Social Networking Sites: An Exploration of the Effect of National Cultural Dimensions on Country Adoption Rates

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Abstract: This study investigates the impact of the several dimensions of Hofstede's cultural framework on the adoption rates of social networking sites (SNS) across 30 countries, while controlling for a country's median age, its urban population level and mobile internet penetration. Hierarchical regressions are conducted. Our findings reveal that three cultural dimensions, i.e., masculinity/femininity, uncertainty avoidance and long-term orientation, significantly impact nations' adoption levels of SNS above and beyond the effects of median age and urban population level. While there is a growing body of literature that examines the influence of national culture on the adoption and use of a variety of high-tech innovations and services mediated by these technologies, our study is among the first to specifically relate cultural perspectives to country adoption levels of social networking sites using an array of cultural dimensions. We provide a theoretical framework and supporting empirical evidence to underscore the importance of understanding how culture impacts consumers' SNS adoption behavior across countries. Implications from our findings, limitations and directions for future research are provided.

1 INTRODUCTION

It is estimated that in 2014 global social media users have now surpassed the 2 billion mark, more than doubling from where it was just four years ago (Kemp, 2014; Statista.com, 2015). Social media plays an increasingly important role in people's lives. The digitization of content, proliferation of access through mobile devices, growing availability of online retailing and interactive marketing communication strategies have all contributed to the phenomenal evolution of the social media landscape. Firms are responding to these trends by engaging in strategic marketing initiatives, such as utilizing multichannel marketing, developing apps, or using novel ways to make their brands more accessible, engaging and shoppable via SNS. A recent study conducted by Van Belleghem (2011) revealed that more than half of users were following brands on social media and preferred to share their positive brand experiences on this media. Both of these activities have been shown to strongly influence brand perceptions and buying intentions.

SNS provide virtual online contexts where individuals can communicate, interact, share and exchange content with others, overcoming the temporal and geographic boundaries that may separate them (Sawyer, 2011). Chen and Zhang (2010) have noted that new media and globalization have converged to compress time and space, thereby transforming the world into a smaller interactive field.

Despite the apparent appeal of SNS, country adoption rates and the manner by which the populace engages with SNS vary considerably. For example, Van Belleghem (2011) found that the population of countries in emerging markets like Brazil, China and India had higher awareness, participated in more networks and had higher daily usage rates than those from many countries in Western Europe. Even though the overall Internet penetration in emerging markets is still somewhat lower than in developed nations, the consumers from these countries who are online ostensibly have a higher level of social media engagement. A recent report from Forrester (Nielsen, 2012) revealed that social media users in the West prefer to consume content more than create it. Despite having the longest access to social media, online users in North America and Western Europe appear to have much more passive attitudes toward it. In addition to the apparent differences across global regions, there is

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also considerable variation within regions themselves. In Asia, Japan has a 35 percent SNS penetration rate, while Indonesia, China, and India all boast rates above 60 percent (eMarketer.com, 2012). Nielsen (2012) suggests that Japan may not follow the emerging Asian social media patterns because aspects of Japanese culture carry through to social media preferences, i.e., Japanese consumers have a greater preference for online anonymity.

Such unevenness in SNS country penetration rates and usage patterns implies that we still need to develop a better understanding the potential impact of culture on the adoption and use of SNS. From both macro-marketing and micro-marketing perspectives there are additional reasons for focusing research attention on this phenomenon. One consideration is the reciprocal relationship between technology and quality of life (United Nations Development Programme 2008; Hill and Dhanda 2004). Another is marketing's influence on consumer satisfaction and well-being (Pan et al., Sheng 2007). Consequently, marketers are increasingly seeking new ways in which consumer-brand engagement can be formed, nurtured and sustained across multiple potential touch points, especially via virtual interactions (Schultz and Peltier, 2013). Building on past investments in websites and e-commerce, new investments in social media platforms, mobile apps, payment systems and other emerging technologies have the potential to facilitate consumers sharing and exchanging of knowledge; to create or enhance functional, time, place and information utilities; and thus enhance customer satisfaction and perceived quality of life for people around the globe.

With the advent of social media comes the growing interest in conducting research on it by both academics and practitioners (Schultz and Peltier, 2013; Tsai and Men, 2012). This growing literature spans a wide range of affiliated topics, including users' experiences and gratifications (Dunne et al., 2010; Palmer and Koenig-Lewis, 2009; Raacke and Bonds-Raacke, 2008), perceived ease of use and perceived usefulness of SNS (Pinho and Soares, 2011), branding impact of user-generated content (UGC) and eWOM on SNS (e.g., Christodoulides et al., 2012; Goodricha and De Mooij, 2013, Jansen et al., 2009; Lin et al., 2012), evaluation and measurement of consumer-brand engagement of SNS (e.g., Dix, 2012; Gambetti and Graffigna, 2010; Keller, 2010; LaPointe, 2012; Quinton and Harridge-March, 2010; Schultz and Block, 2012; Singh and Sonnenburg, 2012, Trueman et al., 2012; Valette-Florence et al., 2011), perceived risk and privacy disclosure behavior on SNS (Xu et al., 2013), cultural distinctive appeals on SNS (Tsai and Men, 2012), etc. As this inventory suggests, studies exploring the relationship between culture and online networking behavior have not been featured prominently in the extant research literature.

Reflecting the several calls by researchers (e.g., Goodricha and De Mooij, 2013; Ribiere et al., 2010; Rosen et al., 2010; Steers et al., 2008) to address this gap, we explore cultural explanations for why the populations of many countries are lagging behind others with regard to the adoption and use of SNS. Thus, the intent of the present study is to determine whether and how cultural factors influence the country adoption rates of SNS and the usage patterns of populations, specifically average time spent on social media.

In the following sections, we first elaborate on the theoretical background upon which our research hypotheses are formulated. Specifically, both the diffusion of innovations literature and Hofstede's national culture framework (2001) frame our investigation into the adoption and use of SNS. Next, methodological procedures are outlined, along with and empirical test of our hypotheses using secondary data for 30 countries that have been drawn from several reputable sources, including We Are Social Inc. (wearesocial.com), The Hofstede Centre (geert-hofstede.com) and CIA World Fact Book. After a discussion of the results, we conclude with implications and directions for future research.

2 LITERATURE REVIEW AND HYPOTHESES

2.1 Social Networking Sites (SNS)

The explosive growth of online social media use worldwide is indicative that SNS have become one of the most prominent social computing applications in the Web 2.0 era (European Commission, Joint Research Centre, Institute for Prospective Technological Studies, 2009). Kaplan and Haenlein (2010, p. 60) define social media as "a group of Internet-based applications and technological foundations of Web 2.0, and that allow the creation and exchange of User Generated Content." SNS are web-based services that allow individuals to (1) construct a public or semi-public profile within a bounded system, (2) articulate a list of other users with whom they share a connection, and (3) view and traverse their list of connections and those made

by others within the system. Consequently, SNS enable users to build personal profiles, publish information, promote dialogues, and share networks, experiences and knowledge within a defined system (Boyd and Ellison, 2008; Constantinides and Fountain, 2007). Many users of SNS are active content generators and critics, rather than merely being passive content consumers. SNS have shown great potential to influence the way people socialize, entertain, shop, acquire and consume information and make decisions. Marketers, in turn, have increasingly turned to marketing strategies that allows them to monitor and shape users' online communications on SNS while also engaging consumers with their brands in a more active, voluntary and interactive fashion.

2.2 Adoption of Technological Innovations

Diffusion of innovations (DOI) theory explains how adoption takes place over time within a social system. The adoption rate of an innovation is influenced by (1) characteristics of the innovation itself, (2) the communication channels through which the benefits of the innovation are communicated, (3) the time elapsed since the introduction of the innovation and (4) the social system in which the innovation is to diffuse (Rogers, 1983). While it has been common to use individuals as the unit of analysis in adoption studies, the system level can also be used. Studies embracing the system level, consider the nature of a social system and the relative extent to which an innovation is adopted within communities, countries, or other social units having different macroenvironmental characteristics (e.g., economic, demographic, technological and cultural factors). These factors can be used to compare the adoption rates of different innovations as well as the relative extent to which particular innovations are adopted across social units with varying macroenvironmental conditions. Culture can play an implicit or explicit role in such comparisons (Maitland and Bauer, 2001) and the diffusion of innovations can be envisioned as a prolonged process through which the new culture element(s) is (are) presented to the society, then accepted by its people and further integrated into a preexisting culture (Dearing, 2009).

2.3 Culture

Culture has been described and defined in many ways. Geertz (1973) labels it as the fabric of meaning through which people interpret events around them. Trompenaars and Hampden-Turner (1998) depict it as the manner in which a group of people solves problems and reconciles dilemmas. Hofstede (2001) describes it as the collective mental programming of a people that distinguishes them from others. Common to all of these definitions is the notion that while culture may be abstract it is characterized by shared values and norms and mutually reinforcing patterns of behavior (Steers et al. 2008). Culture is learned and evolves over time (Hofstede and Bond, 1988; McCort and Malhotra, 1993; Ward et al., 1987). However, culture does have definite characteristics that are observable and amenable to empirical description (Strauss and Quinn, 1992; Rohner, 1984).

One may conceive of culture in terms of its parts, components, functional segments or institutions, such as the economic system, the family, education, religion, government and social control, language and communication, and transformation and technology (Baligh, 1994; Chanlat and Bedard, 1991; Culpan, 1991; Ferraro, 1990; Hall and Hall, 1987 and 1990). To the individual consumer, these social, economic, and institutional structures and related macroenvironmental influences determine the overall context, or "objective reality," in which he or she makes a purchasing decision. Beliefs, values, logic and decision rules are also basic components of a culture. They are internalized and constitute the "subjective reality" of the individual consumer, i.e., personal values are heavily influenced by cultural values since individuals are expected to abide by the values that are promoted in their society as being important and useful (Clawson and Vinson, 1978; Patwardhan, 2013). Hence, culture can be seen as being an underlying framework, consisting both of the objective reality, as manifested in societal institutions, and the subjective reality, which comprise socialized predispositions and beliefs that guides individuals' perceptions of observed events and personal interactions, and the selection of appropriate responses in social situations (Johansson, 1997). In sum, an individual's behavior is both a component and a reflection of the culture in which they are embedded (Baligh, 1994).

As noted by Cheng and Wong (1996), culture influences the social construction of phenomena, such as meanings and practices. Learning, too, is a fundamentally cultural endeavor, i.e., humans learn norms through imitation or by observing the process of reward and punishment in a society of members who adhere to or deviate from the group's norms (Engel et al., 1995). Furthermore, meanings, values,

ideas and beliefs of a social group are articulated through various cultural artifacts, such as products, information and communication technologies (Hasan and Ditsa, 1999).

2.4 Hypotheses of National Culture and Adoption of Technological Innovations

Hofstede (1991) argues that people share a collective national character that represents their cultural mental programming, which in turn shapes individuals' values, beliefs, assumptions, expectations, attitudes and behaviors. Hofstede initially identified four dimensions along which national cultures vary: power distance, uncertainty avoidance, individualism vs. collectivism, and femininity vs. masculinity (Hofstede, 1980 and 2001). More recently Hofstede has expanded his taxonomy to include long-term vs. short-term orientation and indulgence vs. restraint and provides ratings on these dimensions for many countries (Hofstede, 2015-a & b).

In recent years numerous studies have employed Hofstede's framework (e.g., Dwyer et al., 2005; Ganesh et al., 1997; Kumar and Krishnan, 2002; La Ferle et al., 2002; Tellis et al., 2003; Van Everdingen and Waarts, 2003; Yeniyurt and Townsend, 2003). For example, the study done by La Ferle and colleagues (2002) examined the adoption of the Internet in Japan versus the United States and found that differences on cultural dimensions explained some of the variance in Internet penetration and patterns of adoption, even though Japan and the U.S. share similar characteristics in terms of economic conditions, literacy rates and technological infrastructure. Yeniyurt and Townsend (2003) found a strong association between the cultural dimensions and the penetration rates of new high-tech products (i.e., the Internet, Cellular phones and PCs) and that this relationship was moderated by social-economic variables.

Rather than restricting our attention to individualism vs. collectivism and femininity vs. masculinity, the two cultural dimensions that past research has indicated to be relevant to users' online communication behaviors (e.g., Goodricha and De Mooij, 2013; Rosen et al., 2010) the current study encompasses all six. Drawing on the extant literature, we posit a rationale for each below.

Individualism-Collectivism is one of the most widely studied dimensions in cross-cultural research (Gudykunst, 1998; Kim et al., 1994; Triandis, 1989; Triandis et al,. 1988; Zhang and Gelb, 1996). This dimension describes the relation between the group and the individual. Individualist cultures are characterized by a loosely knit social framework in which individuals focus on taking care of themselves and their immediate family. Personal freedom is valued and individual decision-making is encouraged in societies found toward the individualistic end of the spectrum (Singh et al., 2003). In contrast, members from collectivistic societies are apt to be integrated into stronger, more cohesive groups. Relatives and others in this extended social group are expected to look after individuals within them in exchange for obedience and loyalty. Obligations and group harmony come before individual aspirations or goals in collectivist cultures (De Mooij, 1998).

Members of individualist cultures tend to exhibit more favorable attitudes toward differentiation and uniqueness (Aaker and Maheswaran, 1997). An individual's identity is largely defined by one's role in various social relationships. Social networking can be used to heighten one's identity, especially social identity, via self-expression and extra self-awareness. (Rosen et al. (2010) found a propensity to engage in more attention-seeking behaviors via SNS in individualistic cultures. They also reported that social media users from more individualistic cultural backgrounds (1) have larger networks of friends on SNS, (2) whose networks include a greater proportion of friends who have not been met face-to-face, and (3) share more photos online, as opposed to users who identify with more collectivist cultural backgrounds.

It is important to note that while people in individualist cultures seem to have more freedom to try new things than those in collectivistic societies, members from collectivistic societies may be more inclined to join and participate in SNS to gain a sense of belonging, fulfill group obligations and achieve group harmony. Gangadharbatla (2008) provided evidence that the need to belong has a positive effect on a person's attitude toward SNS and willingness to join them. Kim and Yun (2007) found that most Koreans who participated in the SNS were doing so to keep close ties with a small number of friends instead of befriending new people. This juxtaposition is in line with the extant research that distinguishes between two processes that explain diffusion, i.e., innovation and imitation. Populations from individualistic countries appear to be quicker to adopt in the early stages, whereas collectivistic countries have adoption rates that are greater in the later stages, which may be indicative

of when enough of a critical mass of adopters exist (Lee et al., 2013; Peng and Mu 2011).

Based on the above discussion, plausible theoretical arguments can be made for both individualism and collectivism. Given the lack of a preponderance of evidence to substantiate one perspective, we pose the following competing hypotheses:

- H1: Nations whose cultures represent higher levels of individualism (IDV) will show higher adoption rates of SNS.
- H2: Nations whose cultures represent higher levels of collectivism will show higher adoption rates of SNS.

Masculinity-Femininity addresses the extent to which a society is characterized by assertiveness versus nurturance and is closely related to societal expectations of gender roles. Masculine cultures value achievement and material success more and also tend to have clear role distinctions between males and females. In contrast, feminine cultures value relationships, caring, and are not apt to have such rigid gender roles (Hofstede, 1980 and 2001).

Although SNS can serve a utilitarian purpose and foster commercial pursuits, which is likely to be aligned with masculine cultures where material things and career advancement are highly valued, the social aspects of SNS can be expected to be more germane in feminine cultures where the nurturing of personal relationships is more cherished (Ribiere et al., 2010; Singh 2006). Pew Internet & American Life Project (Pewinternet.org, 2012) reports that women have been significantly more likely to use SNS than men since 2009 (Brenner, 2012). Hargittai (2007) found that women were not only more likely to use SNS than men but also more likely to embrace different services such as Facebook, MySpace, and Friendster. Sveningsson Elm (2007) reported more women than men emphasized their relationships and expressed stronger feelings about them in an online meeting place. Joinson (2008) found women used SNS more to explicitly foster social connections. Jones and his colleagues (2008) reported significant differences on blog usage between genders, with female users being more likely to use the blog feature available on MySpace and write about their family, romantic relationships and health than male users. In a series of studies of the social networking website MySpace, Thelwall (2008 and 2009) and his colleagues (2010) reported that females were likely to give and receive more positive comments than were males, which suggests females have a greater ability to textually harness positive affect. Together, the research above suggests that systematic differences based on gender persist in users' online networking behavior.

Again, given the conflicting theoretical arguments, we pose competing hypotheses:

- H3: Nations whose cultures represent higher levels of masculinity (MAS) will show higher adoption rates of SNS.
- H4: Nations whose cultures represent higher levels of femininity will show higher adoption rates of SNS.

Power distance is the extent to which the less powerful individuals of a society (and less powerful members of organizations and institutions within that society) accept and expect that power will be distributed unequally. This view of a society's level of inequality is embraced by followers as well as by leaders (Hofstede, 1980 and 2001). Singh (2006) notes that the dimension of power distance has been found to be inversely related with individualism, which suggests the following:

- H5: Nations whose cultures represent higher levels of power distance (PDI) will show lower adoption rates of SNS.

Uncertainty avoidance represents a society's tolerance for uncertainty and ambiguity (House et al. 2004). It can be shown by the degree of comfort or discomfort in novel, unknown, surprising, or unusual situations. Uncertainty avoidant societies tend to be distrustful of new ideas and stick to historically tested patterns of behavior. They are more prone to have strict laws and rules, safety and security measures, and philosophical and religious beliefs that tend toward absolute "truth". Conversely, uncertainty accepting cultures are more tolerant of different behaviors and opinions, are likely to have fewer rules, and tend to be more relativist from philosophical and religious perspectives (Hofstede, 1980 and 2001; Singh, 2006).

House et al. (2004) contend that uncertainty avoidance is the cultural dimension that most strongly correlates with technology adoption. While uncertainty-avoiding cultures may tend to resist change, this does not necessarily imply that they are averse to adopting new technologies (Barron and Schneckenberg, 2012), but it does appear to influence timing, i.e., when and how long the adoption process takes before a significant penetration level is achieved. For example, Sundqvist et al. (2005) reported that uncertainty-avoiding cultures needed more time than uncertainty-accepting cultures to adopt new technologies and concluded that the majority preferred to observe the experiences of early adopters before they made their technology-

implementation decisions. Other researchers (e.g., Garfield and Watson, 1998; Hasan and Ditsa, 1999; Veiga et al, 2001) have found that uncertainty-avoiding cultures tend to adopt new technologies later than uncertainty-accepting ones. Taken together, these findings suggest that imitation may be the dominant process influencing diffusion in uncertainty-avoiding cultures. Thus we propose:

- H6: Nations whose cultures represent higher levels of uncertainty avoidance (UAI) will show lower adoption rates of SNS

Long-term vs. short-term orientation captures whether a society is oriented towards future rewards, and thus lauds saving, persistence, and adaptation, versus those that focus on the past and present, where national pride, respect for tradition and traditional values, preservation of face, and fulfilling social obligations are dominant sentiments (Franke et al., 1991; Hofstede, 2001; Hofstede and Minkov, 2010; Minkov and Hofstede 2012). Long-term oriented cultures are more open to new ideas; in such countries the rate of adoption of new technologies is expected to be higher than in countries with cultures that are more short-term oriented (Erumban and de Jong, 2006; Van Everdingen and Waarts, 2003). Accordingly, we hypothesize:

- H7: Nations whose cultures represent long-term orientations (LTO) will show higher adoption rates of SNS.

Indulgence vs. restraint is the most recently added dimension to Hofstede's typology. This dimension represents whether a society tends to allow relatively free gratification of basic and natural human drives, i.e., are oriented toward enjoying life and having fun. Conversely, a restrained society constrains gratification of needs through means of strict social norms (Franke et al., 1991; Hofstede, 2001; Hofstede, 2015-a; Minkov, 2011). In indulgent cultures people tend to focus more on individual happiness and well-being., Furthermore, time is more important and individuals perceive themselves to have greater freedom and personal control. Conversely, in restrained cultures positive emotions are less freely expressed and happiness, freedom and leisure are not given the same importance (MacClachlan, 2013). We thus propose:

- H8: Nations whose cultures represent higher levels of indulgence (IND) will show higher adoption rates of SNS.

Control Variables. The diffusion literature shows that adoption and diffusion process is influenced by variety of socioeconomic factors and the economic and technological infrastructure of a country may have a concrete and direct manifestation of a culture's impact on consumer behavior (Yeniyurt and Townsend, 2003). Thus we also include other country-level variables in our model to empirically account for extraneous factors that may influence adoptions levels. These include: a nation's mobile Internet penetration, urban population and the median age of the nation.

Dutta and Bilbao-Osorio (2012) argue that the world is becoming hyperconnected, fueled by the exponential growth of mobile devices, big data and social media. Mobile broadband has become the primary method of access for people around the world (Bold and Davidson, 2012). Therefore, the penetration rate for mobile Internet is included to account for its impact on access to and use of SNS.

Drawing on urban density theory, SNS may benefit from easier and cheaper access to ICT (information and communications technologies) infrastructure because adoption costs are likely to decrease when population size and density increase (Forman, 2005; Billon et al., 2009). Reino, Frew and Albacete-Saez (2010) have reported that rural businesses tend to have weaker technology adoption than those located in urban settings, which suggests that access, scale economies and associated cost structures may be the underlying reasons. Hence, a nation's urban population is included to account for the potential influence derived from the inherently greater market potential, deployment and marketing efforts on the part of mobile providers.

The literature also suggests that young people are more favorably disposed toward change (Schiffman and Kanuk 2003) and have been found to be more receptive to new ICT innovations such as the mobile phone and ICT-mediated services such as ATMs and Internet banking (Eastin 2002). Teens and young adults have been consistently reported to have highest wireless and SNS usage rates (pewinternet.org, 2013). We posit that nations with a relatively young population should be more receptive to adoption since country-level penetration rates are effectively an aggregation of individual consumption decisions. Thus we include the median age of a nation as our final control variable.

3 METHODOLOGY AND FINDINGS

This study examines culture's impact on global adoption and use of SNS. Since it is a challenge to collect data for a multivariate analysis on a global scale, we utilize secondary data from reputable

sources, namely Hofstede's (2001) cultural dimension scores, We Are Social's 'Digital, Social and Mobile in 2015 Report' for global social media penetration rates and mobile Internet penetration data (Kemp, 2015), and the CIA World Factbook for a nation's median age and urban population data (CIA, 2014). Altogether, data are available for 30 countries. The list of countries in this study is available from the authors.

The hypotheses regarding the effects of the six cultural dimensions were tested in a hierarchical fashion using ordinary least squares (OLS) regression. In the Baseline Model, the main effects of the three control variables were assessed. In the Full Model, the main effects of the six cultural dimensions were then added and the model was re-estimated. The significant overall F values in all models are indicative that interpretation of the individual regression models and parameter estimates for the independent variables are warranted. Regression results are displayed in Table 1.

Table 1: Regression Results (Standardized Coefficients & t-Values Shown).[1]

DV: Adoption Rate of SNS	**Baseline (Control Variables Only)**	
Urban Population 2014	.03	0.15 ns
Median Age 2014	.08	0.42 ns
Mobile Internet Penetration 2014	.46	2.26 **
F-value *(df1,df2)*	***F(3,26) = 4.90****	
R² (Adjusted R²)	***.36 (.29)***	

DV: Adoption Rate of SNS	**Full (Control & Substantive Predictors)**	
Urban Population 2014	.56	3.19 *
Median Age 2014	.90	3.50 *
Mobile Internet Penetration 2014	-.16	-0.91 ns
IDV (H 1-a & H 2-a)	-.25	-1.19 ns
MAS (H 3-a & H 4-a)	-.31	-2.42 **
PDI (H 5-a)	.27	1.30 ns
UAI (H 6-a)	-.44	-3.49 *
LTO (H 7-a)	-.69	-3.54 *
IND (H 8-a)	.23	1.45 ***
F-value *(df1,df2)*	***F(9,19) = 5.98****	
R² (Adjusted R²)	***.74 (.62)***	
Δ F-value	***Δ F(6,19) = 4.59 ****	
Δ R²	***Δ R² = .38***	

As we can see from Table I, the coefficients of three of the cultural variables, i.e., masculinity/femininity (MAS), uncertainty avoidance (UAI) and long-term orientation (LTO) were significant and another, indulgence (IND), was marginally significant in the Full Model. Moreover, the addition of the main effect terms relating to the cultural dimensions resulted in a significant improvement in the explanatory power of the model, i.e., R^2 showed a significant improvement by increasing from .36 to .74. Based on these results, we conclude:

- Neither hypotheses 1 or 2 were supported; individualism/collectivism (IDV) was found to be non-significant.
- Hypothesis 4 was supported, while hypothesis 3 was refuted. Masculinity/femininity (MAS) was found to be significant, but negative, which is consistent with the social rationale for SNS rates to be higher in feminine cultures.
- Hypothesis 5 was not supported; power distance (PDI) was found to be non-significant.
- Hypothesis 6 was supported; uncertainty avoidance (UAI) was found to be significant and negative, which means that lower SNS adoption rates were found in nations that were more uncertainty avoidant.
- Hypothesis 7 was not supported; although long-term orientation (LTO) was found to be significant it was negative, which is contrary to our expectation. This result suggests that short-term oriented cultures had higher SNS adoption rates.
- Hypothesis 8 was marginally supported; as expected, indulgence (IND) was found to be positive although only significant at the $p < .10$, which suggests that higher SNS adoption rates are found in more indulgent cultures.
- Two of the control variables, median age and urbanization, were found to be significant and positive.

4 DISCUSSION

Overall, the results of our hierarchical regressions support the general premise that culture does influence the county adoption rates of SNS and that inclusion of cultural dimensions provide a significant increase in the explanatory power of the model beyond merely considering nations' social (demographic) and technical contexts.

Unlike the study by Rosen *et al*. (2010), this study revealed no significant impact of individualism (IDV) on SNS adoption, thus failing to support either of the competing hypotheses we posed (H 1 and H 2). One possible explanation,

[1] Significance levels (one-tailed test) **** = p < .01; ** = p < .05; *** = p ≤ .10; ns = not significant***

given the small sample size of countries, is that this effect may be relatively weak and we simply did not have enough power for the apparent negative effect to achieve significance. Another potential reason could be that both innovation and imitation processes are taking place and cancelling out one another.

Finding support for Hypothesis 4 over 3 is indicative that more feminine cultures appear be more conducive to adopting SNS than those that are more masculine (MAS). This is in line with other studies that have reported that women typically outnumber men on SNS and tend to use SNS more than men and for different and more social purposes (Hampton et al., 2011; Koetsier, 2012; Joinson, 2008; Van Belleghem, 2011).

We found no significant impact of power distance (PDI) on SNS adoption, thus failing to support Hypothesis 5. Consequently the role of this cultural dimension on the adoption of SNS remains equivocal.

Empirical support for Hypothesis 6, i.e., uncertainty avoidance (UAI) was found to be significant and negative, is consistent with the premise the adoption of SNS is apt to be higher in uncertainty accepting cultures where different behaviors and opinions are more likely to be tolerated (Hofstede, 1980 and 2001; Singh, 2006). SNS, with the ability to create and share content, provides a platform for self-expression with less risk to the originator.

Our lack of support for Hypothesis 7, which related to long-term orientation (LTO) (i.e., the significant but negative coefficient), was unexpected given an abundance of empirical research supporting the proposition that the rate of adoption of new technologies is expected to be higher in long-term oriented nations than in countries with cultures that are more short-term oriented (e.g., Erumban and de Jong, 2006; Van Everdingen and Waarts, 2003). While long-term oriented cultures are thought to be more open to new ideas and more adaptive, the emphasis on fulfilling social obligations in short-term oriented societies (Hofstede, 2001; Minkov, 2010) may foster the adoption of SNS since this is a medium that enables the conveyance of richer, more nuanced messages beyond the verbal or written word. Thus, further conceptual development appears to be warranted.

Although the coefficient for indulgence (IND) was in the expected positive direction (Hypothesis 8), it was only marginally significant ($p < .10$), thus providing weak support for the premise that more indulgent cultures will have higher SNS adoption rates.

5 IMPLICATIONS, LIMITATIONS AND FUTURE RESEARCH

Culture influences people's beliefs and values, which in turn, shape their behaviors. The effect of the cultural environment is important in the sense that it determines the unique social values of the population of a particular country (Fields, 1983), which may foster or retard the adoption of technological innovations, including SNS. Hence, marketing activities related to the commercial introduction of these innovations need also be culturally nuanced (Takada and Jain, 1991). As Schultz and Peltier (2013) have observed, research is still at an embryonic stage despite the growing attention to social media marketing. Our results underscore the need to further explore how cultural factors influence people's adoption and SNS. Individuals can and do use SNS to present themselves and interact with others, including businesses.

This study constitutes a novel contribution to the literature and further enhances our understanding of the importance of cultural influences on consumers' adoption of SNS. Overall, our results are intriguing since they do provide evidence of culture's role in influencing country adoption rates of SNS. Moreover, this study is one of the few to take a comprehensive approach and include all six of the cultural dimensions that are prominent in the conceptualizations of Hofstede (1980 and 2001), House et al. (2004) and. Minkov (2010) as predictors.

Our results suggest that international marketers, nongovernmental organizations (NGO) and/or government bodies should use culturally-sensitive criteria when determining which social media platforms to employ to communicate with particular country or regional markets and in the design of messages used to interact with targeted segments. Communication materials are key carriers of cultural values (Cheong *et al*., 2010), which implies that the degree to which social marketing strategies and tactics align with a culture may be an important determinant of the relative success or failure of those efforts in a particular country. Promotional messages on SNS can play an essential role in communicating with targeted audiences and heightening their engagement with a brand, an entity or an initiative.

Cultural characteristics can also be used as screening criteria for selecting countries where marketers might more heavily employ social media strategies versus using more traditional media, not only to promote products, but also to support learning, social inclusion, health and governance (European Commission, Joint Research Centre, Institute for Prospective Technological Studies, 2009).

We would be remiss if we did not acknowledge the limitations to this study. One is to recognize our reliance on secondary data obtained from different sources, which has been criticized for being inconsistent and unreliable (Yeniyurt and Townsend, 2003). Another is the limited sample size and cross-sectional design. Due to the limited availability of the data, only one year adoption rates for a limited number of countries were included. To enhance the generalizability of the results of this research, time-series data for a larger sample of nations representing greater diversity are required in order to form more conclusive ideas about the adoption and diffusion of SNS across countries.

Another limitation is that we only employed a main effects model. Thus we are not able to address whether these cultural dimensions operate independently of one another or in a contingent fashion to enhance or retard the adoption of SNS in particular countries. Furthermore, we implicitly assume that the effect of these cultural dimensions is linear, rather than curvilinear. Thus additional conceptual development and empirical research is warranted.

Despite these limitations, our study has provided new insights about how cultural differences influence the country-level adoption rates of social networks. We hope further research in cross-cultural comparisons about the role and effects of cultural factors on the adoption and use of SNS will follow.

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