Standards and certification

When used effectively, standards help to build trust, promote international trade, promote technological progress, and protect consumers and the environment. Standards consist in requirements, specifications, guidelines or characteristics to ensure that materials, products, processes and services are fit for their purpose. Standards can be set by the state, by the private sector, or by the civil society. The compliance of firms with standards can be accredited by organizations that issue certifications, be it independent firms or international organizations such as the International Standards Organization (ISO). Standards differ from regulations in that compliance with standards is normally voluntary rather than mandatory. However, this distinction is not so clear in practice because although standards may not be legal requirements, they are often commercial imperatives since products and firms that do not adhere to standards will be unable to succeed in the market (Swann, 2010).

A difference can be drawn between product and process standards. On the one hand, product standards relate to the characteristics that the product should have in order to be commercialized. For example, in the case of standards set by large manufacturing this may involve the definition of maximum levels of permitted defects. On the other hand, process standards typically comprise the documentation of procedures involved throughout a firm's production process, rather than measuring the final outcome. For example, the International Standards Organization (ISO) quality and environment standards (ISO9000 and ISO14000, respectively) require the documentation of practices and routines, but do not set the levels that must be achieved by the final product.

In recent decades the number, variety and complexity of standards has increased substantially. Beyond traditional quality and safety standards, a growing number of standards including labor and environmental standards have gained increasing importance in response to civil society pressures. For example, certifications of social and environmental performance are changing the rules of the game in industries like forestry, fishery, tourism, mining and the 'organic' and 'fair trade' niches of food production and textiles, among others.

Another recent trend concerns the advances in information and communication technologies (ICT), which illustrates the challenges of setting standards under conditions of rapid technological change. Although standards are critical to increase network effects and accelerate the diffusion of ICT, they also raise the problematic prospect of "standards wars" among competing firms. Consider for example the tensions among firms and countries in setting mobile phone standards as the industry moved towards the third generation (3G) standards for wireless telecommunications services. Or the challenges of standardization in the software industry, which have led to excessive concentration of market power in one or a few firms.

The relationship between standards and innovation is multifaceted (Blind, 2013). Some standards can be an obstacle to radical innovation, leading to lock-in into old technologies that become inferior over time. However, by codifying the technical characteristics of products and processes, standards embody technological knowledge and best practices, thus can facilitate the diffusion of innovation. Because information in standards is nonproprietary, it creates a pool of technical knowledge that can be transferred across companies and countries, freely accessed by entrepreneurs, scientists, and engineers, and used to generate new ideas and technologies. Moreover, standardization stimulates innovation by helping to build focus, cohesion and critical mass in the emerging stages of technologies and markets. For example, in the ICT industry standards stimulate innovation by ensuring compatibility and increasing network effects.

Standards play a prominent role in facilitating international trade by reducing risks and transaction costs (Swann, 2010). However, adhering to increasingly demanding global standards may be complex and costly for small firms and for less advanced companies operating in low-income countries, representing an obstacle in their efforts to integrate into global value chains. This holds important policy implications, such as the need to promote awareness about standards and to design appropriate capacity building programs to ensure that standards do not rule out local suppliers, including financial and technical assistance to firms wishing to obtain certifications (Kaplinsky, 2010).

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