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The Dialectics of Technology Standardization

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Abstract

Technology standardization unfolds as a dialectic process marked by paradoxical tensions. However, standardization research has yet to provide a dialectic analysis of how tensions and management responses interact recursively over time, and with what effect. In this paper, we apply dialectics to analyze an action research study of a Swedish initiative that developed and diffused a technology standard to facilitate integration of disparate IT systems in road haulage firms. Drawing on the technology standardization literature and our empirical analysis, we engage in midrange theorizing to capture the recursive dynamics through which standard-setters construct and respond to manifestations of three latent tensions: development versus diffusion activities, private versus public interests, and local versus global solutions. Our resulting dialectic theorizing explicates how they bring these latent tensions into being; how they construct salient tensions through the oppositional logics of polarization, complementarity, and mutuality; how they manage these tensions through splitting, integrating, and suspension responses; and how consequential functional, architectural, and organizational standardization outcomes produce a new social order in which new tensions emerge. These theoretical insights contribute to both the technology standardization and dialectics literatures.

Keywords: Technology standardization, dialectic analysis, paradoxical tensions, management responses, oppositional logics