

## Chapter XVIII

# Cultural Effects on Technology Performance and Utilization: A Comparison of U.S. and Canadian Users

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### ABSTRACT

*Research to date on information technology (IT) adoption has focused primarily on homogeneous single country samples. This study integrates the Theory of Reasoned Action (TRA) and the Technology Acceptance Model (TAM) with Hofstede's (1980, 1983) Masculinity/Femininity (MAS-FEM) work value dimension to focus instead on post adoption attitudes and behaviors among a mixed gender sample of 366 United States and Canadian users of a specialized supply chain IT. We test 11 hypotheses about attitudes towards IT within and between subgroups of users classified by nationality and gender. Consistent with the national MAS-FEM scores and contrary to the conventional consideration of the U.S. and Canada as a unitary homogenous cultural unit, we found significant differences between U.S. men and women, but not between Canadian men and women. These results support the importance of the MAS-FEM dimension—independent of gender—on user attitudes and help to clarify the relationship between culture and gender effects. Implications for managers responsible for technology implementation and management are discussed and directions for future research are offered.*

### INTRODUCTION

In today's world of information technology (IT), there are many paths to growth and development through new system design and the generalizabil-

ity of applications. The concept of globalization in business practice has infiltrated the use and management of technologies. Nominally stated, globalization of IT involves the use of technologies across cultural boundaries, including country, re-

gion, industry, geography, and social demography. Many business operations today have segmented their activities across wide geographic domains, including operations that require coordination between units located in different countries or regions. The goal behind the implementation of new IT is the integration of operations and the use of common elements, such as language, functions and scales, across social group (e.g., nationality and gender) boundaries. The degree to which this integration is successful can have a profound effect on the functional utilization of systems to support operations. Of these elements, the need to develop and apply a common metric of technology performance provides a substantial challenge, both within and between groups. This challenge is magnified by the differences in value and attitudinal orientations among technology users who apply different judgments, assessments, and evaluations in their daily utilization of information systems.

Global competitive pressures are compelling firms in supply chains to continually evaluate and re-assess their network designs. In doing so, many are finding that cross-border organizational linkages are becoming essential for developing and maintaining effective strategic partnerships. Maintaining these cross-border relationships requires not only developing, implementing, and maintaining a consistent technology across partnering organizations, but also the capability to effectively manage cultural differences across groups of technology users.

With the increasing globalization of manufacturing and service businesses around the world, the adoption and utilization of new technology in the workplace constitutes a vital aspect of creating and maintaining organizational productivity and competitiveness (Hicks & Nivin, 2000). Such technologies are recognized as drivers of globalization because of the coordination and control capabilities they provide (Deresky, 2006; Hill, 1997). On a micro level, the integration of supply chain management networks across bor-

ders highlights the importance of both software and hardware technologies in facilitating the visibility, inter-organizational coordination, and higher levels of performance necessary to make these diverse systems work effectively (Hannon, 2003; Trebilcock, 2001).

The reliance on cross-border integration of value-producing activities results in the offshore sourcing of intermediate manufactured goods and services (e.g., software engineering, customer service, and reservation services) to both developed and developing countries (Esterl, 2004; Gumpert, 2004). This means that the particular information technologies that have been designed to facilitate and manage such integration must be implemented and used simultaneously by organizations and workers of different nations and cultures, who bring different value sets and attitudinal orientations to the work tasks. For managers charged with responsibility for the performance of distributed supply chain activities, the potential difficulties associated with implementing new IT in cross-national settings add an important dimension of complexity to their task.

The performance of a technology is a function both of its capabilities and the extent to which these capabilities are used by the individual technology operators within the workplace. Thus, a better understanding of factors associated with technology performance is useful for organizations and provides an important tool to help managers more effectively introduce and manage new systems.

The importance of cultural factors in shaping the context of technology utilization and performance has long been recognized. A recent comprehensive review by Leidner and Kayworth (2006) identified and classified cultural values that impact information systems applications, and presented findings on differences by subgroup in the information systems research domain. Using cultural conflict to reflect cultural difference, Leidner and Kayworth (2006) applied the Hofstede (1980, 1983) dimensions of national culture—power distance, uncertainty avoidance,

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