Chapter IV

Institutional Dilemma in ICT Standardization: Coordinating the diffusion of technology?

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INTRODUCTION

The effect of Information and Communication Technologies (ICT) on our daily life needs no explanation. That standardization reduces diversity, facilitates interoperability and thus plays an important role in diffusing ICT uses is clear. Standardization matters to the ICT market. Less evident is the way in which standardization influences the kind of ICTs that become available to customers. In the past it was common to view committee standardization as a locus for collective learning and exchange of technological knowledge. New standards were expected to embody state-of-the-art ideas on technology. But practitioners, i.e. ICT standards developers and implementers, as well as standardization watchers repeatedly voice disappointment about the technical content of new standards and the process of committee standardization. They criticize the formal standards bodies for furthering a politicized mode of standardization, and point to the greater use of standards that stem from other arena (e.g. consortia, user groups, and practitioner organizations). These other institutional settings of standardization are held to produce more applicable standards and standards of better quality technology-wise. Are they barking up the wrong tree? In this chapter I explore whether this is the case.

CONCEPTUAL FRAMEWORK

Several studies on standardization have examined the impact of standardization on ICT development (e.g. Hanseth, Monteiro, & Hatling, 1996, Schmidt & Werle, 1998). They use Social Shaping of Technology theories to do so (e.g. Bijker, 1990; Callon, 1986; Hughes, 1987). In these studies the standards setting environment is—implicitly or explicitly—treated as a setting of technology development.
Standardization is an endogenous factor in technology development (Egyedi, 1996). It is a means to coordinate technology development (Schmidt & Werle, 1998). However, it proves to be difficult to pinpoint the impact which standardization has (e.g. does it hamper flexibility in technology development; Hanseth et al., 1996). One reason is that its effect depends on the maturity of the technology concerned. In the classic approach to technology development three successive phases are distinguished (Cramer & Schot, 1990). The phase of (1) invention covers all activities from the generation of an idea to the development of the new process or product. If successfully marketed the invention becomes an (2) innovation. The last phase is that of (3) diffusion of the innovation in the market. This distinction has been refined and criticized for several reasons. For the argument in this section, it suffices to distinguish between emergent and mature technologies. In the field of standardization the issue of technological maturity has been used to sketch the dilemma of when to standardize. Early standardization, practitioners say, forestalls diversity but precludes experience with the alternatives, while late standardization makes it more difficult to reach consensus.

To complicate matters, in standardization too different stages are being discerned (Cargill, 1989; Bonino & Spring, 1991; Mansell & Hawkins, 1992). For example, Mansell & Hawkins (p.45) discern the planning stage (i.e. determining standardization priorities), the negotiation stage (i.e. as in committee standardization) and the implementation stage (i.e. the way standards are implemented). Each stage may affect technology development in its own manner. For example, a much-voiced view is that if a standard is widely implemented, compatibility frees resources for innovative activity.

In order to narrow down the issue, only certain phases in standardization and technology development are of immediate relevance for the criticism addressed in this chapter. Usually the discussions about the pro’s and con’s of standardization start out from the assumption that standardization deals with emergent technologies, and that the negotiation stage is the most influential stage of standardization. (I will review these assumptions in the discussion.) The negotiations take place within an institutional context. The context of formal standardization is held to be accountable for the lack of innovative and applicable standards.

Rommetveit shows that moving a decision process from one arena to another with different structural features changes its outcome. Analogously, several studies argue that the institutional context of standards committees is highly relevant to the outcome of the standards process (Genschel, 1993, p.26; Bonino & Spring, 1991, p.102). The organizational procedures embed ideas on how standardization should proceed, beliefs on what is important in the process of establishing standards and why it is important, assumptions about the standards environment, etc. These shared ideas, assumptions, values and beliefs are captured by the term standardization ideology (Egyedi, 1993). Once ideas are institutionalized, they acquire a taken-for-granted quality and are not easily dismissed or changed (e.g. March & Olsen, 1989, p.52). The institutionalized ideology of, for example, the formal standards bodies, thus fosters continuity in the standardization approach. It indicates the role, which the formal standards bodies aim to play, and clarifies the direction in which institutional provisions influence current standards work.
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