An Exploratory Cross-National Study of Information Sharing and Human Resource Information Systems

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ABSTRACT

Information sharing has recently received considerable academic interest because of the importance knowledge management plays in the creation of sustained competitive advantage for global firms. The interest is attributed to the need for achieving higher levels of worker empowerment and effectiveness. However, the existing research in the area lacks an examination of how national differences impact information sharing activities. This study responds to this need by presenting a structured yet exploratory inquiry into factors impacting information sharing and the adoption of Human Resource Information Systems (HRIS) by examining key national differences. Assessing national differences is extended beyond the examination of national culture by including institutional contexts in the study. Using a 22-country sample from the CRANET database, the study suggests there is a significant and predictable variation in the level of information sharing and HRIS adoption in firms from different countries, and that national differences, including cultural and institutional contexts, have an impact on information sharing. The study also indicates that the level of HRIS adoption is positively associated with information sharing. The authors discuss these findings, their implications for research and practice, and address limitations along with opportunities for future research.

Keywords: *Exploratory Cross-National Study, Human Resource Information Systems, Information Sharing, International Business Practice, Knowledge Management*

INTRODUCTION

Understanding national differences is critical as organizations continue to expand operations beyond their home borders. However, the study of information sharing and information technology adoption, two key aspects of managing geographically and culturally diverse workforces, has not been fully addressed from a broad-based international perspective in a

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single research model. In response to this gap in the existing literature, our study focuses on the relationship between national difference, information sharing, and Human Resource Information Systems (HRIS).

National culture, information sharing, and information technology (IT) adoption have become increasingly important topics in managing organizational members and information (Gibson, Porath, Benson, & Lawler, 2007; Luo & Shenkar, 2006; Pfeffer, 2005). Particularly, information sharing and IT are important themes in global business (Griffith, Cavusgil, & Xu, 2008; Torre & Moxon, 2001). For the past decade there has been an increase in attention to such areas as knowledge management (Foss & Pedersen, 2004), participatory management (Ichniowski & Shaw, 1999), organizational learning (Kang, Morris, & Snell, 2007), and strategic use of IT (Alavi & Leidner, 2001). Studies have consistently recognized that people are an important source of sustained competitive advantage. To effectively execute their duties, workers must be well-informed about internal and external conditions of the organization (Pfeffer, 2005). Thus, information sharing through formal and informal systems facilitates employee learning and results in competitive advantage (Gibson et al., 2007).

Both research and practice indicate that IT plays a large role in knowledge management and organizational learning by making firm-wide sharing of organizational, financial, and operational information possible (Alavi & Leidner, 2001; Haines & Lafleur, 2008). In particular, some (Becker & Huselid, 1998; Chow, 2005) of the literature on human resources recognizes information sharing and IT as vital elements for organizations to develop such capability. Increasingly, the role of what is broadly called as HRIS tends to go beyond "automating" and now is becoming "informing" employees and managers through easy access to organizational knowledge (Hendrickson, 2003; Shani & Tesone, 2010). Previous studies have attempted to examine the impact of IT on the level of information sharing in the contexts of technologies such as communication systems and enterprise systems (Alavi & Leidner, 2001; Davenport, 1998), but there has been little research on HR-related IT in relation with organization-wide information sharing.

In addition, as more firms are "going global" for the acquisition of materials and workers, and in the pursuit of additional sales, there has been a large body of research on the role of national difference in many dimensions of firm activities (Ichniowski & Shaw, 1999; Katz & Townsend, 2000; Kogut & Singh, 1988; Niederman, Boggs, & Kundu, 2002; Tellis, Stremersch, & Yin, 2003). Recently, studies have examined the role of national culture on organizational practices such as information sharing (Chow, Harrison, McKinnon, & Wu, 1999; Shin, Ishman, & Sanders, 2007). Most of these studies have focused on only two or three countries and related differences in information sharing, management styles, and others. In this regard, studies using a large sample of data from multiple countries can further advance our understanding of the impact of national culture on information sharing.

Finally, there have been several studies examining the relationship between national culture and IT adoption and usage (Martinsons, 1994; Straub, 1994). However, limited research exists that focuses on HR-related IT in a national culture framework. Related to studying the variation that national difference causes in organizational practices, a growing number of recent studies (Parboteeah & Cullen, 2003; Tsui, Nifadkar, & Ou, 2007; Tung, 2008) suggest the necessity of including not only national culture but also institutional contexts when examining national difference.

Our study attempts to respond to the need for a broader inquiry into national difference, information sharing, and HR-related IT (or Human Resource Information Systems, HRIS) adoption. In this study national difference is assessed using two dimensions: National culture and Institutional contexts. First, we provide a brief review of three streams of research: national differences, information sharing, and HRIS. Then, we present a theoretical framework integrating national culture and institutional fac-

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tors and develop several hypotheses to test the relationships of national difference, information sharing, and HRIS adoption. We assess firm-level data from a 22-country sample from the CRANET database to evaluate the significance of such relationships.

Our analysis indicates there is a significant variation in the level of information sharing and HRIS adoption among different countries and national differences, including institutional contexts such as economy and education. In addition, our research suggests national differences, such as systematic tendency to avoid uncertainty and educational attainment, are powerful predictors for variations in the level of information sharing. We find that a country's economic development is an important predictor for variations in HRIS adoption. That is, countries with higher levels of industrialization and education, and lower levels of uncertainty avoidance, tend to exhibit higher information sharing and HRIS adoption rates. Our analysis also indicates that the adoption of HRIS is positively associated with information sharing. Finally, we discuss these findings, their implications for research and practice, and address limitations of our work along with opportunities for future research.

The contributions of this study are clear. While there has been much research interest in information sharing and IT for HR, studying these two innovative organizational practices simultaneously through a cross-national framework is rare. Most previous studies of information sharing and HRIS have tended to focus on a single organization or, at most, one or two countries. We believe that the major contribution of this study is the development of a theoretical research framework integrating cultural and institutional factors to understand those two important themes in global information management. This framework can be useful to study the adoption of other organizational innovations by firms in different countries. Another major contribution is that this study presents broad cross-national findings from several world regions about the adoption of information sharing and HRIS. This sheds particularly light on the role of national culture and societal institutions for explaining a significant variation of organizational and technological innovations in firms from different countries. The findings of this study suggest that researchers and managers alike should pay keen attention to the influence of a nation's cultural and institutional factors on the adoption and diffusion of information sharing and HRIS. Several avenues of future research emerge from these findings and suggestions.

BACKGROUND LITERATURE

The present study focuses on a relationship between information sharing, HRIS, and cross-national differences. Organizational institutionalism is the guiding theoretical perspective. Through this theoretical lens, organizations "are influenced by their institutional context" (Greenwood, Oliver, Suddaby, & Sahlin, 2008, p. 3). Institutional theory researchers have focused partly on how the context of organizations create "an inexorable push towards homogenization" which leads organizations in a common context (such as the same country) to have similar organizational practices (DiMaggio & Powell, 1983, p. 147). From this perspective, each country tends to have distinctive regulatory, normative and cultural cognitive forces, which press organizations to be similar within a country and distinct compared to organizations in other countries (Scott, 2008). These institutional forces that influence organizational practices are quite varied, but national culture, economic development, and general educational levels of a country has been a reoccurring focus. This section offers a brief review of related literatures on information sharing, HRIS and national differences, prior to developing hypotheses in the following section.

Information sharing. Information sharing is an innovative organizational practice which leads organizations to increase the amount of the company's internal data and organizational information available to members of the organization for greater productivity and innovative-

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ness. Information sharing has recently received considerable interest in academic research and industry practice. The rising interest is attributed to the trend, at both societal and organizational levels, toward more worker empowerment (Kang et al., 2007), decentralized decision making (Pfeffer, 1998), and organizational IT adoption (Alavi & Leidner, 2001). There have been suggestions as well as empirical findings that greater adoption of information sharing is associated with higher levels of individual learning and organizational performance (Chow et al., 1999). Information sharing practices are now widely adopted in managing strategic alliances and supply chain networks (Lee, 2000; Samaddar, Nargundkar, & Daley, 2006).

Similarly, there has been much attention to the role of information sharing and its influence on organizational performance. For example, Pfeffer (2005) recognized information sharing as an important way of producing and sustaining competitive advantage by organizations over their competitors. From this perspective, it is critical for organizations to inform people of business strategy, financial performance, and other issues and help them in the sense-making process (Ahmad & Schroeder, 2003). Gibson et al. (2007) suggested that the organizational practice of information sharing enhances employees' ability and potential to make more contributions to their units and organizations and is positively related to the firm's financial performance. Information sharing is also considered to be one of the core elements for a high performance work system (Becker & Huselid, 1998). Despite this interest, there has not been much effort in the literature to understand information sharing from an international perspective.

Human Resource Information Systems (HRIS). There are numerous studies on HRIS (DeSanctis, 1986; Haines & Lafleur, 2008; Hendrickson, 2003; Kovach & Cathcart, 1999; Mayfield, Mayfield, & Lunce, 2003; Ngai & Wat, 2006; Teo, Lim, & Fedric, 2007). These studies generally recognize that IT promises such benefits as automation of administrative HR tasks, easy access to employee related data, and fast delivery of a firm's financial and operational data to employees. Several studies offer a review of HRIS, including some general roles and benefits of IT for HR (DeSanctis, 1986; Mayfield et al., 2003). Recently, additional studies (Haines & Lafleur, 2008; Hussain, Wallace, & Cornelius, 2007; Kovach & Cathcart, 1999) have addressed the influence of HRIS on HR tasks. In this vein, some studies (e.g., Hussain et al., 2007; Mayfield et al., 2003; Shani & Tesone, 2010) have even suggested the increasing role of IT in strategic HR areas that goes beyond its traditional role (e.g., automation of administrative HR tasks). Studies show more active roles of HRIS as enabling organizational learning and knowledge management (Mayfield et al., 2003), radical organization change (Tansley, Newell, & Williams, 2001) and transforming the role of HR function within organizations empowering employees through easy access to information (Hendrickson, 2003; Shani & Tesone, 2010).

Generally, studies of HRIS are limited to a single organization or, at most, one country and they lack accessing HRIS through a cross-national perspective. For example, Haines and Lafleur (2008) evaluated the associations between IT usage and HR roles and effectiveness. Their study assessed survey-based data from HR executives of the firms in Canada. Tansley et al. (2001) presented an active role of integrated HRIS in the course of business process reengineering. Their case research is based on a single organization in UK. Ngai and Wat (2006) studied perceived benefits and barriers to the implementation of HRIS. They drew a survey data from HRIS consultants and HR managers in Hong Kong. Lastly, Teo et al. (2007) reported the adoption and diffusion of HRIS using survey data from firms in Singapore. One notable exception is the study by Martinsons (1994) that examined HRIS adoption in Hong Kong and Canada. Broader-based research is clearly needed. Recent research by Panayotopoulou, Galanaki, and Papalexandris (2010) and Strohmeier and Kabst (2009) have expanded the more typical single country focus to evaluate IT-assisted human resource management across multiple European countries.

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National differences. As business operations become globalized, understanding national differences becomes increasingly important to the effective management of people, communication, and organizational resources. There is wide recognition within country homogeneity and cross-country heterogeneity that many institutional theory-based research efforts have observed (Greenwood et al., 2008). Due to this increasing need in the global business contexts, more studies have adopted cross-cultural or national perspectives on the issues in several business fields (Chow et al., 1999; Gerhart & Fang, 2005; Gooderham, Nordhaug, & Ringdal, 2006; Katz & Townsend, 2000; Myers & Tan, 2002; Pagell, Katz, & Sheu, 2005; Shin et al., 2007; Tsui et al., 2007).

There are various cultural frameworks available for investigating the role of national differences (see Myers & Tan, 2002; Tsui et al., 2007). Among these, Hofstede's work (1980) has been one of the most popular references for cross-national studies (Gallivan & Srite, 2005; Gerhart & Fang, 2005; Kirkman, Lowe, & Gibson, 2006; Leidner & Kayworth, 2006). His framework assesses national culture from four dimensions: uncertainty avoidance, power distance, muscularity, and individualism. A growing number of recent studies view national differences from both cultural values (e.g., individualism) and institutional arrangements (e.g., industrialization). For example, Parboteeah and Cullen (2003) argue that exploring the influence of national difference on such topics as work centrality needs to consider not only national culture but also institutional arrangements such as education, economy, and industrialization. Also, a study by Sundqvist, Frank, and Puumalainen (2005) considered both economic wealth and cultural variables to examine the adoption of wireless communication in different countries.

RELEVANT THEORY

This study is interested in two specific types of organizational innovation—information sharing and HRIS adoption—in international contexts. Therefore, the theoretical background of systematic worker preferences by national origin lies in the literature on national difference. Previous cross-country studies of information management have paid much attention to national culture, but only a limited number of studies, to our best knowledge, have examined societal or national institutions in their cross-country inquiry. "Nation and culture do not completely overlap, that nations differ in many aspects beyond cultural values" (Tsui et al., 2007, p. 462).

For example, the Gooderham et al.'s (1999) research on collaborative management practices investigated patterns of information sharing across several European countries. Understanding nation-based institutional influences include both national culture and other factors (Greenwood et al., 2008; Hofstede & Hofstede, 2005); however, there is no complete listing of what these include. Therefore, we approach national difference by considering cultural dimensions and other societal institutional factors.

For national culture, we rely on the aforementioned cultural framework developed by Hofstede (Hofstede, 1980; Hofstede & Hofstede, 2005). Hofstede defines culture as "collective programming of the mind" (Hofstede, 1980, p. 13) and presents differences in national level cultures (Hofstede, 1980; Hofstede & Hofstede, 2005). His original framework (1980) includes four dimensions of national culture and we particularly examine two of them: uncertainty avoidance and power distance. Hofstede (Hofstede & Hofstede, 2005) notes that uncertainty avoidance and power distance, among other cultural dimensions, are two most important dimensions for understanding organizations. Similarly, previous studies have pointed out that uncertainty avoidance and power distance, among Hofstede's cultural dimensions, tend to strongly affect management's decisions on organizational innovation (Png, Tan, & Wee, 2001). Katz and Townsend (2000) also note "to understand why managers make decisions affecting the design of organizational infrastructures, uncertainty avoidance and power distance have been suggested as important

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factors of national culture" (pp. 25-26). In this similar line, numerous studies have shown uncertainty avoidance and power distance as the most important cultural dimensions for understanding information management in global contexts (Agourram & Ingham, 2007; Erumban & de Jong, 2006; Everdingen & Waarts, 2003).

Uncertainty avoidance refers to "the extent to which the members of a culture feel threatened by ambiguous or unknown situations" (Hofstede & Hofstede, 2005, p. 167). "On the cultural level, tendencies toward rigidity and dogmatism, intolerance of different opinions, traditionalism" (Hofstede, 1980, p. 155) are likely to be strongly present in a country with high uncertainty avoidance. High uncertainty avoidance culture tends to avoid any new practices that "may call into question the certainties of today" (Hofstede & Hofstede, 2005, p. 256) and to leave planning, controlling, and decisions to specialists or key members (Hofstede & Hofstede, 2005). Thus, new organizational practices are less likely adopted in a country with high uncertainty avoidance. For example, previous IT adoption studies have demonstrated that high uncertainty avoidance countries are risk averse and less likely to adopt technological innovation (Gaspay, Dardan, & Legorreta, 2008).

Power distance is defined as "the extent to which the less powerful members of institutions and organizations within a country expect and accept that power is distributed *unequally*" (Hofstede & Hofstede, 2005, p. 46, emphasis added). In a country with high power distance, power and authority are concentrated to superiors and subordinates are strongly dependent upon superiors' decisions. Subordinates tend to have "fear to disagree with superiors" (Hofstede, 1980, p. 92) and such unequal distribution of power is not likely to be challenged in a country with high power distance (Hofstede, 1980; Hofstede & Hofstede, 2005). As a result, organizations in such a country are likely to adopt more centralized decision making and top down organizational structure. Also organizational innovations promoting values and practices against the unequal distribution of power are less likely adopted in a country with high power distance.

A nation's institutional environment includes additional forces beyond national culture to understanding organizational practices and managerial actions (Neumayer & Perkins, 2005; Parboteeah & Cullen, 2003). This theoretical frame has been increasingly used in the study of IT adoption (Weerakkody, Dwivedi, & Irani, 2009). "Institutions are multifaceted" (Scott, 2008, p. 48) and national institutions have different elements. The literature recognizes that a nation's institutional contexts include various types of dimensions such as political structures (e.g., government regulations) and economic factors (e.g., level of industrialization), and recognize that decisions about organizational practices are influenced by these institutional contexts (Scott, 2008). Two institutional contexts—industrialization and education—are particularly important in this study since they have been considered as important factors in numerous institutional studies of organizational and technological innovation adoption (Bagchi, Hart, & Peterson, 2004; Martinez & Williams, 2010; Neumayer & Perkins, 2005; Parboteeah & Cullen, 2003; Tellis et al., 2003; Zhao, Kim, Suh, & Du, 2007).

Industrialization is an important element, indicating how developed a particular country is in economic terms. Studies have suggested that industrialization has a great influence on broader aspects of economic decisions and activities (Parboteeah & Cullen, 2003; Zhao et al., 2007). The more industrialized a country is, the more receptive the firms in that country become to new innovative practices and technical standards (Neumayer & Perkins, 2005). Thus, industrialized countries are likely to adopt new technological innovation faster than their counterparts (Bagchi et al., 2004; Martinez & Williams, 2010; Zhao et al., 2007).

In addition, education as "a powerful institution" (Parboteeah & Cullen, 2003, p. 141) is closely linked with the level of innovation capability in different countries. "Education involves the exposure of people to a constant

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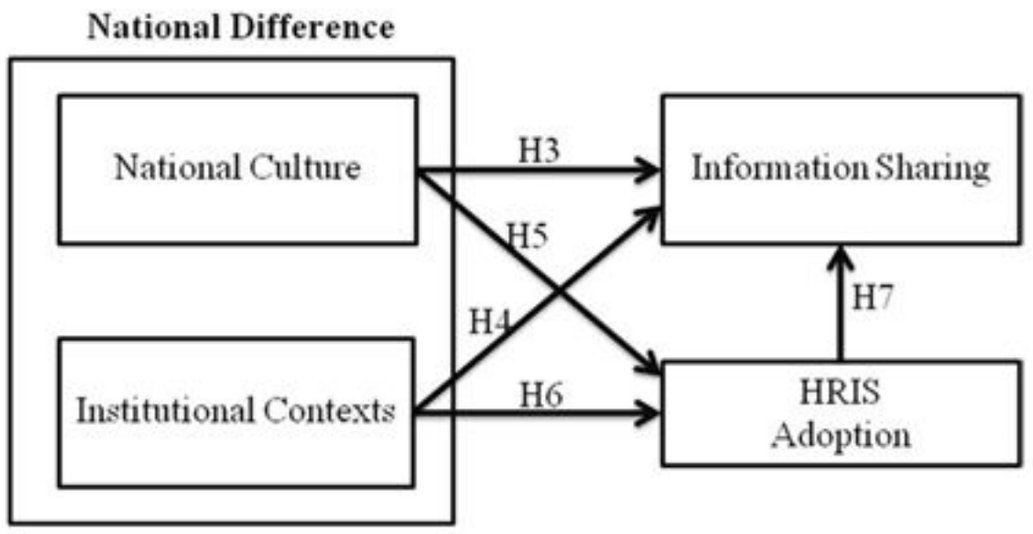
Figure 1. Theoretical relationships and research design



stream of new ideas, which makes them more receptive to innovations" (Tellis et al., 2003, p. 194). Education increases human capital, which serves an important social infrastructure for new practices to be adopted and implemented in firms and countries. Therefore, "firms with better-educated workforces are not only more likely to have knowledge of new organizational practices, but are likely to find it cheaper to implement them" (Neumayer & Perkins, 2005, p. 247). Thus, people with higher levels of education tend to be more receptive to innovations (Tellis et al., 2003) and, likewise, countries with a high level of education are more likely to adopt new practices.

RESEARCH HYPOTHESES

Drawn upon the previous section this section develops several hypotheses about the relationships between national differences, information sharing, and HRIS (Figure 1). The underlying proposition in the research design is that significant variation in the level of information sharing and HRIS adoption in organizations occurs in different countries based on underlying national factors. The research design allows us to assess whether the variation is explained by the differences in national culture (uncertainty avoidance, power distance) and institutional arrangements (industrialization, education level).

Difference of information sharing. The background literature suggests that national differences matter in technological and organizational innovativeness and proposes why organizations in different countries differ in terms of organizational practices, decision making, and technology adoption. Specifically, Chow (2005) demonstrated that national difference explains the variation in management practices, particularly high-performance work systems, in different countries. Pagell et al. (2005) showed that national difference significantly explains the variation in operations manager's decision-making and behaviors. Neumayer and Perkins (2005) pointed out the variation of the adoption of organizational innovation such as ISO 9000 in different countries based on the nation's institutional contexts. Straub (1994) explained the variation of technology adoption in Japan and the US using Hofstede's culture framework. Other studies (Leidner & Kayworth, 2006; Myers & Tan, 2002; Tsui et al., 2007) offer literature surveys of extant cross-national studies on management and IT.

Some studies are particularly relevant to information sharing in an international context. For example, Chow et al. (1999) reported the variation of information sharing in Taiwan and Australia, attributing such differences to national culture. Shin et al. (2007) demonstrated the influence of culture values on information sharing practices in China. In addition, Ahmad and Schroeder (2003) showed there is a significant variation among business practices, such as information sharing, in different countries. National differences appear to be influencing the degree of innovativeness (Shane, 1995). Considering information sharing as a type of

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organizational innovation, it is expected that firms in some countries are more likely to adopt information sharing in their business practices than those in other countries. Thus, we propose:

Hypothesis 1a: The level of information sharing within organizations will be significantly different from country to country.

In addition, based on Gooderham et al.'s (1999) research on collaborative HRM practices in Europe we anticipate expected comparative levels of information sharing of some, but not all, countries that we consider. Denmark and Norway were significantly higher than United Kingdom with respect to collaborative HR practices, while Germany, France and Spain were significantly lower than England in the use of these practices. These reflect both cultural and other institutional forces such as high level of unionization and legal mandates to share information with employees in Scandinavia and a relatively stronger institutional granting of strong managerial autonomy to organization in countries such as Spain and United Kingdom. Based on the patterns seen in the Gooderham et al.'s (1999) results, the following hypothesis is proposed:

Hypothesis 1b: The level of information sharing observed in organizations from Scandinavian countries is high compared to all other countries investigated, while Germanic countries, Spain and France will exhibit lower patterns of information sharing and the United Kingdom will have intermediate levels of these practices.

Comparative research by Brewster, Mayrhofer, and Morley (2000) have generally found organizations in south-eastern and central European countries to have less developed HRM practices than northern European countries. This is likely to be partially related to general economic development and weaker traditions of workplace democracy. Based upon this research the following is proposed.

Hypothesis 1c: The level of information sharing observed in organizations from Italy, Greece, Turkey, Slovakia, and Bulgaria will be lower than that seen in northern European countries.

Differences in HRIS adoption. Today, IT significantly influences organizational design, information sharing, and decision-making. Thus, in addition to information sharing, HRIS is an important dimension for business strategy (Kovach & Cathcart, 1999) in international contexts. National differences matter to information management in international contexts (Agourram & Ingham, 2007; Ein-Dor, Segev, & Orgad, 1993; Katz & Townsend, 2000; Leidner & Kayworth, 2006; Veiga, Floyd, & Dechant, 2001). Previous studies have shown there is a significant variation in the adoption of various types of technological innovation, including e-mail (Straub, 1994), frame relay technology (Png et al., 2001), ERP (Everdingen & Waarts, 2003), wireless technology (Sundqvist et al., 2005), Internet (Zhao et al., 2007), and others (Bagchi et al., 2004; Chai & Pavlou, 2004; Straub, Loch, & Hill, 2001), and this variation has been ascribed to the differences in national culture and other institutional factors that vary across countries. Likewise, it is expected there is a significant variation in the level of HRIS adoption in different countries. Thus, we propose:

Hypothesis 2a: There will be a significant difference in the level of HRIS adoption from country to country.

In addition, we anticipate two specific patterns for the level of HRIS adoption in countries. The first pattern is related to the differences in the level of technology adoption across different geographical regions. Extant studies suggest that countries in North America and Europe have a high level of adoption in a broad range of technologies, compared to other regions (Bagchi et al., 2004; Chinn & Fairlie, 2007;

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Comin & Hobijn, 2004). This is attributed to the national infrastructure (e.g., free economy, open trade, high expenditure on technology) which is favorable for adopting new technological innovation (Chinn & Fairlie, 2007; Comin & Hobijn, 2004). Comparative research (Tellis et al., 2003; Vicente & Lopez, 2006) also suggests that Scandinavian countries turned out to be faster in adopting new technologies than other European countries. Based on these findings, we propose that there will be a similar pattern observed in HRIS adoption.

Hypothesis 2b: The level of HRIS adoption observed in organizations from Scandinavian countries, USA, and Canada are high compared to all other countries investigated.

The second pattern we anticipate from HRIS adoption is related to Hypothesis 1c, projecting that northern European countries have more developed HRM practices than southeastern and central European countries. HRIS are deployed to support traditional HRM practices (e.g., HR administrative tasks) (DeSanctis, 1986) and also enable new or transformative HRM practices (e.g., employee empowerment, knowledge management) (Shani & Tesone, 2010; Tafti, Mithas, & Krishnan, 2007). In this vein, countries with more developed HRM practices are likely to be faster in adopting HRIS than countries with less developed HRM practices. Thus, we project that the pattern of differences noted in Hypothesis 1c should be seen in HRIS adoption.

Hypothesis 2c: The level of HRIS adoption observed in organizations from Italy, Greece, Turkey, Slovakia, and Bulgaria will be lower than that seen in northern European countries.

Cultural values and information sharing. As noted earlier, national differences can be considered through cultural values and other institutional arrangements. First, several studies posit that cultural values alone significantly influence management practices of organizations in different countries. For example, Chow et al. (2005) examined whether cultural values such as individualism and power distance are positively or negatively associated with the level of information sharing and found that the differences in information sharing in Taiwan and Australia "are consistent with the cultural characteristics of Chinese and Anglo-American cultures" (p. 579).

Information sharing is an organizational practice emphasizing employee empowerment, participation (Gibson et al., 2007), and informed decision making by various levels of workers including non-management employees. Thus, it can be considered an innovative organizational practice (Chow et al., 1999) on how organizations communicate with their employees (Black, 2005). Previous studies show there is a relationship between national culture and organizational innovation and practice (Shane, 1995). Some studies predicted that power distance in Hofstede's framework would negatively influence the adoption of worker participation (Black, 2005) and decentralized organizational structure (Katz & Townsend, 2000). Firms in a country with high power distance would be less likely to adopt such an innovative practice which aims to "inform" organizational members through more intra-organizational information flows and potentially leads to greater employee autonomy and participation in decision making because such an innovative practice ("information sharing") is not likely to support the existing structure of social inequality. In addition, information sharing as an organizational innovation would be relatively newer to some countries than to others. People in a country with high levels of uncertainty avoidance are less tolerant of innovative practice (Shane, 1995) since innovation often comes with organizational change whose outcome is unknown in advance. Thus, high uncertainty avoidance would potentially lead organizations to be reluctant to implement information sharing as a new organizational practice.

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Hypothesis 3a: Uncertainty avoidance will be negatively associated with the level of information sharing.

Hypothesis 3b: Power distance will be negatively associated with the level of information sharing.

Institutional arrangements & information sharing. In addition to cultural values, other institutional factors are important to consider. According to institutional theory (DiMaggio & Powell, 1991; Scott, 2008), firm-level decisions regarding innovative practices occur in broader institutional contexts. Gooderham et al. (2006) suggested that institutional arrangements influence managerial and organizational practices. The adoption of information sharing as an innovation would be no exception. In the literature there are different types of social institutions in a country (Scott, 2008) and thus different social institutions can be considered as predictors for the variation in the level of information sharing. Previous studies were particularly interested in political, economic, and educational institutions (or institutional arrangements) and demonstrated the influence of those institutional dimensions on organizational practices such as work centrality (Parboteeah & Cullen, 2003) and ISO 9000 (Neumayer & Perkins, 2005).

We examine the relationship that economic and education-related institutional variables have on information sharing. These institutional variables represent the level of country development (Parboteeah & Cullen, 2003). They have been found to be important institutional predictors for the adoption of organizational practices and innovation (Bagchi et al., 2004; Martinez & Williams, 2010; Neumayer & Perkins, 2005; Parboteeah & Cullen, 2003; Tellis et al., 2003; Zhao et al., 2007). Previous studies show that high industrialization and education level are positively related with the adoption of organizational innovation (Neumayer & Perkins, 2005; Parboteeah & Cullen, 2003). In other words, developed countries tend to have more adopted innovative practices than their less-developed counterparts (Black, 2005; Chow, 2005; Sundqvist et al., 2005). Thus, we propose:

Hypothesis 4a: The level of industrialization will be positively associated with the level of information sharing.

Hypothesis 4b: The level of education accessibility will be positively associated with the level of information sharing.

Cultural values and HRIS adoption. Various studies have shown that cultural values significantly explain IT adoption and usage. Whether this may be the case for HRIS would be an interesting question to answer. Uncertainty avoidance and power distance are two important cultural factors that may predict the adoption of technological innovation (Bagchi et al., 2004; Erumban & de Jong, 2006; Katz & Townsend, 2000). For example, Straub (1994) studied the usage of e-mail and fax in US and Japanese companies and found that US companies use e-mail more extensively than Japanese counterparts. He attributed this variation to uncertainty avoidance in Hofstede's framework. Png et al. (2001) focused on the adoption of telecommunication technology using Hofstede's power distance and uncertainty avoidance. Their study reports that companies in high uncertainty avoidance countries are less likely to adopt the technology. They explained that innovation such as new IT is perceived as an increase of uncertainty and thus organizations in the country with high uncertainty avoidance are less likely to adopt innovations like new technology. Studies have suggested that high uncertainty avoidance is negatively associated with internet diffusion (Zhao et al., 2007) and wireless technology (Sundqvist et al., 2005). Similar to these studies, others also suggest that national culture may facilitate or impede the adoption and diffusion of certain technologies. For example, high power distance would restrict the availability of information and technology to certain groups of people in a society or organization in order to

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maintain the status quo of power base (Katz & Townsend, 2000). In addition, Everdingen and Waarts (2003) suggested that high uncertainty avoidance and power distance are negatively associated with the adoption of IT innovations like enterprise systems. Innovation itself or technology adoption is likely to be considered as some sort of uncertainty creation. Thus, we propose the following:

Hypothesis 5a: Uncertainty avoidance will be negatively associated with HRIS adoption.

Hypothesis 5b: Power distance will be negatively associated with HRIS adoption.

Institutional Arrangements and HRIS. The rate of technology adoption varies among countries (Erumban & de Jong, 2006; Martinez & Williams, 2010). The examination of institutional contexts has long been an interest in the studies of IT adoption (Avgerou, 2001). Studies have explored the role of nation's institutional arrangements for explaining the variation in the adoption of various technologies (e.g., Internet) (Comin & Hobijn, 2004; Sundqvist et al., 2005; Tellis et al., 2003). Zhao et al. (2007) suggested that organizations in developed countries are more likely to adopt IT than those in developing countries. Particularly, their study shows that a high level of industrialization and national education accessibility is positively related with the adoption of Internet diffusion. Developed countries tend to have higher educational attainment level and better infrastructure. Such conditions enable a high rate of technology adoption (Erumban & de Jong, 2006). Other studies also use national educational level as an important variable in explaining technology adoption variation (Comin & Hobijn, 2004; Stremersch & Tellis, 2002). We propose country-specific institutional factors will help explain differences in the level of HRIS adoption in organizations in different countries as follows:

Hypothesis 6a: The level of industrialization will be positively associated with HRIS adoption.

Hypothesis 6b: The level of education accessibility will be positively associated with HRIS adoption.

HRIS and information sharing. Shin et al. (2007) noted that IT offers an infrastructure for more information sharing in organizations. HRIS are considered as an important part of organizational IT infrastructure supporting extensive information sharing and knowledge management practice (Hendrickson, 2003; Hustad & Munkvold, 2005; Mayfield et al., 2003; Tafti et al., 2007). Since its inception in the 1960s (DeSanctis, 1986) HRIS has co-evolved with human resource practices within organizations, which have also transformed from mainly personnel management (e.g., recruitment, training, bargaining, employee data management, performance evaluation, compensation) to the inclusion of innovative practices (e.g., information sharing, employee participation, profit sharing, knowledge management, organizational learning, worker autonomy) (Tafti et al., 2007). Thus, in addition to their traditional usage of "monitoring" personnel (Tafti et al., 2007) and "automating" administrative HR tasks (Hussain et al., 2007; Niederman, 1999; Shani & Tesone, 2010), there has been a broader role of HRIS as a technological infrastructure for informing employees and increasing their effectiveness (Haines & Lafleur, 2008; Hendrickson, 2003; Kovach & Cathcart, 1999), which is aligned with those strategic and transformational HR practices, such as information sharing and employee empowerment. To respond to this increasing role, the scale of HRIS has also evolved from standalone information systems to an integral part of an enterprise IT infrastructure (Bondarouk & Ruel, 2009; Hendrickson, 2003; Hustad & Munkvold, 2005). Thus, we propose:

Hypothesis 7: Technology (HRIS) adoption is positively associated with the level of information sharing.

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RESEARCH METHODS

Data

Our study uses data gathered through the Cranfield network on European HR management (CRANET) survey. The CRANET survey, which has been conducted since 1990, includes a large set of firm-level data in human resource practices from over 20 countries. Several previous studies (Beck, Kabst, & Walgenbach, 2009; Brewster, Wood, Brookes, & Ommeren, 2006; Papalexandris & Panayotopoulou, 2004) have used the CRANET survey database. The 2004 survey process was similar to previous CRANET collection procedures (Tragaskis, Mahoney, & Atterbury, 2004). The survey, which focuses on a wide variety of HR practices, was completed in 2004 by senior HR leaders in firms from 32 countries. Beck et al. (2009) report a 17 percent response rate. To evaluate the presence of any bias associated with industry sector and size, Stavrou, Brewster, and Charalambous (2010) compared early and last survey responses from European countries on these measures and did not find evidence of systematic response bias. They report evidence that the CRANET survey process, at least in the case of Europe, results in samples that are "broadly comparable to the EU's employment patterns for organizations with more than 100 employees" (p. 942). Firms from countries with less than 100 responding firms were excluded from this analysis. The details of earlier collection rounds, which are similar to the 2004 administration, are discussed in detail by Brewster, Tregaskis, Hegewisch, and Mayne (1996) and Tragaskis, Mahoney, and Atterbury (2004). Steinmetz, Schwens, Wehner, and Kabst (2011) provide a detailed methodological critique of the CRANET survey process and find many strong points. They note that while efforts to gather a representative sampling of public sector organizations is consistently applied across countries, there is some variance in the sampling frames used by country-based researchers who are most focused on gathering samples representative of the larger economies of each country. The result is that different country-based samples tend to vary with respect to organizational size and industries represented. For cross-national comparative research, it is ideal for all countries to employ a common sampling frame.

Variables and Measures

Data source and sample. Our analysis includes 22 countries in the CRANET database with a total sample of 6411 firms. The number of companies located in 10 countries (e.g., Hungary, Czech Republic, Philippines, etc.) were not numerous enough (fewer than 100 organizations) for reliable analysis. Firms from those countries were deleted from our analyses. The 22 countries included are: United Kingdom, France, Germany, Sweden, Spain, Denmark, Netherlands, Italy, Norway, Switzerland, Turkey, Finland, Greece, Austria, Belgium, Bulgaria, Australia, New Zealand, Israel, USA, Canada, and Slovakia. These countries represent different world regions and provide a look at information sharing and HRIS practices in companies from a wide range of culture, regulatory, nation and institutional environments.

Information sharing scale. The nine-item scale examines three key areas of internal business activities: Business strategy, financial performance, and organization of work. For each, the survey respondent indicated with yes/no responses whether professional/technical, clerical, and manual employees were each formally briefed about each focus area. A high score (on the 0 to 9 scale) indicates that the organization is engaged in formal information sharing across all non-managerial employee groups on each of these three foci. A single factor solution, using principal components analysis, produced an Eigenvalue of 3.7 with factor loads of .47 or higher. The standardized Alpha reliability coefficient is .81. These items are a subset of those used in the longer collaborative HRM practices scale employed by Gooderham et al. (1999), which used an earlier version of CRANET database. Table 1 presents descriptive statistical information for

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all variables and the Appendix presents the items that form this scale.

Human resource information system (HRIS) adoption scale. The measure of HRIS adoption uses a single item to access the type of computerized HR information system in the respondent's organization. The three-point scale consisted of: (1) "do not have a computerized HR information system," (2) "primarily independent HR system," and (3) "primarily interfaced/integrated into a wider management information system." As noted earlier, HRIS have changed with the evolving human resource practices encompassing personnel management and other innovative practices such as organizational learning and worker empowerment. Thus, HRIS have evolved from manual or non-IT based record system to independent information systems to, finally, an integral part of firm's enterprise system. These three types (manual, independent, and integrated) of HRIS describe the development stages of HRIS (Hendrickson, 2003; Hustad & Munkvold, 2005; Shani & Tesone, 2010). The HRIS integrated into a wider enterprise information system represents the highest form of HRIS adoption.

National cultural values scales. Our analysis used the most recent country scores for Hofstede's two national culture dimensions: uncertainty avoidance and power distance. These scores are available at www.geert-hofstede.com. The same country scores are also reported in Hofstede and Hofstede (2005).

National economy and education levels. Economic performance, as measured by gross domestic product (GDP) per capita, and educational attainment levels are two key indices of the larger institutional context that firms within a country face. The data for national economic performance (GDP per capita) came from the World Development Indicators (WDI) by the World Bank. Since our study uses the 2004 CRANET survey data, we chose the 2003 WDI data, which is close to the year that the CRANET survey was conducted. The average national education attainment level is measured by an index available from the United Nations. Both skewness and kurtosis problems were present with this scale. We were able to eliminate these distributional problems by using a logarithmic transformation in all of our analyses. Many previous studies using an institutional theory framework have considered these economic and education attainment measures in their analysis (Erumban & de Jong, 2006; Parboteeah & Cullen, 2003; Zhao et al., 2007).

Analysis Procedures

Our analysis combines two statistical tests: ANOVA and regression. We used the ANOVA and the related Tukey Honest Significance Test (Tukey HSD) to assess the simultaneous multiple pair-wise comparisons proposed in the first two sets of hypotheses (that there is variation in information sharing and HRIS adoption between countries). Regression analyses were used to assess a positive or negative relationship between predictors (national culture and institutional arrangements) and dependent variables (information sharing and HRIS adoption) predicted by Hypothesis 3 through 7.

RESULTS

Table 2 displays the results of ANOVA and Tukey HSD tests for Hypotheses 1a-1c (the variation in information sharing by country). These sets of hypotheses found some support. There is significant variation in country-based means in information sharing (Hypothesis 1a) over these 22 countries. Table 2 ranks the countries from low to high and presents homogeneous subsets of countries where information sharing levels are not statistically different. For example, such countries as Israel, Turkey, and Greece represent a group with low information sharing while such Scandinavian countries as Denmark, Sweden, and Finland report a high level of information sharing. As anticipated by hypothesis 1b Scandinavian countries have

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high levels. Finland is statistically higher than all other countries than Sweden (both of those countries are in the subset with the highest means). Similarly, Norway and Denmark, while significantly lower than Finland and have similar information sharing levels compared to their geographic neighbors, are significantly higher than the other countries noted in hypothesis 1b. Specifically, all Scandinavian countries have significantly higher levels than seen in the United Kingdom and the Germanic countries (Germany, Austria, and Switzerland). The only result inconsistent with Hypothesis 1b is that the means of Spain (5.10) and France (5.13) are not significantly lower than the UK mean of 5.90 as all three countries are in a common homogeneous subset. We also found partial support for Hypothesis 1c. Turkey and Greece means are significantly lower than all Northern European countries, except Austria. While Bulgaria, Slovakia and Italy means are significantly lower than the UK and Scandinavian countries, they are in a common homogeneous subset with Germanic countries and France.

Table 3 displays the results of ANOVA and Tukey HSD tests for Hypotheses 2a-2c (the variation in HRIS adoption by country). There is significant country-based variation in HRIS adoption (Hypothesis 2a) over these 22 countries. Table 3 shows that there are several distinct country groupings in terms of the level of HRIS adoption. For example, such countries as USA, Austria, Denmark, Turkey and Greece represent a group with high HRIS adoption while such countries as New Zealand, Australia, UK, Bulgaria and Sweden have low levels. We found only partial support for Hypothesis 2b. USA (2.41) reports the highest level of HRIS adoption and is significantly higher than the first 12 countries on the Table 3 (i.e., those not included in the homogeneous subgroup in the last column). Canadian organizations (2.19) are also significantly higher than the first four countries list. While this is not a strong result, it was anticipated by 2b. However, the results with Scandinavian countries report, at best, mixed support for hypothesis 2b. The mean for Denmark (2.32) is relatively high and is significantly higher than the first seven countries. However, those including Sweden (2.07) and Finland (1.94) which are both in the lowest homogeneous subgroup are not significantly higher than any other country mean. This result is also inconsistent with hypothesis 2c. Hypothesis 2c is not supported. While Slovakia and Bulgaria are in the lowest homogeneous subgroup, this is not the case for the other countries (Greece, Turkey, and Italy) as they are in the highest homogeneous subgroup, and, contrary to this hypothesis, those three country-based means are significantly higher than a Scandinavian country, Finland.

Table 1. Descriptive statistics

Scales	Mean	SD	1	2	3	4	5
1. Information Sharing	5.50	2.72					
2. HRIS Adoption	2.1382	.69	.07				
3. Log of Educational Attainment	3.77	.78	.23	-.02			
4. Economic GDP per Person	23134.80	6555.59	.16	.08	.44		
5. Power Distance	39.23	19.43	-.12	-.03	-.44	-.58	
6. Uncertainty Avoidance	53.97	21.41	-.21	.01	-.31	-.50	.43

Notes:

1. Means and standard deviations are calculated with the full sample, n = 6411.
2. The Pearson intercorrelation coefficients are presented in the last five columns. Coefficients above .04 are significant at the $p < .001$.

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Table 2. ANOVA & Tukey HSD: the variation of information sharing between countries

Country	Homogeneous Subgroups of Country Means										
Israel	3.4133										
Turkey	3.7372	3.7372									
Greece	4.0060	4.0060	4.0060								
USA	4.2140	4.2140	4.2140	4.2140							
Bulgaria		4.2878	4.2878	4.2878	4.2878						
Austria		4.3925	4.3925	4.3925	4.3925						
Slovakia		4.4902	4.4902	4.4902	4.4902						
Italy		4.5357	4.5357	4.5357	4.5357						
Germany			4.7704	4.7704	4.7704	4.7704					
Switzerland				4.9900	4.9900	4.9900					
Spain					5.1000	5.1000	5.1000				
Canada					5.1198	5.1198	5.1198				
France					5.1250	5.1250	5.1250				
Australia					5.1423	5.1423	5.1423				
New Zealand						5.6255	5.6255	5.6255			
United Kingdom							5.9021	5.9021	5.9021		
Belgium								6.0132	6.0132		
Norway								6.2284	6.2284	6.2284	
The Netherlands								6.3727	6.3727	6.3727	
Denmark									6.5483	6.5483	
Sweden										7.0590	7.0590
Finland											7.5350

Notes:

1. The F-value from the one-way ANOVA was 48.336 and is significant at the $p < .001$ level indicating that there variance between country means are significant.

2. The columns present the country-based means. Country means that are in the same column are not significantly different from one another while countries not included in a common homogeneous subgroup are significantly different at the $p < .05$ level based on the Tukey HSD test.

In addition, there are several countries where firms tended to have contrasting high versus low patterns of information sharing and HRIS adoption, which is consistent with the low intercorrelation of these two variables at the firm level. For example, firms in the USA have relatively high levels of HRIS adoption while having relatively low levels of information sharing. Sweden had the opposite profile.

The regression analyses presented in Table 4 suggest that Hypothesis 3a is supported. That is, there is a negative relationship between uncertainty avoidance and information sharing ($\beta = -.160$ and $-.165$). As predicted, uncertainty avoidance levels seen in an organization's home country is significantly and negatively related to the level of information sharing practiced. However, contrary to Hypothesis 3b, there is a modest, but significant, positive association between power distance and information sharing ($\beta = .048$ and $.048$). While there is a significant negative zero-order correlation ($r = -.12$) noted in Table 1, this relationship became positive when the inter-correlation with national GDP

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Table 3. ANOVA & Tukey HSD: The Variation of HRIS adoption between countries

Country	Homogeneous Subgroups of Country Means							
New Zealand	1.8655							
Australia	1.9407	1.9407						
Finland	1.9441	1.9441						
Bulgaria	1.9568	1.9568	1.9568					
Slovakia	2.0314	2.0314	2.0314	2.0314				
United Kingdom	2.0656	2.0656	2.0656	2.0656	2.0656			
Sweden	2.0697	2.0697	2.0697	2.0697	2.0697			
Belgium	2.0877	2.0877	2.0877	2.0877	2.0877	2.0877		
Israel		2.1467	2.1467	2.1467	2.1467	2.1467	2.1467	
Germany		2.1480	2.1480	2.1480	2.1480	2.1480	2.1480	
Norway		2.1624	2.1624	2.1624	2.1624	2.1624	2.1624	
France		2.1691	2.1691	2.1691	2.1691	2.1691	2.1691	
The Netherlands			2.1864	2.1864	2.1864	2.1864	2.1864	2.1864
Canada				2.1980	2.1980	2.1980	2.1980	2.1980
Spain				2.2000	2.2000	2.2000	2.2000	2.2000
Italy				2.2143	2.2143	2.2143	2.2143	2.2143
Switzerland				2.2292	2.2292	2.2292	2.2292	2.2292
Greece				2.2335	2.2335	2.2335	2.2335	2.2335
Turkey					2.2756	2.2756	2.2756	2.2756
Denmark						2.3156	2.3156	2.3156
Austria							2.3208	2.3208
USA								2.4163

Notes:

1. The F-value from the one-way ANOVA was 11.48 and is significant at the $p < .001$ level indicating that there variance between country means are significant.

2. The columns present the country-based means. Country means that are in the same column are not significantly different from one another while countries not included in a common homogeneous subgroup are significantly different at the $p < .05$ level based on the Tukey HSD test.

(-.58) and educational attainment level (-.44) and uncertainty avoidance (.43) is controlled. Thus, contrary to Hypothesis 3b, power distance was not found to have a negative relationship with the use of more information sharing to lower non-managerial levels of the organization. Supplemental stepwise regression analyses found that the inclusion of GDP and uncertainty avoidance after power distance in the regression results in a change from a negative to positive coefficient for power distance.

We hypothesized that a country's economic performance (Hypothesis 4a) and education level (Hypothesis 4b) are positively related to the adoption of information sharing. The regression analysis results indicate that the level of national educational attainment has a positive significant relationship to the level of information sharing in organizations ($\beta = .191$ and .195). While the GDP per capita is significantly correlated to information sharing ($r = .16$), this relationship becomes non-significant ($\beta = -.022/-.012$) when its inter-correlation

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Table 4. Regression analyses

	HRIS Adoption	Information Sharing	Information Sharing
Scales:	β	β	β
Educational Attainment(log)	-.062**	.191***	.195***
Economic GDP per Person	.139***	-.022	-.012
Uncertainty Avoidance	.061***	-.160***	-.165***
Power Distance	-.004	.048**	.048*
HRIS Adoption	---	---	.072***
Adjusted R^2	.013***	.075***	.080***

Note:

1. The first column presents the results for the regression on the HRIS adoption dependent variable.
2. The last two columns represent a two-step analysis using Information Sharing as the dependent variable. In that analysis, the first four variables were entered on the first step. The standardized regression weights (β) for that analysis are presented in the middle column. In the final step, the HRIS adoption variable was added and those results are presented in the third data column.

*p < .05 **p < .01 ***p < .001

with educational attainment (r = .44) and uncertainty avoidance (r = -.31) is controlled.

The relationship between national culture, namely levels of uncertainty avoidance and power distance, and HRIS adoption (Hypotheses 5a & 5b), was hypothesized to be negative. However, Table 4 analysis shows a positive linear relationship between uncertainty avoidance and HRIS adoption (β = .061), and no relationship between power distance and HRIS adoption (β = -.004). Thus, these two hypotheses are not supported. In addition, we predicted a positive relationship between the level of a country's GDP or industrialization (Hypothesis 6a) and educational attainment (Hypothesis 6b) and HRIS adoption. The analysis confirms a positive influence of economic industrialization on HRIS adoption (β = .139), but the relationship between education and HRIS adoption (r = .22) become slightly negative (β = - .062) once the strong inter-correlation between GDP and education (r = .44) was controlled. This is contrary to Hypothesis 6b.

Hypothesis 7 predicted there is a positive relationship between IT availability and information sharing. The simple bi-variate relationship noted in Table 1 between these two scales is positive (r = .08). To address this question more substantially, information sharing was regressed on HRIS adoption after the other four predictors were included in the regression. As shown by columns two and three in Table 4, the addition of HRIS adoption (in column three) resulted in a significant increase in explained variance (ΔR^2 = .05; β = .072) and this supports Hypothesis 7.

DISCUSSION AND IMPLICATIONS

The results of our study clearly indicate significant differences exist in the degree of information sharing and the adoption rate of HRIS among countries. This finding suggests information sharing is an organizational practice that has been adopted with a wide variation among firms in differing countries. The adoption of HRIS as a technological innovation, while perhaps not as varied as the differences seen in information sharing practices, does vary significantly across these countries as well. Overall, it appears that the adoption rate of organizational and technological innovation

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significantly differs between firms based on home country differences. We attribute this variation to the difference in national culture and institutional arrangements, among other potential factors. This confirms the importance of including national difference in our understanding of the adoption of information sharing and HRIS. In addition, our results suggest management should pay keen attention to the country's culture and institutional factors as they consider adopting new organizational and technological practices and innovations such as information sharing and HRIS.

Our analysis shows that social institutions have a more predictive power than national culture. This finding is similar to some studies, while differing from other studies examining innovation adoption. For example, several studies (Comin & Hobijn, 2004; Gooderham et al., 2006; Martinez & Williams, 2010; Neumayer & Perkins, 2005; Poutsma, Ligthart, & Veersma, 2006; Scott, 2008; Zhao et al., 2007) previously suggested that social institutions like politics, economy, and infrastructure explain why a new practice or innovation is adopted in one country earlier than in other countries. The findings from studies like Zhao et al. (2007) also indicate that the relationship of institutional variables with new practice/innovation adoption is more evident than that of cultural variables.

On the other hand, many studies using the Hofstede framework have shown a significant predictive power of cultural dimensions such as uncertainty avoidance and power distance (Black, 2005; Erumban & de Jong, 2006; Everdingen & Waarts, 2003; Parboteeah & Cullen, 2003; Straub, 1994). According to our study, however, national culture seems to have less explanatory power than what previous studies suggested and what we originally posited. This is particularly true with the power distance measure since our analysis revealed that the influence of power distance on information sharing and IT adoption appears to have marginal impact. This result appears to be quite consistent with Gerhart and Fang's (2005) recent conclusions about the limited explained variance provided by Hofstede's culture dimensions. Also, cultural differences explained more variance in organizational information sharing practices than in HRIS adoption.

However, in the context of technology adoption, previous studies (Png et al., 2001; Zhao et al., 2007) show findings similar to ours. One explanation is that this may be due to the diminishing role of power dimension or "human inequality" (Hofstede, 1980, p. 92) in society as a whole and in many organizations as democratic forms of governance (and management) are more widely adopted in many countries and organizations. Also, the view of culture as "contested, temporal and emergent" (Myers & Tan, 2002, p. 11) and "not static" (Tung, 2008, p. 44) could be relevant to some of our findings. On a related note, the literature on institutional theory has increasingly appreciated that organizations have latitude in how they address the structural press of a country's institutional environment to conform. This is known as the "agency" perspective and is a counter-point to the "structuralist" press for isomorphism often associated with the institutional perspective (Heugens & Lander, 2009; Oliver, 1991).

Unlike power distance, uncertainty avoidance, which is "a basic fact of human life" (Hofstede, 1980, p. 153), has a higher level of explanatory power as shown in our analysis as well as in previous studies (Bagchi et al., 2004; Erumban & de Jong, 2006; Png et al., 2001; Straub, 1994; Zhao et al., 2007). This is because the divergence of uncertainty avoidance among countries appears to be persistent. Thus, it can be expected that information sharing will be continuously adopted as a new organizational practice by more organizations worldwide ("globalization" of new practices or innovations). At the same time, there is still a variation or difference among countries in terms of the way information sharing as a new practice is adapted by each organization ("localization" of new practices or innovations). HRIS is expected to display the similar pattern of adoption and adaption by organizations, as shown in other types of technologies (DeSanctis & Poole, 1994).

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In addition, our findings suggest the explanatory power of national culture over HRIS adoption is not strong. This is different from the propositions and findings of previous studies using different types of technological innovation (Bagchi et al., 2004; Erumban & de Jong, 2006; Veiga et al., 2001). We think this suggests that when it comes to explaining the variation of IT adoption, such as HRIS, the influence of national culture and institutional forces are less salient compared to the variation of the information sharing adoption. Information sharing has more direct implications for how employees are treated in an organization and, thus, the institutional press for legitimacy or "doing things the right way" in a given national context will be more salient than is the adoption of technological innovations (e.g., HRIS). Institutional environments may give relatively more latitude to variations in the adoption of these practices. This would be particularly true in the case of relatively less-expensive technologies such as HRIS. Unlike expensive technologies such as enterprise-wide systems (e.g., ERP), whose relationship with Hofstede's cultural dimensions are found to be more significant (Everdingen & Waarts, 2003), information systems for HR require relatively less investment and maintenance and thus they carry relatively fewer risks than other larger-scale enterprise technologies. For this reason, such systems are likely to be more easily adopted and it may take less time for broad diffusion to take place among firms. This said, we think that how a more extensive IT technology, such as an ERP, is implemented and used in an organization will be more likely to confront institutional pressures and constraints about what is the "right way to manage" in a given country.

Contrary to hypothesis 5a, the relationship between uncertainty avoidance and HRIS adoption is found to be positive. This finding is contrary to that of previous studies of technology adoption, such as the Internet (Zhao et al., 2007), ERP (Everdingen & Waarts, 2003), frame relay (a type of IT infrastructure) (Png et al., 2001), e-commerce (Chai & Pavlou, 2004), and others (Veiga et al., 2001). Agourram and Ingham (2007) found that people from different national cultures perceive the meaning of IT success differently. In this vein, one possible explanation of this result is that organizational decision makers may perceive the "meaning" of HRIS differently due to different national cultures. High uncertainty societies prefer more planning and control systems (Hofstede, 1980; Hofstede & Hofstede, 2005). Organizations in high uncertainty avoidance cultures may see the use of more planning and control mechanisms (e.g., monitoring employee performance) as a means for uncertainty reduction. HRIS could be seen as means for increasing organizational control and planning capability, which will lead to less uncertainty in managing employees and organizational resources.

The finding of this negative relationship between education and HRIS adoption (6b) is also contrary to previous studies of innovation adoption in international contexts (Martinez & Williams, 2010; Tellis et al., 2003; Zhao et al., 2007) that education makes people more receptive to innovation.

An analysis of comparing Table 3 (the variation of HRIS adoption) and education index scores seems to shed light on two countries: New Zealand and Turkey. New Zealand, the country with the highest education index score, is found to be the lowest in HRIS adoption among all 22 countries in the sample. The opposite is Turkey, the country with the lowest education index in the sample, showing one of the highest in HRIS adoption. It appears that this is ascribed for much of the unexpected positive relationship found regarding 6b. Yet, the finding of 6b needs a more systematic analysis with other institutional dimension (e.g., legal regulations, average age of workforce). For example, the institutional development of a country like Turkey is described as "One of the main forces behind Turkey's economic momentum is the availability of young and educated human capital. More than half of Turkey's population (57 percent) comprises people under the age of 30" (Aycan, 2001, p. 254). Thus, maybe firms in a country with high young educated workforces, despite the low national education

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level, are more likely to adopt technologies like HRIS. Despite the findings on hypothesis 6b, however, economy-related institutional contexts (GDP) (6a) tend to effectively explain variations in HRIS adoption among countries.

Finally, our analysis also draws attention to the relationship between information sharing and IT. It shows there is a positive relationship between the type of HRIS and the degree of information sharing. That is, organizations with HRIS tend to share more information than those without, and organizations with integrated HRIS share more information than those with standalone HRIS. At the micro level this finding would justify a continuing investment in communication and repository technologies by organizations and an increasing IT-enabled organizational change effort for organizational learning and knowledge management (Alavi & Leidner, 2001). At the global level, this may also suggest the presence of a potentially reciprocal relationship between technological innovation and organization/institutional practices. New organizational practices like information sharing influence and are often enabled by the adoption of informational technological innovations like HRIS.

The practical implications of our study are clear: Managers should understand the cultural context and other national institutional factors impacting organizations when initiating or expanding information systems in unfamiliar locations. This is especially relevant when strategic alliances involve information sharing among partner organizations in widely disparate locations. The result of not considering the factors examined in our study could result in lost investments and inter-organizational discord.

LIMITATIONS AND FUTURE RESEARCH

Understanding information sharing and IT adoption simultaneously from an international perspective is rare in the literature. This paper has aimed at responding to this need by surveying a broad range of multi-disciplinary studies, developing relevant hypotheses, and analyzing organizations from 22 different countries. This study, however, is not without limitations.

First, we have not identified an exhaustive listing of other factors beyond uncertainty avoidance, power distance, economy, and education. While these are prominent factors in the literature, future studies can find additional institutional forces to understand country-based differences in practices. The tenets of institutional theory, for example, discuss various types of social institutions at different levels (Scott, 2008). Similarly, recent studies of international business present multi-layered models of culture (Karahanna, Evaristo, & Srite, 2005; Leung, Bhagat, Buchan, Erez, & Gibson, 2005) and cultural frameworks (Hampden-Turner & Trompenaars, 1998) other than those proposed by Hofstede. In a related vein, industries provide their own institutional press for member organizations for what is considered good practice. Analyzing both industry-specific patterns of practice across different country-based institutional environment will provide a richer interpretation of how organizations confront and manage the sometimes competing mandates from their multi-faceted institutional environments. Even in the case of information sharing, the variance explained in our analyses is not high. Broadening the scope of investigation to include more factors and levels of environment should increase the amount of variance explained and may help to disaggregate and understand the country effects seen in our results. This issue relates directly to the fairly low R^2 effect sizes obtained in our analyses. A more extensive evaluation of the additional institutional factors should provide more explanatory power.

Second, we believe that there are opportunities for future research in the interactions between various levels of culture and institutions and organizations (and potentially individuals). Culture and institutions influence organizational practices and IT innovations but at the same time organizations enact such practices and innovations with the culture and institutions at different levels (DeSanctis & Poole, 1994;

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Giddens, 1984). For example, around 40% of the organizations in the CRANET database are part of a larger organizational entity. The independence of each of those organizations from those larger entities cannot be determined. Logically, those larger entities provide, in varying degrees, their own set of institutional influences. These are potentially contradictory to the regional and country-based institutional and cultural mandates. These effects were unmeasured and likely limited the effect sizes (R^2) achieved in this study. Organizations can be "viewed as knowledgeable and reflexive, capable of understanding and taking account of everyday situations and routinely monitoring the results of their own and others' actions" (Scott, 2008, p. 77). The result, as discussed earlier in this paper, is expected to be the simultaneous presence of globalization and localization of organizational practices and innovations in countries (and organizations). Future study is necessary to shed light on these potentially dynamic and nonlinear relationships among social structures (e.g., culture, institutions), new organizational practices and IT, and organizations in international contexts. This will be best done with a more intensive study of a few organizations rather than a large survey of many organizations.

Third, another limitation and opportunity for future investigation relates to the data set employed. While our study analyzed a large data set of international HR management practices, the data is largely from Western countries. This limits being able to generalize our findings to non-Western regions, including countries in Asia-Pacific, Africa, and South America. In this regard, future study could apply our proposed research design and testing hypotheses to a data set covering more diverse regions of the world.

Finally, while much of our analysis avoids analyzing independent and dependent variables from a single source, the observed relationship (hypothesis 7) between information sharing and HRIS adoption come from the same source. As such, it is vulnerable to common method bias. Wright and Gardner (2009) in addressing this potential bias argue that this data gathering process may be biased by the implicit theory of human resource management that respondents have. However, we believe the "yes-no" response choice contained in the CRANET database used in this study, compared to the typical verses Likert-type response scale (see the Appendix), make the responses less subject to the impact of respondents' implicit theory.

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REFERENCES

Agourram, H., & Ingham, J. (2007). The impact of national culture on the meaning of information system success at the user level. *Journal of Enterprise Information Management*, *20*(6), 641–656. doi:10.1108/17410390710830709

Ahmad, S., & Schroeder, R. (2003). The impact of human resource management practices on operational performance: Recognizing country and industry differences. *Journal of Operations Management*, *21*, 19–43. doi:10.1016/S0272-6963(02)00056-6

Alavi, M., & Leidner, D. (2001). Knowledge management and knowledge management systems: Conceptual foundations and research issues. *Management Information Systems Quarterly*, *25*(1), 107–136. doi:10.2307/3250961

Avgerou, C. (2001). The significance of context in information systems and organizational change. *Information Systems Journal*, *11*, 43–63. doi:10.1046/j.1365-2575.2001.00095.x

Aycan, Z. (2001). Human resource management in Turkey. *International Journal of Manpower*, *22*(3), 252–260. doi:10.1108/01437720110398347

Copyright © 2011, IGI Global. Copying or distributing in print or electronic forms without written permission of IGI Global is prohibited.

Bagchi, K., Hart, P., & Peterson, M. (2004). National culture and information technology product adoption. *Journal of Global Information Management*, *7*(4), 29–45.

Beck, N., Kabst, R., & Walgenbach, P. (2009). The cultural dependence of vocational training. *Journal of International Business Studies*, *40*(8), 1374–1395. doi:10.1057/jibs.2008.112

Becker, B., & Huselid, M. (1998). High performance work systems and firm performance: A synthesis of research and managerial implications. *Research in Personnel and Human Resources Management*, *16*, 53–101.

Black, B. (2005). Comparative industrial relations theory: The role of national culture. *International Journal of Human Resource Management*, *16*(7), 1137–1158. doi:10.1080/09585190500143980

Bondarouk, T. V., & Ruel, H. J. M. (2009). Electronic human resource management: Challenges in the digital era. *International Journal of Human Resource Management*, *20*(3), 505–514. doi:10.1080/09585190802707235

Brewster, C., Mayrhofer, W., & Morley, M. (2000). *New challenges for European human resource management*. Basingstoke, UK: Macmillan. doi:10.1057/9780230597952

Brewster, C., Tregaskis, O., Hegewisch, A., & Mayne, L. (1996). Comparative research in human resource management: A review and an example. *International Journal of Human Resource Management*, *7*(3), 585–604. doi:10.1080/09585199600000145

Brewster, C., Wood, G., Brookes, M., & Ommeren, J. (2006). What determines the size of the HR function? A cross-national analysis. *Human Resource Management*, *45*(1), 3–15. doi:10.1002/hrm.20093

Chai, L., & Pavlou, P. (2004). From "ancient" to "modern": A cross-cultural investigation of electronic commerce adoption in Greece and the United States. *Journal of Enterprise Information Management*, *17*(6), 416–423. doi:10.1108/17410390410566706

Chinn, M., & Fairlie, R. (2007). The determinants of the global digital divide: A cross-country analysis of computer and internet penetration. *Oxford Economic Papers*, *59*, 16–44. doi:10.1093/oep/gpl024

Chow, C. W., Harrison, G. L., McKinnon, J. L., & Wu, A. (1999). Cultural influences on informal information sharing in Chinese and Anglo-American organizations: An exploratory study. *Accounting, Organizations and Society*, *24*, 561–582. doi:10.1016/S0361-3682(99)00022-7

Chow, I. (2005). High-performance work systems in Asian companies. *Thunderbird International Business Review*, *47*(5), 575–599. doi:10.1002/tie.20068

Comin, D., & Hobijn, B. (2004). Cross-country technology adoption: Making the theories face the facts. *Journal of Monetary Economics*, *51*(1), 39–83. doi:10.1016/j.jmoneco.2003.07.003

Davenport, T. (1998). Putting the enterprise into the enterprise system. *Harvard Business Review*, 76(4), 121–131.

DeSanctis, G. (1986). Human resource information systems: A current assessment. *Management Information Systems Quarterly*, *10*(1), 15–26. doi:10.2307/248875

DeSanctis, G., & Poole, M. S. (1994). Capturing the complexity in advanced technology use: Adaptive structuration theory. *Organization Science*, *5*(2), 121–147. doi:10.1287/orsc.5.2.121

DiMaggio, P. J., & Powell, W. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. *American Sociological Review*, *48*, 147–160. doi:10.2307/2095101

DiMaggio, P. J., & Powell, W. (1991). *The new institutionalism in organizational analysis*. Chicago, IL: University of Chicago Press.

Ein-Dor, P., Segev, E., & Orgad, M. (1993). The effect of national culture on IS: Implications for international information systems. *Journal of Global Information Management*, *1*(1), 33–44.

Erumban, A., & de Jong, S. B. (2006). Cross-country differences in ICT adoption: A consequence of culture. *Journal of World Business*, *41*(4), 302–314. doi:10.1016/j.jwb.2006.08.005

Everdingen, Y., & Waarts, E. (2003). The effect of national culture on the adoption of innovations. *Marketing Letters*, *14*(3), 217–232. doi:10.1023/A:1027452919403

Foss, N., & Pedersen, T. (2004). Organizing knowledge processes in the multinational corporation: An introduction. *Journal of International Business Studies*, *35*(5), 340–349. doi:10.1057/palgrave.jibs.8400102

Gallivan, M., & Srite, M. (2005). Information technology and culture: Identifying framentary and holistic perspectives of culture. *Information and Organization*, *15*, 295–338. doi:10.1016/j.infoandorg.2005.02.005

Copyright © 2011, IGI Global. Copying or distributing in print or electronic forms without written permission of IGI Global is prohibited.

Gaspay, A., Dardan, S., & Legorreta, L. (2008). "Software of the mind" - A review of applications of Hofstede's theory to IT research. *Journal of Information Technology Theory and Applications*, *9*(3), 1–37.

Gerhart, B., & Fang, M. (2005). National culture and human resource management: Assumptions and evidence. *International Journal of Human Resource Management*, *16*(6), 971–986. doi:10.1080/09585190500120772

Gibson, C., Porath, C., Benson, G., & Lawler, E. (2007). What results when firms implement practices: The differential relationship between specific practices, firm financial performance, customer service, and quality. *The Journal of Applied Psychology*, *92*(6), 1467–1480. doi:10.1037/0021-9010.92.6.1467

Giddens, A. (1984). *The constitution of society: Outline of the theory of structuration*. Cambridge, UK: Cambridge University Press.

Gooderham, P., Nordhaug, O., & Ringdal, K. (1999). Institutional and rational determinants of organizational practices: Human resource management in European firms. *Administrative Science Quarterly*, *44*, 507–531. doi:10.2307/2666960

Gooderham, P., Nordhaug, O., & Ringdal, K. (2006). National embeddedness and calculative human resource management in US subsidiaries in Europe and Australia. *Human Relations*, *59*(11), 1491–1513. doi:10.1177/0018726706072843

Greenwood, R., Oliver, C., Suddaby, R., & Sahlin, K. (2008). *The SAGE handbook of organizational institutionalism*. Thousand Oaks, CA: Sage.

Griffith, D., Cavusgil, S., & Xu, S. (2008). Emerging themes in international business research. *Journal of International Business Studies*, *39*, 1220–1235. doi:10.1057/palgrave.jibs.8400412

Haines, V., & Lafleur, G. (2008). Information technology usage and human resource roles and effectiveness. *Human Resource Management*, *47*(3), 525–540. doi:10.1002/hrm.20230

Hampden-Turner, C., & Trompenaars, F. (1998). *Riding the waves of culture: Understanding diversity in global business*. New York, NY: McGraw-Hill.

Hendrickson, A. (2003). Human resource information systems: Backbone technology of contemporary human resources. *Journal of Labor Research*, *24*(3), 381–394. doi:10.1007/s12122-003-1002-5

Heugens, P., & Lander, M. (2009). Structure! Agency! (and other quarrels): A meta-analysis of institutional theories of organization. *Academy of Management Journal*, *52*(1), 61–85. doi:10.5465/AMJ.2009.36461835

Hofstede, G. (1980). *Culture's consequences*. Thousand Oaks, CA: Sage.

Hofstede, G., & Hofstede, G. T. (2005). *Cultures and organizations: Software of the mind* (2nd ed.). New York, NY: McGraw-Hill.

Hussain, Z., Wallace, J., & Cornelius, N. (2007). The use and impact of human resource information systems on human resource management professionals. *Information & Management*, *44*, 74–89. doi:10.1016/j.im.2006.10.006

Hustad, E., & Munkvold, B. (2005). IT-supported competence management: A case study at Ericsson. *Information Systems Management*, *22*(2), 78–88. doi:10.1201/1078/45099.22.2.20050301/87280.9

Ichniowski, C., & Shaw, K. (1999). The effects of human resource management systems on economic performance: An international comparison of U.S. and Japanese plants. *Management Science*, *45*(5), 704–719. doi:10.1287/mnsc.45.5.704

Kang, S., Morris, S., & Snell, S. (2007). Relational archetypes, organizational learning, and value creation: Extending the human resource architecture. *Academy of Management Review*, *32*(1), 236–256. doi:10.5465/AMR.2007.23464060

Karahanna, E., Evaristo, J., & Srite, M. (2005). Levels of culture and individual behavior: An integrative perspective. *Journal of Global Information Management*, *13*(2), 1–20. doi:10.4018/jgim.2005040101

Katz, J., & Townsend, J. (2000). The role of information technology in the fit between culture, business strategy and organizational structure of global firms. *Journal of Global Information Management*, *8*(2), 24-35. doi:10.4018/jgim.2000040102

Kirkman, B., Lowe, K., & Gibson, C. (2006). A quarter century of culture's consequences: A review of empirical research incorporating Hofstede's cultural values framework. *Journal of International Business Studies*, *37*, 285–320. doi:10.1057/palgrave.jibs.8400202

Kogut, B., & Singh, H. (1988). The effect of national culture on the choice of entry mode. *Journal of International Business Studies*, *19*(3), 411–432. doi:10.1057/palgrave.jibs.8490394

Copyright © 2011, IGI Global. Copying or distributing in print or electronic forms without written permission of IGI Global is prohibited.

Kovach, K., & Cathcart, C. (1999). Human resource information systems (HRIS): Providing business with rapid data access, information exchange and strategic advantage. *Public Personnel Management*, *28*(2), 275–282.

Lee, H. (2000). Creating value through supply chain integration. *Supply Chain Management Review, 5*(5), 30-36.

Leidner, D., & Kayworth, T. (2006). A review of culture in information systems research: Toward a theory of information technology culture conflict. *Management Information Systems Quarterly*, *30*(2), 357–399.

Leung, K., Bhagat, R., Buchan, N., Erez, M., & Gibson, C. (2005). Culture and international business: Recent advances and their implications for future research. *Journal of International Business Studies*, *36*, 357–378. doi:10.1057/palgrave.jibs.8400150

Luo, Y., & Shenkar, O. (2006). The multinational corporation as a multilingual community: Language and organization in a global context. *Journal of International Business Studies*, *37*, 321–339. doi:10.1057/palgrave.jibs.8400197

Martinez, C., & Williams, C. (2010). National institutions, entrepreneurship, and global ICT adoption: A cross-country test of competing theories. *Journal of Electronic Commerce Research*, *11*(1), 73–91.

Martinsons, M. (1994). Benchmarking human resources information systems in Canada and Hong Kong. *Information & Management*, *26*, 305–316. doi:10.1016/0378-7206(94)90028-0

Mayfield, M., Mayfield, J., & Lunce, S. (2003). Human resource information systems: A review and model development. *Advances in Competitiveness Research*, *11*(1), 139–150.

Myers, M., & Tan, F. (2002). Beyond models of national culture in information systems research. *Journal of Global Information Management*, *10*(2), 1–19.

Neumayer, E., & Perkins, R. (2005). Uneven geographies of organizational practice: Explaining the cross-national transfer and diffusion of ISO 9000. *Economic Geography*, *81*(3), 237–259. doi:10.1111/j.1944-8287.2005.tb00269.x

Ngai, E., & Wat, F. (2006). Human resource information systems: A review and empirical analysis. *Personnel Review*, *35*(3), 297–314. doi:10.1108/00483480610656702

Niederman, F. (1999). Global information systems and human resource management: A research agenda. *Journal of Global Information Management*, *7*(2), 30–43.

Niederman, F., Boggs, D., & Kundu, S. (2002). International business and global information management research: Toward a cumulative tradition. *Journal of Global Information Management*, *10*(1), 33–47. doi:10.4018/jgim.2002010104

Oliver, C. (1991). Strategic responses to institutional processes. *Academy of Management Review*, *16*, 145–179.

Pagell, M., Katz, J., & Sheu, C. (2005). The importance of national culture in operations management research. *International Journal of Operations & Production Management*, *25*(4), 371–394. doi:10.1108/01443570510585552

Panayotopoulou, L., Galanaki, E., & Papalexandris, N. (2010). Adoption of electronic systems in HRM: Is national background of the firm relevant? *New Technology, Work and Employment*, *25*, 253–269. doi:10.1111/j.1468-005X.2010.00252.x

Papalexandris, N., & Panayotopoulou, L. (2004). Exploring the mutual interaction of societal culture and human resource management practices: Evidence from 19 countries. *Employee Relations*, *26*(5), 495–509. doi:10.1108/01425450410550473

Parboteeah, K., & Cullen, J. (2003). Social institutions and work centrality: Explorations beyond national culture. *Organization Science*, *14*(2), 137–148. doi:10.1287/orsc.14.2.137.14989

Pfeffer, J. (1998). Seven practices of successful organizations. *California Management Review*, *40*(2), 96–124.

Pfeffer, J. (2005). Producing sustainable competitive advantage through the effective management of people. *The Academy of Management Executive*, *19*(4), 95–106. doi:10.5465/AME.2005.19417910

Png, I., Tan, B., & Wee, K. (2001). Dimensions of national culture and corporate adoption of IT infrastructure. *IEEE Transactions on Engineering Management*, *48*(1), 36–45. doi:10.1109/17.913164

Poutsma, E., Ligthart, P., & Veersma, U. (2006). The diffusion of calculative and collaborative HRM practices in European firms. *Industrial Relations*, *45*(4), 513–546. doi:10.1111/j.1468-232X.2006.00442.x

Copyright © 2011, IGI Global. Copying or distributing in print or electronic forms without written permission of IGI Global is prohibited.

Samaddar, S., Nargundkar, S., & Daley, M. (2006). Inter-organizational information sharing: The role of supply network configuration and partner goal congruence. *European Journal of Operational Research*, *174*, 744–765. doi:10.1016/j.ejor.2005.01.059

Scott, W. (2008). *Institutions and organizations*. London, UK: Sage.

Shane, S. (1995). Uncertainty avoidance and the preference for innovation championing roles. *Journal of International Business Studies*, *26*(1), 47–68. doi:10.1057/palgrave.jibs.8490165

Shani, A., & Tesone, D. (2010). Have human resource information systems evolved into internal e-commerce? *Worldwide Hospitality and Tourism Themes*, *2*(1), 30–48. doi:10.1108/17554211011012586

Shin, S., Ishman, M., & Sanders, G. (2007). An empirical investigation of socio-cultural factors of information sharing in China. *Information & Management*, *44*, 165–174. doi:10.1016/j.im.2006.11.004

Stavrou, E. T., Brewster, C., & Charalambous, C. (2010). Human resource management and firm performance in Europe through the lens of business systems: Best fit, best practice or both? *International Journal of Human Resource Management*, *21*(7), 933–962. doi:10.1080/09585191003783371

Steinmetz, H. S., Schwens, C., Wehner, M., & Kabst, R. (2011). Conceptual and methodological issues in comparative HRM research: The Cranet project as an example. *Human Resource Management Review*, *21*(1), 16–26. doi:10.1016/j.hrmr.2010.09.008

Straub, D. (1994). The effect of culture on IT diffusion: E-Mail and fax in Japan and the U.S. *Information Systems Research*, *5*(1), 23–47. doi:10.1287/isre.5.1.23

Straub, D., Loch, K., & Hill, C. (2001). Transfer of information technology to the Arab world: A test of cultural influence modeling. *Journal of Global Information Management*, *9*(4), 6–28. doi:10.4018/jgim.2001100101

Stremersch, S., & Tellis, G. (2002). Strategic bundling of products and prices: A new synthesis for marketing. *Journal of Marketing*, *66*, 55–72. doi:10.1509/jmkg.66.1.55.18455

Strohmeier, S., & Kabst, R. (2009). Organizational adoption of e-HRM in Europe. *Journal of Managerial Psychology*, *24*(6), 482–501. doi:10.1108/02683940910974099

Sundqvist, S., Frank, L., & Puumalainen, K. (2005). The effects of country characteristics, cultural similarity, and adoption timing on the diffusion of wireless communications. *Journal of Business Research*, *58*, 107–110. doi:10.1016/S0148-2963(02)00480-0

Tafti, A., Mithas, S., & Krishnan, M. (2007). Information technology and the autonomy-control duality: Toward a theory. *Information Technology Management*, *8*, 147–166. doi:10.1007/s10799-007-0014-x

Tansley, C., Newell, S., & Williams, H. (2001). Effecting HRM-style practices through an integrated human resource information systems: AN E-Greenfield site? *Personnel Review*, *30*(3), 351–370. doi:10.1108/00483480110385870

Tellis, G., Stremersch, S., & Yin, E. (2003). The international takeoff of new products: The role of economics, culture, and country innovativeness. *Marketing Science*, *22*(2), 188–208. doi:10.1287/mksc.22.2.188.16041

Teo, T., Lim, G., & Fedric, S. (2007). The adoption and diffusion of human resources information systems in Singapore. *Asia Pacific Journal of Human Resources*, *45*(1), 44–62. doi:10.1177/1038411107075402

Torre, J., & Moxon, R. (2001). E-Commerce and global business: The impact of the information and communication technology revolution on the conduct of international business. *Journal of International Business Studies*, *32*(4), 617–639. doi:10.1057/palgrave.jibs.8490988

Tragaskis, O., Mahoney, C., & Atterbury, S. (2004). International survey methodology: Experiences from the Cranet survey. In Brewster, C., Mayerhofer, W., & Morley, M. (Eds.), *Human resource management in Europe: Evidence of convergence?* (pp. 437–450). Oxford, UK: Butterworth Heinemann.

Tsui, A., Nifadkar, S., & Ou, A. (2007). Cross-national, cross-cultural organizational behavior research: Advances, gaps, and recommendations. *Journal of Management*, *33*(3), 426–478. doi:10.1177/0149206307300818

Tung, R. (2008). The cross-cultural research imperative: The need to balance cross-national and intra-national diversity. *Journal of International Business Studies*, *39*, 41–46. doi:10.1057/palgrave.jibs.8400331

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Veiga, J., Floyd, S., & Dechant, K. (2001). Towards modelling the effects of national culture on IT implementation and acceptance. *Journal of Information Technology*, *16*, 145–158. doi:10.1080/02683960110063654

Vicente, M., & Lopez, A. (2006). Patterns of ICT diffusion across the European Union. *Economics Letters*, *93*, 45–51. doi:10.1016/j.econlet.2006.03.039

Weerakkody, V., Dwivedi, Y., & Irani, Z. (2009). The diffusion and use of institutional theory: A cross-disciplinary longitudinal literature survey. *Journal of Information Technology*, *24*, 354–368. doi:10.1057/jit.2009.16

Wright, P., & Gardner, T. (2009). Implicit human resource management theory: A potential threat to the internal validity of human resource practice measures. *International Journal of Human Resource Management*, *20*(1), 57–74. doi:10.1080/09585190802528375

Zhao, H., Kim, S., Suh, T., & Du, J. (2007). Social institutional explanations of global Internet diffusion. *Journal of Global Information Management*, *15*(2), 28–55. doi:10.4018/jgim.2007040102

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APPENDIX

Information Sharing Scale

Which Employee Categories are Formally Briefed About the Following Issues? (Please Tick as Many as Applicable).

	Strategy	Financial Performance	Organisation of Work
Professional/technical	❑1	❑1	❑1
Clerical	❑1	❑1	❑1
Manual	❑1	❑1	❑1

Note: A tick or check in a box indicates that the row designated groups of employees are formally briefed on the issue noted in the column heading. The information sharing scale is the sum of checks for Professional/technical, clerical and manual employees. A zero sum means that none of these groups are formally briefed on any of the three issues. The highest possible score of nine indicates that all three groups were formally briefed on all three issues.

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