

SES Webinar

The Strategic Value of Standards Education



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Strategic Value of Standards

**Standards are a bridge between
markets and technologies**

Markets:

- Consumer
- Commercial
- Government



Technologies

**Whoever controls the bridge
controls the future...**



Purpose

- The purpose of *Strategic Standardization* (CMGT 564), Catholic University School of Engineering, is to create a level of awareness among graduate engineering students concerning the strategic value of standards and standardization. In a world dominated by technology, science and globalization, it is of critical importance that practicing engineers have a fundamental understanding of these concepts.



Challenges for Engineers in 2013

- In order to participate in the field of standardization effectively, practicing engineers need to develop a multidisciplinary perspective, the ability to analyze complex engineering, scientific and technology issues in a multidisciplinary environment, and the ability to communicate their analysis effectively.



Sources of Multidisciplinary Perspective

- Typical sources of a multidisciplinary perspective include a background or experience with engineering, scientific, technology, economic, business, international trade, public policy, legal and/or strategic planning issues.



Definitions are Important

- Standards
- Standardization
- Strategic



Standards

- Standards govern the design, operation, manufacture, and use of nearly everything that mankind produces. There are standards to protect the environment and human health and safety, and to mediate commercial transactions. Other standards ensure that different products are compatible when hooked together. There are even standards of acceptable behavior within a society. **Standards generally go unnoticed. They are mostly quiet, unseen forces, such as specifications, regulations, and protocols, that ensure that things work properly, interactively, and responsibly. How standards come about is a mystery to most people should they even ponder the question.** (*Global Standards – Building Blocks for the Future, Report to Congress, Office of Technology Assessment, see Foreword, March 1992*)



Standardization

- **Standardization is the process of developing and agreeing upon technical standards.** Some standards are developed by a *de facto process*, meaning a norm or requirement which has an informal but dominant status. Some standards are developed pursuant to a *de jure process*, meaning formal compliance requirements.
- Formal private sector standards bodies such as the American National Standards Institute (ANSI) or International Organization for Standardization (ISO) rely on development of *de jure* standards, and are independent of the manufacturers of the goods for which they publish standards. (See www.en.wikipedia.org/wiki/Standardization)



Strategic

- The term “strategic” is defined to include: “A strategy is a long term plan of action designed to achieve a particular goal. . . . Strategy is about choice, which affects outcomes. Organizations can often survive -- indeed do well -- for periods of time in conditions of relative stability, low environmental turbulence and little competition for resources.
- *Virtually none of these conditions prevail in the modern world for great lengths of time for any organization or sector, public or private. Hence, the rationale for strategic management.”*
(<http://www.en.wikipedia.org/wiki/Strategic>)



Strategic Issues & Need for Awareness

- Globalization is rampant and will remain so for the foreseeable future. See *The World is Flat*, Thomas Friedman (2005); <http://www.thomasfriedman.com/worldisflat.htm>
- Standards directly affect more than 80% of global trade with an estimated value exceeding \$13 trillion (US). (Joe Bhatia APEC Keynote speech, Feb. 2011) see <http://publicaa.ansi.org/sites/apdl/Documents/News%20and%20Publications/Speeches/2-28-11-%20-%20Bhatia%20-%20APEC%20Standards%20Education.pdf>
- Standards influence everything we do. (UK Standards Strategy (2003); <http://publicaa.ansi.org/sites/apdl/Documents/Standards%20Activities/NSSC/UK%20NSSF.pdf>
- Standards control markets. (German Standards Strategy (2005); http://www.din.de/sixcms_upload/media/2896/DNS_english%5B1%5D.pdf
- Standardization is one of the best sources of competitive intelligence available. (European Academy for Standardization). See <http://www.euras.org/uploads/2009presentations/bousquet-standardization.pdf>



Competitive Intelligence

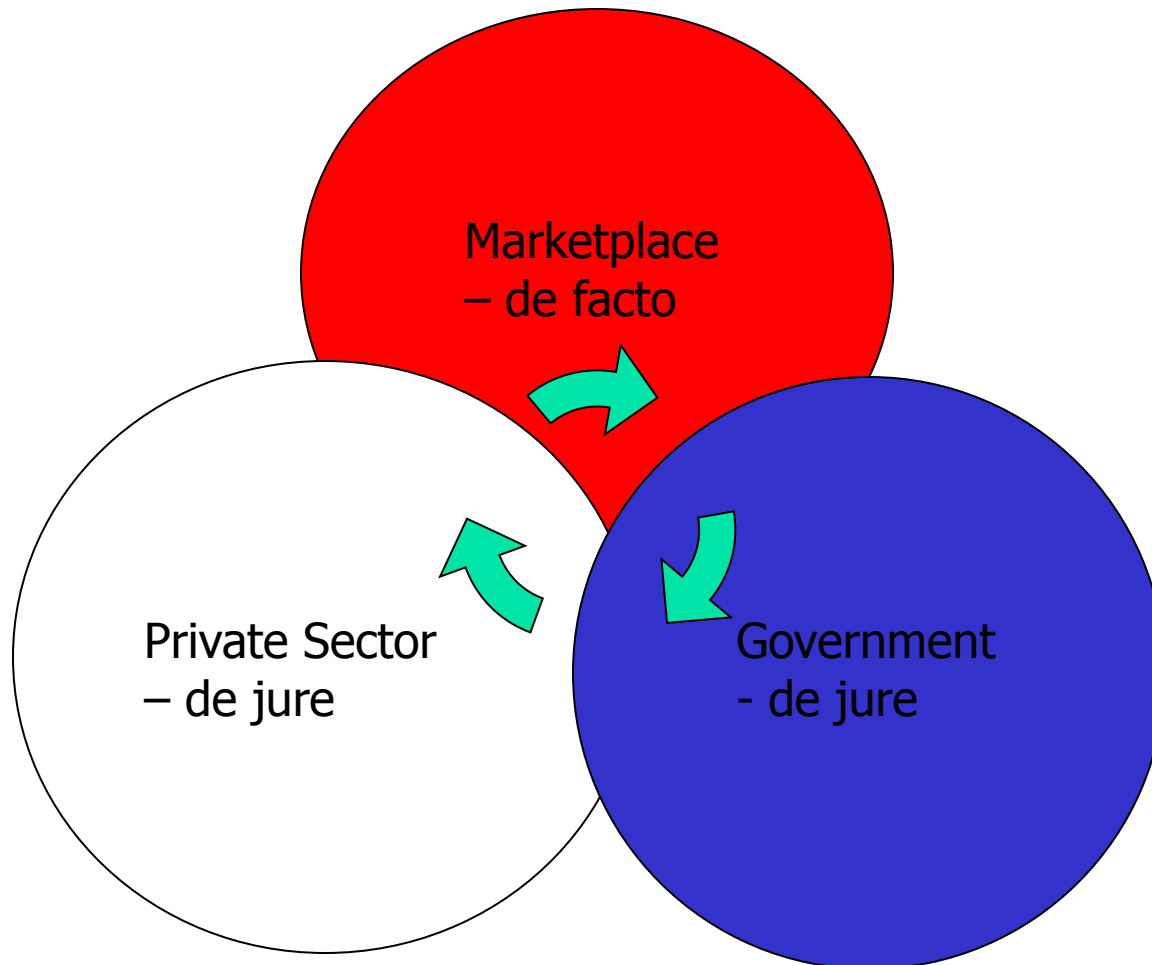
- In the contemporary business environment a growing number of companies treat competition like an economic war.
- Competitive intelligence has become the “latest weapon in the world of economics”.
- Standardization is akin to competitive intelligence and standardization can be conceptualized as a “weapon” in economic and strategic competition of firms.
- See <http://www.euras.org/uploads/2009presentations/bousquet-standardization.pdf>



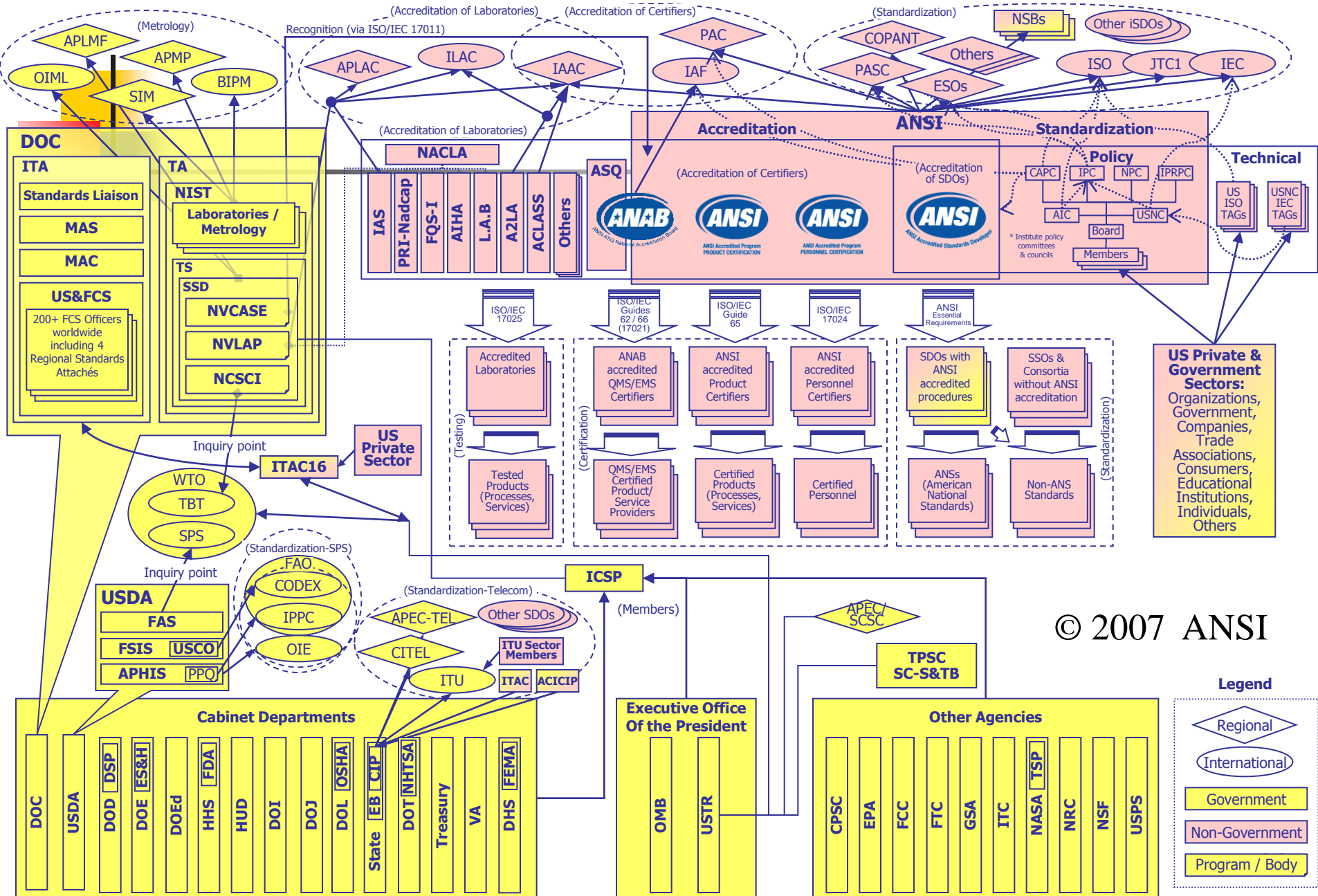
Global Perspectives on Strategic Value of Standards

- “The technology standard has become the source of a core competitive edge for industrial development. To some extent, a technology standard is a kind of development order and rule. Whoever controls the power of standard making and has its technology as the leading standard, commands the initiative of the market. Technology standards have become an important means of global economic competition, and directly influence the competitiveness of an industry, region or country. Therefore, as for Chinese enterprises, possessing the successful standard is a *strategic choice* to seize the leadership of the future industrial development.” [Program, Conference on Information Technology, Beijing, China (May 2005); emphasis added]
- “*Standards have become the new [international] battleground.*” [Phillip J. Bond, Undersecretary of Commerce for Technology Policy, *New York Times* article, “China Poses Trade Worry as It Gains in Technology,” January 13, 2004; emphasis added]

Standards & Dynamic Relationships



U.S. Standards and Conformity Assessment System



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Current Global Technology Base

- IEEE estimates 500,000 standards exist in the world today that form the technology foundation of the global marketplace.
- IEEE estimates that it costs at least \$1.5 billion (US) annually to maintain these standards.
- Imagine a world in which the global marketplace will be significantly transformed by technological advancement in the next few years, requiring the revision of thousands of existing standards and potentially affecting trillions of dollars (US) in international trade.



Global Governance and Coalitions

- In the future, what role(s) will national coalitions and/or regional standards organizations play in development of a new global marketplace, e.g., the Northeastern Asian Standards Coalition (China, Japan & South Korea)? [*The Political Economy of Standards Coalitions: Explaining China's Involvement in High-Tech Standards Wars*, Scott Kennedy, Associate Professor, Indiana University (2006), see <http://falcon.arts.cornell.edu/am847/pdf/Standards.pdf>]



Standards Issues

- Health
- Safety
- Environment
- Sustainability
- Performance v design
- Trade & competition
- Language & symbols
- Security
- Testing, certification & conformity assessment
- Legal & public policy issues
- Review & modifications as necessary



Standardization Issues

- Effectiveness & relevance (need)
- Scope of standard (national, regional or international)
- Standardization forum (national, regional or international)
- Fairness & impartiality (credibility)
- Transparency & openness
- Consensus process & stakeholders
- Trade & competition
- Reconciliation of conflicting standards
- Security
- Social responsibility & technical assistance
- Government regulatory reform (alternatives)
- Technological change & internet
- Education & awareness
- Information and knowledge transfer
- Resources & funding



“Voluntary Consensus Standards”

- What is “Voluntary” about “Voluntary Standards”?
- *The New Global Rulers*, Tim Buthe & Walter Mattli (2011), see <http://books.google.com/books?id=LDYVl5Ym3-oC&printsec=frontcover&dq=the+new+global+rulers&hl=en&sa=X&ei=UZkvUczHPMLi0QGFzIGoAw&ved=0CDgQ6AEwAA>



Closing the Standardization Gap

- *To what extent will the standardization gap (unequal access and use of technology) between developed and developing countries impact development of global technology standards?*
- See ITU *Global Standards Symposium* concerning ICT standardization gap (October 2008), www.itu.int/ITU-T/wtsa-08/gss/.



NGO Diversity

- *To what extent will the diversity of non-governmental (NGO) standards groups increase or decrease in the foreseeable future?*
- An estimated 800 NGO standards groups exist in the world today.
 - United States (600)
 - Rest of the World (200)
- Prognosis: diversity of NGO standards groups will increase in the foreseeable future.



Educating the Next Generation of Standards Experts

- *If the United States fails to train and educate the next generation of standards experts, what will be the competitive impact on the United States in the global marketplace?*
- It is estimated approximately 50% of U.S. standards experts will retire in the next five years.
- “*The Biggest Issue*” (David Brooks, The New York Times, July 29, 2008); “the skills showdown in the biggest issue facing the [United States]” see http://www.nytimes.com/2008/07/29/opinion/29brooks.html?_r=0
- Prognosis: the competitive global position of some U.S. companies and industries will become increasingly problematic.



What is the significance of Engineering Ethics?

- *Ethics Education Library (Case studies)*
<http://ethics.iit.edu/eelibrary/?q=node/2395>
- *National Academy of Engineering*
<http://www.onlineethics.org>
- *National Society of Professional Engineers*
<http://www.nspe.org/Ethics/index.html>
- *BP Criminal Indictments*
http://www.huffingtonpost.com/2012/11/16/bp-criminal-plea-indicted_n_2147070.html



Continuing Education

- For the past several decades, the world has been experiencing a number of profound changes because of globalization.
- Globalization is not possible without the effective management of technology standardization.
- There is an important need for all individuals who practice in the field of standardization to continue their study and education of important trends and changes related to the development of technology standards.



The Center for Global Standards Analysis

- Purpose: created in 1999, as a think tank, to study and evaluate the strategic value of standards education.
- Conducted five major studies from 2003 to 2010. See www.strategicstandards.com (strategic standards education page) for a copy of these studies.
- Dissolved in 2011.



Members of the Center

Jean-Paul Emard, Alliance for Telecommunications Industry Solutions; *William Fox, Esq.*, former Dean, Catholic University School of Law; John Kenny, The Eluminate Group; *Dr. Linda Garcia*, Georgetown University; *Laura Hitchcock*, The Boeing Company, *Barbara Kotschwar*, Peterson Institute for International Economics; *Stephen Lowell*, U.S. Department of Defense; *Amy Marasco*, Microsoft Corporation; *Mary McKiel*, U.S. Environmental Protection Agency; *Donald Purcell*, The Catholic University of America; *James Walters*, Air-Conditioning, Heating, and Refrigeration Institute; and *Erik Puskar*, U.S. National Institute of Standards and Technology (Liaison).



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