An Introduction to Health Level 7

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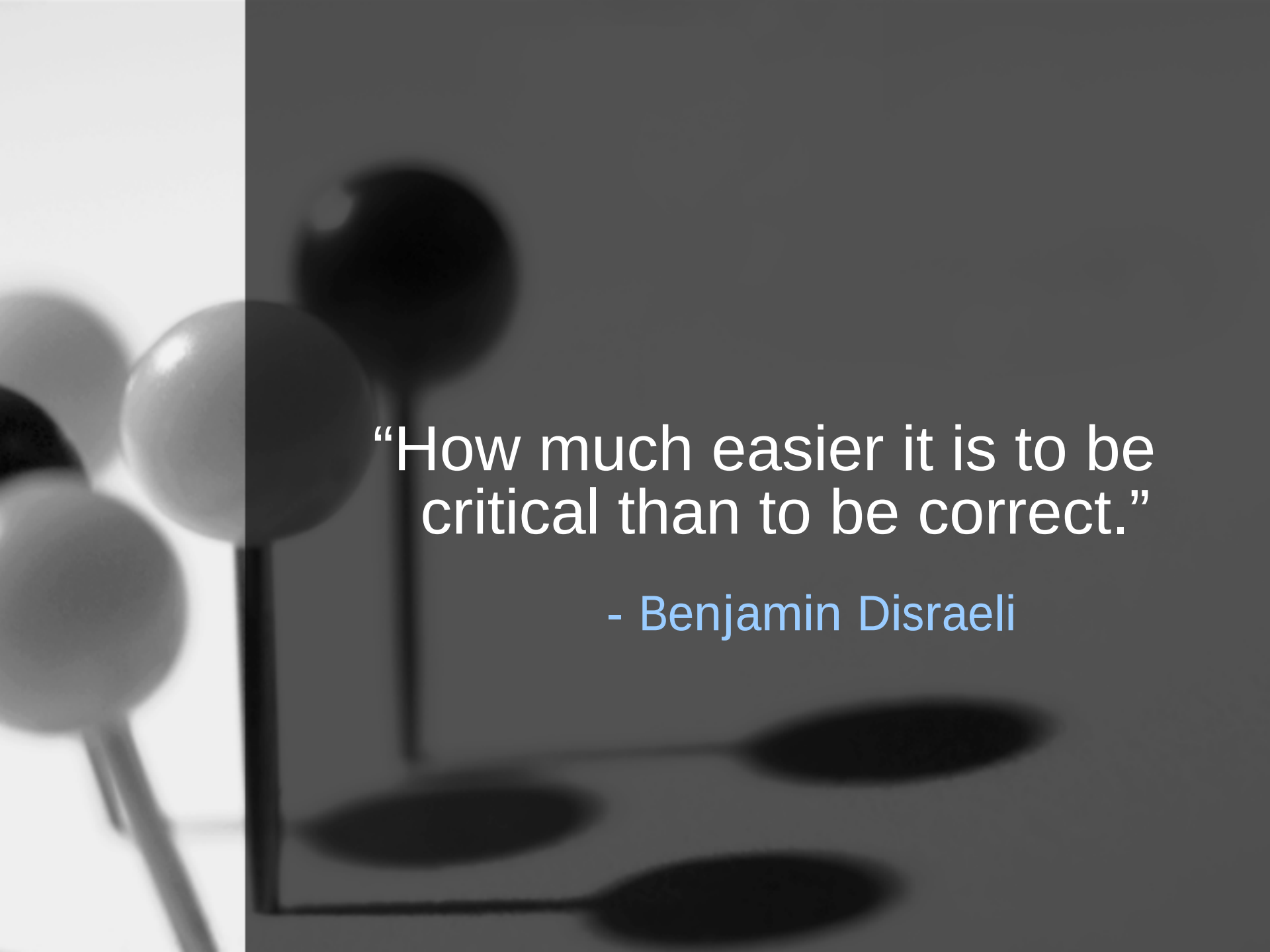

“How much easier it is to be critical than to be correct.”
- Benjamin Disraeli

HL7: A rose by any other name

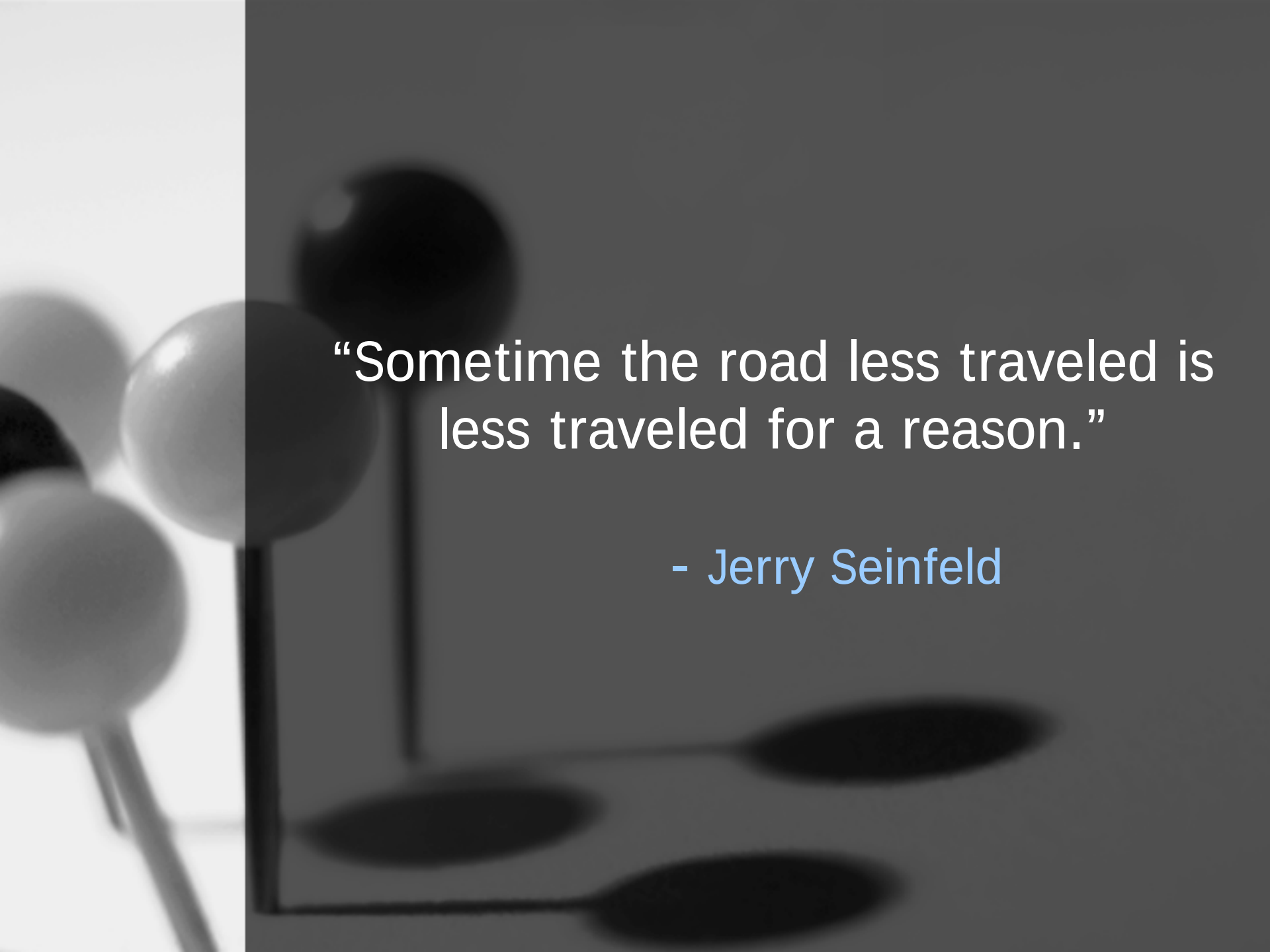
- The name, Health Level Seven International, is derived from the informatics concept of the levels of interoperability, of which 7 is the highest.
- HL7 is an ANSI-accredited standards developing organization (SDO) and the global leader for standards for interoperability of health information technology.
- HL7 represents members in more than 55 countries, and is intimately involved in worldwide efforts to improve healthcare through information technology.

HL7 on a Global Stage

- HL7 is a founding member of the Joint Initiative Council, an international council on global health informatics standardization, committed to developing a single standard for health information exchange.
- Through the International Organization of Standardization (ISO), HL7 submits its ANSI-approved standards or draft standards for trial use (DSTUs) directly to ISO for approval.

HL7 in the History Books

- HL7 was Founded in 1987 at the University of Pennsylvania
- HL7 is nonprofit organization with over 4,000 worldwide members
- HL7 represents hundreds of healthcare vendors, providers, payors, government agencies, consultants and others.
- 90% of the largest health information system vendors are HL7 members.
- Volunteers perform HL7's standards development work.


“Sometime the road less traveled is less traveled for a reason.”
- Jerry Seinfeld

HL7 Process & Products

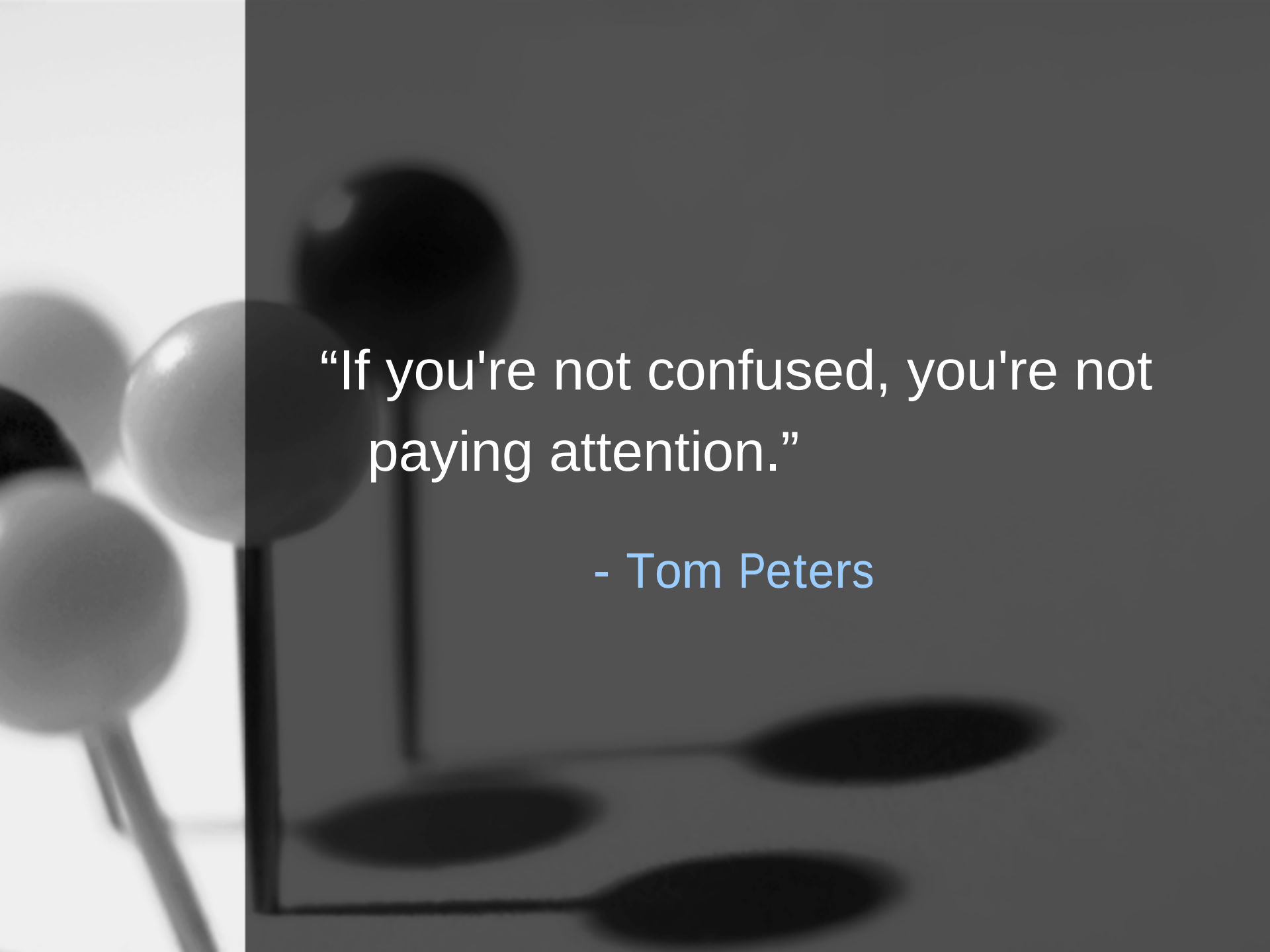
- HL7 does not develop software.
- HL7 creates standards that allow healthcare information to be communicated across and between healthcare enterprises and communities.
- HL7 standards facilitate the exchange of clinical and administrative data among health information systems.
- The HL7 framework and related standards provide exchange, integration, sharing, and retrieval of electronic health information.

HL7 Stakeholders

- HL7 supports research and clinical practice, as well as the management, delivery, and evaluation of health services.
- The most widely used HL7 specifications are messaging standards that enable disparate healthcare applications to exchange key sets of clinical and administrative data.
- HL7 Version 2.x messaging standard is the most widely implemented standard for healthcare in the world.

HL7: More Messaging Standards

- In the U.S., the HL7 Version 2 messaging standard is deployed at virtually every healthcare system and integrated delivery system.
- HL7 Version 3 messaging standard is used by U.S. government agencies such as the Food and Drug Administration (FDA) and the Department of Veterans Affairs.
- Version 3 is also widely used outside the U.S., in countries such as Canada, the United Kingdom, the Netherlands, Germany and Mexico.


“If you're not confused, you're not paying attention.”
- Tom Peters

HL7: Beyond Messaging

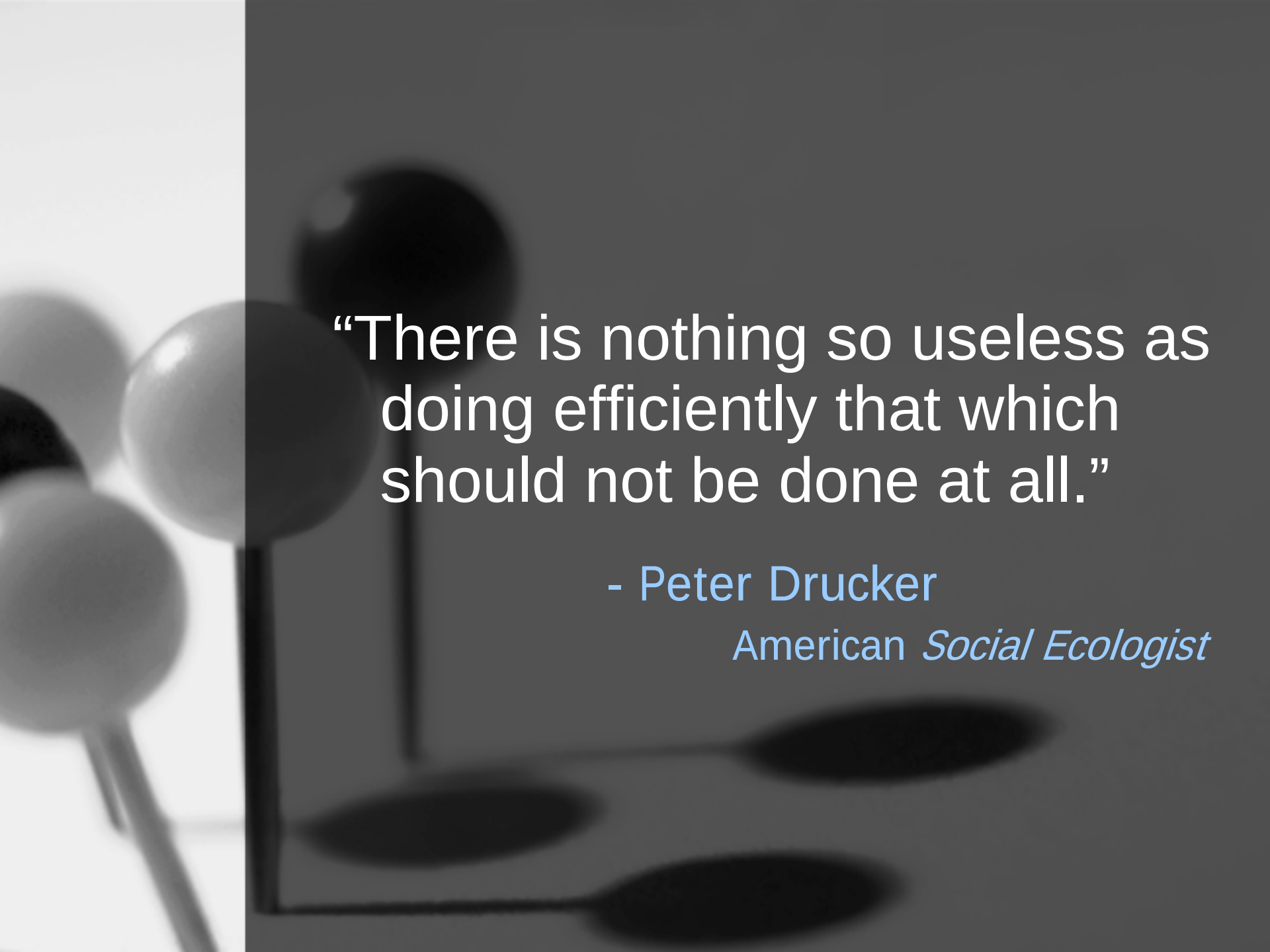
- HL7 *functional standards* for electronic health records (EHRs) and personal health records (PHR) serve as a functional model around the globe.
- The HL7 *Reference Information Model* (RIM) provides a basis for interoperability within healthcare and between healthcare and biomedical research.
- *Clinical Document Architecture* (CDA®) is broadly deployed in healthcare for exchanging data between system, and is used for decision support, biosurveillance, and pharmacovigilance.

HL7 Clinical Document Architecture (CDA®)

- CDA® is a product of HL7 version 3 technology that allows for the transport of a wide range of structured and unstructured elements.
- CDA® serves as a critical component of the specifications for the HHS Final Rule for Meaningful Use of electronic medical record systems.
- CDA® is deployed my multiple US Federal agencies for exchanging critical health information.
- CDA® is the basis for the pan-European exchange of prescriptions & clinical summaries (epSOS).

HL7 Standards Partnerships

- HL7 has multiple working relationships and memoranda of understanding with other standards development and integration organizations, providing
  - Vocabulary: HITSDO (SNOMED) and LOINC
  - Clinical research data exchange: CDISC
  - Pharmacy: NCPDP
  - Claims attachments: X12
  - Device connectivity: Continua
  - Radiology: DICOM
  - Implementation: IHE


“There is nothing so useless as doing efficiently that which should not be done at all.”
- Peter Drucker
American *Social Ecologist*

HL7 by the Numbers

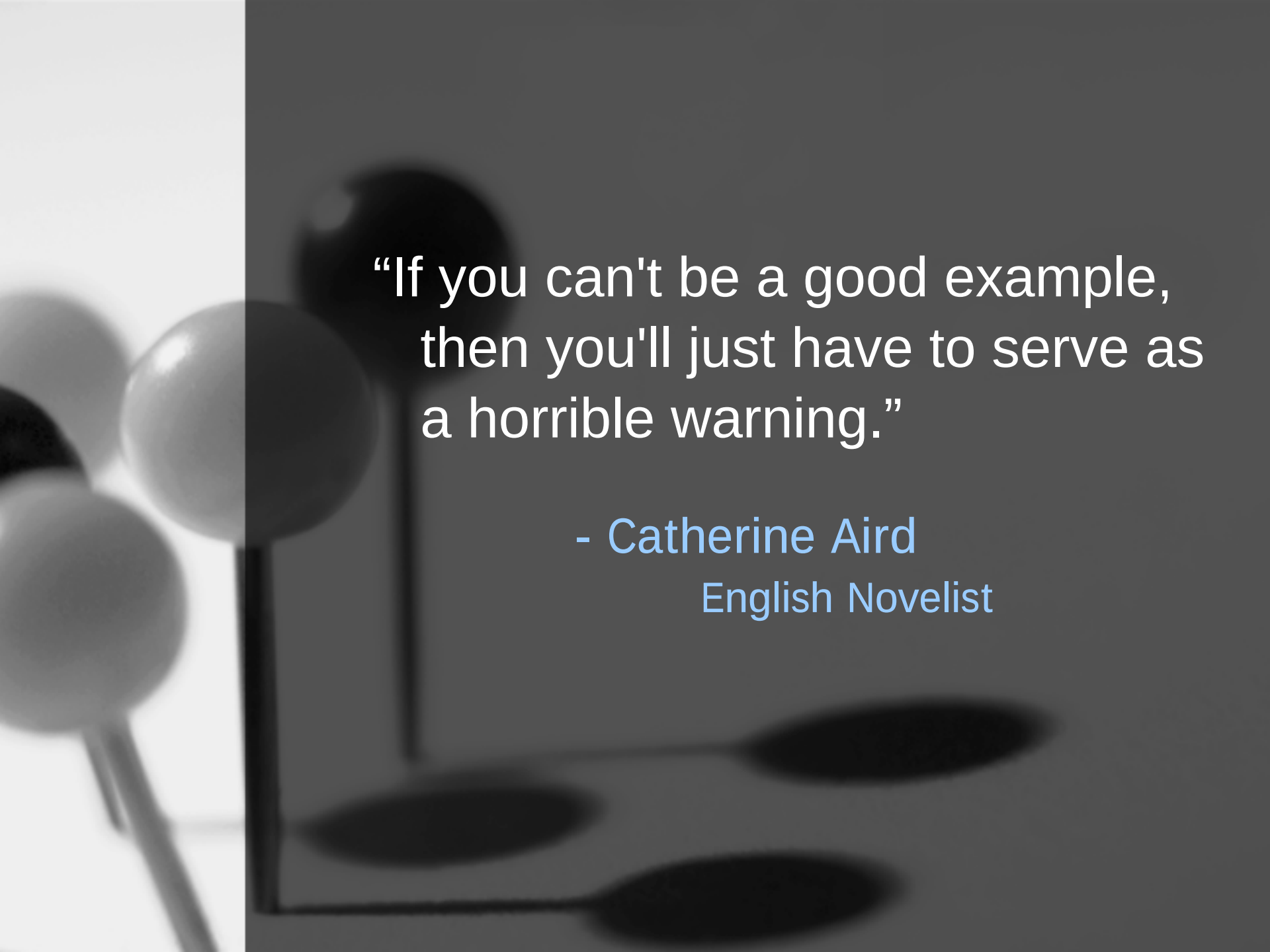
- HL7 has created over 150 standards.
- Currently 47 of HL7's standards are ANSI-approved (including the current version of standards, which have been updated multiple times over the course of several years).
- In 2010 alone, eight HL7 standards received ANSI approval,
- Last year, 5 were approved as ISO standards, 9 were published as Draft Standards for Trial Use, and one informative document was published.

HL7: Collaboration with US Agencies

- Over the course of the last two decades, HL7 has collaborated with numerous agencies.
- During 2010, a number of these agencies participated as organizational members of HL7, including
  - AHRQ
  - CDC
  - CMS
  - DoD
  - FDA
  - NCI
  - NLM
  - NIST
  - VA
  - Multiple state agencies

Collaboration by Example – The CDC

- CDC collaboration with HL7 began in the early 1990s to develop messages permitting the transmission of immunization records from care providers to local and state public health agencies.
- HL7 and CDC combined to develop standards for immunization registries, queries of these registries for immunization public health records, and the return of these immunization records to care providers. They are still in use today.


“If you can't be a good example, then you'll just have to serve as a horrible warning.”
- Catherine Aird
English Novelist

Collaboration by Example – CMS

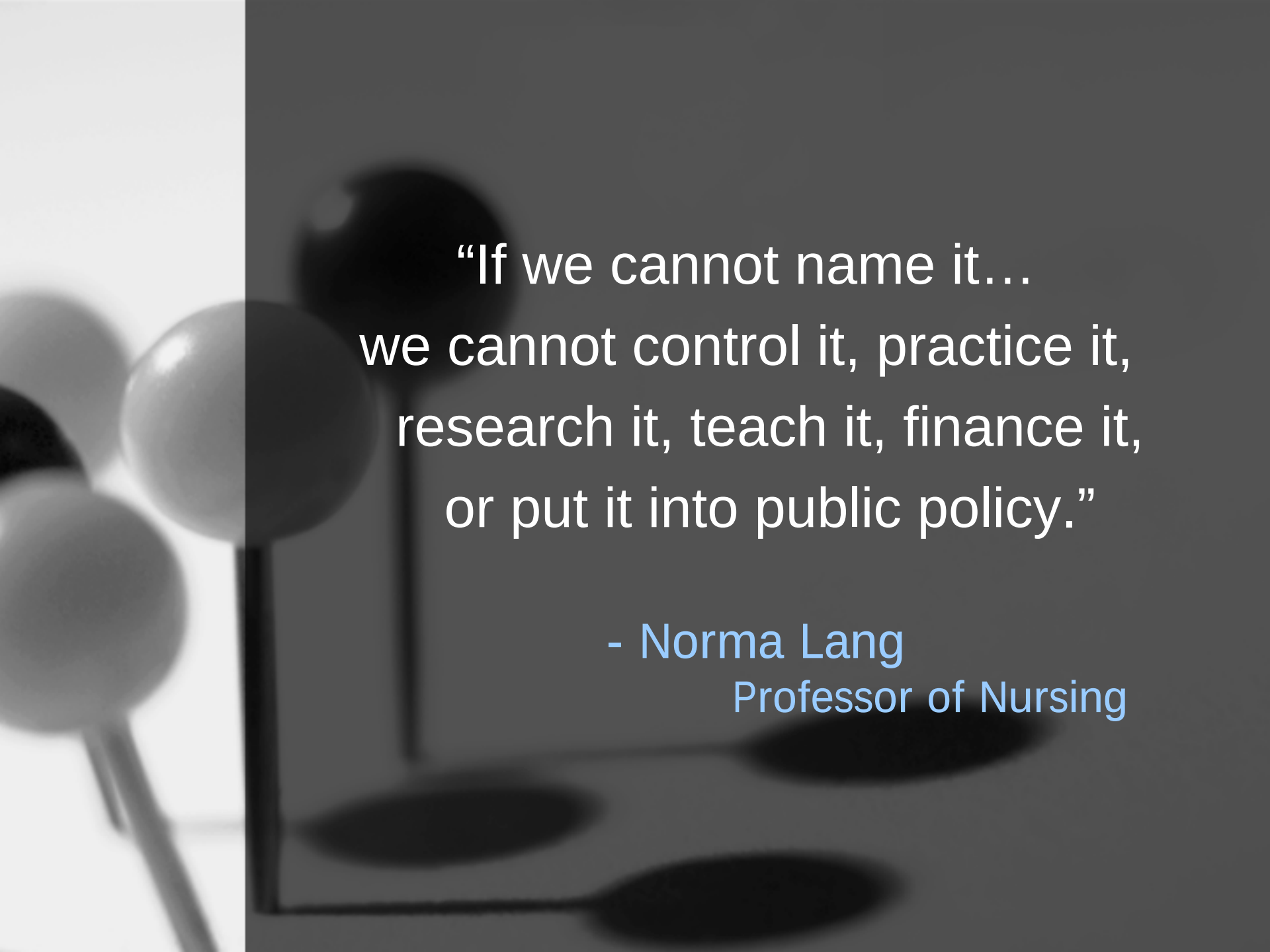
- CMS and NCVHS collaborated with HL7 and X12, through the HL7 Attachments Work Group, to support healthcare insurance and other e-commerce transactions.
- Since 1997, the work group has created implementation guides and attachment specifications that use HL7 Version 2.x messaging and the HL7 Version 3 CDA® standards.
- In 2005, these specifications were incorporated into the “notice of proposed rulemaking” under HIPAA.

Collaboration by Example – NLM

- HL7 worked with the NLM on a three-year project to ensure that the UMLS Meta-Thesaurus was aligned with the HL7 vocabulary standards.
- This project enabled the compatibility of the Consolidated Health Informatics (CHI) vocabularies with HL7.
- This collaboration provided the implementation guides for the use of HL7 forting transmit electronic health record data and documents between multiple systems, independent of source and destination architectures.

Collaboration by Example – FDA

- Since it founding, the FDA and CDISC have partnered with HL7 to bring interoperability projects through the Regulated Clinical Research workgroup.
- Successful projects have included the
  - Structured product label
  - BRIDG model for exchanging data between healthcare and clinical research
  - Individual case safety report
  - Common product model for pre- and post-marketing safety reporting


“If we cannot name it…
we cannot control it, practice it,
research it, teach it, finance it,
or put it into public policy.”
- Norma Lang
Professor of Nursing

Collaboration by Example – VAH

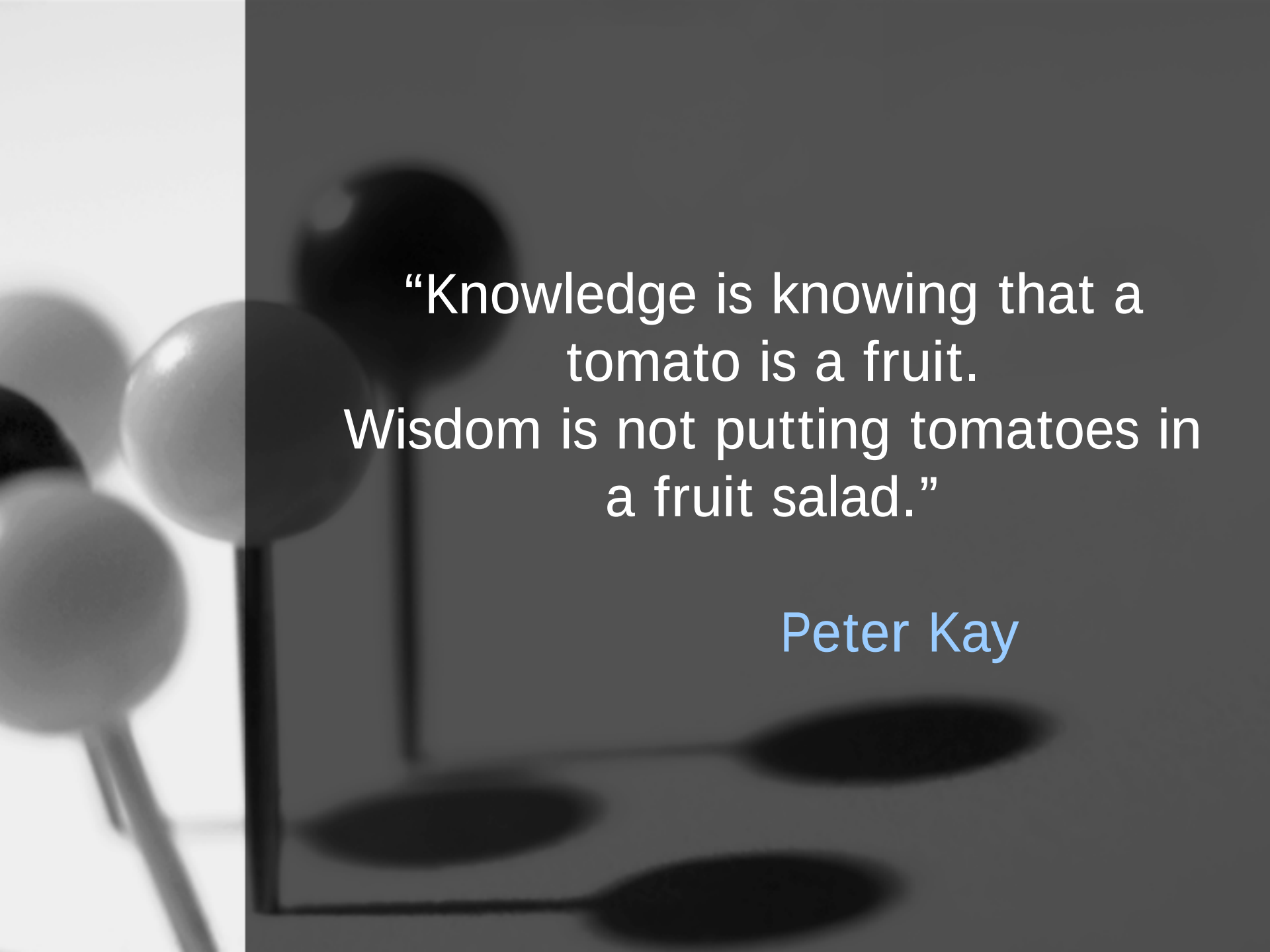
- The VA has been a close collaborator on a host of projects.
- ViSTA is built largely upon HL7 specifications.
- The electronic health record functional model development was funded by the VA
- The EHR-FM is now widely used in multiple systems and recently specified for the new Pediatric EHR (funded by AHRQ) by creation of an implementation guide that relies upon the HL7 pediatric profiles

Collaboration by Example – AHRQ

- In addition to the Pediatric EHR, AHRQ has funded multiple clinical projects
- The highly successful Clinical Information Interoperability Council (CIIC) brought together caregivers, from multiple professions (MD, RN, PharmD, RD, DDS, PT, and others) to help define common use cases, terminologies, workflow and processes across the broad landscape of healthcare.

Collaboration by Example – NIH/NCI

- The National Cancer Institute collaborates with HL7 on a broad range of projects and programs.
- Internally, NCI utilizes HL7 specifications for it Cancer Bioinformatics Grid (caBIG) that enables collaboration among NCI-funded cancer centers.
- NCI also supports
  - BRIDG model development
  - SAIF, for healthcare services architecture
  - Multiple vocabulary projects


“Knowledge is knowing that a tomato is a fruit.
Wisdom is not putting tomatoes in a fruit salad.”
Peter Kay

Collaboration by Example – NIST

- NIST is a long-standing member and contributor to HL7 specification development and organizational structure.
- NIST has published several studies on standards development process, many of which have been incorporated into HL7 governance and processes.
- NIST has developed the tooling for HL7 conformance and compliance testing under the “meaningful use” provisions for electronic health record certification.

Agency Participation in HL7

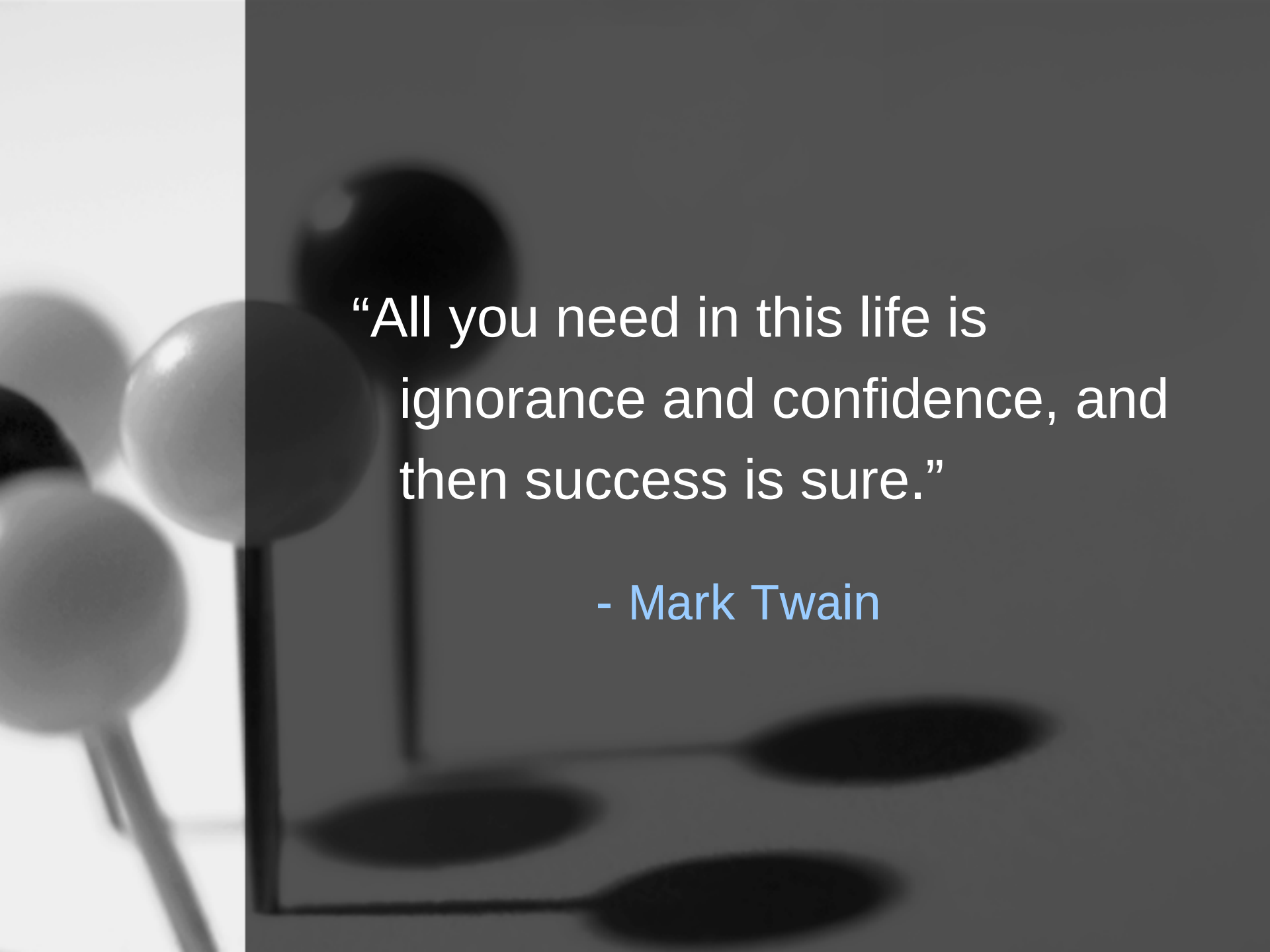
- In addition to HL7 Organizational Membership and direct HL7 support, many agencies provide volunteers for workgroup activities during meetings and during regularly scheduled remote participation.
- Additional participation is augmented by
  - Conference calls
  - Listservs
  - Wikis
  - Webinars
  - eLearning courses

HL7 Standards in Regulations

- Currently HL7 participates in the regulated environment of a number of agencies, including the FDA
- There are four HL7 standards referenced in the meaningful use Final Rule, including CDA® (Clinical Document Architecture) and the CCD® (Continuity of Care Document), which is a constraint on CDA
- HL7 anticipates that the attachments standards will be referenced in that final legislation.

Access to HL7 Standards by Government Agencies

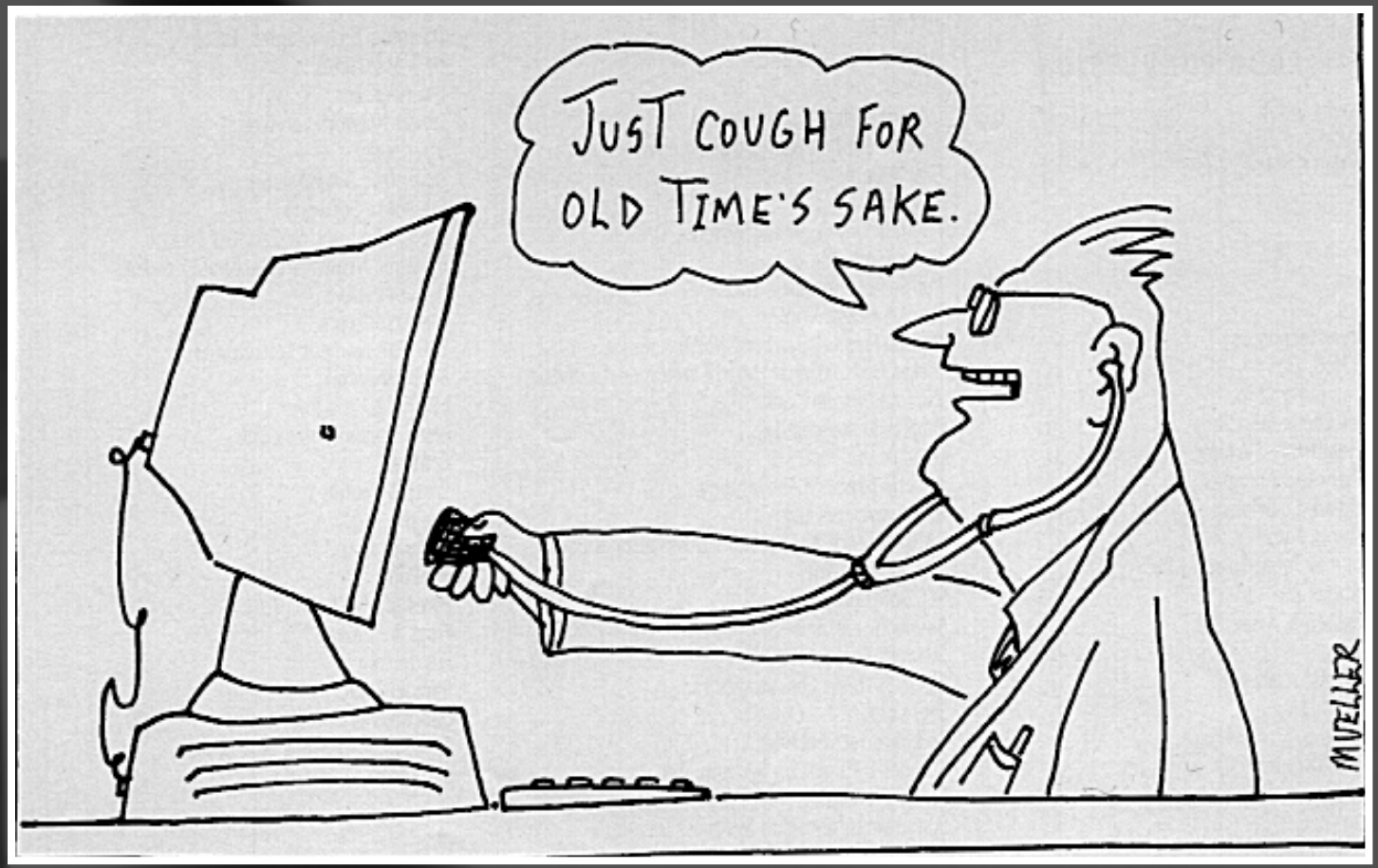
- Historically, HL7 standards have been available for development and specified constraints
- HL7 made its standards freely available to HITSP for interoperability projects
- The HL7 EHR-FM is freely available in perpetuity.
- In collaboration with the Office of the National Coordinator, HL7 has provided free access to its specifications (including CDA®) for the Harmonization Project


“All you need in this life is ignorance and confidence, and then success is sure.”
- Mark Twain

Further Government Access to HL7

- While HL7 standards are protected as intellectual property under international copyright laws, access to HL7 specification for review and evaluation is free of charge.
- Although many Federal agencies are Organizational Members of HL7, all government agencies (Federal, state and local) are provided a deeply discounted membership structure
- HL7 is committed to a policy of equitable support among stakeholders and endusers

Thank You



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