

Chapter 45

Seizing Opportunities for the Support of Innovation through Committee Standards and Standardization: Insights from German Companies

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ABSTRACT

This paper provides insights into the key results of a research project funded by the German Institute for Standardization DIN (Deutsches Institut für Normung e. V.). It investigates how German companies, in particular SMEs, can leverage committee standards to drive innovations. Whereas the impact of standardization on innovation has been acknowledged in the scientific literature from the macro-perspective, little is known on how standards and standardization can support innovation on the company level. This research builds upon findings from 40 semi-structured interviews conducted with experts from German companies in five sectors: biotechnology, nanotechnology, services, security, and mechanical engineering. The key informants are practitioners with R&D and standardization experience. The interview data are fitted into a qualitative model that explains how standards and standardization can lead to innovation, given certain contextual factors (internal and external). The analysis of this data shows that companies that use standards and are involved regularly in standardization processes are able to create six types of opportunities supporting innovation.

1. INTRODUCTION

Standardization and innovation are interrelated. Their relationships have been observed at the macro-economic and company levels (DIN, 2000).

From the macro-economic viewpoint, several studies investigated the contribution of committee standards to the Gross Domestic Product (DIN, 2011; AFNOR, 2009; DTI, 2005). The role of standardization in innovation, its impact on it, as

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well as the relationships between specific standards such as those for quality or management systems and innovation constitute main topics that have nurtured the scientific debate in recent years (Choi et al., 2011). Still, the relationship between standardization and innovation at the company level is underrepresented in the current literature.

The interaction between innovation and standards has not been usually perceived positive. Innovation requires creativity and flexibility, and standards stand for stability and rigidity. Hence, standards can be thought to inhibit innovation. There are, however, positive examples on the interactions between innovation and standards (e.g. Allen and Sriram, 2000). Innovators are expected to think out of the box (Markman & Wood, 2009). Since standards define the state-of-the-art knowledge—the box— then innovators should consciously place themselves outside this box. Following this line of argument, knowing and working with the standards is even essential toward innovation.

Modern principles of consensus-based standardization define requirements instead of prescribing solutions (Egyedi & Sherif, 2010), thus increasing the flexibility of the organization in developing its own solutions. In addition, the co-existence of innovations and standards supports ambidexterity (Wright et al., 2012; Benner & Tushman, 2003; Worren et al., 1999). The ambidextrous organization finds the right balance between stability and instability, which are – from a systems theoretical perspective – conducive to innovation (Koberg et al., 2003; David & Rothwell, 1996; Stacey, 1995; Nelson, 1992). As remarked by Grøtnes (2009) and David & Greenstein (1990), standardization may appear to limit the options, but it also opens up new opportunities.

There are two types of links between innovation and standardization: Taking innovation to formal standardization to develop a committee standard, and the reverse. The link “from innovation to standards” is straightforward; certain innovations become standards, leading the company

to profit from a high level of market penetration and diffusion. The reverse “from standards and standardization to innovation” is less straightforward and needs a more in-depth scrutiny. In this regard, we posit that committee standards and standardization can unleash several potentials that support innovations.

Consequently, this work is motivated by one central research question: How do committee standards and standardization support innovation? The objective is, however, not to confirm or reject the hypothesis whether standardization and standards support innovation. The goal is rather to discover the forms of this support and to identify best practices that show what firms do to leverage the innovation potentials in standardization.

The paper is structured as follows. Section 2 provides a theoretical analysis of the relationships between standardization and innovation. This analysis results in three theses that define the main research directions and mark the starting point for the empirical work. Section 3 describes the research design, data collection and analysis. Section 4 fits the collected data into a process model that explains how standards and standardization can support innovation, given certain contextual factors. Section 5 presents the opportunities that committee standards and standardization can generate for innovation. Section 6 discusses the research results. Finally, section 7 summarizes the main findings and proposes directions for future research.

2. THEORETICAL OVERVIEW

2.1. Framing Standardization and Innovation

The interdependencies between standardization and innovation have been frequently discussed in academic research. Choi et al. (2011) have analyzed 528 publications on standardization and innovation and found an increasing level of

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