework and implemented in phases. The latter point refers to how far the industry has moved from automating documentation--a necessary but not sufficient condition--to managing workflow, optimizing processes and providing effective decision support. Automating workflow with plug-and-play systems, not standardizing radiology documents, is the primary accomplishment of IHE.

For several years, IHE has attempted to interest other hospital-based services and departments, such as cardiology and the laboratory, to join its ranks, and until recent encouraging discussions with the American College of Cardiology, mostly to no avail. IHE is managed by a board of its participating member societies, currently HIMSS and RSNA. Recently HIMSS has taken a leadership role in IHE direction while RSNA remains the steward of imaging domain.<sup>9</sup>

Although the current IHE membership and methods are still heavily biased to imaging systems and radiology problems, HIMSS specifically wants to enlist more society-level participation to broaden the scope of its activities and gain needed expertise. The IHE has a significant advantage in its corporate membership. Although the participating members tend to represent the imaging or RIS business units, most major HCIS vendors participate. HIMSS and IHE have

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<sup>8</sup> At this month's RSNA, IHE presented 13 user success stories. None claimed use of all the profiles. What is of interest is that all major imaging, PACS or radiology departmental systems support the IHE.

<sup>9</sup>In separate testimony to the IOM cited above, Joyce Sensmeier, HIMSS director of professional services, outlined the past, present and future of the IHE initiative. She indicated that while the initial success of IHE focused on the radiology department, HIMSS and RSNA were inviting organizations representing other clinical professionals (cardiology, laboratory medicine, and pharmacy/medication management) to implement the IHE process in their domains. IHE is also focusing on horizontal integration: implementing standard methods for the exchange of relevant information among departments and enterprise-wide information systems. This level of integration gives substance to the ultimate goal of actualizing a ubiquitous electronic health record (EHR) across the continuum of care. [www.himss.org/ASP/himss\\_news\\_list.asp](http://www.himss.org/ASP/himss_news_list.asp)

identified its primary task as enlisting their support in applying the IHE methods to its new set of tasks.

IHE held an IT Infrastructure Workshop last month to chart new directions. At the planning meeting, the steering committee decided on three new integration profile initiatives outside of the imaging silo:

- Query and display of patient data (possibly with synchronization – CCOW)
- Enterprise Master Patient Index
- Security – continuation of audit messaging standard?

How do you go from the EHR to these three projects? One must immediately ask why and how these three integration profiles would fit into end users' information systems. This is the same business strategic plan gap that HL7 exhibits. Each may be a worthwhile project in its own right, but how do they fit into strategic HCIT architecture and are they the highest business needs of healthcare organizations and HCIT vendors?

### **Recommendation: An HL7 and IHE Partnership**

By now, it is obvious that HL7 and IHE have the same problem and each may have a discreet half of the solution. They need an overall strategic plan that healthcare organizations and HCIT vendors can evaluate, help prioritize and commit themselves and their resources to supporting.

Of course, there are some real problems lurking in the simple diagram. The first will be how to structure and manage a partnership and avoid economic conflicts over their common benefactors and vendor members. While HL7 clearly has the technical leadership role, IHE would have to demonstrate its leadership ability in enlisting and managing a broad consensus of domain experts and end users.

Beyond the organizational and economic issues, there remains the disconnect between HL7's focus on the future Version 3.0 and IHE's historic use of existing Version 2.X standards. A real question for IHE and HIMSS is whether the technical framework model and integration profiles, built on HL7 version 2 messages, can or should be extended to the rest of the healthcare enterprise. The bridge may be in use of the HL7 Clinical Document Architecture (CDA) standard. The CDA is a three-level specification for human and machine processable documents and it is a Version 3.0 RIM-based standard.

**HL7 Response:** From the context of the Malvern meeting we think we understand this. If so, we concur. Creating IHE profiles to conveying transcriptions in CDA with links to images makes eminent sense. We are concerned, however, that the casual reader will interpret this to imply that this loosely-coupled relationship associated with documents that are largely textual ought to be the goal to achieve interoperability or that CDA should be used instead of version 2 or version 3 messaging.

Alternatively, IHE could focus on application integration profiles and the process of getting domain consensus for the requirements for compliant applications and roles. We have shown that HL7 and IHE are approaching this in a similar fashion. If IHE was to embrace HL7's methods for Version 2.x conformance profiles as well as Version 3 message profiles and document templates, essentially replacing the IHE technical framework with HL7 RIM-derived model, IHE might be able to leverage domain-specific application profiles for either Version 2.X or Version 3.

**HL7 Response:** We like this approach.

IHE has invited HL7 participation, and there has been some talk of joint interoperability demonstrations in future HIMSS meetings. However, marketing activities and demos should not be confused with strategic purpose. We need leadership and if it does not come from within the HCIT industry, it surely will come from without.

### **Next Issue**

While we started 2002 with some clear priorities in security and clinical systems, our review leaves us unclear on how the HCIT industry will get the necessary interoperability standards. Indeed, it is unclear who will take the leadership role in defining and prioritizing business requirements and in developing a business plan and resources to make things happen.

In the February issue, we will use the annual HIMSS conference as a platform from which to analyze the HCIT horizon. We will continue to track security--perhaps the final HIPAA regulations will be out--and HL7. We will attempt to scan a broader horizon, including Web services and new ICT initiatives such as recommended by the IOM. Of course, we will keep an eye on HCIT leadership efforts.

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