

## **Understanding Standards**

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**Abstract:** We live in a world in which we are surrounded by standards for people, processes, practices, and products. These standards structure the sociotechnical world as well as the behavior of people in a variety of ways. Moreover, if successful, they tend to become taken-for-granted, so much so that they escape notice of both the general public and SBE scientists. Standards may be best understood as means of governance that fall (largely) somewhere between laws and social norms. Standards are often codified as texts, or embodied in physical objects. Yet, relatively little SBE research has been done on standards. This brief paper suggests some ways in which this oversight might be rectified.

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Standards are exemplars against which people and things are judged. Meeting the standard (or not) may affect one's ability to enter a given profession, to sell a particular product, or to employ a particular process. Standards include technical documents of various kinds, reference materials (fully characterized technical objects used to calibrate other objects), good practice recommendations (e.g., in manufacturing, medicine, and agriculture), and ethical codes of various sorts. Thus, a coordinated program of standards scholarship could potentially cut across multiple directorates

The last 30 years has seen an explosion in the number and scope of standards for products, processes, practices, and people, as well as certifications and accreditations of all sorts. This has been driven in part by global political changes including, but not limited to,

increased global trade. Most, though certainly not all, standards are promulgated and enforced by either private firms or civil society organizations. Despite this, relatively few SBE scientists have examined standards creation processes, the workings of Standards/Certification/ Accreditation organizations, the political, economic, social, legal, and ethical issues involved in standards development and enforcement, the consequences of living in a standards society. This is especially true with respect to comparative studies of standards across various domains.

Consider some of the issues raised by the growing number of standards and the Tripartite Standards Regime (Standards, Certifications, Accreditations) (Loconto and Busch, 2010) that has grown up alongside nation-states over the last several decades:

*Governance.* Standards may be examined as means for governing people and things. As such, they tend to fall between law and norms, although they often overlap with both. For example, building codes are commonly produced by specialist organizations and adopted wholesale by municipalities. In contrast, some standards are so taken-for-granted that they have the status of norms.

Procedures for standards formation are extremely variable. Some standards are produced by individual firms, others by industry associations, still others by Standards Development Organizations (SDOs), and yet others by ad hoc consortia. Each approach raises questions about democratic governance, including not only the formation of the standards but also classic political science questions of the separation of powers, and of enforcement, appeal, and modification. Moreover, there is considerable (perhaps growing) overlap among SDOs and the domains they include. For example, while the International Organization for Standardization (ISO) started with standards for industrial

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objects, in recent years they have branched out into management, environmental, food safety, and most recently sustainability standards.

More and more standards tend to shape organizations such that they are (partially) governed by a variety of standardized certification and accreditation requirements. Hence, for better or for worse, financial, educational, and health care organizations are more similar to each other today than they were just three or four decades ago. Yet, few organizational studies have examined the ways in which this occurs, or the consequences for those who work within these organizations, or their impact on organizational outputs.

Indeed, at the limit, standards may be seen as quasi-states, using market sanctions to maintain discipline, but also relying on State-enforced anti-fraud, anti-counterfeiting, intellectual property, corporate, and contract law to maintain order. However, since standards rarely take the form of ‘black letter law,’ they have been largely unnoticed by legal scholars, even as they are often ignored by social scientists who see them as fitting better in the legal domain.

Another aspect of standards making and enforcement is that the parties involved, regardless of their profit-making or non-profit legal status, often support their operations by the sale of standards, certifications, and accreditations. Thus, many standards must be purchased for a considerable fee. Similarly, certifiers and accreditors usually rely on the fees collected from those they certify or accredit to remain in business. This relationship is quite different from that of government agencies that engage in similar activities; yet there is little research on the impact of such potential conflicts of interest.

*Trade.* Until just a decade ago, most economists saw standards solely as means for reducing transactions costs. Indeed, there is little dispute that standards can do just that. But more recently it has been recognized that standards can be and are used as strategic devices by firms, industry groups, and entire nations to advance various projects. They may be used to standardize or to differentiate. Moreover, standards tend to create path dependence, so being a first mover is often critical for future success in a given endeavor. Studies are needed that unpack the differing strategies by which firms, industry groups, and nations employ standards to enhance their competitive position in global markets.

*Material Culture.* Standards are a major taken-for-granted feature of material culture in contemporary societies. They affect the kinds and form of material objects with which we surround ourselves in both public and private settings as well as constituting their meanings. They also are implicated in all sorts of tests of humans, from learning to drive a standard automobile, to operating standard home electronics. Most standards are designed with the average or normal adult in mind, unwittingly posing significant problems for some persons. Studies of standards as formative of material culture are a means of examining a wide range of inequalities that are embedded in devices, and that adversely (or at least differentially) affect people based on age, size, gender, and other social categories.

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*Science and Engineering.* Standards are vital to the progress of STEM disciplines. Without standards it is virtually impossible to produce reliable and replicable results. Yet, standards are often seen by scientists and engineers as uninteresting, tedious domains. Hence, few engineering or business schools sponsor courses on standards. Moreover, there is a paradox with respect to STEM uses of standards. On the one hand, the lack of commonly accepted standards can hamper accumulation of research results; for example, much of the research conducted in proteomics prior to the development of common standards is now of dubious value. On the other hand, the very taken-for-grantedness of common standards can also lead STEM researchers astray; for example, overemphasis on carbon reduction as a means to limit global warming might well lead to neglect of other more problematic gases such as methane. Similarly, overemphasis on agricultural productivity can mask more intractable problems of food security. SBE research could play a constructive role in improving our understanding of standards, as well as improving the standards themselves, across the STEM disciplines.

*Ethics.* Since standards are all about what and whose values shall be incorporated in products, processes, and practices, they are as much ethical as technical phenomena.

Each of the three major approaches to ethics can be employed to study standards: One may ask about the virtues or vices promoted by particular standards, the consequences of a standard, or the rights accorded and/or abridged as a result of a standard. To date, most research has focused on consequences. This is especially true within economics, where utilitarian approaches tend to dominate. But empirical research could also be conducted on how rights are extended or abridged by standards, as well as on how certain virtues/vices are furthered by standards, certifications, and accreditations.

*Linguistics.* Standards are also ripe for linguistic inquiry. From a classificatory perspective, standards embody underlying semantical relationships among concepts, terminological taxonomies, and individual interpretations that link standards to cultural knowledge, objects, and associated activities. Thus, for example, the cultural representations of and preferences reflected in technical standards for specific food textures may have profound implications for the social transformation and marketing of plants and animals as culturally compatible ‘foods.’ This may also be seen in recent international efforts to standardize classificatory schemes – e.g., through Technical Reports of the International Organization for Standardization (ISO) – for organizing emerging nanotechnologies for commerce and regulatory purposes. A related problem is represented by the language difficulties experienced in the interpretation and translation of standards. Consider, for example, the case of the initial translation of the ISO 9000 series covering quality assessment schemes from English into German. This task was undertaken by the Federal Republic of Germany. However, the other German speaking countries claimed the translation represented an interpretation of the standard; hence, four different German versions (Federal Republic of Germany, German Democratic Republic, Austrian and Swiss) were developed. Linguistic analysis of differing social interpretations of evolving standards can reveal how participating institutions contribute

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to the formation of particular standards trajectories reflecting, codifying, and thus replicating their interests, their worldview and their power relations.

*Ontology/Epistemology.* Standards affect both our understanding of the world as well as changing the world itself. On the one hand, standards (e.g., for social science, natural science, and government agency data collection and statistical analysis) provide us with knowledge of many aspects of the social, economic, political, and technical world. In our knowledge society, more research is needed on how changes in such standards affect (what is accepted as) our knowledge of various aspects of the world, especially that needed for societal governance and organizational strategies. On the other hand, the very instantiation of standards creates social realities. For example, the creation of standards for financial derivatives allowed a market for them to come into being and to ‘cause’ the recent financial crisis. Put differently, as several Science Studies and feminist scholars have suggested, many standards are performative; they bring a world into being by their enactment.

In sum, the Tripartite Standards Regime of standards, certifications, and accreditations provides an opportunity for SBE research on a wide range of issues. Moreover, it has the potential to do so by better linking SBE research to STEM disciplines as well as business, law, and the humanities.

**Selected references:**

- Busch, Lawrence. 2011. *Standards: Recipes for Reality*. Cambridge, MA: MIT Press, forthcoming.
- Krislov, Samuel. 1997. *How Nations Chose Product Standards and Standards Change Nations*. Pittsburgh: University of Pittsburgh Press.
- Loconto, Allison, and Lawrence Busch. 2010. Standards, Techno-Economic Networks, and Playing Fields: Performing the Global Market Economy. *Review of International Political Economy* 17 (3):507-536.
- Lampland, Martha, and Susan Leigh Star, eds. 2009. *Standards and Their Stories: How Quantifying, Classifying, and Formalizing Practices Shape Everyday Life*. Ithaca, NY: Cornell University Press.