

Chapter 13

Standardization, Innovation, and Organization: A Contingency Perspective

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ABSTRACT

Companies that intend to leverage standardization to drive innovation have to set up their organizations appropriately. Data from four German companies reveal different ways for organizing the standardization activities. Companies may allocate a high level of resources by dedicating a specialized department; they may assign the standardization task to top managers; they may treat standardization within occasional projects; or create sophisticated solutions to facilitate the use of standards. Contingency theory is used to narrow down the number of factors that influence the organization of the standardization function. There are three relevant contingency factors: competition, size, and strategy. Company's age, technological complexity and volatility of customer demand are found to be less important. Instead, maturity of technology and the period of time, during which the company has been actively engaged in standardization work seem to be better contingencies. Another finding is that innovation appears to be a by-product and not the main driver of standardization work.

INTRODUCTION

Standardization and innovation are interrelated issues (DIN, 2000). Their mutual relationships have been discussed intensively in the innovation management and standardization literature. The innovation management literature argues that companies winning the dominant design battle can achieve economic success (Suárez & Utterback, 1995; Utterback & Abernathy, 1975), since the dominant design develops to a standard on the marketplace, providing the company with an advantage against its competitors (Swann, 2000). Hence, companies' strategies and business models that aim to establish a dominant design are at

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the focus of the innovation management literature that deals with standards. Standardization literature, however, looks at innovation from a different perspective. It particularly focuses on those standards that are initiated by standards developing organizations (SDOs). These so-called committee standards are virtually neglected in innovation management. The literature on standardization shows, for instance, how these standards can be established during the product development phase, even before a prototype has been created (Byrne & Golder, 2002), or investigates the economic benefits of standardization and standards from the macro-economic viewpoint (Blind, Jungmittag, & Mangelsdorf, 2011).

Research on standardization and innovation at the company level is still scarce. We believe that standards and standardization are conducive to innovation, in spite of the controversy of the literature (Wright, 2012). The underlying assumption of this work is that if companies intend to support their innovation process with standards and standardization, they have to integrate their standardization activities in their organizations appropriately. Hence, they have to embed the standardization function in their activities in a way to benefit innovation. Depending on certain contextual factors (contingencies), however, companies are expected to adopt different organizational structures. In other words, there is no single formula that fits well to all eventualities. Consequently, contingency theory can be used to generate new insights into the overlapping field of standardization and innovation. This work is, therefore, an attempt to apply a theory from organization science to understand the conditions under which standards and standardization can support innovation. Hence, we derive two major research questions:

- How do companies organize their standardization activities?
- What are the relevant contingency factors?

The chapter is structured as follows. The next section deals with the theoretical underpinnings of this research and draws upon the current understanding of the interdependencies between standardization and innovation. It also introduces contingency theory as a suitable frame for the analysis of how companies organize their standardization activities. The section after the literature review provides information on the research design, and describes four case studies conducted in German small and medium-sized companies. In the research findings, we identify different ways of organizing the standardization function and apply contingency theory to find out the relevant factors that make companies implement different types of organizations. In addition, we conclude that innovation appears to be a by-product of standardization and standards, but not the primary objective of companies. The final section summarizes the main findings, discusses them, and proposes directions for future research.

LITERATURE REVIEW

This work integrates three fields of research: standardization, innovation, and organization theory. The relationship between standardization and innovation has not been directly linked to organization theory, in particular to the contingency approach. In the following, we deal with the literature on organization in the context of standardization, discuss the relationships between standardization and innovation, and then establish their connections to contingency theory.

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