



The impact of cultural differences on technology adoption

Sang-Gun Lee^a, Silvana Trimi^{b,*}, Changsoo Kim^c

^a Department of Business Administration, Sogang Business School, Sogang University, Seoul, South Korea

^b Department of Management, College of Business Administration, University of Nebraska, Lincoln, NE 68588-0491, USA

^c Abiz Management Research Institute, College of Business Administration, Ajou University, Suwon, South Korea

ARTICLE INFO

Keywords:

Cross-cultural research
Cultural dimensions
Diffusion models
National culture
Technology adoption

ABSTRACT

This study examines the impact of Type I and Type II cultural differences on mobile phone adoption patterns. We use Hofstede's cultural dimensions to examine cultural differences of two countries (Type I: the U.S.; Type II: S. Korea) and employ the Bass diffusion model to delineate innovation and imitation effects on mobile phone adoption. The results show that in Type I culture innovation factor has a significantly higher level of effect on adoption than it does in Type II culture; and in Type II culture imitation factor has a higher degree of effect on adoption than it does in Type I culture. These findings imply that in individualistic cultures, people tend to seek information on their own from direct and formal sources, whereas in collectivistic cultures, people rely more on subjective evaluation of an innovation, conveyed from other-like-minded individuals who already have adopted the innovation.

© 2012 Elsevier Inc. All rights reserved.

1. Introduction

During the last two decades, Information and Communication Technology (ICT) has seen dramatic advances and diffusion. Many ICT products or services have become necessities of everyday life. The effectiveness and efficiency of ICT deployment and use are influenced by national (Al-Ghatani, 2003; Erumban & de Jong, 2006; Straub, 1994; Taras, Steel, & Kirkman, 2011, 2012) and organizational cultures (Cao & Everard, 2008; Lim, Yeow, & Yuen, 2010; Schiller & Cui, 2010). National cultures even play significant roles in the development of national information infrastructure (Apfelthaler, Muller, & Rehder, 2002; Dimitratos, Petrou, Plakoyiannaki, & Johnson, 2011; Garfield & Watson, 1998; Ralston, Hallinger, Egri, & Naohinsuhk, 2005). Cultures at the national level exert a subtle, yet powerful, influence on people and organizations (Leidner & Kayworth, 2006). Systems quality and culture significantly affect trust in the ICT artifact and therefore in their adoption (Vance, Elie-dit-cosaque, & Straub, 2008).

Prior research in the effect of culture on ICT diffusion, as shown in Tables 1 and 2, mostly used survey research, case studies or field investigation involving limited numbers of subjects. To truly capture the impact of national culture on technology adoption, a study should include the entire population of a country. In this study, we examined the impact of national culture on mobile phone adoption by including the entire population of mobile

phone subscribers of each country studied. We also use and adopt the most appropriate research models in this study: the Bass model for the product diffusion/adoption, and the Hofstede's model for the national cultural dimensions.

1.1. The Bass model

The Bass model (1969, 2004) has been employed by numerous studies to analyze sales and the diffusion process of a product. In this study, the Bass model is used for the verified official time-series data (from 1985 to 2008) of the number of all mobile phone adopters (see Table 3). The Bass model includes the *innovation* effect, which comes from the adopter's self-perception and the product's utility; and the *imitation* effect, which results in from interactions between early adopters and potential adopters of a product. In the cumulative curve of adoption, the innovation effect shows a convex shape, while the imitation effect has a concave curve, as shown in Fig. 1.

1.2. The Hofstede model

Hofstede's (1991) cultural dimensions model classifies national cultures into four types. Griffith, Hu, and Ryans (2000), based on the Hofstede's dimensions, suggested two extreme cultural types for study: Type I (individualistic, weak uncertainty avoidance, and low long-term orientation) and Type II (collectivistic, strong uncertainty avoidance, and high long-term orientation). For our research, these two extreme contrasting culture types are chosen to investigate the effect of national cultures on the adoption of mobile phones. We selected two countries, one for each of the two

* Corresponding author. Tel.: +82 2 705 7987; fax: +82 2 705 8519.
E-mail addresses: slee1028@sogang.ac.kr (S.-G. Lee), striimi@unlnotes.unl.edu (S. Trimi), changsookim321@gmail.com (C. Kim).

Table 1
Hofstede's cultural values.

Cultural value	Definition
Individualism/collectivism (IC)	Degree to which the individual emphasizes his/her own needs as opposed to the group needs and prefer to act as an individual rather than as a member of a group.
Power distance (PD)	Degree to which large differentials of power and inequality are accepted as normal by the individual. Power distance will condition the extent to which the employee accepts that his/her superiors have more power.
Uncertainty avoidance (UA)	Uncertainty avoidance is the level of risk accepted by the individual, which can be gleaned by his/her emphasis on rule obedience, ritual behavior and labor mobility. This dimension examines the extent to which one feels threatened by ambiguous situations.
Gender role orientation (MF)	The degree to which gender inequalities are espoused by an individual. Individuals who espouse masculine values emphasize work goals such as earnings, advancement, competitiveness, performance and assertiveness. On the other hand, individuals who espouse feminine values tend to emphasize personal goals such as a friendly atmosphere, comfortable work environment, quality of life and warm personal relationships.
Long-term orientation (LTO)	The degree to which society does or does not embrace long-term devotion to traditional values.

Table 2
Culture, ICT adoption and diffusion at the national level.

Researcher	Independent variables	Dependant variables	Methodology and measure of national culture	Published journal
Straub (1994)	Perceived usefulness, ease of use	Media use (and fax), national culture (UA)	Multi-method study (field interviews, survey, policy capturing) comparing U.S. and Japanese respondents, Hofstede's cultural indices	<i>Information Systems Research</i>
Straub, Keil, and Brenner (1997)	Perceived usefulness, ease of use	Information systems use, national culture (IC, UA, PD, MF)	Survey of airline employees from U.S., Japan and Switzerland, Hofstede's culture indices	<i>Information and Management</i>
Galliers et al. (1998)	National culture	Rate of technology adoption	Single site case study, culture not explicitly measured	<i>Information Technology for Development</i>
Garfield and Watson (1998)	National culture (UA, PD)	Structure of national information Infrastructure	Descriptive case study of government archives across 7 countries, Hofstede's cultural indices	<i>Journal of Strategic Information Systems</i>
Griffith (1998)	National culture (PD)	Satisfaction with Group Support Systems (GSS)	Laboratory experiment comparing U.S. and Bulgarian student GSS teams, Hofstede's culture indices	<i>Interacting with Computers</i>
Jarvanpaa and Leidner (1998)	Resource-based competencies	Information services industry diffusion national culture (IC, UA)	Single site case study (semi-structured interviews) of Mexican firm, Hofstede's culture indices	<i>Information Systems Research</i>
Hasan and Ditsa (1999)	National culture (UA, PD, IC, MF)	Technology transfer outcome	Interpretive field study of 10 organizations in Middle East, Africa and Australia, Hofstede's culture indices	<i>Journal of Global Information Management</i>
Al-Ghatani (2003)	Perceived attributes of technology	Rate of technology adoption, national culture	Survey of 1200 Saudi managers and government officials, culture not explicitly measured	<i>Information Technology for Development</i>
Thatcher et al. (2003)	National culture (UA, IC, PD, MF), qualitative and quantitative work overload	Personal innovativeness with information technology	Survey of U.S. college students, cultural indices by Hofstede	<i>Journal of Computer Information Systems</i>
Chui and Kwok (2008)	National culture dimensions	Life insurance consumption	Survey research with data from 1976 to 2001 across 41 countries, cultural indices by Hofstede	<i>Journal of International Business Studies</i>
Linghui and Koveos (2008)	GDP, national culture (UA, MF)	National culture (IC, LTO, PD)	Survey research, cultural indices by Hofstede	<i>Journal of International Business Studies</i>
Fischer and Mansell (2009)	National culture (IC, PD), economic variables	Types of organizational commitment	Survey research, cultural indices by Hofstede	<i>Journal of International Business Studies</i>

Adapted from Leidner and Kayworth (2006).

Table 3
The Numbers of mobile phone subscribers in the U.S. and South Korea.

Year	U.S.	S. Korea	Year	U.S.	S. Korea
1985	340,213	4685	1997	55,312,293	6,828,169
1986	681,825	7093	1998	69,209,321	13,982,919
1987	1,230,855	10,265	1999	86,047,003	23,442,724
1988	2,069,441	20,353	2000	109,478,031	26,816,398
1989	3,508,944	39,718	2001	128,500,000	29,045,596
1990	5,283,055	80,005	2002	141,800,000	32,342,493
1991	7,557,148	166,198	2003	160,637,000	33,591,758
1992	11,032,753	271,868	2004	184,819,000	36,586,052
1993	16,009,461	471,784	2005	213,000,000	38,342,323
1994	24,134,421	960,258	2006	248,180,000	40,197,115
1995	33,758,661	1,641,293	2007	263,000,000	43,497,541
1996	44,042,992	3,180,989	2008	270,500,000	45,606,984

U.S. data from ITU World Telecommunication; Korean data from the Korean Communications Commission.

Download English Version:

<https://daneshyari.com/en/article/1002152>

Download Persian Version:

<https://daneshyari.com/article/1002152>

[Daneshyari.com](https://daneshyari.com)