SERI State Electronic Records Initiative COUNCIL OF STATE ARCHIVISTS

Advanced Electronic Records Institute

Standards for Long-term Management of Electronic Records

Cal Lee

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Although tedious and obscure, negotiations over standards are among the most complex and important political arenas of modern societies, with myriad institutional, financial, symbolic, and practical dimensions.

– **Edwards, Paul N. "'A Vast Machine': Standards as Social Technology." *Science* 304, no. 5672 (2004): 827-28, 828.**

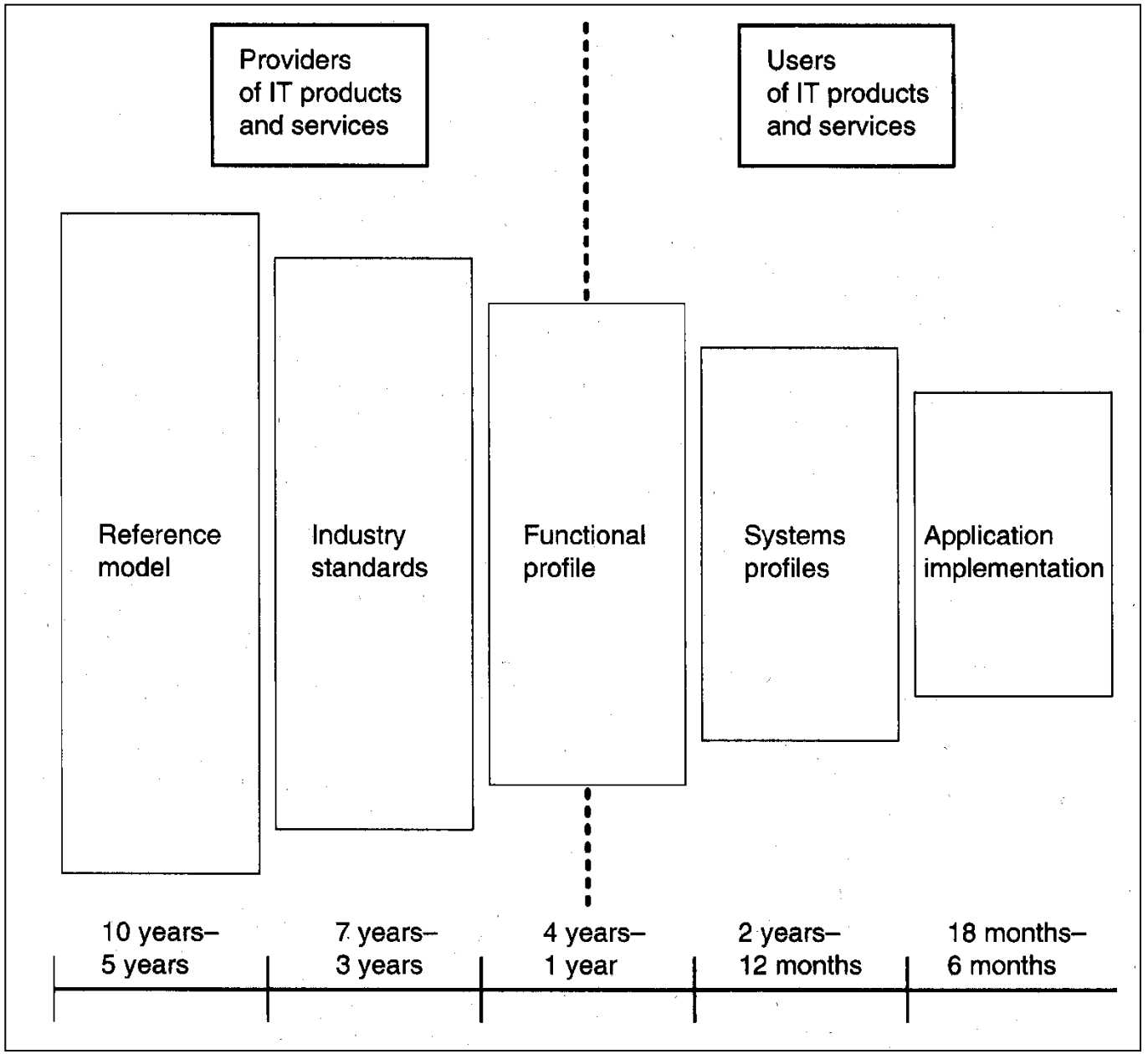
Lessons from Previous Standards Development

- Standards battles are not (necessarily) about “best” technical solution, but competing worldviews and sets of interests
- It takes considerable resources to contribute to standards development, so players have to see a direct benefit to them – educated guesses about those perceived benefits will help you to better understand the process
- “Openness” can vary by degree, along many dimensions
- “De jure” (i.e. official) standards can come from many different types of groups/processes – e.g. ISO, consortium, government body, UN, professional association

Standards Strategies for Stakeholders

- Get everyone to adopt as a standard something that:
  - You've already implemented
  - Includes technology others will have to license from you
  - Will create a large market for products where you have an advantage
- Try to block standardization (if you don't want interoperability)
  - Don't participate
  - Participate but drag your heels
  - Embrace but add proprietary extensions, or don't implement fully or correctly

The User-Provider Standardization Planning Model [Source: Cargill, 1997, p. 92]



Cargill, Carl F. *Open Systems Standardization: A Business Approach. Upper Saddle River, NJ: Prentice Hall, 1997.*

Examples of Standards Important to Electronic Records

- Reference Model for an Open Archival Information System (OAIS)
- UNICODE – character encoding that allows for characters beyond the limited set of ASCII
- Dublin Core – limited set of elements particularly useful for "dumbing down" metadata for exchange across systems
- OAI-PMH – protocol for harvesting metadata across repositories
- XML – syntax for marking up data elements
- PDF/A – flavor of PDF designed to be preservation-worthy
- DOD 5015.02 – specifies requirements for entire records management systems
- ISO 15489 – records management
- Others?

Proprietary and Open Standards

- Three dimensions of openness
  - Public process of creation
  - Freedom to use
    - Public availability of full specification
    - Licensing fees for proprietary technologies required to implement specification
  - Ability to make changes

Standards Terminology – What to Assume & Do in Relation to Compliant Products/Services

- Required features (MUST)
  - Assume compliant products/services implement
  - Always implement in your compliant products/services
- Suggested features (SHOULD)
  - Should not assume other compliant products/services will implement
  - Do implement it in your compliant products/services
- Allowed features (MAY)
  - Assume other compliant products/services might implement
  - Only implement in your compliant product/service if you find this useful to meet your intended purposes
- Forbidden features (MUST NOT)
  - Assume compliant products/services do not implement
  - Never implement in your compliant products/services

Who Creates Standards? Players and Process

- SDOs
  - American National Standards Institute (ANSI)
  - National Information Standards Organization (NISO)
  - International Organization for Standardization (ISO)
  - International Electrotechnical Commission (EIC)
  - Consultative Committee for Space Data Systems (CCSDS)
  - Internet Engineering Task Force (IETF),
  - ECMA (formerly the European Computer Manufacturers Association)
- Professional & Trade Associations
  - AIIM, ARMA, Society of American Archivists (SAA), Institute of Electrical and Electronics Engineers (IEEE), International Council of Museums (ICOM)
- Consortia
  - Dublin Core Metadata Initiative (DCMI)
  - Organization for the Advancement of Structured Information Standards (OASIS)
  - Workflow Management Coalition (WfMC)
  - World Wide Web Consortium (W3C)
- Detail work usually done within individual organizations & technical committees
- Formal approval through ISO by member bodies

ISO TC20/SC13 (Aircraft and space vehicles -> Space data and information transfer systems)

- Reference Model for an Open Archival Information System - http://nost.gsfc.nasa.gov/isoas/
- Digital Repository Audit and Certification - http://wiki.digitalrepositoryauditandcertification.org/

ISO/IEC Joint Technical Committee (JTC 1) – Information Technology [Where does ERM go?]

- SWG - Accessibility (SWG-A)
- SC 2 - Coded character sets
- SC 6 - Telecommunications and information exchange between systems
- SC 7 - Software and systems engineering
- SC 17 - Cards and personal identification
- SC 22 - Programming languages, their environments and system software interfaces
- SC 23 - Digitally Recorded Media for Information Interchange and Storage
- SC 24 - Computer graphics, image processing and environmental data representation
- SC 25 - Interconnection of information technology equipment
- SC 27 - IT Security techniques
- SC 28 - Office equipment
- SC 29 - Coding of audio, picture, multimedia and hypermedia information
- SC 31- Automatic identification and data capture techniques
- SC 32 - Data management and interchange
- SC 34 - Document description and processing languages
- SC 35 - User interfaces
- SC 36 - Information technology for learning, education and training
- SC 37 - Biometrics

Standards in Your Context?

- What standards are most important to your work on electronic records?
- For each standard, who can/should be involved in:
  - Raising awareness about the standard?
  - Implementing the standard?
  - Evaluating compliance with the standard?
- What's your role in all of this?