Chapter IV
Business Models and the Dynamics of Supply and Demand for Standards

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ABSTRACT

With specific reference to information and communication technologies (ICT), this Chapter examines the structural relationship of various stakeholder groups to standardization, described both in terms of how different stakeholders demand and acquire standards and in terms of their corresponding motivations and/or capabilities to influence the standardization process. To this end, the Chapter will explore these dynamics in the context of 'business models', an emerging framework in the innovation context that describes commercial and organisational topologies for the supply and demand of goods and services from the perspective of how value is created and exchanged. Given the increasing synergy between many ICT standards and specific product and service environments, it will be shown how the business model is also potentially a useful device for understanding evolution in the supply and demand dynamics of standardization.

1. EVOLVING ANALYTICAL PERSPECTIVES ON SUPPLY AND DEMAND IN STANDARDIZATION RESEARCH

Social scientists have been studying standardization phenomena systematically for barely fifty years, the vast bulk of knowledge being produced only within the past twenty-five years. Much of the literature from before the mid-1980s now has the look of an 'old school', many of whose perspectives were still congruent with Whitworth's 19th Century definition of standards as technical specifications that created the greatest com-

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mon good with the minimum possible means; i.e. specifications whose adoption would confer homogenous advantages upon a heterogeneous group of producers (Whitworth 1882).

At first, standards were discussed almost exclusively within a very instrumental framework as a form of public goods with high inherent social welfare characteristics stemming primarily from their role in reducing technological variety (Kindleberger 1983). This perception was largely the result of a narrow focus upon 'formal' standards as developed using quasi-juridical stakeholder consultation processes and published in the public domain by nationally or internationally accredited standards development organisations (SDOs). Accordingly, the overwhelming emphasis of the first phases of standardization analysis was upon organization and process. The context was often highly normative, focussed upon how to ensure greater procedural efficiency in standards development and application within the conventional SDO framework (e.g. Reck 1956; Woodward 1965; Verman 1973; Sullivan 1983; Wallenstein 1990). This emphasis persists to this day although in a much wider and more subtle variety of guises (e.g. compare Cargill & Bohlin 2007 with de Vries 1999).

However, it was recognized very early on that over and above their technical functions, standards also have strategic and competitive dimensions in a variety of contexts ranging from the industrial politics of supply chains to international trade (Thompson 1954; Middleton 1973; Crane 1978; Hemenway 1978). During the 1980s a 'new school' emerged, which preserved some of the earlier instrumental focus, but greatly expanded the analytical spectrum and took a much more critical and empirically rigorous stance regarding the organization, function and purpose of standardization. During this transformation, many new perspectives opened up on the question of how demand for standards is issued and fulfilled.

In the earlier 'instrumentalist' tradition, the supply-and-demand issue was relatively straightforward. Demand would emerge whenever enough producers recognized that proprietary solutions were more a source of costs than advantage. Supply was a coordination issue; either selecting an existing practice or otherwise developing a new practice collectively. The 'new school' challenged these rather simplistic premises, shifting attention to the strategic role of standards in coordinating markets as well as technology. In this framework, standardization decisions become much more closely connected analytically to business decisions and the supply and demand dynamics of standardization became linked with those of the actual products and services in which standards were embedded. Indeed, in much of the more recent literature, standards themselves have been treated as products in their own right, or otherwise so synonymous with specific product environments as makes no difference (Egyedi 2001; Bekkers 2001; West 2003).

Arguably, this transition between old and new schools was fuelled by at least two major developments. The first was the appearance of economic, social and political theories that proposed an active link between standardization and innovation. The traditional view was that standardization occurred late in the innovation process when technology was mature and the late stages of the product cycle were being reached (Vernon 1966). The new theory maintained that standards could (and typically did) influence the directions of technical change much earlier in the product cycle, mainly by building up positive returns to adoption and creating path dependencies, but also simply by defining key technological infrastructures and platforms upon which a variety of new products and services could be constructed (Katz & Shapiro 1985, 1986; Farrell & Saloner 1985; David 1985; Arthur 1989; David & Greenstein 1990; Tassey 1992, 2000).

From these beginnings, many social scientists began to investigate standardization over and above considerations of optimal technology selection (which was the focus of most economic

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