

Overview of Consensus Standards Development

Summary:

Standards developing organizations (SDOs) are made up of dedicated professionals, usually serving in volunteer capacities. These professionals use engineering analyses, scientific and experimental data, research results, and practical hands-on knowledge to prepare and promulgate standards. They do this in the interest of public safety, to improve systems integrity, and to advance knowledge and understanding in their respective fields so that commerce can thrive in the public interest. The standards-developing process leverages the use of thousands of scientists, engineers, and technologists, representing a wide variety of organizations and interests, including pipeline companies, equipment manufacturers, service companies, regulators, research organizations, and the public. The resultant standards are independent, complementary to regulations and industry needs, consensus-derived, and technically based.

Definition of Standards and How They Originate

The term *standard* is used generically to apply collectively to codes, specifications, standards, recommended practices, procedures, classifications, test methods, and guides, which provide interchangeability and compatibility; enhance quality, safety, and economy; have been and are published by a standards developing organization (SDO) or group; and are published in accordance with established procedures.

Most standards are developed by a *standards committee*, which is a group of individuals authorized to develop and maintain standards within a scope specified by the organization sponsoring standards development. Some standards now are developed by consortia, which are loosely formed groups that want to fulfill a need they see for a standard. These may be companies that manufacture certain products, consumer groups with concerns about a topic, or other like-minded individuals or groups.

Most ideas for new standards come from the industry that is relevant to the standard being developed. SDOs are typically technical societies or associations made up of members dedicated to a certain cause, or industry trade associations dedicated to the interests of their company members.

There are hundreds of SDOs in the United States, and many of them are members of the American National Standards Institute (ANSI). ANSI does not develop standards, but acts as an “umbrella” organization for its SDO members. ANSI accredits the procedures of SDOs whose standards developing procedures are in accordance with the *ANSI Essential Requirements*, and approves individual standards submitted to it. The SDO is then allowed to display the ANSI logo and approval date on its ANSI-approved standard. There are five U.S. organizations that are “Audited Designators,” meaning they have undergone additional audits and paid extra fees to be allowed to designate any of their standards as ANSI standards without submitting them to ANSI for approval.

ANSI's other significant role is as the U.S. member of the International Organization for Standardization (ISO), a worldwide organization headquartered in Geneva, Switzerland. Countries are members of ISO, which means "one country, one vote" on ISO committees. ISO sponsors many technical committees that develop standards, and the member countries appoint experts to these committees. Frequently the members of ISO from other countries are sponsored by the member country's government, unlike the U.S. organization. Standards begin in ISO by means of a New Work Item (NWI), which may be submitted by an ISO committee, a U.S. Technical Advisory Group (TAG) to an ISO committee, or other entity. The NWI must then be voted on by the member country representatives of the main ISO committee to which it was submitted.

If the NWI is approved, a working group is formed to write the standard, or a draft or published standard from another organization may have been submitted with the NWI, in which case it may be used as the initial draft for committee ballot.

The U.S. is represented on some, but not all, ISO committees, and has varying degrees of influence depending on the makeup of the committee and the subject matter.

Principles of Standards Development

The principles of standards development promulgated by ANSI and most U.S.-based SDOs are the following:

Due process—Mechanism that allows for fair, equitable, and open participation by those directly and materially affected. This includes the ability to express a position and its basis, to have that position considered, and to appeal any resulting decision.

Openness—Extent to which individuals are permitted to participate in the standards development process. ANSI requires that participation shall be open to "all persons who are directly and materially affected by the activity in question." There shall be no undue financial barriers, nor can voting be restricted to members in an organization, or unreasonably restricted based on technical qualifications or other such requirements.

Lack of dominance—The standards development process must not be dominated by any single interest category, individual, or organization. *Dominance* means a position of authority, as resulting from the number of individuals, office of the individuals, or superior technical knowledge of the individuals, to the exclusion of fair and equitable consideration of other viewpoints.

Balance—Extent of evenness of numbers of individuals among the various interest categories on a consensus body, so that no single interest category can dominate by having a majority of the voting members.

Consensus—Substantial agreement among directly and materially affected interests. This means the agreement of more than a simple majority, but not necessarily unanimity. Consensus requires that all views and objections be considered, and that an effort be made by the consensus body toward their resolution.

Consensus body—Group that approves the content of a standard and whose vote gives evidence of consensus.

Coordination and harmonization—ANSI requires that good faith efforts shall be made to resolve potential conflicts between and among existing ANSI-approved standards and candidate ANSI standards.

Notification of standards development—Standards activity of XYZ Organization shall be announced in the normal media (print, Web site, electronic mail, etc.) used by XYZ Organization in order to provide the opportunity for the widest possible participation by directly and materially affected persons. In addition, these procedures shall be made available to interested parties upon request.

SDOs must provide timely and adequate notification of any action to create, revise, reaffirm, or withdraw a standard, and the establishment of a new consensus body. The notification shall include a clear description of the purpose of the proposed standards activity and who the proposed stakeholders that might be affected are. It shall also identify the contact individual for the XYZ Organization for further information.

Consideration of views and objections—The consensus body must promptly consider the written comments and objections (negative votes) of all participants, including those commenting from various public announcements. An effort to reconcile these votes and comments must be made, and the participant must be advised in writing of the action taken by the consensus body on the votes and comments. Sometimes changes are made to the draft to address the votes and comments, and sometimes a discussion with a voter will cause the voter to accept the consensus body or committee's point of view.

Recirculation—If technical or substantive changes are made to the draft after a ballot to address negative votes and comments, these changes must be recirculated to those on the original consensus body to provide an opportunity for voters to consider the changes and change their vote if they wish.

If any negative votes from the first ballot are not withdrawn, the negative vote(s) are recirculated in the same manner, along with the committee's rationale for not agreeing with the negative voter. Voters are normally asked to vote only on the changes or whether they agree with any remaining negative voter(s); the remainder of the draft is considered to have passed and is not open for vote.

Appeals—Most SDOs have an appeals process for voters who feel that their votes or comments have not been addressed correctly, or that they have not been afforded due process. ANSI requires that an appeals process be spelled out in their accredited developers' procedures, and that voters whose negatives are still outstanding after all balloting procedures have been followed must be sent a letter advising them that a standard is proceeding to publication (in spite of their negative), and that they may appeal any action or inaction regarding the handling of their vote. They must do so within a specified time frame and follow procedures stated by the SDO.

Maintenance—Most SDOs, and ANSI and ISO, require that standards be reviewed every five years to determine whether they are still technically accurate and appropriate, and decide whether to reaffirm

(accept without technical changes), revise (make technical changes), or withdraw a given standard so users can depend on reliable, up-to-date guidance.

Standards and Their Relationship to Government Regulations

U.S. government agencies are now mandated by law to use industry standards whenever possible rather than developing their own standards. In most cases the expertise on a particular topic lies within the industry. One area of government regulation upon which this law has had a large impact is pipeline safety.

Standards, codes, guidelines, and recommended practices developed by SDOs have played an important role in pipeline safety and in the development of regulations for pipelines by the federal government. SDOs are committed to contributing to improving pipeline safety performance. The contributions of SDOs vary from organization to organization, but all SDOs:

- Develop standards or similar documents that complement and provide technical depth to existing regulatory requirements.
- Develop standards for engineering and design practices beyond the scope of the current federal regulatory program based on the needs of the pipeline industry.
- Provide forums for the discussion and dissemination of best practices in pipeline safety, pipeline reliability, and protecting the environment in which pipeline systems are constructed and operated.
- Foster the development of new technologies from initial research through practical deployment. SDOs cannot take the place of an effective regulatory program, but agencies like the Pipeline and Hazardous Materials Safety Administration (PHMSA)'s Office of Pipeline Safety (OPS) can be strengthened by the work of the SDO community.

In summary, SDOs following generally accepted principles for standards development are focused on providing industries, government agencies and regulators, and the general public with standards that meet a minimum standard for attention to due process, transparency, engagement by all stakeholders, and public safety.



Standards Development Cycle

- ⁽¹⁾ Public may contribute idea for standard.
- ⁽²⁾ Some SDOs may allow members of the public to join committee or act as advisers.
- ⁽³⁾ Standards development meetings are open to the public.
- ⁽⁴⁾ Most SDOs allow members of the public to join voting group.
- ⁽⁵⁾ Negative votes and comments from members of the public will be addressed by committee.
- ⁽⁶⁾ Members of public on the voting list may vote on recirculated draft.