Standardization of Information Systems and Technology at Multinational Companies

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The purpose of this research is to explore how international companies adopt and enforce standards in information systems and technology. Standardization of hardware, software, and data is often perceived to be beneficial for an organization. However, for multinational companies, differences among nations in language and culture, law and regulation, and business practices and climate, among other factors, combine to thwart standardization efforts. This research examines the problems that a number of multinational companies have faced and the solutions they have pursued in attempting to standardize their systems. The lessons learned from these case studies offer a prescription for improving the standardization process.

The absence of hardware, software, and data standards is widely recognized as a major impediment to the development of global information systems (Alavi & Young, 1992; Barr et al., 1988; Palframan, 1991). The trade and academic literature has focused on standards that governments, vendors, and industry groups are struggling to adopt. By contrast, little research has addressed a related problem: even if such groups could agree on a consistent set of hardware and software standards worldwide, the absence of intra-organizational standards at many companies would continue to impede their ability to exchange and integrate data among their various, semi-autonomous information systems (Ives & Jarvenpaa, 1991; Karimi & Konsynski, 1991; McQuillan, 1989).

At many multinational companies, the absence of intra-organizational standards derives in part from the independent evolution of systems developed by subsidiaries in different countries at a time when the benefits of global integration were underappreciated and when global systems were technically difficult to implement (Roche, 1992). Recently, managers have increasingly recognized that global information systems are necessary to support global strategies (Alavi & Young, 1992; Deans & Kane, 1992; Keen, 1992). Concurrently, technical hurdles to global integration have decreased (Kanter & Kesner, 1992). Nevertheless, many companies find that their subsidiaries in different countries continue to use different software packages and to operate them on different and incompatible platforms (Roche, 1992).

While divisionalized domestic corporations share a similar history of software and hardware incompatibility, domestic companies are driven to standardize primarily by business needs and economics, moderated perhaps by organizational considerations. The decision for multinational companies (MNCs) is likely to be more complicated because of differences among countries in a variety of factors including language and culture, regulation and law, and business practices and environment (Deans & Ricks, 1991). The purpose of this paper is to explore how global companies have addressed the standardization problem and to learn from their suc-
cesses and failures what pitfalls to avoid and what approaches to pursue.

For purposes of this paper, an “organizational standard” (hereafter referred to as a “standard”) is defined as a set of rules or policies governing the characteristics of data, software, and/or hardware that an organization may purchase, develop, or maintain. This concept differs from that of an “industry standard,” a set of rules adopted by a majority or large plurality of software and hardware vendors in a particular industry governing the characteristics of the products that they sell. Following Irwin (1991), we also distinguish between organizational standards and policies. Policies are rules relating to the management, rather than characteristics, of software and/or hardware. For example, the requirement that a license be obtained for all software purchased from third parties is a policy, whereas the requirement that all software purchased from third parties run under the UNIX operating system is a standard.

This paper is organized as follows. First, it describes the background for this research and outlines a normative model to motivate and support the research direction. Next, it addresses the methodology and presents the collected data. It then discusses the findings and suggests some approaches for improving the standardization process. Finally, it draws conclusions and presents some hypotheses for further study.

Background and Motivation

Extensive academic research and practitioner evidence indicates that companies operating in multiple countries face a variety of issues and constraints in the management of information technologies that companies operating solely in the domestic arena do not experience (see, for example, Carlyle, 1988; Deans & Kane, 1992; Freedman, 1985; Ives & Jarvenpaa, 1991; Keen, 1987; Reck, 1989; Roche, 1992; Sauter, 1992; Selig, 1982; and Tricker, 1988). Logically, then, companies seeking to impose and enforce standards across countries would face a different set of issues and constraints than those attempting to impose and enforce standards in a domestic organization. The objective of this research is to identify a set of factors that affect the standardization process and to propose a normative model that would enable practitioners to better understand and overcome the problems and constraints posed by the international environment in which they operate.

This research lies within the overall context of a standardization problem that extends beyond MNCs. When embarking on a standardization effort, most companies will attempt to answer three questions: 1) What benefits and costs should be anticipated? 2) What systems and technologies should be subject to standardization? and 3) What factors determine the overall success of a standardization effort? This paper briefly addresses these questions in the next two sections. It then elaborates on the reasons we should expect standardization at international firms to differ from standardization at domestic companies.

Benefits And Drawbacks Of Standardization

Although the information systems community often perceives standards to be beneficial (Kelly, 1991; Palframan, 1991), implementing and enforcing standards can create a variety of problems. Table 1 lists some of the benefits and drawbacks that have been identified.