Chapter 1.8
Between Supply and Demand:
Coping with the Impact of Standards Change

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ABSTRACT

There is a continuous pressure for improvement in e-business. Increasing technical possibilities, new forms of outsourcing, the ongoing integration of business processes, the expansion of value chains, the emergence of new markets and new players; they affect the infrastructure and underlying ICT standards. Contrary to the inherent stability one might expect from standards, maintenance of and change in standards are rule rather than exception. The benefit of standards change is sometimes ob- vious. However, it can also pose severe problems (e.g. heavy switching costs and reduced market transparency). This chapter synthesizes research findings on standards change. A conceptual framework is developed to determine under which circumstances standards change is avoidable; if so, in what manner; and if not, which means exist to reduce the negative impact of change. While some change drivers are innovation-related, others stem from the standardization activity itself. They require distinct coping strategies: change control and quality control, respectively. Along these two lines, the chapter discusses strategies to cope with the impact of standards change.

1. INTRODUCTION

For different reasons, change is inherent to e-business and to the ICT sector in general. First, the high rate of technology change has led to a shortening of technology and product life-cycles. The shorter life-cycles are accompanied by a higher rate of standards change and an accelerated standards process. Second, the world-wide diffusion of ICT systems has facilitated the globalization of business and production. The distributed production of goods and services, including outsourcing of research and development (R&D) services, has created an additional demand for ICT standards. This, in turn, challenges the standardization system. Next to the growing number of standards, the need to acquire consensus among a higher number of stakeholders with increasingly heterogeneous preferences is even more challenging. Even if consensus can be reached, the diversified context of those implementing ICT standards increases the likelihood of different implementations.

Third, related to the aforementioned two trends is the deregulation of many industries, and the telecommunication sector, in particular. Publicly owned companies have been privatized and legal framework conditions have been substituted by self-regulatory schemes, which include standardization. In sum, the need to develop standards has increased while the stability of the surrounding conditions has decreased. Therefore, the rate of standards change promises to be particularly high. (Egyedi & Blind, 2008)

Although standards change is systemic to the field of ICT (Blind, 2008; Egyedi & Heijnen, 2008) and is, as will be argued, not an unproblematic issue, until recently the topic has hardly been addressed. In order to draw attention to a number of studies that have recently been published, this chapter discusses and synthesizes their findings to determine the causes of standards change and how to deal with them. More specifically, the aim is to determine under which circumstances standards change is avoidable; if so, in what manner change can be avoided; and if not, which means exist to reduce the negative impact of change.

The chapter is structured as follows. In order to explain the problems attached to standards change (section 4), section 2 first argues that stability is crucial to standards. Nevertheless, different kinds of change exist (section 3). Their causes are manifold. However, they seem to fall into two main categories: standardization-internal and external causes (section 5). The causes can be conceptualized and modeled with help of two complementary, theoretical angles: innovation and management (section 6). The heuristic model provides a stepping stone for identifying strategies to cope with standards change: avoiding unnecessary change, reducing its impact ex *post*, or dealing *ex ante* with future change in standards design (section 7). To conclude, the chapter's main findings are re-analyzed in terms of supply- and demand-side drivers of standards change (section 8).

2. THE VALUE OF STANDARDS

The term 'standard' is used in this chapter in two main senses, namely in the sense of *committee standards* and in the sense of *de facto* standards. A committee standard[1] is a very specific type of agreement. It is a specification developed by a committee for repeated use, or "a document established by consensus (…), that provides, for common and repeated use, rules, guidelines or characteristics for activities or their results, aimed at the achievement of the optimum degree of order in a given context" (adapted from ISO/IEC, 2004, p. 8).[2] This – adapted - definition covers the standards developed by formal standards bodies like the International Organization of Standardization (ISO) and from, for example, standards consortia (e.g. World Wide Web Consortium, W3C) and professional organizations (e.g. Institute of Electrical and Electronics Engineers, IEEE).

The second sense in which the term 'standard' is often used, refers to *de facto standards,* that

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