The Future of Health Level Seven

If we don't learn from the past, we are doomed to repeat it.

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What factors influence the future of HL7?

- Organizational structure and governance
- How work gets done
- What work gets done
- Relationship to stakeholders
- Relationship to other SDOs and related organizations
- Partnerships and collaborations
- Funding model

Future built on strength of HL7

- International organization – global standards
- Number, depth and width of experts
- Open, functional and cooperative working environment; best of all
- Resources available to organization
- Most widely used standard in health care; true global use
- Growing, very competent staff

The Beginning

- Formed in 1987 to create required standards to enable “best of breed” approach to hospital information systems
- Small, overlapping working group with few committees: focused on admission, discharge and transfer (ADT); orders and results; patient administration; control and query
- Independence of governance and working group activities
  - Chair, secretary and treasurer elected; rest of board appointed
  - Primary Stakeholders – vendors and providers; formed IAB and PAB
  - Hired management group (AMG) in 1991

The first product

- Version 2.x driven by simplicity; implicit model: see it, do it; focus!
  - Basic building block were data items combined into logical segments
  - Messages driven by trigger events and consisted of segments in defined sequence. Segments could repeat and some were optional.
  - New required elements were sequentially added to existing segments
  - New functionality created new segments.
  - Z segments permitted independence and expansion.
  - Implementation was at the interpretation and needs of the implementer.
  - Backwards compatibility demanded.

Evolution of governance

- Formed Technical Steering Committee with chair, vice chair
- Evolved to international organization
- Evolved to largely elected board (8 at-large, including international) (TC Chair and vice chair non-elected members)
- Convergence of governance and technical work; mainly bottom up and volunteer driven
- ANSI accreditation influenced governance and balloting
- Grew rapidly in numbers: membership, technical committees, special interest groups; scope expands
- Addition of SGML/XML activity; vocabulary; clinical interests; moved toward model driven approach resulting in RIM, v3, CDA
- Loss of communication among groups; increased time to create standards

Evolution of technology

- Migration to model-based v3 standards competed with existing base of v2 standards; co-existence demanded
- Increasingly unsolved issues impacted efficiency of organization
- Increasing competition among groups both national and international
- Interests from government and regulatory bodies
- EHR standards activity – expanded participation
- Increased importance of ambulatory care standards
- Wider audience, expanded set of stakeholders

The Present Governance

- Board becomes strategic; Technical Steering Committee controls technical standard development
- Hiring of a Chief Executive Officer, Chief Technical Officer; Executive Director of Management Group became Chief Operating Officer
- New structure organized around common themes
  - Foundation and Technologies
  - Structure and Semantic Design
  - Domain Expertise
  - Technical and Support Services
- Increase in top down governance but still balanced by bottom up influence; still a volunteer organization
- Importance of global approach recognized
- Increased efforts of joint activities among SDOs in creating standards

Expanding stakeholders

- Original members came mainly from vendors and large providers
- Stakeholders represented today include large and small vendors, large and small providers of care, inpatient and outpatient care providers, nursing, consultants, government, academics, payers, regulatory bodies, pharma, public health, knowledge brokers, and an increasing number of clinical participants

Operational evolution

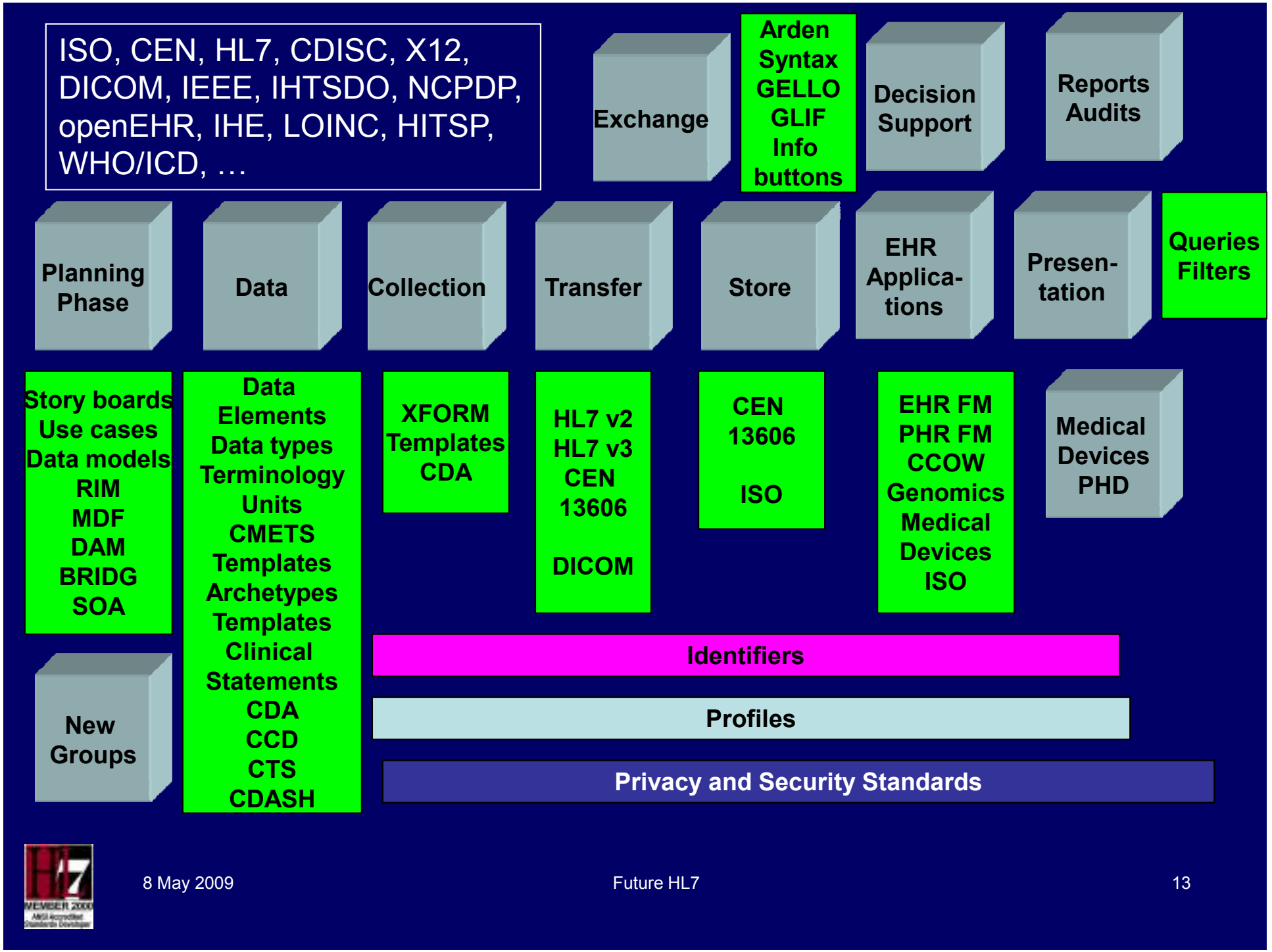
- Pressures on HL7 from multiple groups, increasing with US stimulus package
- Pressure to create standards more quickly
- Movement towards testing of standards through Draft Standards for Trial Purposes
- Perceived increased complexity in implementing model-based standards
- Increased requirements for family of implementation manuals; key to conformance
- Increased interest in standards throughout healthcare community; new audiences
- New focus on interoperability standards
- New attention from clinical community
- Technologically neutral solutions

Expansion of services

- Tool sets to multiple audiences
  - Standards developers
  - Application standards
  - Implementation standards
  - User standards
- Support for resource repositories
- Education
  - About standards and the use of standards
  - Increase awareness of the role of standards
- Marketing

No single focus

- Global standards that meet national requirements
- Geographical
  - International
  - National
  - Regional
  - Local
- Stakeholder – lists continue to expand
- Sites of care
  - Inpatient, ambulatory care, emergency care, nursing and long term stay facilities, home care, personalized care
- Multiple diseases; increasing focus on chronic diseases; knowledge management; decision support


ISO, CEN, HL7, CDISC, X12, DICOM, IEEE, IHTSDO, NCPDP, openEHR, IHE, LOINC, HITSP, WHO/ICD, …
Exchange
Arden Syntax GELLO GLIF Info buttons
Decision Support
Reports Audits
Planning Phase
Data
Collection
Transfer
Store
EHR Applica-tions
Presen-tation
Queries Filters
Story boards Use cases Data models RIM MDF DAM BRIDG SOA
Data Elements Data types Terminology Units CMETS Templates Archetypes Templates Clinical Statements CDA CCD CTS CDASH
XFORM Templates CDA
HL7 v2 HL7 v3 CEN 13606 DICOM
CEN 13606 ISO
EHR FM PHR FM CCOW Genomics Medical Devices ISO
Medical Devices PHD
New Groups
Identifiers
Profiles
Privacy and Security Standards

Questions HL7 Must Answer

- Should our vision be broad or narrow?
- How do we break up requirements into do-able pieces?
  - Focus on ePrescribing?
  - Focus on Laboratory and result reporting?
  - Other?
- What is the proper balance between academic and “real world” approaches?
- What is balance between national and global?
- In making a standard
  - How many people are required?
  - How long should it take?
  - Is creating different than approving?
- What else is required beyond creating a standard?

Producers, profilers and enforcers

- In the United Kingdom, the NHS's Connecting for Health serves as profiler and enforcer
- In Canada, INFOWAY serves as profiler and enforcer
- In Australia, the National eHealth Transition Authority serves as profiler and enforcer
- In US, IHE serves as profiler; HITSP serves as profiler; ONC serves as enforcer
- In an increasing number of countries, the Ministry of Health serves as profiler and enforcer

Working with others

- HL7 must view itself as part of a larger community dedicated to a specific role in using IT to improve health care. HL7 must become involved with that broader community; we must form new relationships and new partnerships.
- Who is our customer?
- HL7 recently sponsored a meeting with medical specialty associations, nursing groups, government bodies with some international participation. Follow-up underway with the creation of a collaborative of those groups – the Clinical Information Interchange Collaborative

Current Collaborations

- HL7 submits its standards to ISO for approval as ISO standards
- HL7 partnered the creation of the Joint Initiative Council with ISO and CEN. HL7 has played an active role in all of the JIC projects. HL7 provided the 1st chair of this group.
- HL7 is a charter member of the US-based SDO Charter Organization (SCO); J. Quinn is first vice chair.
- HL7 leads a gap analysis study for SCO
- Active and working agreements with CDISC, IHE, NQF, EHRA, OMG, others
- Actions prove commitment of future HL7 to collaboration

Future Possibilities

- HL7 sharing the HL7 RIM to become the reference information model for most SDOs
- HL7 CDA becomes container for domain content standards for other SDOs who provide domain expertise and content.
  - Analogous to shipping industry with container shipping.
- Partnership with profiler organizations including joint development of implementation guide

Impact of US stimulus package

- Change funding model from membership dues based revenues to government funded activities and standards production
- Increased funds required to
  - Develop tools
  - Staff support for volunteer standards production
  - Paid experts to accelerate standards production
- Standards freely available to all

How does HL7 become a front-line organization?

- Standards require both a policy (political) and a technical framework to be effective.
- How does HL7 influence policy? The future HL7 must influence policy related to HIT in all countries.
- Role of CEO includes influencing policy
- Increase awareness of standards in all health related groups.

Future Standards Requirements

- We need to understand and predict the future trends in health care and in HIT to have required standards available as needed.
- HL7 needs to determine what standards are required to meet national visions for use of IT in patient care, research, reimbursement/cost containment, performance evaluation, consumer involvement
- HL7 must develop and share a policy of how we will work with others to meet these new needs. Together we stand; divided we fall.
- In an ideal world, all HIT standards would be produced by a collaborative process.

Immediate needs

- Increased use of decision support including guidelines and alerts
- Increased use of geocoding standards
- Increased medical device standards, specifically personal health devices. Examples include body sensors, calorie counters, mood and pain reporting, etc.
- Promotion and use of CDSS standards

New requirements

- Addition of genomic and proteomic data to health record
- Movement toward predictive and preventive health model with personalization of care and treatment
- Modifications in workflow
- New vision and purposing of EHR
- Increased demands for quality, patient safety, access, efficiency, effectiveness, integrity, privacy
- Integration of data from disparate sources; life and death decisions based on integrated model

Other services

- Rule-based data exchange
- Filters for data presentation
- Mapping services in transition
- Consent management
- Identifying candidates for clinical trials
- Record linkages
- Digital identifiers
- Notification services
- Business processes
- Natural language processes

Awaiting standards

- Evidenced based medicine
  - Standards for knowledge representation, knowledge extraction for data, knowledge transfer and knowledge use
  - Standards for clinical guidelines, care plans, decision support
- Translational research
  - Reusable data: clinical trials fed by patient care data
  - Decrease time from bench top research to routine bedside use
- Query standards that make it easy to access information; push and pull standards
- Data capture standards

Future requirements?

- Understanding content, similarities and differences in different views of health care data
  - EHR, EMR, population or summary records, personal health record
  - Variation in sites and purpose; linkages and relationships
- Views, content and functionalities of
  - Regional health information systems (RHIO or HIE)
  - States or provinces
  - National (NHIN)
- Meeting national requirements; establishing trust for national commitment
- Accommodating changes in technology and health care delivery models in standards.

The Future HL7

- A body that is open to any and all participants.
- A body that is characterized by trust by the broader community of stakeholders.
- A body that truly respects its customers, other similar organizations, and the international community
- A body that understands what is required and then does it – quickly and competently.
- A body that is a full service provider.

The Future HL7

- Highest level of collaboration with global community. Goal is one standard for one business purpose. Our successes are dependent on the success of all.
- Provide technical framework for HIT standards; others provide expert content
- Expanded scope to identify and address gaps and new requirements in HIT standards
- Direct funding from governments
  - Expanded staff support
  - Volunteers define requirements; paid experts create standards; volunteers validate work
  - Management challenges

The Future HL7

- Become the bridge to clinical community in delivering required standards around defined contents, application functionalities, work flows, …
  - Decision support and knowledge management
  - Medical devices and personalized health devices
  - Disease management
- Accepting standards as only the first step in overlying responsibilities of HL7
  - Influence policy decisions
  - Become major player in global community

The Future HL7

- To boldly go where no standards developing organization has gone before!
- Accept hard problems and insist on ideal solutions!
- Do it today!