Standards and Standardization

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Definitions

Standard: Model, document or concept

Standardization: Process of creating, implementing, or using a standard

Definition of a Technical Standard

Economic: A codified and quantified rule imposed by an authority, committee or market (F.A. Hayek, *Rules and Order*, 1973). When successful, such rules cause self-reinforcing effects.

The Beginnings of Standards

DNA (and related structures) is a naturally occurring technical standard.

A system of number symbols likely was the first technical standard.

The term “standard” was first reported in 1138 AD

Taxonomy of Technology

	Age				
	Hunter Gatherer (before 3000 BC)	Agrarian (3000 BC - 1750 AD	Industrial (1750 - 1950)	Information (1950 - 2000)	Post-Information (2000 +)
Value System	Property (private)	Currency	Invention (patents)	System (public utilities)	Concept (copyright, brands)
Technology	Counting	Units of Measure, Monetary Systems	Powered machines	Sequential processes (railroad, telephone, utilities)	Adaptive processes (computers)
Communi-cations	Barter	Commerce	Mechanized transport	Electronic (telegraph, telephone)	Internet
Standards Successions	Symbols	Measurement	Similarity	Compati-bility	Adaptability

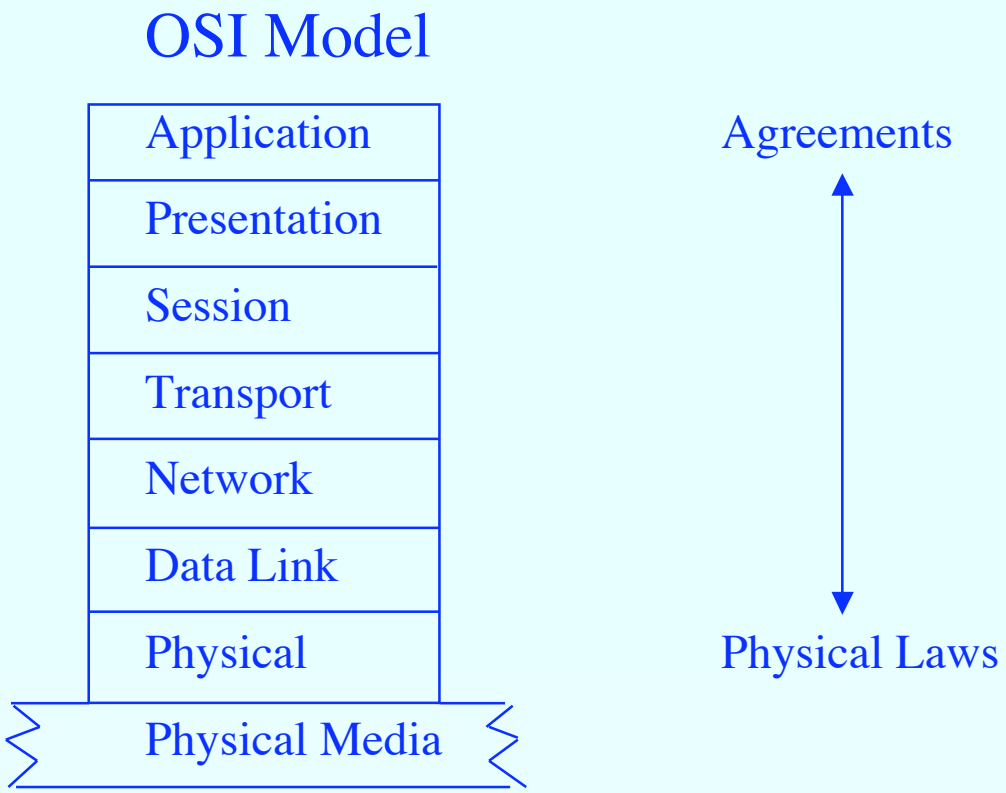
Succession of Standards

Standards	Examples	Purpose	Effect
1. Symbols	Number systems	Identity	Communications
2. Measurement	Units of Measure, Monetary system	Measurement	Quantify abstractions
3. Similarity	Cellular mobile and base, ISO9000, 14000, X.3 PAD	Repeatability	Maintain sameness
4. Compatibility	Nuts & bolts, Group 3 facsimile, telephone modems, X.25 interface, cellular air interfaces	Interworking	Sender compatible with receiver
5. Adaptability	Aloha protocol, CSMA/CD, Modem handshakes, XML, SIP, fax T.30	Variability	Negotiate the variation

Successions of Technical Standards: Economic Impact

	Age				
	Hunter Gatherer (before 3000 BC)	Agrarian (3000 BC - 1750 AD	Industrial (1750 - 1950)	Information (1950 - 2000)	Post-Information (2000 +)
Standards Succession	Symbols	Measurement	Similarity	Compatibility	Adaptability
Authorities' involvement in standard-ization	Dominate	Authoritarian	Oversight	Limited or none	Future: Guidelines?
Entrepreneurs' view of standards	Unknown	Undesirable	Distrustful	Winner-take-all	Future: Fair?
Economic Self-rein-forcing mechanisms	Communi-cations	Coordination effects	Scaling and learning effects	Network-effects	Gateway effects

Technologies' Effect on Compatibility Standards



The Downside of Controlled Compatibility Standards

Prior to 1984, AT&T controlled its network and interfaces.

FCC Part 68 introduced new standard interfaces.

IBM patented Token Ring local area networks.

IEEE standardized Ethernet 802.3.

GSM and WCDMA cellular technologies standardized with many IPR holders.

Chinese promote TD-SCDMA as alternative in China.

Current Problems With Controlled Compatibility Standards

- The French government's concern that only Apple iPods can download music from Apple iTunes web sites.
- The Chinese government's push for their own communications technology in Chinese communications systems.
- The European Union and previous US anti-trust actions over Microsoft's proprietary software interfaces.

Insights Offered by Succession of Standards

- Adaptability standards support new value systems
- Government should promote guidelines, not solutions
- Patents best applied to similarity
- Need to limit patents in compatibility standards
- Need to avoid patents in adaptability standards

Part II
Standardization

Formal Communications Standards Development Organizations (FCSDOs) are in decline.

Consortia are in ascendancy.

Once all stakeholders participated in the FCSDOs:

- **Users/carriers**
- **Implementers**
- **Government**

Now implementers dominate all compatibility standardization processes.

When FCSDOs and Consortia no longer focus on the user's standardization needs, users are disenfranchised.

Users want “open standards.”

When some standardization stakeholders no longer participate, the stakeholder's rights should be identified and formally supported.

Proposal:
Uphold rights of implementers and users.

The Standardization Stakeholder's Bill of Rights

Implementers:

- A single process for worldwide communications standards
- A means to negotiate intellectual property rights (IPR)

The Standardization Stakeholder's Bill of Rights (cont.)

Users/carriers want Open Standards:

- Backward and forward compatibility
- Maintained standards
- Public technology

The Standardization Stakeholder's Bill of Rights (cont.)

Government:

- A means to address the standardization aspects of political problems.

Everyone:

- A fair, fast and efficient standardization system.

Ten Requirements for Open Standards

Requirements	Stakeholders
1. Open meeting	Creation
2. Consensus	
3. Due Process	
4. Open World	
5. Open IPR	
6. Open Change	
7. Open Documents	Implementation
8. Open Interface	
9. Open Use	Use
10. On-going Support	

Supporting the rights of all:

- New standards maintenance procedures
- New focus on the importance of compatibility to users
- National acceptance of international standards
- Changes in patent policy to reconcile developers' and users' IPR needs
- Changes in FCSDO policy to limit IPR to options unless technically required and economically reasonable.

Thank you

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