Chapter I

IT Standards Typology

Henk J. de Vries, Erasmus University, The Netherlands

ABSTRACT

A scientific community needs well-defined and agreed-upon concepts with related terms as a basis for a sound academic discourse. The field of IT standards and standardization research is still developing in this direction. This Chapter aims to contribute to this process by proposing a definition for the area of research as well as classifications of IT standards. It appears that classifications of standards can be based on the subject matter concerned, on the process of developing the standards, or on the intended use of the standards. IT standards are IT standards because of the subject matter addressed in the standards. The Chapter concludes by discussing how the scientific as well as the professional IT standardization community might use the findings.

NEED FOR A STANDARDS TYPOLOGY

A scientific community needs well-defined and agreed-upon concepts with related terms as a basis for a sound academic discourse. Unfortunately, the area of IT standards and standardization research, or more generally, standards and standardization research, has not yet achieved this. There is variety in concepts,
more or less well defined, and there is even more variety in terms. In this chapter we will try to bring some structure in this field of research by developing a typology of IT standards. To illustrate the existing variety of concepts in (IT) standardization literature, we will first discuss some examples of standards classifications. We have to base our typology on a sound definition of standard, but here also there is a lack of consensus on a common definition. We will choose one and develop a typology by combining this definition with classifications found in literature.

First, we will give some examples of the existing variety. Tassey (2000) classifies standards according to the basic function they fulfill in standards for quality and reliability, information, compatibility and interoperability, and variety reduction. Moreover, he distinguishes design-based and performance-based standards, and product-element and nonproduct standards, the latter consisting of basic, laboratory, transfer, and industry standards.

Jakobs (2000) distinguishes de facto and de jure standards. The first ones are established through the creation of large market shares for the implementation of a technology. He also mentions voluntary vs. statutory standards, public vs. industry vs. proprietary standards, proactive vs. reactive standards, and base vs. functional standards (the latter being valid for certain IT standards only). Krechmer (2000) mentions four categories that relate to four historic periods of technical development: unit and reference standards, similarity standards, compatibility standards, and “etiquettes.” Sherif (2001) distinguishes standards for units (reference), standards for variety reduction (similarity), standards for interactions (compatibility), standards for evolution (flexibility), and standards for performance and quality. With respect to the product or service life cycle, the standards can be anticipatory, participatory, or responsive.

From these examples, it can be concluded that standards can be studied from different perspectives. These need not exclude each other. However, the overall picture is not clear. The distinction between de jure and de facto, for instance, mixes apples and oranges, the apples being the organization that develops the standard (whether or not operating a voluntary process) and the acceptance of the standard in the market: Consensus in a committee where all parties are represented does not guarantee that the resulting standard will be accepted in the market. Tassey (2000, p. 593) defines basic standards as “the most accurate statements of the fundamental laws of physics.” They “qualify as pure public goods and hence are provided entirely by government” (Tassey, 2000, p. 593). However, Einstein’s discovery $E = mc^2$ is not a standard (’t Hooft et al., 2005), and many standards on quantities and units have been issued by nongovernmental bodies (Teichmann, 2001). So the overall preliminary conclusion may be that concepts and related terms used to describe IT standards are not only diverse but also confusing. Therefore, this chapter attempts to offer some structure to this area of research by offering an IT standards typology.
Related Content

Property Protection and User Authentication in IP Networks through Challenge-Response Mechanisms: Present, Past and Future Trends
[www.igi-global.com/chapter/property-protection-user-authentication-networks/60554?camid=4v1a](www.igi-global.com/chapter/property-protection-user-authentication-networks/60554?camid=4v1a)

A Framework to Build Process Theories of Anticipatory Information and Communication Technology (ICT) Standardizing
[www.igi-global.com/article/framework-build-process-theories-anticipatory/2588?camid=4v1a](www.igi-global.com/article/framework-build-process-theories-anticipatory/2588?camid=4v1a)

Predatory Strategies in Standards Wars: On Creating Fear, Uncertainty, and Doubt
Tineke Mirjam Egyedi and Anique Hommeis (2016). *Effective Standardization Management in Corporate Settings* (pp. 333-351).
[www.igi-global.com/chapter/predatory-strategies-in-standards-wars/141776?camid=4v1a](www.igi-global.com/chapter/predatory-strategies-in-standards-wars/141776?camid=4v1a)
Software Development Standardization "CMM/DSDM Case"

Robert van Wessel (2010). Toward Corporate IT Standardization Management: Frameworks and Solutions (pp. 133-161).

www.igi-global.com/chapter/software-development-standardization-cmm-dsdm/41602?camid=4v1a