Chapter XI

Standards for Telecommunication Services

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ABSTRACT

Management of standardization must be part of an overall strategy for knowledge management. This principle is illustrated with the help of a planning tool for standardization in telecommunication services. The tool integrates knowledge gained from studies on the management of innovation to understand the role that external and internal standards play in the development and operation of telecommunication services. We show how the scope of standardization should differ according to the timing of the standard within the life cycle of the technology as well as the type of interfaces to be standardization. This has implications on the role of standard bodies particularly because the product cycles of equipment manufacturers and service providers are not always synchronized.
INTRODUCTION

Standards are a means to impart specialized technical know-how to a wider audience and promote its application in commercial systems. The production of standards is influenced by technological factors, business needs, and market expectations. This explains the increased interest in telecommunication standards following the deregulation of the industry and current attempts to converge service offers irrespective of the access and transmission technologies.

This chapter presents a methodology to plan for standardization in telecommunication services. In particular, we show how success depends on the integration of several streams of information such as the nature of the innovation, the life cycle of the technology, and the level of details needed in the standards. We take advantage of studies on the management of innovation to gain insight into the role that external and internal standards play in the development and operation of telecommunication services. First, we give an overview of the different types of innovations in telecommunication services. Next, we differentiate between the standardization of equipment and of services. We then show how the scope of standardization should differ according to the timing of the standard within the life cycle of the technology as well as the type of interfaces to be standardized. The implications on the role of standard bodies are discussed. Finally, all these elements are integrated to address standardization within an overall strategy for knowledge management.

INNOVATIONS IN TELECOMMUNICATION SERVICES

Public telecommunication services are available to subscribers that share a common infrastructure managed by a service provider. Depending on the degree of changes they introduce in the technology or in the existing value network, innovations can be grouped into four categories as shown in Figure 1: incremental, architectural, platform, and radical (Abernathy & Clark, 1985; Betz, 1993; Sherif, 2003a, 2003b).

**Incremental** (or process or modular) innovations build upon well-known technological capabilities to enhance an existing technology through improved performance, enhanced security, better quality, and reduced cost within the established value network. It is estimated that half of the economic benefit of a new technology comes from process improvements after the technology has been commercially established (Christensen, 1997). As a result, process innovations are more readily integrated within the technological and financial plans, which explains why they tend to fit the dominant industrial structure (Betz, 1993).

**Architectural innovations** (sometimes called systems innovations) provide new functional capabilities based on rearrangements of existing technology
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