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Intellectual capital configurations and organizational capability: An empirical examination of human resource subunits in the multinational enterprise

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Abstract
Building on the organizational capabilities literature and theories of the multinational enterprise, this paper develops and tests a framework that examines the relationship between intellectual capital configurations and organizational capabilities in human resource (HR) subunits. Looking at 187 subunits from 20 MNEs, findings show that intellectual capital dimensions vary in their usefulness for generating, sharing, and implementing HR management practices. In particular, while certain resources may help in the development of one capability, they may harm the development of another. Implications are that an organization's intellectual capital investments will differ, depending on the desired capability.
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INTRODUCTION

Few will argue against the premise that human resource (HR) issues are critical in today's multinational enterprise (MNE). A wide range of factors – which vary from global sourcing and offshoring to regional trade agreements, and from labor standards to cultural differences and sustainability to strategic alliances and innovation – point to the vital nature of HR management in a global economy. In fact, some observers have suggested that the way the workforce is managed may be among the strongest predictors of successful MNEs (Carpenter, Sanders, & Gregersen, 2001; Doz & Prahalad, 1986; Evans, Pucik, & Bjorkman, 2010; Gong, 2003).

Much of the literature on international HR parallels the global/local debate that characterizes organizational and strategic-level decisions – that is, which practices should be globally integrated and which should be locally adapted within the MNE (e.g., Brewster, Sparrow, & Harris, 2005; De Cieri & Dowling, 2006; Fey & Bjorkman, 2001; Rosenzweig & Nohria, 1994; Schuler, Dowling, & DeCieri, 1993; Taylor, Beechler, & Napier, 1996; Tung & Havlovic, 1996). For instance, Miller, Hom, and Gomez-Mejia

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(2001) found that profit sharing and savings plans lowered turnover in auto plants in Mexico, and that this was probably due to strong collectivism in the local culture. As a result, firms need to think strategically with regard to which practices are generated locally and which are shared and implemented globally.

Related to this, one area of research that has received relatively less emphasis is not which practices should be used to create competitiveness in a multinational context, but rather how organizations develop different capabilities to generate new management ideas locally and at the same time to share and implement them globally, with high impact (Yeung, Ulrich, Nason, & Von Glinow, 1999). Particular attention paid to these specific capabilities and their underlying mechanisms helps us to better understand how HR as a strategic support function might "generate and implement the complementary organizational and managerial innovations needed to achieve and sustain competitiveness" (Teece, 2007: 1321). This focus enables us to contribute to the resource-based view (RBV) of the firm, which tends to neglect the underlying differences in organizational capabilities (e.g., the ability to generate vs share vs implement knowledge) that are critical to theories of the MNE (Zaheer, 1995). For example, instead of recognizing capability differences within the organization at the country subunit level, resource-based approaches tend to focus across the organization at the firm level (Birkinshaw & Hood, 1998; Felin & Hesterly, 2007). As a result, the question we raise in this paper is: "What are the mechanisms underlying an HR subunit's capabilities to generate practices in accordance with the local environment, share practices with other peer subunits across borders, and implement those practices into their existing operations?"

To answer this question, we break the paper down into three parts. First, we discuss how people-related management issues in MNEs create particular relevance to RBVs of the firm (Barney, 1991). We extend the theoretical development to address the capability to generate practices locally, share or transfer them globally, and implement them within subunits. Second, we focus specifically on subsidiary-level knowledge found in an HR group's experience base (human capital), relationships with other HR groups (social capital), and use of codified systems (organizational capital) as key subsets of intellectual capital that may influence the capability of firms to generate, share, and implement HR practices. Third, we test this framework drawing upon 35 semi-structured interviews conducted with HR managers in two separate MNEs, and using a sample of 187 geographically diverse HR subunits from 20 MNEs. Finally, we discuss the results of our analysis and draw inferences for future research and practice.

ORGANIZATIONAL CAPABILITIES

International business scholars have pointed out that the knowledge-based economy requires HR to be a primary contributor to a firm's competitive advantage (e.g., Foss & Pedersen, 2004). Advantage comes through more fluid, locally adaptable, and globally integrated means of managing people (Schuler & Tarique, 2007; Sparrow & Brewster, 2006; Stahl & Bjorkman, 2006). But to manage people in such a dynamic fashion requires that the HR function and its geographically dispersed subunits first develop the capabilities to locally generate and globally generalize (share and implement) practices in a way that is impactful for the organization (Yeung et al., 1999).

In some ways, the issue of global vs local HR practice is at the heart of competitive advantage in MNEs (Fenton-O'Creevy, Gooderham, & Nordhaug, 2008; Von Glinow, Teagarden, & Drost, 2002). The RBV of the firm, for example, is based on the premises that resources: (1) are distributed heterogeneously; and (2) remain imperfectly mobile over time (Barney, 1991). Heterogeneity establishes non-equivalence, and the possibility of differential value creation. Immobility prevents imitation, duplication, or appropriation by other firms, thereby conferring a sustainable advantage. HR practices represent a specific type of resource that can be heterogeneous and immobile owing to their social complexity and causal ambiguity (Barney & Wright, 1998; Wright, Dunford, & Snell, 2001). In the context of MNEs, the premises of resource heterogeneity and immobility have particular relevance.

Heterogeneity and Generating HR Practices

Resource heterogeneity in the MNE is typically taken for granted by RBV scholars (Peng, 2001). Research that does mention the origin of heterogeneity argues that it simply comes from luck, from superior expectations (Barney, 1986), or from path dependency (Collis, 1991). None of these are actionable by organizations as they try to ensure heterogeneity to sustain a competitive advantage. In fact, scholars such as Barney (2007) argue that sources of heterogeneity remains RBV's unopened "black box."

While the concept of heterogeneity typically refers to differences across firms, MNEs are unique in that they may potentially possess heterogeneity *within* the firm as well. This is especially important with regard to the tension between global efficiency and local responsiveness. Because MNEs operate in multiple environments, they often generate HR practices that reflect unique circumstances, such as geographical divides, local requirements, laws, cultures, and the like. In some respects, generating practices locally lies at the heart of an MNE's capability to be responsive to idiosyncratic circumstances and changing opportunities. The variation in practices or ideas across regions is also often viewed as the foundation for valuable learning and innovation within the company as a whole (Puranam, Singh, & Zollo, 2006). Ghoshal and Bartlett (1988) noted that this variation in practices is local in origin, where subunits use specific mechanisms found at the country level to respond to the environment. However, the specific mechanisms underlying the ability to generate new practices have become a source of debate among scholars (e.g., Hansen & Lovas, 2004). As a result, understanding how organizations combine resources to generate new knowledge is potentially vital to an MNE's capability to compete locally as well as to leverage that advantage globally.

Immobility and Sharing HR Practices

In addition to the importance of heterogeneity, a second important premise of RBV is that resources are immobile and therefore difficult to imitate, duplicate, or appropriate. Although RBV scholars typically address issues of immobility *across* firms, the issue is germane to business units *within* the MNE as well (see Jensen & Szulanski, 2004, for further discussion of within MNE practice immobility). In fact, scholars have consistently noted the difficulties of sharing knowledge across borders, and of applying solutions from one context to challenges and opportunities in another (e.g., Kogut & Zander, 1993; Kostova & Roth, 2002; McWilliams, Van Fleet, & Wright, 2001; Szulanski, 1996).

However, if HR practices that are effective in one area can be shared with business units in other areas of the firm, the possibility for learning and the transfer of practice are potentially significant. For example, Björkman, Fey, and Park (2007: 443) found that "knowledge transfer between subsidiary units in different locations within the MNE increases the exchange of ideas and best practices, which leads to the spread and establishment of high-performance HR practices within the MNE." On the other hand, if HR practices are immobile, and cannot be transferred within MNEs, there is no opportunity to leverage learning or practice plurality in other areas of the firm. In such an instance, the MNE would not stand out as being more advantageous than a local competitor within the local market – which would not allow for economies of scale.

In the multinational context, the capability to share practices hinges on the subunit's ability to learn from other peer units (Argote & Ingram, 2000; Szulanski, 1996). Like practice generation capabilities, how best to learn from other peer units depends largely upon the specific mechanisms that managers can leverage on the focal unit. For example, the possession of specific interaction patterns may improve the firm's ability to share and exchange ideas (Burt, 1992). This said, learning from other peer units requires more than just sharing of knowledge about practices; it also requires the focal unit to implement those practices.

Immobility and Implementing HR Practices

While knowledge-sharing is important across geographically diverse HR subunits to remove barriers to resource mobility, this acknowledgement does not address the issue of how – or whether – the practices are implemented once they are shared. Several researchers have argued that knowledge-sharing does little good when actors lack the ability to act upon shared information or to distinguish reusable from non-usable knowledge (Hansen & Haas, 2001; Huber & Daft, 1987; Kostova & Roth, 2003; Sproull & Kiesler, 1991; Whittaker & Sidner, 1997). The ability to implement new practices in existing operations is substantively different from merely sharing those practices across units. For example, in our interviews some managers spoke of how their HR unit was open and shared practice ideas on a constant basis with cross-regional HR units, but that problems arose when the unit tried to actually implement or use the shared practice.

Though generating practices and sharing knowledge about those practices with other HR subunits in the MNE are important (and often a prerequisite), the primary objective of HR subunits in most MNEs is to be able to successfully implement practices that have been created elsewhere in the firm, and apply them in both familiar and unfamiliar situations (Björkman & Lervik, 2007). In this sense, little research has looked at the capability

that is necessary to implement HR practices once they have been shared by others.

In sum, while a subunit's generation capability may provide a source of unique advantage at a local level, it may actually diminish performance at a global level unless the subunits develop the capabilities to share and implement their best practices more broadly. For example, one company manager in our research reported that having locally adaptive HR units allowed for some very innovative HR practices, but that variation and continuous change across the subunits made the development of shared services or standardized HR platforms more difficult – diminishing the potential for achieving economies of scale. Furthermore, because of the locally adaptive nature of the firm, many HR subunits we examined were spending time and resources reinventing practices that had already been developed elsewhere – losing out on economies of scope. Of course, this scenario is not limited to the companies in our research. Numerous scholars have asserted that managers face difficulty in identifying and managing the mechanisms underlying these specific organizational capabilities (Ulrich, Smallwood, & Sweetman, 2009; Yeung et al., 1999). A better theoretical and empirical understanding of such mechanisms will highlight how firms can create value by adapting to both local and global practice demands (Lengnick-Hall & Lengnick-Hall, 2005).

INTELLECTUAL CAPITAL AND ORGANIZATIONAL CAPABILITIES

Researchers such as Bontis (1996, 1999), Nahapiet and Ghoshal (1998), and Subramaniam and Youndt (2005) have noted that the underlying mechanisms that influence organizational capabilities are tied to intellectual capital. They consider "intellectual capital to be the sum of all knowledge firms utilize for competitive advantage" (Subramaniam & Youndt, 2005: 451). These, and other, scholars have also identified three subsets that are most critical: human capital, social capital, and organizational capital.

Human capital is defined as the knowledge, skills, and experience of individuals – experience being the key predictor in human capital theory (Becker, 1967). Social capital resides neither in individuals nor organizations, but consists of the knowledge resources found in the structure or pattern of interaction between people (Burt, 1997; Coleman, 1988; Loury, 1977), as well as the norms and values associated with them (Coleman, 1990; Fukuyama, 1995; Putnam, 1995). In this regard, social capital can be found in the structurally based social interactions between individual actors as well as the cognitively based norms and values shared among those actors (Tsai & Ghoshal, 1998). And organizational capital consists of the codified experiences residing within an organization (Youndt, Subramaniam, & Snell, 2004). However, within these three categories, there remain potentially multiple dimensions, depending upon the context. Therefore we examined two human capital dimensions (*international experience* and *local experience*), two social capital dimensions (*shared vision* and *social interaction*), and one for organizational capital (*codifying systems*) that are based on our interviews and MNE literature.

While not all of these dimensions are likely to significantly influence a subunit's capabilities, different dimensions may influence different capabilities. For example, Grant (1996) stated that "*transferring* knowledge is not an efficient approach to *integrating* knowledge." In other words, mechanisms that help a subunit effectively share HR practices may not be as efficient in implementing them, and in fact might actually hinder the generation of other practices. The challenge is to theoretically identify which dimensions of intellectual capital might be significantly linked to specific capabilities, and how these resources might present complementarities. Such an approach is found in specific intellectual capital configurations for capability development.

A configurational approach asserts that organizations consist of clusters of interconnected people, relationships, processes and systems, rather than modular or loosely coupled components understood in isolation (Delery & Doty, 1996). As shown by Miles and Snow (1984) and Arthur (1992), a configurational approach to theory development can be particularly useful in showing how multiple combinations of input variables can lead to different effects on output variables. These combinations also show how intellectual capital can provide resource complementarities, a key source of competitive advantage. Moreover, by identifying complex patterns of resources we can examine nonlinear synergistic effects that represent ideal types (Delery & Doty, 1996). Birkinshaw and Morrison (1995) were among the first to apply a configurational approach at the subsidiary level of an organization. This helped them to understand how certain structural combinations are more appropriate to specific subsidiary strategies than others.

In our case, a configurational approach allows us to examine heterogeneity within the MNE, and how subsidiaries may differ depending upon the intellectual capital investments they make. In other words, certain intellectual capital arrangements may be more appropriate for specific subsidiary learning capabilities than others. This constrains the organization's investments in intellectual capital to be consistent with its capability needs. In this regard, taking a configurational approach to intellectual capital helps us to contribute to the RBV literature by paying closer attention to how the value of resources (human, social, and organizational capital) depends on how they are bundled with other resources, rather than examining them as standalone variables.

Intellectual Capital Configuration for Generating HR Practices

From a theoretical perspective, certain dimensions of intellectual capital may be significantly linked to the capability to generate HR practices, while others may not. These hypothesized dimensions represent a specific intellectual capital configuration that globally dispersed subunits can leverage to increase resource heterogeneity across the organization. Below, we argue that even though multiple aspects of intellectual capital can be linked to generation capability, they all connect theoretically in terms of their effects on resource heterogeneity.

Influence of human capital. Ployhart and Moliterno (2011) assert that individual human capital can be collectively understood through aggregate organizational-level experience. The collective experience of a subunit can act as a signal of its level and type of human capital (Sambharya, 1996; Sullivan, 1994). As people work and are educated in specific settings, they gain experience that may lead to human capital that is applicable to performing certain tasks. For example, Carpenter, Sanders, and Gregersen (2001) found that managers with international assignment experience create more value for their firms and themselves than those without this type of human capital. The types of experience most likely to be linked to HR practice generation in an MNE subunit consist of local and international forms. One of the limitations of previous work in this area is that it tends to focus more on how learning is influenced by international and local experience as a factor of nationality, and does not consider the levels of local or international experience (e.g., Björkman et al., 2007; Lyles & Salk, 1996). To help overcome this limitation, Haas (2006) pointed to the need to understand how levels of local experience might influence learning. She measured levels of experience as two separate factors – cosmopolitan (international) and local. While previous literature (e.g., Gouldner, 1957) saw locals and cosmopolitans as two end-points on the same spectrum, Haas recognized that an individual or a group could have high or low levels of both. In accordance with Tung's (1998) notion of international experience being a function of understanding that comes from people who have lived, worked, and been trained in multiple cultures, Haas defines local experience as a function of understanding that comes from living, working, and receiving training in the country of operation – regardless of nationality – and international experience as a function of living, working, and receiving training in multiple countries.

According to theoretical discussions toward knowledge creation, ideas that are new to a given firm often come from individuals – not at the level of the organization as an entity (cf. Nonaka & Takeuchi, 1995; Simon, 1991). To develop ideas requires experience and reflection on the part of its individual members (Argyris & Schön, 1978; Leonard-Barton, 1995; Snell, Youndt, & Wright, 1996). Some of these practices in response to the environment may not be new *per se*, but can be considered new for the firm, which is why researchers such as Luo and Peng (1999), March (1991), and Moorman and Miner (1998) all claim that exposure to the different local environments stimulates the generation of new ideas from individuals.

Generally speaking, *local experience* can be seen as a means for providing managers with unique contextual knowledge to formulate new and more efficient practices. They may be better equipped to interpret the idiosyncratic challenges and opportunities that arise in a given host country. And it may give them the credibility to develop practices *in situ*. For example, Rosenzweig and Nohria (1994) found that, in a given country, when the HR director had been hired from the local talent pool, the management practices adopted were much more likely to be shaped by local conditions than by the larger corporation. Hence these points lead to the following hypothesis:

Hypothesis 1a: HR subunits with high levels of collective local experience are likely to have increased practice generation capability.

As with local experience, *international experience* is likely to have a positive influence on the HR subunit's generation capability. For example, Barkema and Vermeulen (1998) showed that the diverse perspective cultivated from various geographical experiences helps employees in a firm develop knowledge structures about how to operate more efficiently in a new setting. Mendenhall and Stahl (2000) also reported that because international experience is often highly valued in MNEs, individuals with international experience are more likely to be seen as confident and willing to share divergent opinions, and to advocate for their own position. Additionally, Tung (1998) noted that when expatriates are successful it may largely be due to a cosmopolitan outlook demonstrated from having lived and worked in different countries.

Meanwhile, Black and Gregersen (1993) showed that people with strong experience in many international settings are more likely to make changes that are based on local demands, rather than react to pressures that come from the centralized parts of the firm. This is most likely due to the array of international experiences that have helped them develop what could be a form of architectural knowledge (i.e., knowledge of how different aspects of work fit together; Henderson & Clark, 1990). People with experiences in other subunits know what general concerns and local issues to look for in a subunit setting. While they may not have detailed understanding of the local environment, they know where to search to meet the needs of a local environment. In a sense, this may have allowed them to relate more strongly to the local countries in which they operate. And this idea leads to the second hypothesis:

Hypothesis 1b: HR subunits with high levels of collective international experience are likely to have increased practice generation capability.

Influence of social capital. In addition to the importance of human capital for generation capability, some characteristics of social capital may influence it as well. Social capital can be represented in terms of knowledge available through or embedded in common understanding and interaction. Several studies have documented the importance of intra-firm interactions for knowledge and common understanding within multiunit organizations (e.g., Ghoshal, Korine, & Szulanski, 1994; Ibarra, 1993; Leonard-Barton, 1992; Powell, Koput, & Smith-Doerr, 1996).

However, much of this area of research does not examine the generation of new ideas. In fact, considerable research shows that people who interact with similar others tend to resist and limit the heterogeneity of information coming to them, and to opt for repeating previous and established patterns in their decisions (Burt, 1997). Likewise, Uzzi (1997) warned that closed social interactions (within a narrow set of internal associations) may lead to the development of shared mindsets that actually reinforce established practices. Within the context of HR, this would suggest that if subunits limit their engagement primarily to others inside the MNE, they may blunt the richness of input that could otherwise lead to knowledge and practice generation. Based on this, we propose a specific hypothesis about the nature of social capital on HR practice generation capability.

Hypothesis 1c: HR subunits with high levels of cross-border interaction with peer HR subunits are likely to have decreased practice generation capability.

Intellectual Capital Configuration for HR Practice Sharing

Below, we discuss specific intellectual capital dimensions that may be linked to the sharing capabilities of multinational subunits. This configuration of intellectual capital points to specific influences on an MNE's ability to combat practice immobility found within a culturally and operationally diverse group of subunits. The following hypotheses collectively make the argument that if specific configurations of human capital, social capital, and organizational capital act to decrease immobility barriers to practice ideas, they are likely to increase the sharing capability of those subunits.

Influence of human capital. One of the key features of the literature that examines knowledge as a primary resource is its emphasis on the mechanisms that are necessary to share practices that have emerged from different parts of the firm (cf. Grant, 1996). In their discussion of knowledge in the multinational firm, Kogut and Zander (1993) point out that one of the most persistent findings in the work on technology creation and transfer is the importance of prior international experience. Teece (1977) argued that one of the principal obstacles to technology transfer is people's lack of prior experience and knowledge. In fact, the prior experience of individuals in the firm can be seen as

a strong predictor that influences whether or not knowledge is shared. For instance, studies have shown how people enable more efficient and leveraged knowledge-sharing if they have the ability or had prior experience in understanding related ideas (Szulanski, 1996; Tsai, 2001). Haas (2006) showed that groups composed of individuals who have considerable international experiences are more likely to communicate with other foreign parts of the organization than those who do not. In this regard, we argue that when members have international experience, subunits will improve their ability to share knowledge with other parts of the firm. Hence:

Hypothesis 2a: HR subunits with high levels of collective international experience are likely to have increased practice-sharing capability.

Influence of social capital. Kang, Morris, and Snell (2007) argued that certain forms of social capital might optimize the capability of an organization to share knowledge. Theorists such as Coleman (1988), Burt (1992), Uzzi (1997), and Gabbay and Leenders (1999) have suggested that the structural make-up of relationships determines the degree of knowledge-sharing. Furthermore, Kang et al. (2007) argued that through dense (i.e., internally concentrated) relational patterns of interaction, members are more inclined to share knowledge. Within the MNE literature, Gupta and Govindarajan (2000) built upon Ghoshal and Bartlett's (1988) findings to show that transmission channel richness, in terms of density of interactions, leads to greater knowledge inflows and outflows. In addition, Tsai and Ghoshal (1998) found that social interaction leads to greater knowledge-sharing within the MNE. As a result, we hypothesize that while turning to *cross-border peer units* within the MNE might negatively influence a subunit's ability to generate local HR practices, social interaction is likely to have a positive influence on sharing these practices.

Hypothesis 2b: HR subunits with high levels of cross-border interaction with peer HR subunits are likely to have increased practice-sharing capability.

Not only did Tsai and Ghoshal (1998) show the importance of social interactions, they also showed the importance of *shared vision*, which consists of the collective goals and aspirations of members inside the MNE, and is often considered the key dimension of social capital. Several scholars have acknowledged that individuals encounter difficulty in sharing their knowledge when they lack a common frame of reference (e.g., Grant, 1996; Nonaka, 1991). For example, Kang et al. (2007) have highlighted the importance of shared representation, understanding, and systems of meaning that are required cognitively in order for organizational learning and increased interest in knowledge-sharing to take place. This common frame of reference can be extended to include shared vision or goal congruence to show how a loosely coupled system, such as an MNE trying to balance local and global tensions, may facilitate the sharing of knowledge through shared vision (Kogut & Zander, 1996). These examples illustrate how a shared vision among geographically dispersed HR units of an MNE contributes to facilitating the HR practice-sharing process, as it provides the same base for each unit regarding how to interact with one another or avoid possible communication misunderstandings. It also increases their motivation to interact with one another. These points reflect the following hypothesis:

Hypothesis 2c: HR subunits with high levels of shared vision with other peer HR subunits are likely to have increased practice-sharing capability.

Influence of organizational capital. Schulz (2001) found that the higher the level of codification of a domain of knowledge, the stronger the horizontal and vertical outflows of knowledge. This suggests that organizational capital in the form of *codifying systems* is likely to have an influence on practice sharing as well. Given that codifying systems offer established databases and technology conduits, they allow firms the ability to better share practices across subunits and/or within their organization (Davenport & Prusak, 1998). Practices become decontextualized and articulated in databases and other codified systems that allow for multiple parts of the MNE to more readily understand how a practice might be helpful to them in their specific context. We believe that these findings also apply to the practice-sharing process that takes places across foreign HR subunits, which leads to the following hypothesis:

Hypothesis 2d: HR subunits with high use of codifying systems are likely to have increased practice-sharing capability.

Intellectual Capital Configuration for HR Practice Implementation

Finally, we hypothesize that the same intellectual capital dimensions linked to sharing capabilities are not the same as those linked to implementation capabilities. Specifically, implementation may be more related to configurations of organizational capital. As a result, the intellectual capital configuration for HR practice implementation may still emphasize social capital and even aspects of human capital, but it will specifically emphasize organizational capital.

Influence of human capital. High aggregate levels of *local experience* by the HR members in a subunit does not necessarily mean that the subunit may or may not be willing to share ideas, but that it is much less likely to apply those ideas in its existing operations. For example, subunits consisting of people with high levels of locally specific experience might be more reluctant to implement practices from other parts of the firm, because of a not-invented-here (NIH) syndrome (Katz & Allen, 1982). In fact, Cohen and Levinthal (1990) pointed out that the NIH syndrome, in which a unit resists accepting new ideas from other groups inside the organization, may not be related to their willingness to share knowledge but more to their capability – absorptive capacity – to appreciate the new knowledge (p. 137). In this regard, local experience may reflect a type of absorptive capacity that is biased to accepting local ideas, but not understanding or appreciating ideas from outside the local context. Even if they have social relations to peer HR subunits within the MNE that make them more open to sharing ideas, if their experiences are tied deeply to the local economy and environment they are less likely to implement shared ideas from others who clearly do not understand the local environment. According to Haas (2006), local and international experience may impede the application of knowledge that does not correspond to individuals' expertise. In a study of 96 project teams at an international development agency, she found that teams with high levels of local experience were less likely to apply knowledge that was not pertinent to their respective strengths. This was likely to be due to an increased understanding and awareness of all the complexities and risks that come with not understanding and adapting to the local context. As a result, we hypothesize a negative relationship between local experience and implementation:

> **Hypothesis 3a**: HR subunits with high levels of collective local experience are likely to have decreased practice implementation capability.

Influence of social capital. *Shared vision* also plays a significant role in an HR subunit's capability to implement HR practices. In a sense, shared vision or collective goals can act in a similar way to institutionalizing processes, in that related knowledge or aspirations about how the MNE should operate will help a subunit to understand how new knowledge from others can integrated into existing practices. Similarly, the literature on shared cognition suggests that team processes for integrating individual knowledge are supported by the similarity of team members' mental models (e.g., Cannon-Bowers & Salas, 2001; Klimoski & Mohammed, 1994; Mohammed & Dumville, 2001). Finally, Tsai and Ghoshal (1998) point out that shared vision facilitates not only knowledge sharing, but also knowledge implementation. In many regards, shared cognition allows members of an MNE to overcome differences and barriers through interests in a common goal. For example, this can be manifest in "let's implement this shared practice from a different part of the firm because it might help us to all achieve our common goal more quickly." In many ways, a shared vision allows subunits to see past local differences and focus on how everyone can be on the same page. Hence we hypothesize a positive relationship between shared vision and a subunit's ability to implement practices:

> **Hypothesis 3b**: HR subunits with high levels of shared vision with other peer HR subunits are likely to have increased practice implementation capability.

While the effects of shared vision on implementation may be more obvious based on the myriad shared cognition literature, the actual amount of interaction with *cross-border peer units* within the MNE is likely to influence a subunit's ability to implement practices once they have been shared. Social interaction with cross-border peer units may positively influence a group's proclivity to actually use ideas formulated by others once they have been shared. Social capital theorists argue that the more people interact with each other, the more they tend to act in a similar manner (Coleman, 1988). Actors who frequently interact with one another, such as primary contacts, tend to develop dyadic trust with

one another (Kang et al., 2007). This dyadic trust surpasses a sense of openness, to the point where obligations and reciprocal exchanges that are put in place promote not only sharing of ideas but also the application of those ideas. Hence, when a group considers other HR units within the MNE its primary contact, then over time that subunit will develop greater trust in the efficacy of the other subunit's ideas about HR practices. As a result, we hypothesize a positive relationship between social interaction and implementation capability:

Hypothesis 3c: HR subunits with high levels of interaction with other peer HR subunits are likely to have increased practice implementation capability.

Influence of organizational capital. While sharing HR practices requires mechanisms that allow for the decontextualization of knowledge, implementation requires mechanisms, such as *codifying systems* that allow for the recontextualization of knowledge. For instance, to implement and capture knowledge for application requires the use of templates and systems that enable a subunit to actually hold on to the practices (Grant, 1996). These systems offer technology conduits that provide firms with an appropriate structural mechanism to implement new ideas together with existing ideas (Brockbank & Ulrich, 2002; Davenport & Prusak, 1998). Such conduits tend to influence the level at which ideas from external or distant locations are recognized and accepted within a group. In fact, some knowledge management systems scholars have shown that the use of codifying systems can improve acceptance of ideas across different boundaries of an organization (DeSanctis & Gallupe, 1987; DeSanctis & Poole, 1994; Huber, 1984). This may be because codifying systems embed ideas that are agreed upon by spatially distant people and groups that would normally have a difficult time discussing these issues on a frequent basis.

Furthermore, codifying systems may help break down a subunit's reluctance to adopt ideas from others, as the information system indicates greater agreement and acceptance of knowledge, thus increasing the likelihood of a subunit better appreciating the practice (Barley & Orlikowski, 2001). In the case of this study, because there is a legitimate avenue to embed the practice, then barriers to implementing a practice are likely to break down. This is especially true in the MNE, where people are separated by geographical distances. The codifying systems allow HR practices from others and the subunit to be: (1) codified and made simpler to understand; and (2) captured in a storage system that allows for longevity of the practice. In other words, codifying systems allow HR subunits to effectively implement new practices into existing operations. Hence we hypothesize that the use of codifying systems will improve implementation capability.

Hypothesis 3d: HR subunits with high use of codifying systems are likely to have increased practice implementation capability.

By examining the combination of different types of intellectual capital, we see how different resources might complement one another to create synergistic outcomes that could not be achieved by using these resources in isolation. Such configurations represent co-specialized assets that must be combined to achieve specific organizational capabilities (Foss, 1996).

The significant component of the three different capabilities (generation, sharing, and implementation) is that, while they are interdependent and mutually enabling in the process of learning and change, they are most likely distinct enough to be managed separately (see Figure 1 for a visual representation of the hypotheses). In fact, in some cases they are competing as aspects of organizational learning (Crossan, Lane, & White, 1999; Grant & Baden-Fuller, 1995; Nonaka, 1996; Schulz, 2001). Their differences, in part, reflect the different configurations of intellectual capital associated with each.

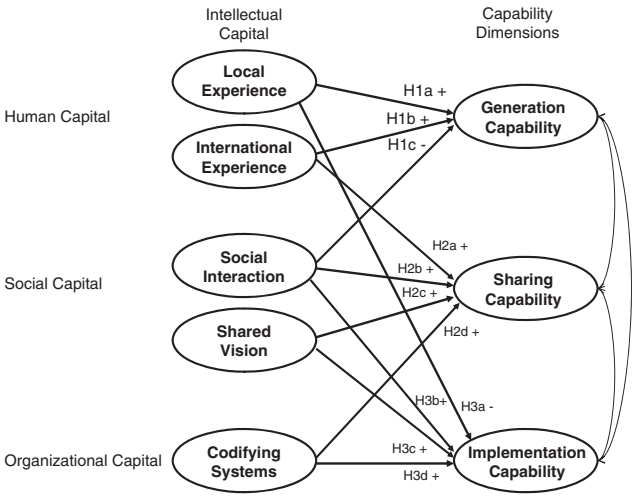

Figure 1 Hypothesized model.

METHODS

Sample and Procedures

Prior to testing our hypotheses, we conducted 35 semi-structured interviews with HR managers in two separate MNEs (Shell and IBM) to refine our hypotheses and the measures we had developed from the literature. Interviews lasted from 30 min to 2 h. All but five of the interviews were transcribed word for word. Interviewees were asked to distinguish between the ability to generate HR practices, share those practices, and implement those practices in existing operations, by asking for descriptions of many similar incidences that would allow for pattern recognition in the data (Butler, 1991). For example, we asked the leader three specific questions pertaining to the HR group's experiences:

(1) Looking back on the most recent practice your HR group developed that was not being used in other parts of the firm, what were the most significant factors impacting this?
(2) Looking back on the most recent practice or idea your HR group transferred from another part of the firm, what were the most significant factors impacting this?
(3) Looking back on the most recent practice or idea your HR group implemented or applied from another part of the firm, what were the most significant factors impacting this?

These questions helped us identify the intellectual capital factors that influence different organizational capabilities. Specifically, we found that the sharing of practices was seen differently by, and solicited different challenges from, those impacting on generation or implementation, and vice versa. For example, this excerpt from an interview with a corporate VP of HR provides a flavor of the interview process and the distinctions found between capabilities.

> *Interviewer*: What are the challenges in sharing practices?
>
> *HR VP*: Actually, the weakest area is implementation. Because [our company] has a culture that is open to share ideas, people don't withhold a lot. What we see with implementation, however, is that a number of locations say that it doesn't fit well because there are local issues. Within half a year, we see something new invented in these local areas.

In this case, added insight and theoretical support was gained on the importance of separating capabilities for practice sharing from capabilities for practice implementation. Along with previous research, these interviews helped us decide upon the different dimensions of intellectual capital and organizational capabilities for globally dispersed HR subunits. They also helped in refining the initial measures used to assess these dimensions.

While the semi-structured interviews provided helpful insight into the actual measures and constructs to be used in the survey, we followed advice from Schriesheim and Hinkin (1990) to next sort our proposed items into constructs using subject matter experts. We did this to make sure that the measurement process was more deductive and less prone to situational bias from a select number of interviews (Hinkin, 1995). Hence we had 25 PhD students of management voluntarily categorize all the items we had developed to test the hypotheses. They were asked to group the randomly listed items into categories based on a common construct they felt the question was trying to measure. The responses were then plotted in a matrix to determine which questions posed ambiguity, confusion, and complicated syntax. Based on this mapping, we were able to ensure that the questions were clear and focused, including examples where possible confusion might appear (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003).

Finally, survey questions were sent to four corporate-level HR executives – one from IBM, two from Shell, and one from P&G. They were asked to offer a final approval and inspection of the survey items. The feedback received from the executives was helpful mostly in terms of wording to make sure the questions would be understood as they were meant to be by the HR subunit managers.

To test our hypotheses we sent out a multi-item survey to 288 regional and country-level HR unit managers from 20 different MNEs headquartered in the US, Europe, and Asia (see Table 1 for list of

Table 1 Company survey participants

Participating Organizations			
Manufacturing	*Retail trade*	*Technical services*	*Finance*
General Electric	Gap	ABB	Citigroup
General Mills	IKEA	EMC	Firstdata
Nissan		GlaxoSmithKline	MassMutual
Proctor & Gamble		IBM	Underwriter Labs
Rolls-Royce		Lucent	Wachovia
SK		TNT	
		Xerox	

participating companies and their NAICS industry specification). The MNEs were identified based on a guideline that they had substantial operations in three major regions of the world (Asia, Europe, and the Americas). Based on these criteria, around 50 large MNEs were contacted and invited to participate. Many of these MNE contacts were based on personal or institutional relations we had with senior VPs of HR. Twenty responded positively. We then asked the senior VPs of HR to identify HR unit managers from a list of 36 countries and major regions. These countries were selected based on substantial gross domestic product, the likelihood of MNE presence, and geographical dispersion. We then had the VPs send a letter to each of the identified HR leaders requesting their participation, and assuring them that all data would be confidential, and presented to the company only in aggregate form. We followed 2 days to a week after the letter from the VP with an electronic survey asking each manager to respond to questions on behalf of their country or regional HR unit. We sent out two rounds of reminders to potential respondents who had not responded, approximately 3 weeks apart. We surveyed the HR unit managers because they are responsible for all management practices and activities that occur within the country or regional operations. All surveys were conducted in English, as this was the primary language of business for all the HR managers involved. The total number of completed surveys was 187 (65% response rate), representing subunit responses for 44 different countries or regions. The demographic information pertinent to the respondents is as follows: average tenure with the HR subunit was 4 years (s.d.=3.2, min=0, max=25); the average time spent in the organization was 11 years (s.d.=8.8, min=0, max=33); and 35% percent were female. Company-level archival data were also collected for control purposes.

We have used a number of pre- and post-analysis techniques to establish that correlations between independent and dependent variables are not higher than would be expected by chance (Chang, van Witteloostuijn, & Eden, 2010). The first step we took to reduce bias in the study was to spatially separate the dependent variables from the independent variables (Podsakoff et al., 2003), and to counterbalance the order of questions relating to different scales (Murray, Kotabe, & Zhou, 2005). This was done by having the randomly ordered dependent variables answered first in a separate section that could not be viewed simultaneously with any of the independent variables. This helps to reduce the respondent's ability and motivation to use his or her prior responses to answer subsequent questions, thus reducing consistency motifs and demand characteristics. By having the dependent variables first, we also were able to control for priming effects, item-context-induced mood states, and other biases related to the question context.

An additional procedure used to reduce bias was to protect respondent anonymity. Doing so reduces respondents' apprehension, and makes them less likely to edit their responses to be more socially desirable, lenient, acquiescent, and consistent with how they think the researcher wants them to respond (Podsakoff et al., 2003). Not only did the survey say that all responses would be "anonymous" and "unidentifiable at the subunit level," we also took other precautions, such as not asking for the respondent for his or her name or title. Because we already had the names and basic information on the respondents, we were able to give the survey as much of an anonymous feel as possible.

In addition to these *ex ante* procedural remedies, we also conducted statistical remedies. First, we performed a Harman's (1967) one-factor test to assess how much common method bias might present a problem by subjecting all the scale items to principal component analysis using varimax rotation. There was no overlap between any of the dependent and independent variable items. In fact, the average item loading on the intended constructs was 0.69 and, of all the potential cross-loadings among the items for intellectual capital and organizational capabilities, none was above 0.30. The absence of cross-loadings among the items for intellectual capital and organizational capabilities provides some level of confidence that common method variance was not a problem in this study.

Second, following the procedure recommended by Widaman (1985) and used by Williams, Cote, and Buckley (1989), we controlled for method effects by using a single unmeasured latent method factor technique. Specifically, we used a confirmatory factor analysis (CFA) to allow all substantive items in the model to load onto their theoretical constructs, as well as on a latent common-method-variance factor. One of the main advantages of this technique is that it models the effect of the method factor on the measures rather than on the latent constructs they represent. This method is

recommended by scholars when structural equation modeling (SEM) is being used (Brannick, Chan, Conway, Lance, & Spector, 2010). We found that while the method factor did improve model fit in terms of the recommended NFI fit measure (from 0.79 to 0.82) the difference in the chi-square (278(188), $p<0.01$ to 243(175), $p<0.01$) was not significant, and accounted for only a small portion of variance. In addition, almost no fit indices were substantially improved by adding the common-method factor to the CFA (e.g., GFI from 0.88 to 0.89; RMSEA from 0.05 to 0.05). More specifically, almost no variance was accounted for by adding the method factor (Williams et al., 1989). These results suggest that factors other than the common method variance are the likely source of the variance found in the present data.

To analyze the survey and archival data we used a two-step SEM approach in accordance with Anderson and Gerbing (1988). We selected SEM because it allows for the simultaneous analysis of multiple dependent variables and CFA (Joreskog & Sorbom, 1996). Also, Godfrey and Hill (1995) argued that SEM provides the specific ability to tap intangible latent variables that might help unveil the unobservable constructs that are central to the RBV. Such an approach allows us to conduct an omnibus test of the overarching theoretical framework by providing the ability to test an overall model rather than just coefficients individually (Bollen, 1989).

Below are brief descriptions of the independent and dependent variables used in the study. We also discuss the reliability and validity of these measures in this section.

Intellectual Capital

Human capital. Measures of human capital were based on original research looking at the work-related experiences of people in a firm (Becker, 1967), as well as Gregersen and Black's (1992) measures asking managers about their international experience (78). We also adapted measures from Haas (2006), who examined local experience of a team or group as a function of understanding that comes from living, working, and receiving training in the country of operation, and international experience as a function of living, working, and receiving training from outside the country of operation. We asked the HR subunit manager to report on the overall level of international and local experience found within the HR subunit.

The first dimension consists of local experiences that are pertinent to understanding HRM issues in the environment of operation. This dimension of local experience consisted of three items. The items asked HR managers how the following items described the general state of resources or competencies found in their HR group:

(1) Many of our members have a background in local HR laws and policies.
(2) Many of our members have local HR certification.
(3) Most of our members have a strong understanding of the culture and traditions found in the countries in which they operate.

The second dimension of international experiences pertinent to understanding HRM issues within multiple environments also consisted of three items:

(1) Many of our HR staff have degrees from outside their local country.
(2) We understand a myriad of national cultures and the HR issues of each.
(3) We train our HR staff to understand issues on a global scale.

These measures were based on a five-point Likert scale (1, "strongly disagree" to 5, "strongly agree").

Social capital. Social capital measures were based on the social interaction and shared vision dimensions described earlier in the paper. We turned to knowledge management research that has used similar measures in international settings, especially MNEs.

Multiple researchers have looked at the social connections or social interactions of a foreign subunit, and how that might facilitate knowledge-sharing (e.g., Ghoshal et al., 1994; Gupta & Govindarajan, 2000). Based on these studies and previous measures from Ghoshal et al. (1994), we used a single item measure to ask whether or not other HR groups within the firm are considered that subunit's primary contact. This question assessed relative interaction among cross-border HR subunits. These interactions represent communication patterns among the subunits. Though limited in that it does not really measure a cognitive identification between one unit and another, we follow other researchers who have shown that communication patterns are representative proxies for emotional closeness (e.g., Reagans & Zuckerman, 2001; Uzzi, 1999). In this regard, social interaction represents a knowledge

resource that can be leveraged for productivity purposes.

To measure shared vision we turned to items used by Tsai and Ghoshal (1998). However, because they used only two items, we added a third to increase the probability of validity by drawing from measures of shared codes and languages from Collins and Smith (2006). Items asked about the degree to which the HR group:

(1) shared the same goals and vision with the groups they interacted with;
(2) strove for the same outcome from their HR practices as their contacts did for their practices; and
(3) agreed with those with whom they interacted on the direction in which HR in the company needed to go.

These measures examine mutual understanding and cognitive identification, which can be understood as valuable resources found among groups within an organization (Peteraf & Shanley, 1997). Both shared vision and social interaction were based on a five-point Likert scale.

Organizational capital. Measures for organizational capital were designed to assess the HR subunit's level of databases and information systems used for knowledge capture (Davenport & Prusak, 1998). Four items to assess the codifying systems were developed, based on measures by Youndt et al. (2004) and Subramaniam and Youndt (2005) looking at the issues of codification, documentation, and information systems. Questions asked to what extent the HR group:

(1) used extensive information systems for codifying and storing knowledge;
(2) operated largely using shared IT systems found within the company;
(3) possessed and used extensive databases and electronic manuals, for HR practices; and
(4) utilized and benefited from the information technology they possessed.

These measures were also based on a five-point Likert scale.

To assess the reliability and fit of all the intellectual capital dimensions, we used CFA with maximum likelihood estimation. Overall, the CFA results suggested that the intellectual capital model provided a good fit for the data. In other words, the model's chi square was less than three times its degrees of freedom, and the fit indexes exceeded the suggested levels (intellectual capital: chi square 97, df=59; CFI=0.93, RMSEA=0.05, GFI=0.93) (Bentler & Bonett, 1980; Browne & Cudeck, 1993; Carmines & McIver, 1981; MacCallum, Tait, & Ford, 1986). The composite reliability measures were acceptable as well (human capital: local experience=0.66, international experience=0.62; social capital: shared vision=0.78; organizational capital: codifying systems=0.77).[1]

Organizational Capabilities

Generation capability. First, the HR practice generation capability was measured with three items capturing a subunit's ability to create and develop local practices that are new to the MNE. Such a capability is demonstrated in how the subunit is able to create practices that are responsive to the local environment, or simply develop practices that are not found elsewhere within the firm. Using a five-point Likert scale, items asked the HR manager to respond to what extent their HR group:

(1) rapidly responded to changes in the local market environment;
(2) locally developed new practices; and
(3) experimented with practices different from those used in other parts of the company.

Sharing capability. The second factor is HR practice-sharing capability. Based on interviews and the knowledge-sharing literature, three items were used to assess a subunit's ability to connect with and exchange ideas. The five-point Likert items asked to what extent the HR unit:

(1) participated in benchmarking activities with other HR groups in the company;
(2) encouraged the flow of knowledge across HR groups;
(3) shared insight with other HR groups in the company; and
(4) had a relaxed and open dialogue with other HR groups in the company.

Implementation capability. The third factor is HR practice implementation capability. This capability was measured using three items focused on how well the subunit is able to implement or formalize practices from others into their existing practices. Such measures also distinguish between a firm's ability to share practices and its ability to

implement those shared practices into the existing HR system. These items asked how well the HR unit:

(1) readily implemented practices from HQ or peer subsidiary groups;
(2) took practices from others (e.g., HQ or other parts of the HR functions) and applied them to their own operations; and
(3) formalized or institutionalized practices and ideas that come from HQ or other countries.

A five-point Likert scale was also used for these items.

CFA was used to assess the three constructs of organizational capabilities. Overall, the CFA results suggested a good fit for the data (organizational capabilities: chi square=42, df=24; CFI=0.96, RMSEA=0.06, GFI=0.95). The composite reliability measures were also acceptable (organizational capabilities: generation capability=0.71; sharing capability=0.73; implementation capability=0.75).

While these three capabilities are theoretically distinct, they often overlap in practice. Such dependencies are important to point out in terms of measurement. Great effort was taken to distinguish the three capabilities conceptually in a way that managers can understand and report with validity. After collecting responses on these items, CFA confirmed that each construct was highly reliable. To address the issue of discriminant validity using a *post hoc* perspective, we also performed an exploratory factor analysis using principal factors and an orthogonal varimax rotation. Results showed that three separate HR practice capability factors were clearly loading, with three eigenvalues above one (eigenvalues=1.4, 1.3, and 1.3).

To expand our check for discriminant validity we calculated the shared variance between all the constructs in the model (Shook, Ketchen, Hult, & Kacmar, 2004). To do this, we used the correction for attenuation formula recommended by John and Benet-Martinez (2000). A result less than 0.85 means that discriminant validity probably exists between two scales (John & Benet-Martinez, 2000). Based on our findings, we can conclude that the scales in our study are measuring theoretically different constructs (see Table 2).

Control Variables

Subunit size. The first control variable in the final model is subunit size. HR subunit size varies – from a small staff of one person to a large regional subsidiary of 200 (mean=20).[2] Larger subunits may be prone to practice generation, while smaller HR subunits may be more oriented toward sharing and implementation. In this study, subunit size was measured as the number of HR staff working on site.

Industry. Another possible influence includes the different industries in which the HR subunit is operating. HR subunits may vary in their learning responsibilities in certain industries. For example, companies in industries that tend to be more multi-domestic may be more likely to follow country- or region-specific strategies (Porter, 1986). This means that the companies in our study could potentially be influenced by the industry in which they are operating, and by whether or not that industry is multi-domestic or global. Furthermore, companies in certain industries may be more or less likely to have stronger HR practice generation, sharing, or implementation capabilities, depending upon their industry's level of global integration. For instance, less globally integrated industries have lower pressure for geographic dispersion of business activities (Kim, Park, & Prescott, 2003; Makhija, Kim, & Williamson, 1997). Based on Kobrin's (1991) categorization of industries, the MNEs in

Table 2 Test of discriminant validity[a]

Variable	*Inter-item correlation*	*Correction for attenuation*
Generation capability – sharing capability	0.23	0.51
Sharing capability – implementation capability	0.34	0.70
Implementation capability – generation capability	0.22	0.48
Local experience – international experience	0.03	0.10
Shared vision – social interaction	0.05	0.16
Shared vision – codifying systems	0.11	0.28

[a]Correction for attenuation results in less than 0.85 indicate discriminant validity.

our study would fall on the moderate to highly globally integrated side of the spectrum, owing to their scale of operations and/or complexity of technology used. Nonetheless, we measured and controlled for industry effects in the final model by having the subunits identify the industry in which they were operating.

Region. An environmental factor may be the region of operation. Rugman and Verbeke (2004) argue that regions play a much stronger role than countries in operations of multinational firms. Hence we accounted for the region of operation in the final model.

Size and age. In the final model we also controlled for firm size and age to determine whether or not larger and more established firms and subunits are influenced by more mechanistic (Burns & Stalker, 1961) forms of organizing that would most likely be manifest in stronger degrees of sharing and implementation capabilities but lower degrees of generation capabilities. Likewise, younger and smaller firms would tend to operate under a more organic structure and be better suited to generation capabilities. We did not expect to find major effects, as most of our companies are large Fortune 500 firms that have been in existence for many years. The average size of companies in our study as measured by number of employees was 105,050 (s.d.=89,531, min=5727 and max=329,373). The average subunit age was 18 years (s.d.=19 years, min=a few months and max=85). The average age of the firms was 79 years (s.d.=33 years, min=14 years and max=194 years).

HR manager tenure. Because tenure in the local subunit as well as tenure in the company may influence how the HR subunit manager responds to questions related to the different forms of capital, in the final model we also controlled for the subunit and firm tenure of the HR managers responding to the survey. On average, managers who responded to the survey had been in the subunit for 4 years (s.d. =3 years, min=0 and max=25) and with the company for 10 (s.d.=9, min=0 and max=33).

Outsourcing and shared services. Furthermore, over the past couple of decades, global outsourcing of HR practices has become widespread. According to Klaas, McClendon, and Gainey (2001), firms outsource practices that are scalable and less complex. HR units that do more outsourcing tend to focus more on strategic and complex practices. Hence we suspect that HR subunits that outsource more of their practices will have more interest in and opportunity to invest in strategic capabilities that allow them to adapt and adjust their practices. Similarly, we also account for the level of shared services used by the HR subunit. For reasons similar to outsourcing, HR subunits that use more shared services within the company are more likely to focus on more dynamic capabilities. As a result, in the final model we control for level of HR outsourcing and level of shared services, as indicated on a five-point Likert scale by respondents.

Country of origin, country of operation, and company. Finally, because the survey is complex in terms of collecting subunit level measures nested within different countries as well as companies, we needed to test for clustering effects as exemplified in hierarchical data structures. In other words, HR subunits that share the same company, country, or even country of origin membership may be correlated. If such correlations do exist in this dataset, the standard errors of the parameter estimates may be underestimated using a standard aggregated structural equation model (Muthén & Satorra, 1995). To test for these clustering effects, we analyzed how the size of the company, country, and country of origin variance components influenced the size of their intraclass correlations (ICC) (Koch, 1983; Skinner, Holt, & Smith, 1989). We ran a design effect model and found that the ICCs were very low, and that the model exhibited only a modest degree of nonindependence (Cochran, 1977; Muthén & Satorra, 1995; Scott & Holt, 1982; Skinner et al., 1989). As a result, we did not include these factors as controls in the final model.

RESULTS

To test the overarching framework, we first measured the fit of the hypothesized model and made sure it was positively identified. Goodness-of-fit measures for the hypothesized structural model were found to be acceptable (χ^2=23, df=6, $p<0.01$; CFI=0.97, RMSEA=0.12, GFI=0.99). Because of concerns over the ratio of number of parameters to number of subjects in the study, in the final model we created a composite variable for each latent variable, and fixed the value in the model (Schumacker & Lomax, 1996). This was done by setting the error variance of the single composite

Table 3 Means, standard deviations, and correlations[a]

Variables	*Mean*	*s.d.*	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*16*	*17*
1. Generation capability	3.47	0.65																	
2. Sharing capability	3.65	0.72	0.37																
3. Implementation capability	3.52	0.65	0.34	0.57															
4. Local experience	3.62	0.65	0.29	0.24	0.14														
5. International experience	2.76	0.68	0.08	0.27	0.27	0.05													
6. Social interaction	3.29	0.73	−0.01	0.14	0.15	0.02	0.30												
7. Shared vision	3.69	0.57	0.30	0.47	0.41	0.22	0.41	0.08											
8. Codifying systems	2.98	0.76	0.14	0.21	0.25	0.09	0.36	0.21	0.17										
9. HR unit size (log)[b]	1.05	0.63	0.12	0.07	0.00	0.12	−0.11	0.06	−0.03	0.13	0.29								
10. HR unit age (log)[b]	1.06	0.51	0.01	0.11	0.07	−0.01	−0.01	0.07	0.04	0.13	0.32	0.33							
11. Firm size (log)[b]	4.85	0.43	0.04	0.10	0.21	0.00	0.02	0.11	0.12	0.01	0.15	0.12	0.27						
12. Firm age (log)[b]	1.85	0.23	0.04	0.10	0.11	−0.05	0.01	0.05	0.04	0.09	0.15	0.12	−0.05	−0.05					
13. Manager unit tenure	3.60	6.63	−0.01	0.01	−0.02	0.04	0.02	0.06	0.03	−0.03	−0.10	0.15	−0.05	0.17	0.57				
14. Manager firm tenure	11.02	10.56	−0.12	−0.03	−0.05	0.00	−0.05	−0.06	0.02	−0.03	0.18	0.50	0.27	0.17	−0.03	0.05			
15. Region	n/a	n/a	0.03	0.07	0.04	−0.03	−0.04	0.04	0.08	−0.08	−0.03	−0.04	0.12	0.11	0.03	0.10	−0.11		
16. Industry	n/a	n/a	0.08	0.14	0.12	0.16	0.17	0.02	0.18	0.24	0.00	0.14	0.05	0.11	0.03	0.06	0.10	0.05	
17. Outsourcing	2.97	1.04	−0.01	0.07	0.12	−0.04	0.15	0.24	0.15	0.21	0.12	0.07	0.19	0.16	−0.03	0.06	0.10	0.09	0.42
18. Shared services	2.91	1.11	−0.02	0.08	0.11	−0.06	0.13	0.13	0.10	0.14	0.10	0.02	0.17	0.25	0.01	0.11	0.08	0.09	0.42

[a]n=187. Correlations greater than 0.15 are significant at $p<0.05$.
[b]Natural logarithm.

variable, which is calculated as follows: error variance of the latent variable=(1−reliability coefficient) (S-squared).

Table 3 reports the means, standard deviations, and correlations among the data for this model and the control variables. Although estimation of SEM in this study is based on covariance (not correlation) matrices (Cudeck, 1989), we followed Hoyle and Panter's (1995) advice by including a correlation matrix of the variables for replicability purposes.

Examination of the standardized parameter estimates indicated that 9 of the 11 hypothesized relationships were significant in the predicted directions when the control variables were accounted for (see Figure 2). General support of the overarching framework revealed that different intellectual capital configurations play different roles in supporting organizational capabilities among subunits in the MNE. As shown in Figure 2, the relationship between local and international experience and HR practice generation capability (Hypotheses 1a and 1b) was significantly positive (Hypothesis 1a: b=0.51, $p<0.01$; Hypothesis 1b: b=0.21, $p<0.05$). Hypothesis 1c negatively relates social interaction with HR practice generation capability, and was found to be significant as well (Hypothesis 1c: b=−0.18, $p<0.05$). Overall, Hypothesis 1 regarding the specific resource configuration associated with HR practice generation capability was supported.

Hypothesis 2 primarily argues for a different resource configuration for sharing capability. First,

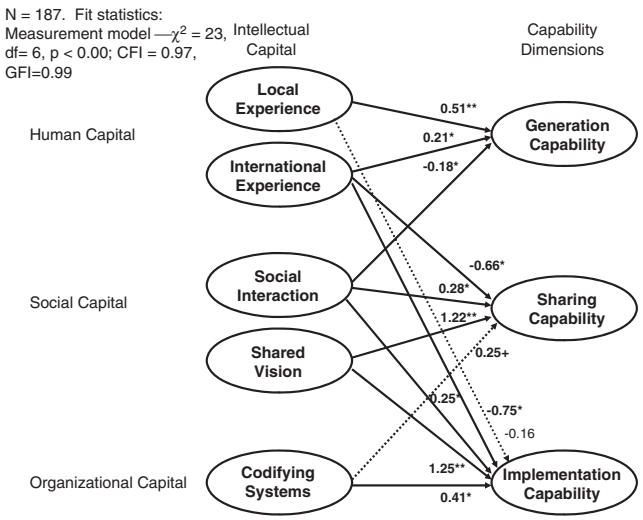

Figure 2 Results of structural equation model.
Notes: Parameter estimates are from the standardized solution. Control variables were included in this model, but eliminated from the graph for clarity. *$p<0.05$; **$p<0.01$.

Hypothesis 2a positively relates international experience with HR practice-sharing capability. The results of the path analysis were opposite of the hypothesis at a significant level, implying that – when taking other variables into account – international experience actually has a negative influence on or association with practice generation capability ($b=-0.66$, $p<0.05$). The second sub-hypothesis (Hypothesis 2b) under this main hypothesis is that a subunit's social interaction is positively related to practice-sharing capability. The path was statistically significant ($b=0.28$, $p<0.05$). Hypothesis 2c positively relates shared vision with practice-sharing capability. The structural model showed a significant, positive path ($b=1.2$, $p<0.01$).[3] Hypothesis 2d positively relates codifying systems with sharing capability. Results were non-significant at the 0.05 level, but did show signs of influence at the 0.1 level ($b=0.25$, $p<0.10$). Overall, three of these hypotheses were supported and one was not, leading to the ultimate conclusion that HR practice-sharing capability is strongly related to aspects of social capital, somewhat associated with codifying systems, and negatively related to international experience.

Hypothesis 3 is concerned with the relationship between HR practice implementation capability and an even different intellectual capital configuration from that of sharing capability. Hypothesis 3a was not supported. However, we found that international experience had a negative relationship with implementation ($b=-0.75$, $p<0.05$). Hypothesis 3b was supported ($b=0.25$, $p<0.05$). Hypothesis 3c, which positively relates shared vision with peer subunits to HR practice implementation capability, was supported at a significant level ($b=1.2$, $p<0.01$). Finally, the main aspect of organizational capital (codifying systems) is hypothesized (Hypothesis 3d) to relate positively to implementation capability. The results showed positive significant correlation ($b=0.41$, $p<0.05$). In all, Hypothesis 3 is supported in that social capital (shared vision and social interaction) and organizational capital (codifying systems) relate positively to HR practice implementation capability, but it is not supported in that international experience instead of local experience relates negatively to implementation capability.

DISCUSSION

Through a configurational model of intellectual capital and organizational capabilities, this article has made several contributions to the HR management and strategy literatures. In addition, the international perspective provides some new insights into how MNEs might configure their intellectual capital more effectively in relation to capabilities requisite to their environment – as expressed in theories of the MNE (Pitelis & Verbeke, 2007).

An in-depth analysis of cross-country subsidiaries reveals that developing organizational capabilities depends, in part, on how people (human capital), relationships (social capital), and systems (organizational capital) are configured. A configurational approach indicates that too much or too little focus on one aspect of intellectual capital can have detrimental effects on the subunit's ability to generate, share, or implement knowledge. In fact, evidence suggests that neglect of one form may not be substituted by another. They are all equally important, but in different ways.

In particular, our results suggest that – taking into account a subunit's capability dimensions and intellectual capital configurations – possessing high aggregate levels of international and local experience are more strongly associated with capabilities that allow HR subunits to generate innovative practices. This finding helps to fill in gaps in the RBV literature, which focuses on resource heterogeneity as given, and on its implications for firm performance going forward (Barney, 1986). As a result, we tried to open RBV's "black box" (Barney, 2007) by linking specific configurations of intellectual capital to a firm's ability to continually generate HR practices, thus providing a source of potentially valuable and costly-to-imitate HR practices that can lead to sustained competitive advantage. Specifically, we showed how configurations of intellectual capital may represent co-specialized assets that lead to greater capability development.

Interestingly, we found that those same aspects of international experience, while beneficial for practice generation, can be detrimental in the subunit's ability to share practices with other subunits. Instead, it is when the HR subunit is highly engaged with other HR units in the firm, and it shares a common vision with them on the objectives of the firm, that the subunit has a higher capability to share HR practices. Similarly, these same social capital aspects may also improve a subunit's ability to implement the practices into their existing operations. However, the difference here is that the subunit's capability to implement HR practices from others is also contingent on their use of codifying systems that allow them to embed the knowledge into existing processes and routines.

Both of these findings regarding sharing and implementation capabilities help to extend how we understand resource immobility within the MNE. The findings present a departure from much of the RBV literature by showing how overcoming resource immobility, often accompanied with heterogeneity, requires linking specific dimensions of intellectual capital to the firm's capability to share and implement resources (in this case HR practices).

Implications

Exploring the link between intellectual capital configurations and HR practice generation, sharing, and implementation not only contributes to our theoretical understanding of capabilities in MNEs; it also has practical implications. First, these findings allow us to offer more prescriptive advice to managers on how to invest in organizational capabilities that allow them to continually reinvent their HR practices across the organization, share those practices with geographically disperse subunits, and integrate them into existing operations. As such, these organizational capabilities are "the linchpin for managerial action" (Yeung et al., 1999: 59). They help to break down the specific types of learning capabilities that people in HR subunits can actually develop to contribute to the strengthening and continual renewal of HR within a firm (Morris & Calamai, 2009).

Second, any discussion of what types of learning capabilities are most important for global managers also needs to include how those capabilities are developed – their building blocks. Human, social, and organizational capital, as the vital sources of knowledge for an organization, provide these blocks. From a practical perspective, units that focus more on building a portfolio of people with both strong local and international experience are more likely to possess capabilities that allow them to generate new practices relevant to the local environment – some of which may provide new and innovative ideas impactful for the MNE. Furthermore, HR units with an intellectual capital configuration that is weak in international experience but strong in terms of interaction with other HR subunits and mutual understanding and shared vision with them will be better equipped to overcome obstacles of social complexity and causal ambiguity associated with sharing HR practices across geographic and cultural divides.

Finally, to ensure that shared practices are actually applied to the HR subunit once they have been shared, an organization needs to ensure that the subunit has strong emotional and communication ties to other subunits, but that they also are effective at using databases and information systems for capturing knowledge. In essence, the act of understanding how MNEs can use intellectual capital to create competitive advantage comes largely as we understand how it is linked to the capabilities of the individual subunits.

Limitations and Future Research

Like all studies, this study has limitations. First, it is cross-sectional, and future research should examine these factors from a longitudinal perspective. In this regard, we cannot argue for a causal relationship between intellectual capital and organizational capabilities. Furthermore, it was not possible for us to include all possible contingencies or controls that might influence intellectual capital configurations' link to the capability of an HR subunit. Thus future studies should try to use longitudinal data to investigate the circumstances under which these configurations may impact on capabilities.

Another limitation of this study is potential bias presented by single-source data. Informants providing data for both dependent and independent variables could have implicit theories or other biases that artificially inflate relationships between variables (Podsakoff et al., 2003). While we conducted procedural and statistical corrections for possibilities of common method bias, there still remains the possibility that some of the variance found may be due to trait factors. Thus future research collecting data from multiple firms across multiple locations should consider gathering multiple measures of the same constructs to eliminate the effect of this bias.

Nonetheless, while limitations exist in this study, we attempt to offer a first look beyond the issue of which HR practices offer a competitive advantage and examine how firms develop capabilities that allow them to create, share, and implement innovative new practices, allowing them to compete in a changing global environment. As one of the few research projects of this kind where intangible assets and their influence on intangible capabilities are measured, design and collection will always prove difficult. However, in line with King and Zeithaml's (2003) and Godfrey and Hill's (1995) call for more research looking at the intangible, knowledge resources found inside the organization, and how they lead to improved performance or capabilities, we argue that this is a necessary way to

truly extend our understanding of RBVs that are interested in how firms develop organizational capabilities that allow them to create, share, and implement knowledge.

Based on this first step toward developing a framework linking intellectual capital configurations to organizational capabilities inside the MNE, further research can begin to clarify the contingencies of the framework. To do this, we recommend that a mixed methods approach be more fully capitalized upon to show the nuances of each intellectual capital configuration, and what it means in terms of how subunits develop their human, social, and organizational capital. For example, how might subunits develop specific policies and systems to leverage and steer their human, social and organizational capital? What is the path that organizations must follow to effectively develop heterogeneous practices all over the world, and then to capitalize on these practices and thus generate economies of scale? Where do they begin? Finally, how impactful are these capabilities in relation to other capabilities and resources?

One particular way to do this would be to conduct in-depth interviews with all members of an HR subunit to ascertain individual levels of human capital and social capital, which could then be aggregated to the subunit level. One could also assess the systems and policies in place in each particular unit, to examine how they develop and build intellectual capital. Furthermore, we suggest interviewing line managers to examine the extent to which the HR subunit has influenced their operations. This would allow us to understand how far these capabilities lead to performance improvements. Such research would require extensive time and effort, but would help to clarify concerns regarding exactly how these organizational capabilities might mediate the relationship between a subunit's intellectual capital configurations and its ability to "impact" on the organization (Yeung et al., 1999).

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CONCLUSION

In this paper we tried to develop and test a theoretical framework of how managers might invest in different intellectual capital configurations that act as the underpinnings to organizational capabilities. The organizational capabilities we referred to in this setting consisted of the ability of subunits to generate, share, and implement HR management practices in a complex and shifting global environment. These human management practices, which are operational in nature, could also be forces of sustainable competitive advantage if they are constantly regenerated, shared, and implemented.

To show this, we shifted from traditional views that focus on specific HR practices that might be local or global, to discussing how HR units in a multinational setting develop specific capabilities that allow them to generate practice heterogeneity while at the same time decreasing the immobility of these practices within the MNE. Doing so allowed us to extend RBVs of the firm by examining how organizations might turn to intellectual capital to increase resource heterogeneity and at the same time increase internal mobility. Using a configurational approach, we examined how human, social, and organizational capital complement one another in this process. In essence, the framework points to the significance of international HR research, and to how HR plays a key role in developing and sustaining a global competitive advantage.

NOTES

[1]We assessed construct reliability by calculating composite reliability scores for each of the knowledge resource and capability constructs. Bollen (1989), Fornell and Larcker (1981), and Werts, Linn, and Joreskog (1974) recommend using composite reliability over coefficient alphas because they represent more accurate assessments of reliability drawing from each item's error variance, modification index, and residual covariation. Because we used SEM for the final analysis we were also able to capture some of the error variance that might have resulted from lower reliability for the local and international experience constructs.

[2]The number of members in the HR group is representative of all HR staff in that country or region. This includes all secretarial/clerical staff.

[3]In a path model, coefficients in a completely standardized solution do not have to be smaller than 1 in magnitude (Joreskog & Sorbom, 1996). The concern is that, if the coefficient is extremely high (e.g., above two), it might suggest that there is a high degree of multicollinearity and/or suppres-

sion issues in the data. Because this coefficient is just barely above 1, the chance of multicollinearity is low. However, based on some bivariate correlations among variables and final model coefficients, we recognize potential negative suppression issues in the data (Kline, 2005). This helps explain why some coefficients related to shared vision might be above 1.

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