STANDARDS AND TRADE -- WHO REALLY CARES?

Fall 1998 Public Lecture Series: Technology Standards and Standardization Processes

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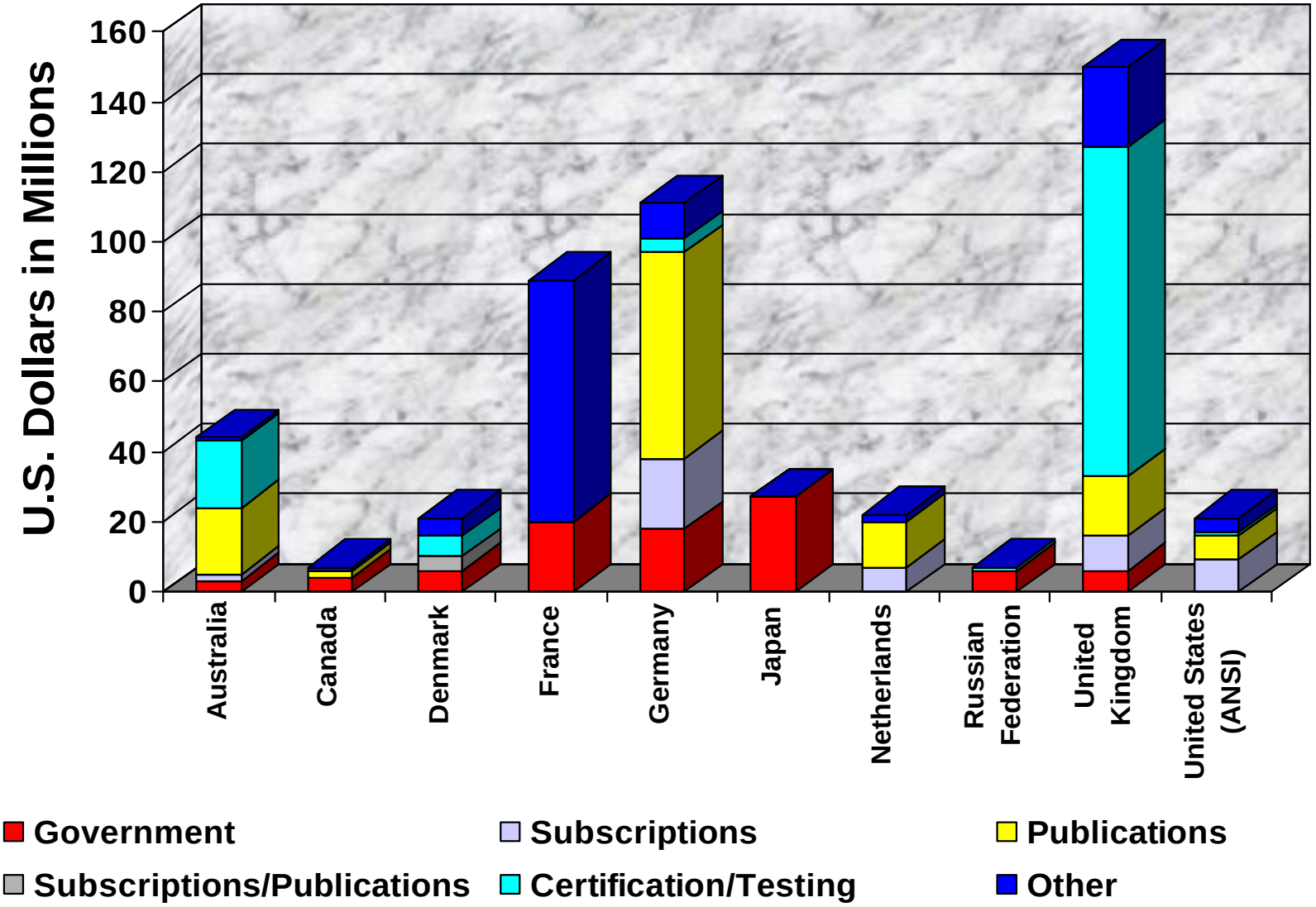
THE STANDARDS SYSTEM: GEOGRAPHICAL DIMENSIONS

National Institutes	Regional Organizations	International Organizations
NIST (US)	CEN	ISO
LGC (UK)	CENELEC	IEC
PTB/BAM (Ger.)	EUROMET	ITU
AIST (Japan)	SIM/NORAMET	BIPM
INMETRO (Brazil)	APMP	OIML
	COOMET	

THE STANDARDS SYSTEM: SECTOR SPECIFIC SDOS

ASTM (formerly the American Society of Testing and Materials)
U.S. Pharmacopeia
Association of Official Analytical Chemists (AOAC)
American Petroleum Institute (API)
Cosmetic, Toiletry and Fragrance Association (CTFA)
Society of Automotive Engineers (SAE)
Aerospace Industries Association (AIA)
Association of American Railroads (AAR)
American Association of State Highway and Transportation Officials (AASHTO)
American Society of Mechanical Engineers (ASME)
Electronic Industries Association (EIA)
Institute of Electrical and Electronics Engineers (IEEE)
National Fire Protection Association (NFPA).

ANNUAL BUDGETS AND SOURCES OF REVENUE OF LISTED ISO MEMBERS



Data source: *ISO Members 1996* (source data converted from Swiss francs to U.S. dollars)

THE STANDARDS SYSTEM: INDUSTRY CONSORTIA

Association for Information and Image Management International (AIIM)	Asynchronous Transfer Mode (ATM) Forum	Center for National Software Studies (CNSS)
Cross Industry Working Team (XIWT)	Digital Audio Visual Council (DAVIC)	Educom
Forum of Incident Response and Security Teams (FIRST)	Information Technology Industry Council (ITI)	Interactive Multimedia Association (IMA)
International Federation for Information Processing (IFIP)	International Information Integrity Institute (I4)	International Multimedia Teleconferencing Consortium (IMTC)
Internet Engineering Task Force (IETF)	MultiMedia Communications Forum (MMCF)	National Committee for Information Technology Standards (NCITS)
National Software Council NSC)	Network Management Forum (NMF)	North American ISDN Users' Forum (NIUF)
Object Management Group (OMG)	Society for Information Display (SID)	Software Productivity Consortium (SPC)
VRML Consortium	World Wide Web Consortium (W3C)	Rosettanet

THE STANDARDS SYSTEM: *DE FACTO* PRODUCT STANDARDS

Some examples of major *de facto* product standards:

- “Wintel”
- VHS
- QWERTY keyboard
- TCP/IP

THE ART OF WAR
-- Carl Shapiro and Hal R. Varian

Ability to win a standards war depends on:

- Intellectual-property rights
- Control over an installed base of users
- Ability to innovate
- First-mover advantages
- Manufacturing abilities
- Strength in complements
- Brand name and reputation

TYPES OF STANDARDS

- *Test and measurement standards* -- broadly used infra-technologies that support market efficiency
- *Product standards* -- establish the fitness of a product for a particular use
- *Documentary standards* -- set specifications for the function and operation of a device or system
- *Process or management standards* -- such as ISO 9000 quality standards and ISO 14000 environmental standards

POSITIVE ECONOMIC EFFECTS OF STANDARDS

- Promote market efficiency and expansion
- Foster international trade
- Encourage competition and lower barriers to market entry
- Speed diffusion of new technologies
- Enable interoperability among products

NEGATIVE ECONOMIC EFFECTS OF STANDARDS

- Raise transaction costs and barriers to trade
- Constrain innovation and entrench inferior technologies

TWO VIEWS OF WHERE STANDARDS ARE USEFUL

“We must use standards as the liberator that relegates the problems that have already been solved to field of the routine, and leaves the creative faculties for the problems that are still unsolved.”

-- Ralph E. Flanders

"Companies used to compete by making things and selling them. In the new economy, the game is often over by the time the first product emerges from the factory. Sometimes it's because a ... first entrant effectively sets ... the standard. In other cases, winners (and losers) emerge from backroom bargaining over the technical details that enable complex technologies to work together..."

-- Wired Magazine,

Encyclopedia of the New Economy

PROSPECTIVE STANDARDS: SPEED THE EVOLUTION OF EMERGING TECHNOLOGIES

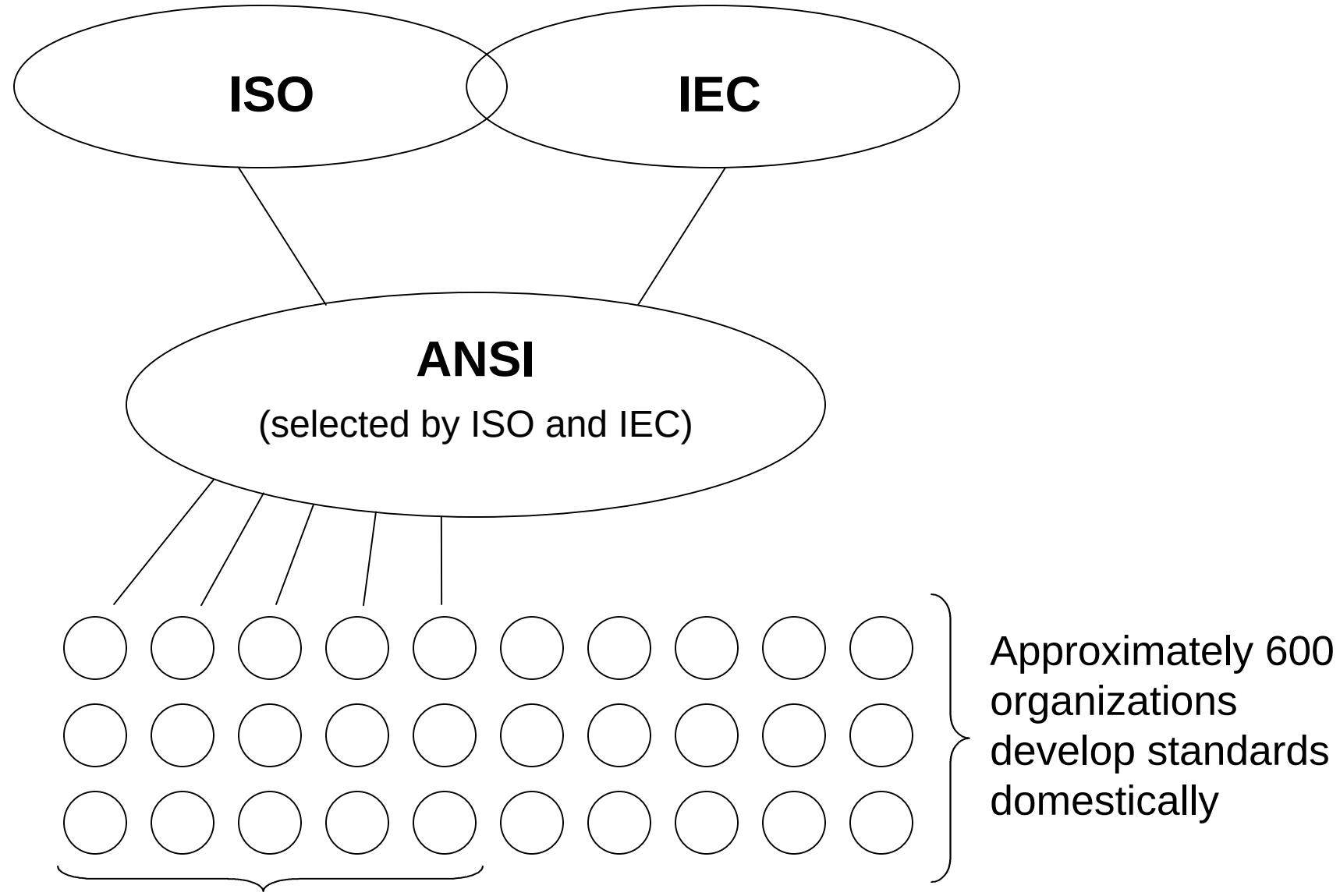
Two “anticipatory activities” that worked:

- STEP: Standards for the Exchange of Product Model Data
  - a family of ISO standards for product data management.
- OMG: Object Management Group
  - international consortium that promotes object oriented technology for distributed systems development

"THE NICEST THING ABOUT STANDARDS IS THAT THERE ARE SO MANY TO CHOOSE FROM"

- 93,000 U.S. standards
- Another 100,000 standards are available internationally
- Small businesses generally do not participate in setting these standards
- Standards vary across countries
  - Non tariff trade barriers impede $20-$40 billion of U.S. exports

PRIVATE STANDARDS SYSTEMS (U.S.)



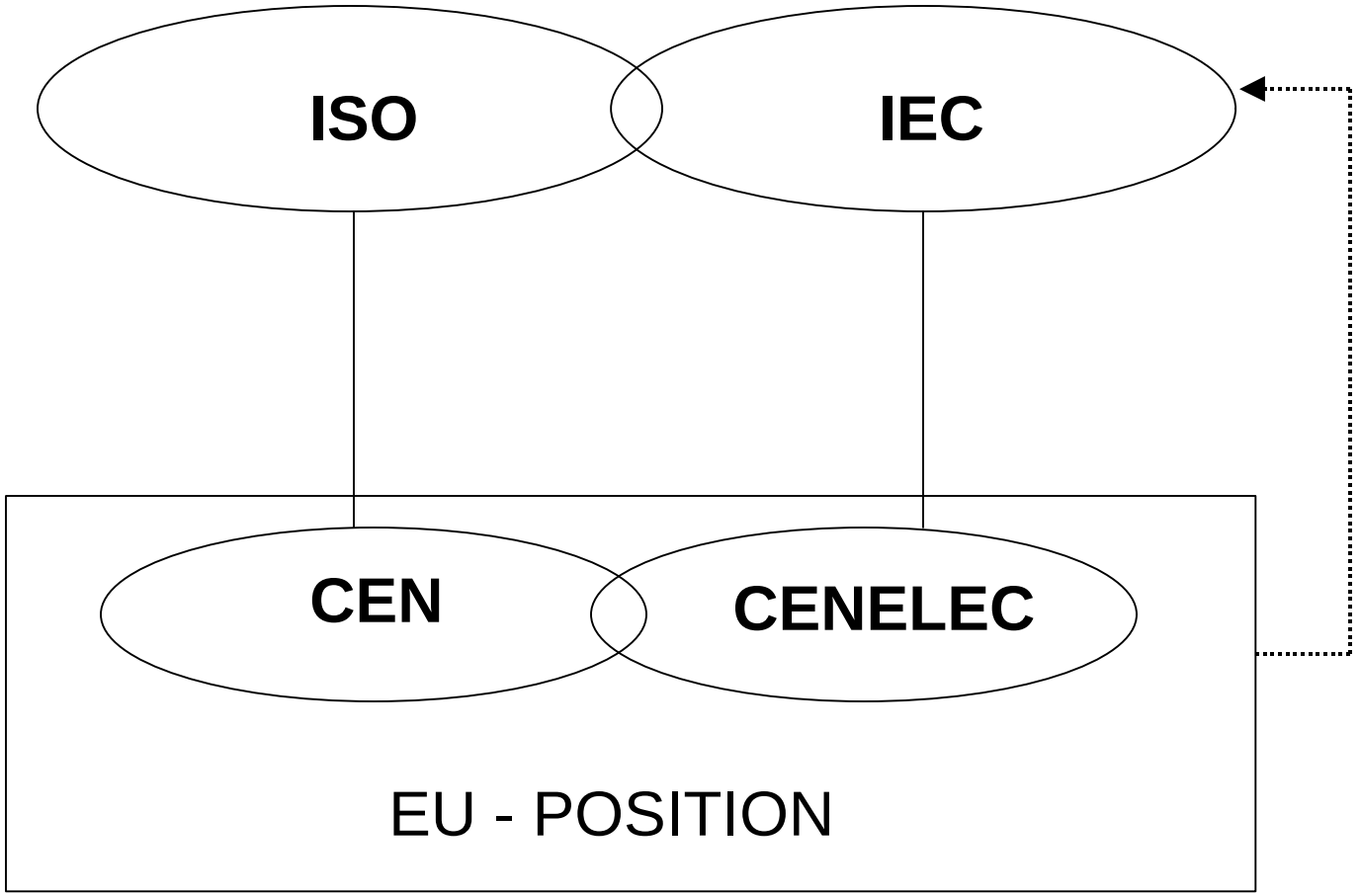
WTO TECHNICAL BARRIERS TO TRADE AGREEMENT:

- Gives preference to international standards as a basis for each signatory's technical regulations
- Encourages national and regional standards developers to defer to international standards
- Exceptions are permitted -- nations can choose to set a different standard if using an international standard would be ineffective or inappropriate

TWO KEY QUESTIONS

- What is an international standard?
- What procedures must be followed to ensure adequate international representation in the development of international standards?

PRIVATE STANDARDS SYSTEM (EUROPE)



One position, 14 votes and fast track

U.S. GOVERNMENT ROLE IN THE PRIVATE STANDARDS SYSTEM

- Use outputs from the private system whenever possible
- Contribute to the development of individual standards
- Report on situations in which the private system harms U.S. companies