

Why Standards Are Important

IHS Whitepaper

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Today's world economy creates an environment where standards compliance is not an option — it's a requirement. The United States Department of Commerce estimates that standards issues impact 80% of world commodity trade.¹ While most standards remain voluntary, companies need to provide customers and regulators with a yardstick to measure everything from quality to hazardous material usage to physical characteristics such as size and weight, and material properties such as hardness and temperature resistance. Standards and specifications provide all involved parties with the same yardstick.

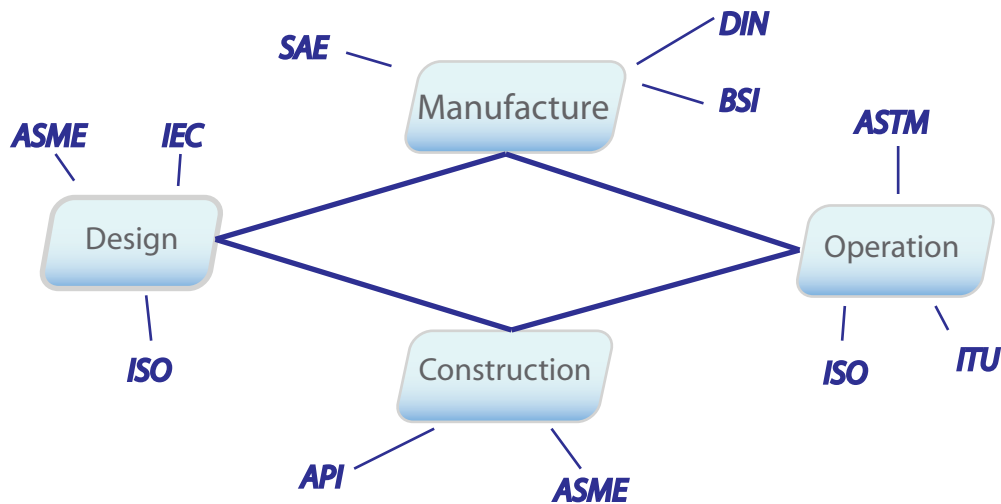
Standards are often both an asset and an inconvenience for engineering and construction professionals around the world. Hundreds of organizations develop standards and specifications with hundreds of thousands of standards in publication. A world without standards though would be chaotic at best and dangerous at worst. Computers wouldn't have extensive Internet access. Suppliers for automobile parts would be limited. A different tool could be needed for every bolt or fitting. Flammable gas cylinders wouldn't be consistently designed or handled.

Standards - Codes - Regulations -- What's the difference?

-  Standard > A widely accepted specification or best practice. Industry standards are developed by experts often based on consensus and sponsored by recognized standards development organizations. Compliance with standards is voluntary.
-  Code > A **code** is a standard adopted by a government entity. It becomes a requirement and compliance is not considered voluntary but is law.
-  Regulation > A **regulation** is a legal requirement. It differs from a code in that it is developed by a government entity and usually does not specify *how* something is to be done only *what* is to be done.

Standards are applicable throughout business

Generally, standards address safety, business practices, or technical topics and specifications. Most standards provide you with multiple benefits. Standards offer benefits and improvements to business and projects at all stages from concept and design through manufacture, sales, and installation or construction. In this paper, we'll look at the benefits standards provide in the areas of business and trade, engineering and technical, and health and safety. Standards use during all phases will be discussed.



Standards apply throughout all project phases.

Voluntary compliance or a requirement?

As noted above, standardization is largely voluntary. But with standards compliance and certification growing worldwide, use of standards such as ISO 9001 and ISO 14000 is quickly becoming an expectation. Results from a 2005 survey covering ISO standards usage showed a worldwide increase in certifications of 18% over 2004. In China, 143,823 ISO 9001 certificates have been issued with 98,028 in Italy and 53,771 in Japan.² The number of ISO 9001 certificates issued has increased each year since 2001. Companies being certified under ISO 14001 standards is growing as well with 111,162 certificates issued in 138 countries by December of 2005. As you can see, selecting internationally applicable

standards to incorporate into your operations often smoothes the way for competing in global markets. The German Institute for Standardization e.V. (DIN) published the results of a study of the economic benefits of standardization. The study evaluated responses from a survey of more than 4,000 companies in Germany, Austria, and Switzerland. Of the companies that received the survey, 707 returned the completed questionnaires.³ The responding companies attributed a total annual savings of DM 31 million (15.85 million EUR using historic conversion rates or about 20 million USD) to the use of European and international standards.⁵

Specifications streamline design

During project design, standards and specifications provide engineers critical information to guide

- Parts specification
- Safety requirements
- Material specification
- Design parameters

Using specifications and standards allows products to be designed taking advantage of existing components. This makes products less expensive to manufacture. For products or systems where maintenance over time is a concern, standardization keeps maintenance costs down by assuring interoperability, parts availability, and durability.

According to British and American research, the damage caused by corrosion costs 3.5% to 4.2% of the gross national product in the industrialized nations.

Experts believe 70% to 80% of this damage to be preventable.

The Materials Testing Standards Committee and the corresponding European committees are responsible for 110 standards covering corrosion protection. The potential savings could be as high as several billions, not only affecting the economy as a whole, but also helping business to reduce maintenance and compensation costs.⁶

Standards and specifications assure that designers consider safety requirements protecting users, the public, and the environment are considered from the beginning of a project rather than being added on later. This eliminates one potential cause for re-work. The use of parts and components that meet technical specifications saves on both design time and costs since off the shelf products are generally cheaper than custom made parts. Consider this example reported as part of the DIN survey on

standardization:

- A VW Golf is made up of 4,786 different parts
- A total of 16,897 individual parts for one car
- 4,219, almost a quarter of these, are standardized components

Standardized components are 20% to 60% cheaper than customized components, and this contributes greatly to reducing the cost of the product. Standard parts are systematically documented and maintained in the company's standards department. Standards ensure that complex technical systems function correctly and that legal requirements are fulfilled.⁷

Using standard parts increases potential suppliers

During manufacture, use of standards and specifications assures that parts are available when needed throughout production. Purchasing agents can access the information needed to identify multiple suppliers when designers tie parts to standards. Using standards also assures that suppliers have markets for their parts and components. Standards and specifications allow suppliers to maintain quality, dimensions, and material characteristics that meet their customers' needs.

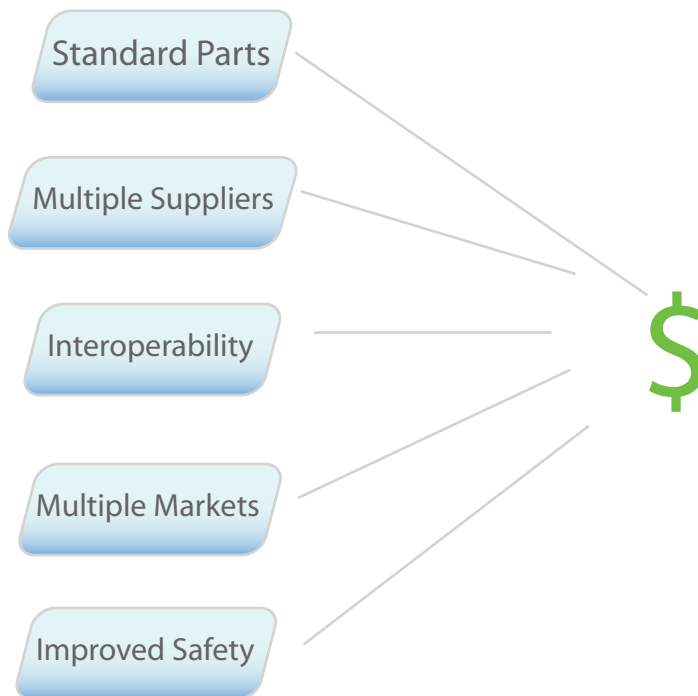
Use of safety standards during manufacture makes training effective while minimizing or eliminating worker injury. The safety equipment and practices for similar hazards are the same or very similar as workers move throughout a facility or to different pieces of equipment. Workers know what is required to work safely in a new area without having to go through a whole new set of training.

Production was stopped for three days at a large German automobile manufacturer. This shutdown resulted in 8,000 workers staying at home and 10,000 cars not being built.⁸ The reason for the shutdown? The company was dependent on a single supplier for “high tech” door locks. The supplier could not provide enough components to meet the manufacturers demand. If the locks used were designed based on an industry standard, other suppliers could have stepped in and provided the component.

Standards and specifications reduce construction costs and assure safety

Standards and specifications applicable during construction or field work address topics such as safety inspections, welding, digging and trenching, hazardous material exposure and monitoring, and hoisting and rigging.

If construction materials were not consistent in dimension regardless of source, construction projects would continually reject materials delivered to the site or would need countless change orders to modify designs so that materials delivered could be used. In addition to standard dimensions, building materials are manufactured with other standard characteristics such as strength and durability, and these characteristics are assured through standard test methods. This reduces costs during design and streamlines inspections.



The benefits of using standards can result in significant cost savings and increased revenue.

IHS personnel are standards experts

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Resources

¹United States Department of Commerce, Standards and Competitiveness – Coordinating for Results. Washington DC, May 2004, p1.

²ISO Survey of Certifications 2005. Summary available at <http://www.iso.org>. p.8.

³Ibid. p. 9.

⁴DIN German Institute for Standardization e.V. Economic Benefits of Standardization. April 2000.

⁵Ibid. p.12

⁶Ibid. p. 36

⁷Ibid. p. 32

⁸Ibid. p. 36

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