

HRM, Technology, and Business Strategies: How Multinationals Differ from National Firms in the U.S. Automotive Supplier Sector

William N. Cooke

**Director, Fraser Center for Workplace Issues
College of Urban, Labor & Metropolitan Affairs, Wayne State University
and
Director, Labor-Management Relations Center
School of Business, Executive Education Center, University of Michigan**

Abstract: Although much has been made of claims that the strategic deployment of high-involvement HRM systems and advanced technology have each yielded substantial performance gains, missing from the literature are studies that examine how these strategic choices are integrated to form alternative workplace strategies and, in turn, are aligned with broader market-positioning strategies. The central proposition tested in this analysis is that due to cross-border differences in workplace cultures and the inherent limits to replicating resource-based assets, multinationals are less likely than national firms to pursue workplace strategies emphasizing HRM-related capabilities than workplace strategies emphasizing technology-related capabilities. This central proposition is tested against a sample of firms in the U.S. automotive supplier sector, which is heavily comprised of U.S.-owned and foreign-owned MNCs. Accounting for differences in market-positioning strategies across companies, the multinomial choice model developed herein obtains substantial empirical support. The prospect of transnational convergence of workplace strategies emphasizing HRM capabilities as a result of diffusion by MNCs would appear, therefore, to be limited.

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Much has been made of the claim in recent years that high-involvement human resource management (HRM) systems offer employers a valuable means of improving operational performance. At the same time, there have been widespread claims that rapid advances in technology and technical processes are yielding substantial laborsaving improvements in operational performance. Although the technology and innovation literature has emphasized that the systematic integration of physical and human capital is key to operational success, the HRM strategy literature has largely ignored the integration of operational choices about technology and HRM practices. This study examines the strategic choices made by firms in the U.S. automotive component supplier sector, a sector that has become increasingly multinational in scope and capital intensive. In this context, important questions about the evolving role of HRM in multinational companies (MNCs) are raised. In particular, what alternative workplace strategies are MNCs pursuing in comparison to national firms as they integrate human resources with substantial laborsaving investments in technological capabilities? How does the foreign direct investment scope and alternative market-positioning strategies of MNCs influence choices among alternative workplace strategies? Answers to these questions are central to our understanding of evolving workplace strategies deployed by MNCs and the prospects of any diffusion of workplace strategies and practices across multinational.

The objective of the present analysis is to address these fundamental questions, which with limited exception, the literature has yet to explore, let alone answer. First, directly drawing on an earlier analysis (Cooke, 2004), a typology of alternative “workplace” strategy emphases is constructed based on differing priorities placed (1) on the deployment of the latest technologies and technical processes, (2) on R&D and engineering, and (3) on HRM. Subsequently, propositions about the odds of firms choosing alternative workplace strategies as a function of broader market-positioning choices and MNC status are developed. Central to this analysis is the proposition that the multinational scope of firms reduces the likelihood that firms will choose to diffuse workplace strategies emphasizing HRM capabilities in favor of diffusing workplace strategies emphasizing investments in the latest technologies, technical processes, R&D, and engineering capabilities. Third, this central proposition is tested against data from a survey of automotive supplier firms located in the U.S. in which the choice of alternative workplace

strategies is modeled as a function of being a MNC and differences in market-positioning strategies. Finding strong empirical support for this central proposition, the prospect of transnational convergence of workplace strategies emphasizing HRM capabilities as a result of diffusion by MNCs would appear limited, even across highly developed countries.

Integrated Technology and HRM Strategies

The Literature

Within Porter's framework, the sources of competitive advantage can be derived from how a firm positions itself competitively within an industry and from the way a firm organizes and performs discrete but interdependent activities embodied in its value chain. According to Porter (1991), "Discrete activities are part of an interdependent system in which the cost or effectiveness of one activity can be affected by the way others are performed... Activities involve human resources, purchased inputs, and a 'technology' for performing them, broadly defined to include organizational routines" (p. 102). Because these assets are not valuable in and of themselves except as they fit a firm's competitive strategy, the development of and continuous reinvestment in these firm-specific assets and potential sources of competitive advantage over time is part and parcel of the firm's needs in successfully implementing its strategic market-positioning choices (Porter, 1991, p. 103).

Under a resource-based asset perspective, it is the causal ambiguity that underlies unique capabilities and routines associated with the integration of physical and human capital that potentially yields valuable, rare, imperfectly imitable, and imperfectly substitutable assets. Because such capabilities are derived from socially complex tacit knowledge that cannot be codified, they are non-imitable and provide the bases for achieving the *sustainability* of competitive advantages (Barney, 1986, 1991, 2001a; Berman *et al.*, 2002; Rumelt, 1991; Teece *et al.*, 1997; and Wernerfelt, 1984). Teece *et al.* (1997) develop this line of analysis further with their concept of "dynamic capabilities", a coordinative management process by which sustainable competitive advantage depends in large part on the ability of firms to hone coordinated technological, organizational, and managerial processes that are not easily imitable by competitors. Firms vary, that is, both in their capacity to be *dynamic* by actively renewing their *capabilities* to strategically manage the adaptation, integration, and reconfiguration of

organizational skills, resources, and functional competencies in congruence with ever-changing business environments.

There remains considerable ongoing disagreement regarding a number of underlying premises and the strategic priorities between the Porter-type and resource-based theoretical perspectives (see, for example, Barney, 2001b; Priem and Butler, 2001; and Spanos and Lioukas, 2001). These differences notwithstanding, for purposes of the present analysis, the resource-based perspective can be viewed as providing an important, complementary refinement to the Porter framework. That is, whereas Porter views the interdependent functional-level activities embodied in firms' value chains as providing potential sources of competitive advantage, the resource-based focus underscores the conditions for making the advantages derived from these functional-level activities (resource assets) sustainable.

Underlying much of the management of technology and innovation literature is the thesis that choices about the level of investment in or deployment of technology are not merely about the acquisition, development, and application of physical capital to an organization's operations but are also choices about human capital and organizational processes. As Nagarajan and Mitchell (1998) recently synthesized from an extensive literature, technology can be viewed as the ability of firms to create outputs from inputs via integrated subsystems of physical assets, non-physical knowledge, techniques, and processes. Nagarajan and Mitchell go on to explain that such integrated technology systems encompass sets of routines and capabilities involving both physical and human capital applied to both *core* activities directed at the engineering and manufacturing of products and *complementary* activities directed at the production and commercialization of products. Although firms may face the challenge of managing radical or disruptive technologies and innovations requiring radical changes in these capabilities, the "vast majority of innovation challenges they will face are sustaining in character, and these are the just the sorts of innovations that these capabilities are designed to tackle" (Christensen, 2003, p. 257).

Resource-based asset advantages can be developed whether firms acquire new technologies directly from the market or through their own R&D and engineering activities. However, incremental innovation is more likely to occur through a firm's own R&D and engineering activities, which allow greater opportunity to create non-replicable resource-based advantages (Nagarajun and Mitchell, 1998). That is, the potential added resource-based

advantage derivable from internal R&D and engineering is the heightened absorptive capacity (Cohen and Levinthal, 1990) to build on existing path-dependent capabilities and routines (Teece *et al.*, 1997), which are embedded in existing core design technologies as they apply to both the components produced and product architectures (Henderson and Clark, 1990).

In their analysis of manufacturing strategies, for example, Schroeder *et al.* (2002) argue and find empirical support for concluding that it is the development of tacit knowledge and organizational learning embedded in the utilization of proprietary equipment and processes that offers firms the potential for achieving sustainable competitive advantage. Specifically relevant to the present inquiry, the authors found that key to obtaining advantage as manifested through “internal learning”, was the training of multifunctional employees and the incorporation of employee suggestions into process and product development. Likewise, the proposition that employee involvement is a valuable contributor to the successful adoption of technical change has been emphasized by other researchers (Haddad, 1996; Preece, 1995).

The fundamental thesis that technology and the organization of work go hand-in-hand (whether viewed from a more technology deterministic or more integrative contextual perspective) is also one that has been long and widely adopted in the work organization literature. (See Liker *et al.*, 1999, for a comprehensive synthesis of this literature.) Although a number of authors, moreover, have recently taken up the proposition that resource-based assets and capabilities inherent in HRM systems can provide firms with competitive advantage (Lado and Wilson, 1994; Lepak and Snell, 1999; Wright *et al.*, 1994), the emerging literature has yet to address how HRM systems are integrated with alternative technology choices. On this issue, Wright *et al.* (2001) make the case that, conceptually, HRM scholars need to place HRM in a much broader perspective, one based on core competencies that “are comprised of human capital, social capital... and organization capital (i.e., processes, technologies, data bases)” (p. 710).

In several recent studies, nonetheless, HRM scholars have examined the effects of HRM practices on various operational and workplace outcomes while taking into account different technology innovations more or less associated with high-involvement HRM practices; such as the use of lean vis-à-vis buffered production systems in automobile assembly (MacDuffie, 1995), modular production vis-à-vis traditional bundle systems in apparel (Berg *et al.*, 1996),

programmable control automation vis-à-vis mechanically-controlled automation in machine products (Kelley, 1996), and routine vis-à-vis non-routine information technology processes in banking (Hunter & Lafkas, 2003). Although these authors have not attempted to model choices of integrated HRM and technology strategies being pursued, the studies demonstrate that firms choose among alternative combinations of technology and HRM practices.

In summary, the literature clearly conceives of operational, workplace-level strategies as encompassing decisions about how firms effectively integrate (1) the acquisition of externally available technologies and technical processes, (2) internal R&D and engineering, and (3) HRM practices to maximize operational performance. Given resource constraints and the substitutability of labor for capital, the first question raised herein is: what alternative *emphases* do firms place on these three dimensions in developing their desired workplace-level capabilities? Although firms can be expected to place priority emphasis on one of these three strategic foci, they must also decide on the complementary emphases placed on the other two. We focus on these distinctions in emphases as the basis for creating a typology of workplace strategy alternatives not only because they represent fundamental strategic choices about emphasis against which actual policies and practices are based, but also because of practical considerations in distinguishing among workplace-level strategies. That is, some (if not much) of the advantage derived from a firm's functional-level capabilities is difficult, if not impossible, to ascertain since some organizational capabilities and routines that add value are subtle and ambiguous and those that cannot be codified provide a firm with potential sustainable competitive advantage. Hence, distinctions made between workplace strategies based solely on readily observed technology-related attributes or HRM practices offer a limited comparative context of the activities firms actually engage in and do not allow one to capture the underlying relative emphases placed by managers on those activities.

A Typology of Workplace Strategy Emphases

Sample: The workplace strategy choice model developed herein is tested against data from a survey of U.S.-based automotive component supplier firms. The sample of firms was initially drawn from a 2000 listing of 909 firms identified by ELM International, a market research and consulting company located in Michigan, specializing in the U.S. automotive

component supplier industry. Phone calls were made to all companies listed to verify mailing addresses and to obtain the names of top executives to whom questionnaires would be mailed. A total of 808 companies were located and identified as still in the industry at the time of the first mailing (in late January, 2001). A business strategy questionnaire was mailed to the CEOs or presidents of these firms, yielding 127 useable responses (a 16% response rate). Supplementary information about the deployment of technologies and about HRM practices is drawn from two separate companion surveys mailed to the top manufacturing operations and HRM executives, to which 128 and 108 useable responses were received, respectively. Little can be said about the representativeness of the sample in that the ELM database offers little in the form of firm descriptors and no comparable government statistics are available specifically about the automotive supplier sector, even at the 4-digit level. In comparison to the 808 firms identified from the ELM database, nonetheless, the final sample appears to be generally representative based on the mix of components produced but is over-weighted by firms with multiple manufacturing plants. Specifically, 44 percent of the firms identified in the ELM database reported having three or more manufacturing plants whereas 56 percent of the firms in our final sample have three or more plants.¹

Method: To identify different workplace strategy emphases, respondents were asked to report the degree of emphasis their firms placed on the application of (1) the latest technologies, equipment, and technical processes, (2) R&D and engineering, and (3) HRM in achieving their manufacturing objectives over the last five years. First, respondents were asked to apply a 1-5 scale of how much emphasis their firms placed on these three alternatives (ranging from very little, if any emphasis, to very much emphasis). Concerned that many respondents would treat all three options as relatively important to achieving their manufacturing objectives and, consequently, not reveal a firm's *priority* emphasis, respondents were also asked to use a forced-choice method by allocating a total of 10 points to the three primary alternatives (Aupperle *et al.*, 1985). As anticipated, using the 1-5 Likert-type scale, priority emphases were not revealed from the responses in that the majority of respondents (54 percent) gave an equal weighting (typically scored as "much" or "very much") to two or all three of the strategy options. When forced to allocate 10 points among the three options, however, all but about 16 percent of respondents

allocated more points to one of the alternative emphasis than to the other two alternatives.

We use responses to this forced-choice method to construct a typology of workplace emphases. Specifically, the CEOs or presidents of firms were asked: “Without using fractions, please allocate 10 points to reflect the priority your company placed over the last 5 years on the following operational activities:

- a. application of latest technologies, equipment, and technical processes
- b. improvements in human resource management practices
- c. R&D and engineering to improve products and services.”

Presented in Table 1 is a breakdown of responses to this forced-choice question. Based on which choice received the highest allocation of points (a minimum of at least 4 points), firms were categorized accordingly as having given priority emphasis to that choice. The results indicate that the largest proportion of the sample of auto supplier firms (39 percent) gave priority to the application of the latest technologies, equipment, and technical processes (which we call the Technical workplace strategy), 26 percent gave priority to R&D and engineering to improve products and services (which we call the R&D/Engineering workplace strategy), and 19 percent gave priority to improvements in HRM practices (which we call the HRM workplace strategy). The remaining firms placed an equal emphasis on two of the three activities, which we call the “Dual” workplace strategy emphasis. With exception of those firms pursuing a Dual emphasis, respondents allocated an average of 5 to 5.3 points to their first choice among the three alternative emphases, allocated an average of 2.5 to 2.9 points to their second choice among emphases, and allocated an average of 2.0 to 2.2 points to their third choice among emphases. It appears, therefore, (again with the exception of firms pursuing a Dual strategy) that executives do distinguish among the three identified activities in deciding on both their firms’ priority workplace emphases and the balance of the other two activities with their priority choices.

Within the sample, 45 percent of firms manufacture components only in the U.S., 42 percent of firms are U.S.-owned MNCs, and 13 percent of firms are foreign-owned MNCs with manufacturing operations in the U.S. As reported in Table 2, U.S.-owned MNCs are the least likely to pursue workplace strategies emphasizing HRM (at 13 percent) in comparison to 24 percent of national firms and 19 percent of foreign-owned MNCs. In contrast, only 20 percent of national firms are pursuing the R&D/Engineering emphasis, whereas about 30 percent of both

U.S.-owned and foreign-owned MNCs are pursuing the R&D/Engineering emphasis. We also find that 50 percent of foreign-owned MNCs are pursuing a Technical workplace emphasis, a considerably larger proportion than among either U.S.-owned MNCs (at 35 percent) national firms (at 41 percent). Lastly, none of the foreign-owned MNCs in our sample are pursuing a “Dual” workplace emphasis, in comparison to 22 percent of U.S.-owned MNCs and 15 percent of national firms.

To provide the reader with a rough picture of how the four workplace strategy emphases identified are differentiated by actual activities and practices, a comparison of various characteristics across strategy emphases is provided in Table 3. Based on the data provided by the top operational and HRM executives to separate questionnaires, we include in Table 3 a set of characteristics drawn from a larger profile of characteristics for which there is some obvious variation across firms. As shown, there are observable differences in the reported characteristics across strategic emphases, differences that are consistent with the allocation of points reported in Table 1. Among HRM practices, in particular, differences were found primarily across several high-involvement practices (namely, teamworking, performance-based incentives, rotation, and sharing of performance information). Not surprisingly, it appears that our question about how much emphasis has been placed on “improvements in HRM practices” has been largely interpreted by executives to mean differences in the emphasis placed on the deployment of high-involvement practices.

First, firms pursuing a Technical workplace strategy engage production workers in high-involvement HRM practices to a lesser degree than do firms pursuing a HRM workplace strategy and employ a smaller cadre of R&D and engineering employees than do firms pursuing an R&D/Engineering workplace strategy. Second, firms pursuing an R&D/Engineering emphasis place more emphasis on technology-based factors than do firms pursuing a HRM strategy and place lesser emphasis on high-involvement HRM practices than do firms pursuing a Technical workplace strategy. Third, firms pursuing a HRM strategy employ a smaller cadre of R&D and engineering employees and place less emphasis on technology-based factors than do firms pursuing an R&D/Engineering workplace strategy. Fourth, firms pursuing Dual workplace strategies place fairly moderate or minimal levels of emphasis on use of the latest technologies and technical processes, on R&D and engineering, and on high-involvement practices.

Aligning Technology and HRM Choices with Business Strategies

We ask next: to what extent are firm choices among alternative functional-level workplace strategies influenced by and aligned with broader competitive strategies? Although there remains considerable debate over the assumptions and propositions underlying business strategy theory (Rumelt *et al.*, 1991), the frameworks developed by Porter and Miles and Snow offer a set of propositions against which such alignment can be explored. Under Porter's market-positioning/value chain framework, firms assess how best to position themselves in given industries in response to the market structure and competitive forces in those industries (Porter, 1980, 1985, 1991). Key to competitive positioning are choices about whether to compete primarily on a low-cost leadership basis or on a differentiation basis and choices about product and market scope. The sources of competitive advantage can be derived from how a firm positions itself competitively within an industry and from the way a firm organizes and performs discrete but interdependent activities embodied in its value chain. The development of and continuous reinvestment in these firm-specific assets over time is part and parcel of a firm's needs in implementing its strategic market-positioning choices.

Also key to achieving or sustaining positions of market power are firms' decisions about defending themselves against competitors and about taking offensive positioning measures designed to alter competitive forces in ways favorable to them. This line of reasoning stems primarily from the strategy framework first developed by Miles and Snow (1978), a framework that has been applied fairly widely (Zahria & Pearse, 1990; *Academy of Management Executive*, 2003). The primary basis of the Miles and Snow framework is the distinction made between "defenders" (at one extreme) who attempt to capture and protect a slice of the total market and "prospectors" (at the other extreme) who seek to expand and exploit existing and new market opportunities. In between these two extreme positions are "analyzers" who attempt to take on the roles of both defenders and prospectors. Porter (1985, Ch. 14) also argues that by taking the offensive, firms increase their competitive advantage and by acting defensively, firms increase the sustainability of those competitive advantages. Similarly, Spanos and Lioukis (2001) model competitive advantage as a function of "the firm's ability either to defend itself against competitive forces ('defensive' effects), or to influence them in its favor ('offensive' effects)" (p.

909).³

In regard to the alignment of technology decisions with market-positioning choices, surprisingly little research addresses such alignment. That which does, suggest only that firms pursuing differentiation strategies will be inclined to engage in internal R&D and engineering. Defining *technology strategy* as “a firm’s approach to the development and use of technology”, Porter (1985, Ch. 5) goes on to argue simply that process and product technologies that contribute most to a firm’s cost-differentiation positioning or that lead to first-mover advantages should be pursued. As explained by Schlie (1996), moreover, both advanced manufacturing hardware and management (process) technologies can be applied to either cost leadership or differentiation strategies. These advanced technologies allow firms to increase efficiency by reducing direct labor costs, to improve quality by optimizing the reliability and performance of products, and to substantially enhance opportunities to introduce new products by shortening new product development cycle times. The ability of firms to take advantage of this latter technology opportunity, however, has traditionally required that firms engage in their own internal R&D and engineering activities.

In regard to the alignment of HRM and business strategies, numerous authors have adopted either contingency or configurational approaches in which decisions about HRM are viewed as a function of business or organizational strategies (see Delery & Doty, 1996, for an instructive synthesis). With respect to the contingency perspective, authors posit that the relationship between specific HRM practices and organizational performance is dependent on the alignment between the requisite set of employee behaviors necessary for implementing an organization’s strategy and selected HRM practices that induce this set of preferred employee behaviors (e.g., Balkin & Gomez-Mejia, 1990; Lengnick-Hall & Lengnick-Hall, 1988; Schuler & Jackson, 1987; Youndt *et al.*, 1996). With respect to the configurational perspective, authors argue that HRM systems should fit both horizontally and vertically with other organizational characteristics, including a firm’s business strategy (e.g., Arthur, 1992; MacDuffie, 1995; Miles & Snow, 1984; Wright & McMahon, 1992).

HRM strategy scholars have yet to develop or embrace any given model or framework about such alignment, albeit a number of researchers have partially examined linkages between selected market-positioning choices and either HRM behaviors or HRM systems. For example,

Arthur (1992), Schuler and Jackson (1987), and Youndt *et al.* (1996) examine linkages between cost-differentiation positioning and HRM choices; Bird and Beechler (1995), Delery and Doty (1996) and Miles and Snow (1984) examine linkages between offensive-defensive positioning and HRM choices; and Schuler *et al.*, (1993) and Taylor *et al.*, (1996) examine linkages between market scope and international HRM choices. These partial analyses of alignment, however, have not incorporated choices about the integration and emphasis of HRM practices with technology-related choices.

Finally, there remains some contention in the literature about the question of causal direction underlying the act of alignment. Under both the Porter and Miles and Snow frameworks, firms are expected to first decide on their market-positioning strategies and then attempt to develop competitive advantages via various discrete but interdependent, functional-level activities that best align with market-positioning choices. In contrast, under the resource-based perspective, firms are expected to choose among market-positioning alternatives that are congruent with resource-based assets because it is these assets that largely provide competitive advantages that are sustainable. As a practical matter, however, it would appear that choices about functional-level strategies are generally preceded by market-positioning choices. First, not all (if any) of the interdependent, functional-level activities that make up a firm's value chain will yield sustainable or even temporal advantage. Indeed, competitive advantage must translate into superior and sustainable profitability relative to competitors within given industries, which by definition can apply only to a relatively small proportion of firms comprising an industry. Therefore, even if all firms sought to create sustainable resource-based asset advantages, the large majority of firms will not succeed in doing so, and, consequently, will not have non-imitable functional-level advantages that would influence market-positioning choices. Second, given that firms must allocate scarce resources across competing activities, it would seem relatively improbable that firms would rationally seek to develop (or even stumble upon) such resource-based assets and capabilities that were misaligned in the first place with market-positioning choices taken. Thus, under an assumption of bounded rationality, the more compelling logic is that the development of firm-specific, resource-based assets are initially borne by the efforts of firms to implement market-positioning choices. Nevertheless, firms that successfully develop resource-based advantages that are *aligned* with market-positioning

strategies in the first place, are more likely to continue pursuing given market-positioning strategies as a result of these resource-based advantages.

Central Hypotheses

As addressed earlier, both the business and management-of-technology literatures widely conceive of choices regarding functional-level technology and human resource strategies as going hand-in-hand, whereas the HRM strategy literature has only begun to consider how HRM practices are integrated with choices about technology. The business strategy and management of technology literatures, moreover, broadly view these integrated choices as a function of market-positioning strategies, but provide very little theoretical or empirical inquiry about such alignment. Although the HRM strategy literature addresses the need for aligning HRM strategies with business strategies (and provides some empirical support for such alignment), it provides little theoretical or empirical guidance about strategic choices firms make in aligning integrated technology and HRM strategies with market-positioning choices. In sum, the literature offers only general guidance in developing testable hypotheses about the alignment of workplace strategies with market-positioning strategies.

Our objective next is to develop a set of central hypotheses about the expected influence of market-positioning strategies on workplace strategy choices and specify and test accordingly a model of these strategic choices. As constructed, our typology of workplace strategy emphases cannot be viewed as a set of alternative choices along a continuum but instead depicts discrete, unordered alternative choices. Arguably, firms could choose any of these fairly generic workplace strategy emphases to satisfy their market-positioning objectives. However, the relative odds that firms choose one workplace emphasis over another can be expected to vary as a result of the distinctive capabilities (or limitations) each workplace strategy emphasis entails *relative to each other emphasis* in achieving alternative market-positioning objectives. Therefore, the hypotheses developed next are based on these relative distinctive capabilities and the potential advantages they bring to achieving selected market-positioning emphases.

The first set of hypotheses pertains to the cost-differentiation emphases pursued by firms. Across the three primary workplace strategies, one relative, distinctive advantage derived from the R&D/Engineering emphasis is that based on technical capabilities to improve, develop, and

bring innovative products to market. It is hypothesized, therefore, that:

Hypothesis 1a: The relative odds of choosing an R&D/Engineering workplace emphasis over a HRM or Technical emphasis are greater when firms pursue innovation-based differentiation market positions.

Given the heavy emphasis placed on the use of the latest technologies, equipment, and technical processes, and/or R&D and engineering among firms pursuing either Technical or R&D/Engineering workplace emphases, one can expect that these firms enjoy distinctive technical capabilities in obtaining more exacting product reliability and performance (i.e., quality) and in minimizing costs than firms pursuing a HRM emphasis. In contrast, the high-involvement work routines and greater intrinsic and extrinsic incentives associated with the HRM emphasis lead to greater employee problem-solving around inefficiencies in production and in the launch of new products, to greater flexibility in staffing and assignment, and to fewer mistakes jeopardizing quality (Becker and Gerhart, 1996; Cooke, 1994; Haddad, 2000; Huselid, 1995; Ichniowski *et al.*, 1997; Youndt *et al.*, 1996). Although the high-involvement focus of the HRM emphasis leads to enhanced employee capabilities for improving efficiency and quality, by having lesser technical capacity relative to either the Technical or R&D/Engineering emphasis, the HRM emphasis is unlikely to offer a relative distinctive advantage for firms placing priority either on cost or differentiation objectives. Instead, the potential distinctive advantage of the high-involvement workplace practices associated with the HRM emphasis is derived from its inherent focus on both cost and differentiation objectives. To the extent that firms pursuing a balanced emphasis wherein the objective is to tradeoff some gain in both costs and differentiation (rather than maximizing gain on one at the expense of the other), will find the HRM emphasis as an attractive choice.

Accordingly, the following hypotheses are made:

Hypothesis 1b: The relative odds of choosing a Technical or R&D/Engineering workplace emphasis over a HRM emphasis are greater when firms place priority either on quality-based differentiation or cost leadership market positions.

Hypothesis 1c: The relative odds of choosing a HRM workplace emphasis over either a Technical or R&D/Engineering emphasis are greater when firms pursue market positions based on an equal emphasis placed on cost and differentiation objectives.

The second set of hypotheses pertains to the offensive-defensive market positions pursued by firms, which includes decisions about the protection or expansion of *existing* markets and about the development of *new* markets. First, with respect to positioning themselves in their existing markets, there is no clear a priori reason to believe that either the Technical or R&D/Engineering workplace emphasis offers a distinctive advantage over the other when firms seek either to protect or expand their existing markets. However, for at least two reasons, one can expect that the likelihood of pursuing a HRM workplace emphasis is higher when firms pursue the expansion rather than the protection of existing markets. First, the high-involvement focus of the HRM workplace emphasis is intended to engender relatively high levels of employee commitment to continuous improvements in performance. In turn, employees will expect as a *quid-pro-quo* that firms will provide relatively high levels of commitment to them in terms of greater employment stability (Lawler, 1992). The ability and willingness of firms to make such explicit or implicit commitments to enhanced employment stability is more likely when firms focus on expanding rather than protecting their existing markets. Second, the HRM emphasis may be well suited for developing even more efficient workplace routines and capabilities once new technologies or innovative products have been introduced and firms have set the needed technology architecture in place to expand their existing markets. It is hypothesized, therefore, that:

Hypothesis 2a: The relative odds of choosing a HRM workplace emphasis over either a Technical or an R&D/Engineering emphasis are greater when firms pursue the expansion of existing markets than when firms pursue the protection of existing markets.

With respect to the development of new markets, the foci of both the R&D/Engineering and Technical workplace emphases offer substantial opportunities for producing *new* products; either as in the case of the R&D/Engineering workplace emphasis through research, development, and engineering capabilities or through a firm's greater competencies in adopting the latest technologies, equipment, and technical processes needed to produce new products. In contrast, the HRM workplace emphasis offers little or no distinctive capability along this line. It is hypothesized, therefore, that:

Hypothesis 2b: The relative odds of choosing an R&D/Engineering or Technical workplace emphasis over a HRM emphasis are greater when firms emphasize the development of new markets.

The main proposition about the alignment of alternative workplace emphases with a firm's choices about product and market scope is that the HRM workplace strategy emphasis is better suited for narrower than broader scope positioning. First, at the heart of the HRM workplace strategy emphasizing high-involvement practices is teamworking among production workers, skilled tradespeople, supervisors, technical staff, and managers, which requires the development of trustworthy relationships and effective inter-personal dispute resolution capabilities among these employees (Spreitzer *et al.*, 1999). Second, potential resource-based competitive advantages derivable from HRM workplace emphases are based on the integrative and synergistic capabilities arising out of various high-involvement practices deployed in combination. The ambiguous inter-workings of these horizontally aligned HRM practices embedded in complex social systems, moreover, are not easily imitable by competitors and, hence, provide the potential for sustainable competitive advantage (Wright *et al.*, 2001). The likelihood that firms can create and maintain such HRM systems is greater in firms with less complicated operations and more focused production systems in which work team assignments and routines can be more enduring; for example, as would be found in manufacturing plants producing fewer types of products and supplying fewer customers. It is hypothesized, therefore, that:

Hypothesis 3: The relative odds of choosing a HRM workplace emphasis over a Technical or R&D/Engineering emphasis are greater when firms pursue narrower product/market scope positioning than when firms pursue broader scope positioning.

MNC Choices: Central Propositions and Hypothesis

Basic economic propositions about foreign direct investment (FDI) hold that firms substitute FDI for external market transactions in their efforts to minimize transaction costs (Buckley and Casson, 1976). These decisions to “internalize” some operations via FDI are governed by firm-specific or “ownership advantages”, whereby firms enjoy some inherent advantage over firms operating in other countries, which can be exploited (Dunning, 1993). These ownership advantages may be achieved as a result of a firm's existing tangible assets (e.g., access to investment capital) or intangible assets; for example as derived from having special

expertise in marketing, advanced technologies, technical processes, engineering, and R&D. Deciding on where to invest across alternative locations (given ownership advantages) is, additionally, a function of comparative location advantages. Those foreign locations offering more advantage in terms of lower operational costs and greater ease in exploiting ownership advantages attract more FDI (Dunning, 1993), as do locations that offer greater market opportunity for MNCs to penetrate or to defend against competitors (Hennart and Park, 1994).

Considered from the resource-based perspective, however, a strategy that yields *sustainable* competitive advantage for a given firm is not replicable by other firms. Likewise, to the extent that the dynamic capabilities underlying strategies are context specific, path dependent, and cannot be codified, a firm will be less able to replicate or exploit that same advantage from one of its own locations to its other locations. Consequently, executives perceiving that there are inherent limitations to replicating *sustainable* competitive advantages outside a given context will not be inclined to diffuse those resourced-based assets enjoyed in one model location across their other locations. Executives perceiving otherwise, on the other hand, may attempt to diffuse sustainable competitive advantages to other locations. However, unless those recipient locations to which strategies are transferred are able over time either to replicate the sustainable dynamic capabilities developed in the model operation (or achieve superior advantage over strategies previously deployed locally), recipient locations will have reason to ultimately abandon the transferred strategies imposed upon them by the company in favor of their own local, context-specific strategies.

At question herein: Do MNCs as a function of their global reach see any greater or lesser advantage to diffusing workplace strategies based on Technical, R&D/Engineering, or HRM emphases? The answer to this question depends in large part on (1) the ease of transferring the preferred architecture of observable workplace attributes and practices and (2) the ability to replicate the hard-to-observe attributes of *sustainable* advantages embedded in the observable architecture. On both accounts the HRM workplace emphasis would likely be more difficult to successfully diffuse than either the Technical or R&D/Engineering workplace emphasis. First, there are differences in industrial relations (IR) systems as characterized by diverse government policies and regulations, collective bargaining constraints, labor markets, and workplace cultures and norms that MNCs must take into account in choosing whether or not to diffuse HRM

practices across affiliates in other countries (Cooke, 1997, 2001). These IR system differences and constraints, one can surmise, are more pronounced than any constraints placed on the diffusion of the latest technologies, equipment, R&D, and engineering capabilities. Hence, the ease by which MNCs can diffuse the architecture of workplace strategies emphasizing HRM would generally be less than the ease of diffusing the architecture of either a Technical or R&D/Engineering workplace emphasis.

Second, the ability of MNCs to replicate any hard-to-observe attributes of sustainable advantage derivable from workplace strategies would likely to be more limited in regard to a HRM workplace emphasis than in regard to either a Technical or R&D/Engineering emphasis. Again, because workplace cultures and norms will differ across different IR systems, the ability of MNCs to transfer the complex social systems and related trustworthy relationships characteristic of the HRM workplace emphasis are bound to be more limited than the ability to replicate sustainable advantages associated with the Technical and R&D/Engineering emphases, which place far less emphasis on human resource capabilities. It is hypothesized, therefore, that:

Hypothesis 4: The relative odds of choosing a Technical or R&D/Engineering emphasis over a HRM emphasis are greater for MNCs than for national firms.

Model Specification and Results

The four workplace emphases that comprise the dependent choice variable are discrete, unordered alternatives. An appropriate maximum likelihood estimator for estimating this kind of choice model is multinomial logit (MNL) (Amemyia, 1981). The general form of the MNL equation is

$$\ln_e (P_i/P_0) = a + b_j X + e \quad (i = 1, 2, 3; j = 1, 2, \dots, n)$$

where P_i/P_0 are the odds of choosing alternative i over alternative 0 , given alternatives that are independent, mutually exclusive, and collectively exhaustive (which are the Technical, R&D/Engineering, HRM, and Dual workplace strategy alternatives). Identification of the model requires that all parameters of one choice (P_0) be normalized to zero, the selection of which can be altered to obtain all relevant comparisons without consequence to the estimates. Defined below is the vector of exogenous variables ($b_j X$), which includes measures of MNC status, cost-

differentiation, offensive-defensive, and product/market scope market-positioning emphases pursued by firms and several organizational characteristics treated as salient control variables.

Because the data used for estimation of this model were obtained by a self-report method from questionnaires sent to CEOs and presidents, one must consider the potential for obtaining biased estimates as a result of possible percept-percept inflation (Crampton & Wayne, 1994). For several reasons, the degree of any such bias on the given estimation would appear minimal. First, respondents were not asked semantically synonymous and similarly worded questions of a global nature to which respondents might be tempted to provide logically consistent, synonymous answers. The form of the questionnaire items and response categories, furthermore, were purposely varied so as to avoid potential common method variance bias. Indeed, our use of forced-choice questions in discerning priorities placed on workplace strategy emphases and cost-differentiation emphases should ensure against this kind of percept-percept inflation. Second, questions were not of a nature that might prompt respondents to invoke their dispositional nature toward the world and thus provide either consistently positively- or negatively-oriented answers. Nor were the questions of a nature that might elicit the respondents to invoke their personally held implicit theories about concepts rather than describe the reality of their strategic emphases. Fifth, there is little reason to believe that the questions addressed ambiguous or poorly understood decision-making, which otherwise might through some social cues prompt respondents to provide superficially intelligent answers to seldom considered decisions. Finally, it is also worth noting that in regard to our measurement of the dependent variable, that data drawn from separate surveys of the top operations and HRM executives illustrate substantial consistency with the priority of emphases placed on workplace strategies as reported by CEOs and presidents.

Measurement of Market-Positioning Variables

To construct a measure of cost vs. differentiation positioning, CEOs and presidents of firms were asked again to provide forced-choice responses: “Without using fractions, please allocate a total of 10 points to reflect the priority your company has placed over the last 5 years on the following performance objectives”: (a) cost control, (b) quality control, (c) inbound and outbound delivery control, and (d) providing innovative products and services. Based on the

objective(s) that received the highest points from this forced-choice method, we categorized firms by their priority emphasis. 35 percent of respondents gave priority to cost control (Cost Control), 27 percent gave priority to quality control (Quality), and 13 percent gave priority to providing innovative products and services (Innovation). The remaining firms placed an equal priority on two or more performance objectives; specifically, 16 percent gave equal priority to cost control and differentiation objectives (Cost+Differentiation) and 9 percent gave equal priority to quality and innovation (Quality+Innovation). (Only one firm gave priority to delivery control and that observation was included in the Cost+Differentiation emphasis category.)

Although the above cost-differentiation emphases reflect the market-positioning priorities of firms in the sample, most firms placed substantial importance on achieving both cost and quality control. Indeed, among those firms giving priority to cost control, 80 percent reported that they also placed “much” or “very much” emphasis on quality control. Among firms giving priority to quality, on the other hand, 76 percent reported that they also gave much or very much emphasis to cost control. And among firms giving priority to innovation, 71 percent also gave much or very much emphasis to cost control and 82 percent gave much or very much emphasis to quality control.

With respect to the offensive-defensive positioning of firms, firms make decisions about the degree to which they focus on protecting or expanding their *existing* markets and *developing new* markets. Accordingly, firms were categorized based on responses from CEOs and presidents to three questions: “Over the last 5 years, how much emphasis has your company placed on the following strategic objectives:

1. protecting and solidifying existing markets and customer base?
2. expanding markets and customer base for existing products produced?
3. developing new markets and customer base by producing new and innovative products or services?

Since a distinction is made between existing and new markets, respondents were not asked to allocate points to their priorities but instead were asked to answer the above three questions using the following scale: 1=very little, if any emphasis, 2=little emphasis, 3=moderate emphasis, 4=much emphasis, and 5=very much emphasis. Based on answers to these questions, we first categorized firms by their emphasis placed on *existing* markets and customer bases

(questions 1 and 2 above). 27 percent of the firms in the sample placed greater emphasis on protecting (Protection) than on expanding existing markets, whereas another 27 percent placed greater emphasis on expanding (Expansion) than on protecting existing markets. The remaining 46 percent placed an equal emphasis on both expanding and protecting existing markets (Expansion+Protection).

When asked about the degree of emphasis placed on developing new markets (question 3), 45 percent of respondents placed as much emphasis on the development of new markets as they placed on their priority emphasis regarding existing market positioning. For purposes of estimation, these firms are treated as emphasizing the development of new markets by producing new and innovative products (New Market Development). Across the three identified *existing* market positioning emphases, the degree of emphasis placed on developing new markets varies substantially: 29 percent of those firms emphasizing the Protection of existing markets also equally emphasized New Market Development; 40 percent of firms emphasizing the Expansion of existing markets also equally emphasized New Market Development; and 57 percent of firms emphasizing Expansion+Protection also equally emphasized New Market Development.

With respect to emphases placed on product and market scope, executives were asked two questions in an effort to characterize a firm's product and market scope emphases. Because it would be difficult for executives to ascertain whether or not the scope of their product lines or customer bases were narrow or broad (except perhaps at the extremes along a continuum) and because otherwise one would have to make arbitrary distinctions between what constitutes a narrow vs. broad scope, two continuous measures of product and customer scope are used in the analysis. The first measure is the number of "distinctly different types of vehicle components" produced (# of Products), which ranges widely from only 1 component to 2500 components, with a mean of 89 components produced. The second measure is the percentage of a firm's sales going to its largest customer (Customer Concentration), which averages 35 percent and ranges from a low of 2 percent to a high of 98 percent.

Given the range and mix of emphases pursued by firms, there appears to be no simplified typology of market-positioning emphases that emerges from the data. For example, of those firms pursuing a cost leadership position, 35 percent have pursued a Protection emphasis and 26 percent have pursued an Expansion emphasis. Of those firms pursuing a differentiation

emphasis, 29 percent have pursued an Expansion emphasis and 21 percent have pursued a Protection emphasis. Although firms are more likely to pursue a New Market Development emphasis when pursuing a differentiation emphasis (61 percent), 33 percent of firms pursuing a cost leadership position also pursue a New Market Development emphasis. With respect to scope emphases, the shares of total sales going to a firm's largest customer are roughly equal (at about 35 percent) across the cost-differentiation emphases pursued. Substantial differences exist, on the other hand, in regard to the average number of components produced, wherein firms pursuing cost leadership positions produce on average 167 components in comparison to an average of 42 components produced by firms pursuing differentiation emphases.

The data from the present survey of the top officers of automotive supplier firms attest to the rich variation of market-positioning choices made in this mature and highly competitive manufacturing sector, variation that applies across both domestic-only and MNCs. Indeed, it appears that any strategic choices made regarding cost-differentiation emphases have been coupled with every strategic alternative regarding offensive-defensive positioning and with the pursuit of either a fairly narrow or broad scope in products and markets. Consequently, any exercise to create a simplified typology of market-positioning strategies against these data would appear misplaced. Instead, a more complex taxonomy of market-positioning strategies best represents the mix of emphases underlying the market-positioning strategies of firms in the automotive supplier sector.

MNC Status and Market Positioning Priorities

The market positioning priorities described above vary by MNC status, as reported in Table 4. With respect to cost vs. differentiation choices, more than one-half of foreign-owned MNCs have given priority emphasis to cost control, whereas only one-third of U.S.-owned MNCs and national firms have given priority emphasis to cost control. In contrast, about one out of three domestic-only firms has given priority emphasis to quality, whereas only about one out of five MNCs has given priority emphasis to quality. Among foreign-owned MNCs, a much smaller proportion of firms has given priority emphasis to either Innovation or Quality+Innovation (only 6 percent) than the proportion of either U.S.-owned MNCs or national firms (both at 24 percent). Finally, substantially greater proportions of both U.S.-owned and

foreign-owned MNCs have given priority emphasis to Cost+Differentiation positioning (24 and 19 percent, respectively) than have national firms (9 percent).

With respect to offensive-defensive positioning, a much larger proportion of foreign-owned MNCs operating in the U.S. has given priority emphasis to Protection (50 percent) than the proportion of U.S.-owned MNCs (28 percent) and the proportion of national firms (20 percent). In contrast, a much smaller proportion of foreign-owned MNCs has given priority emphasis to Protection+Expansion positioning (19 percent) than the proportion of either U.S.-owned MNCs or national firms, among which about 50 percent have given priority emphasis to Protection+Expansion positioning. Furthermore, a smaller proportion of foreign-owned MNCs has given priority emphasis to New Market Development positioning (31 percent) than the proportion of U.S.-owned MNCs (44 percent) and national firms (48 percent).

Lastly, we find that foreign-owned MNCs favor narrower market scope positioning, producing, on average, a smaller number of components (52) and having a higher Customer Concentration (56 percent) than either U.S.-owned MNCs or domestic-only firms. Given that the market positioning priorities of firms varies by MNC status, it follows that any test and assessment of Hypothesis 4 can only be made after accounting for the effects of differences in market-positioning strategies between MNCs and domestic-only firms.

MNC Status and Control Variables

In addition to our set of market-positioning variables, the MNC status of firms and several salient control variables are included in the model. With respect to MNC status, firms are distinguished as U.S.-owned MNCs, foreign-owned MNCs, and national firms, measured as 0-1 categorical variables. With respect to control variables, the choice of workplace strategies may be associated with the size of a firm, wherein smaller and single-plant operations may be less able than larger or multiple-plant firms to garner the capital resources necessary for making substantial investments in equipment, R&D, and engineering and may view the HRM emphasis as a less costly but potentially valuable strategic alternative. Here, the average size of a firm's manufacturing plants (Average Size) and whether or not it has multiple-plant operations or a single-plant operation (Single Plant) are controlled for. Another variable, which is central to the automotive supplier sector, is unionization. Given the ability of unionized workforces to

exercise greater relative power than their non-union counterparts, especially regarding the negotiation of HRM practices, a firm's choice among workplace strategies may be influenced by its union status. Here, we control for the percent of a firm's plants that are unionized (% Union).

Results

Reported in Tables 5 and 6 are the results of my earlier estimates, which did not take into account MNC status. The results provide relatively strong support for the general model, as well as with regard to the hypothesized effects of MNC status on choice of workplace strategy emphasis. Inclusion of the variables for MNC status, moreover, has no perceptible effects on the estimates reported in Table 5. For purposes of this report, the findings reported earlier (Cooke, 2004) are summarized. The estimated effects of MNC status on choice of workplace emphasis are then reported and discussed.

Summary of Earlier Findings: Reported in Table 5 are the parameter estimates of the log of the odds of choosing one workplace emphasis over each of the others. Because interpretation of the influence of multiple categorical dummy variables on choice of workplace strategy emphases is based on the odds associated with omitted benchmark categories, estimates from a second equation are reported, wherein the omitted benchmark categories for the cost-differentiation and offensive-defensive positioning emphases are altered. Because one cannot directly interpret the odds of choosing one emphasis over another from the estimated logit (log of the odds) coefficients, the change in the actual odds of choosing one workplace strategy emphasis over another associated with one-unit changes in the exogenous variables are reported in Table 6.

As reported in Table 5, the odds of choosing a HRM, Technical, or R&D/Engineering workplace emphasis over each other are strongly associated with differences in cost-differentiation, offensive-defensive, and product/market scope positioning, as well as manufacturing plant size and union penetration. As discussed below, the results are largely consistent with the hypothesized effects. Very little evidence was obtained, on the other hand, that the odds of choosing a Dual workplace emphasis over other workplace strategy emphases were associated with market-positioning choices; and these estimates are omitted for sake of brevity (but available on request). This lack of association is consistent with the observation that

a Dual workplace emphasis is largely void of any apparent focus or distinguishing advantage.

The estimates indicate (Table 5, under Equation 1) that for firms pursuing an Innovation emphasis, the odds of choosing an R&D/Engineering workplace emphasis are significantly greater than the odds of choosing either a HRM or Technical emphasis (each significant at the $\leq .05$ level, using conservative two-tailed tests) relative to the odds associated with the benchmark category Cost+Differentiation. As reported in Table 6 (under Equation 1), the odds of choosing an R&D/Engineering workplace emphasis over either a Technical or HRM emphasis are, moreover, substantial. On taking the exponentials when Innovation is set to 1 and then to 0 (i.e., the effects of the benchmark category Cost+Differentiation are included in the constant term), the odds of choosing a HRM emphasis vs. an R&D/Engineering emphasis are only .02 to 1. Similarly, the odds of choosing a Technical emphasis vs. an R&D/Engineering emphasis are only .07 to 1.³ Furthermore, in comparison to firms pursuing a Quality emphasis (Equation 2), the odds of choosing a Technical workplace emphasis vs. an R&D/Engineering emphasis when a firm pursues an Innovation emphasis are also significant and substantial (at only .15 to 1). The results, therefore, yield strong support for Hypothesis 1a.

Mixed statistical support is obtained for Hypothesis 1b. As hypothesized, the odds of choosing either a Technical or R&D/Engineering workplace emphasis by firms pursuing a Quality emphasis are significantly greater than the odds of choosing a HRM emphasis (both significant at the $\leq .01$ level) relative to the odds associated with the benchmark category, the Cost+Differentiation emphasis. Here, the odds of choosing a HRM workplace emphasis vs. a Technical emphasis are only .05 to 1 and the odds of choosing a HRM emphasis vs. an R&D/Engineering workplace emphasis are only .02 to 1. No statistical support is found, however, for inferring that the relative odds of choosing a Technical or R&D/Engineering emphasis over a HRM emphasis are greater when firms give priority to cost leadership. Indeed, the evidence (Equation 2) suggests that in comparison to firms giving priority to quality, firms giving priority to cost leadership are more likely to choose a HRM workplace emphasis than a Technical emphasis.

Strong support for Hypothesis 1c is also found. As reported for Equation 2, the odds of choosing a HRM emphasis over both a Technical and an R&D/Engineering emphasis when a firm pursues a Cost+Differentiation emphasis are substantially greater than when a firm pursues

a Quality emphasis. Significant at the $\leq .01$ levels, the odds of choosing a HRM emphasis over a Technical emphasis are greater than 14 to 1 and over an R&D/Engineering emphasis are greater than 57 to 1.

With regard to the alignment of workplace strategy emphases with offensive-defensive market-positioning choices, support is found for Hypothesis 2a in that the odds of choosing a HRM workplace emphasis over a Technical emphasis are nearly 25 to 1 and over an R&D/Engineering emphasis are more than 7 to 1 when a firm pursues an Expansion emphasis in their existing markets than the comparable odds when a firm pursues a Protection emphasis (significant at $\leq .01$ and $\leq .05$ levels, respectively). Or stated alternatively, firms pursuing the Protection of existing markets are far more likely to choose a Technical workplace emphasis over a HRM emphasis and more likely to choose a Technical emphasis over an R&D/Engineering workplace emphasis. The evidence also provides substantial support for Hypothesis 2b in that the relative odds of choosing an R&D/Engineering or Technical workplace emphasis over a HRM emphasis are greater for firms emphasizing New Market Development than for firms not emphasizing the development of new markets (both estimates significant at the $\leq .01$ levels). Here the odds of choosing a HRM workplace emphasis vs. Technical and R&D/Engineering emphases are only .12 to 1 and .08 to 1, respectively.

Only modest support is obtained for the proposition that the odds of choosing a HRM workplace emphasis over either a Technical or an R&D/Engineering emphasis are greater for firms pursuing narrower product/market scope positions. First, no statistically significant evidence is obtained that the number of distinctly different components produced (# of Products) are associated more or less with any of the alternative workplace strategy emphases.⁴ It can be inferred from the evidence, on the other hand, that the greater the percent of sales going to a firm's largest customer (Customer Concentration), the greater becomes the likelihood that a firm will choose a HRM workplace emphasis over an R&D/Engineering emphasis. As reported in Table 6, when the percent of sales going to a firm's largest customer is only 10 percent, the odds of choosing a HRM workplace emphasis vs. an R&D/Engineering emphasis are only .23 to 1 but increases to more than 3 to 1 when the percent rises to 75 percent. Firms appear just as likely, however, to choose a Technical workplace emphasis as to choose a HRM emphasis as sales concentrations become higher.

Lastly, with respect to organizational characteristics controlled for, the evidence suggests that both average plant size and union representation are associated with the odds of choosing one workplace strategy emphasis over another. Specifically, the relative odds of choosing a HRM workplace emphasis over other workplace emphases are significantly greater, the smaller the firm; and the relative odds of choosing an R&D/Engineering workplace emphasis over other workplace emphases are significantly greater, the higher the percent of a firm's plants represented by unions. Hence, it appears that the distinctive capabilities associated with the HRM workplace strategy are better captured in smaller firms and that unionization increases the relative odds that firms choose an R&D/Engineering strategy, perhaps because of its limited focus on deploying high-involvement workplace practices.

MNCs and Choice of Workplace Emphasis: To test the central hypothesis that MNCs are less likely to choose a HRM emphasis than either a Technical or R&D/Engineering emphasis, we next include variables depicting both U.S.-owned and foreign-owned MNCs in the model. The results of estimation yield substantial support for Hypothesis 4. First, in comparison to U.S. national firms, the odds of choosing a HRM emphasis among U.S.-owned MNCs are lower than the odds of choosing either a Technical emphasis or an R&D/Engineering emphasis (significant at the $\leq .05$ and $\leq .01$ levels, respectively, using one-tailed tests). The estimated magnitude of these differences indicate that the odds that U.S.-owned MNCs (relative to national firms) choose a HRM emphasis instead of a Technical emphasis are .08 to 1 and instead of an R&D/Engineering emphasis are only .06 to 1. Second, the estimates indicate that foreign-owned MNCs are also less likely than national firms to choose a HRM emphasis than to choose either a Technical or R&D/Engineering emphasis (both significant at the $\leq .05$ level, using one-tailed tests). Here, the estimated magnitude of differences in the odds that foreign-owned MNCs (relative to national firms) choose a HRM emphasis instead of a Technical emphasis are .12 to 1 and instead of an R&D/Engineering emphasis are .09 to 1.

The estimated odds ratios indicate, therefore, that MNCs (whether U.S.- or foreign-owned) are substantially less likely to pursue a HRM workplace emphasis than their national competitors (everything else the same). The estimated odds ratios indicate, furthermore, that U.S.-owned MNCs are less likely than their foreign-owned MNC counterparts to choose a HRM

workplace emphasis across their U.S. manufacturing plants. Thus, as hypothesized, it is inferred that given the global FDI scope of MNCs and the consequent heightened cross-border limitations of successfully diffusing either the architecture or sustainable competitive advantage associated with workplace strategies based on a HRM emphasis (relative to either a Technical or R&D/Engineering emphasis), MNCs are less likely than national firms to pursue a HRM workplace strategy emphasis.

Conclusions

The central findings from the present empirical inquiry are (1) executives formulate alternative workplace strategies differentiated by the integration and degree of emphasis placed on physical and human capital, (2) choices among these workplace strategy alternatives are strongly influenced by market-positioning strategies, and (3) taking into account these differences in market-positioning strategies, MNCs are less likely than national firms to pursue workplace strategies characterized by a HRM emphasis. As hypothesized, the substantially lower odds that MNCs (in comparison to national firms) choose workplace strategies emphasizing HRM capabilities instead of Technical or R&D/Engineering capabilities can be attributed to the greater difficulty faced by MNCs in successfully diffusing the HRM emphasis. That is, given differences in IR systems and workplace cultures across borders, the barriers to replicating either sustainable resource-based dynamic capabilities or the architecture associated with the HRM workplace strategy emphasis are greater than the barriers associated with diffusing either a Technical or R&D/Engineering workplace strategy emphasis.

Although the inferences drawn from the modeling are based on statistically robust estimates of substantial magnitude, the findings and inferences drawn must be viewed with due caution. Whereas the theoretical assumptions, propositions, and broadly stated hypotheses that serve as the basis for the modeling are intended to be generalizable, the empirical evidence itself is based on cross-sectional, survey data from a relatively small sample of automotive supplier firms in the U.S., which presents well-rehearsed limitations, and minimizes generalizability of the empirical findings. In addition, this is the first study to construct a typology of workplace strategies based on the relative emphasis placed on the integration of physical and human capital and to proffer hypotheses about how these functional-level strategies are linked to firms' market-

positioning strategies. As such, the present analysis lacks generalizability without further replication and refinement and may best be considered as exploratory given that the conceptual framework is at the initial stage of development.

With that caveat in mind, a number of general implications can be drawn, nonetheless, from the analysis. First, our understanding of strategic workplace decision-making would be much improved by further theoretical development and empirical inquiry about how executives and managers integrate the design of HRM subsystems with technology subsystems, and how they attempt to align these resultant workplace strategies with business strategies. A richer understanding of the role of HRM as an essential complement to the adoption of new technologies and innovations and as a critical activity to fully tapping the performance-enhancing potential of new technologies and innovations, requires that we look far more closely at the dynamic capabilities and workplace routines associated with the integration of physical and human capital. Both are inextricably intertwined, with the value of one surely dependent on the other, and in combination serve as the basis for formulating successful workplace strategies. Clearly, that is a central thesis underpinning much of the technology/innovation literature, as well as the business strategy literature, especially that grounded in the resource-based perspective.

Many empirical analyses of the effects of HRM practices on performance, consequently, must come into question. Without accounting for differences in technology, the effects being attributed to HRM practices are biased since they are bound to be highly correlated with omitted technology-related attributes. Hence, future analyses of the effects of HRM practices on performance that integrate both technology and HRM attributes would offer more accurate assessments of the interactive and independent effects of alternative HRM practices on performance.

Additionally, some authors have argued that there is a set of high-involvement, high-performance HRM practices that reflect “best practices”, ones generally applicable to all firms. But as just highlighted, the evidence about the effects of HRM practices on performance, against which any best practices must be judged, stands in question. Furthermore, the present analysis provides evidence that any best practices are likely to be dependent on the priority a firm places on technology vis-à-vis HRM, as well as dependent on a firm’s market-positioning emphases.

Without accounting for these differences in workplace and market-positioning emphases, any evidence about what constitutes best practice will be confounding. Indeed, if these best practices universally lead to higher performance, why have they not been more widely adopted and maintained? The evidence presented in this analysis suggests that at least part of the answer to this frequently asked question rests with firm choices to emphasize technology over HRM in developing workplace strategies that are aligned with alternative market-positioning strategies.

Any expectation that firms can readily diffuse best-practice HRM systems abroad is also called into question. As highlighted by the resource-based perspective, it is the non-imitable capabilities and routines embedded in complex social systems at work that provide the greatest opportunities for firm's to create sustainable competitive advantages. As hypothesized herein, firms that pursue HRM workplace emphases will have a more difficult time than others replicating capabilities and routines across borders. However, the true effect of this hard-to-replicate sustainable advantage on the choice of the HRM workplace emphasis is impossible to empirically ascertain since any such advantage (as defined by the resource-based asset perspective) actually cannot be measured. We are, therefore, left pondering whether the lower likelihood that MNCs pursue the HRM workplace emphasis is more or less attributable to the cross-border constraints of diffusing the observable architecture or diffusing the unobservable *sustainable* advantage embedded in the architecture. The evidence, nonetheless, suggests that the prospects are limited that the increasing spread and dominance of MNCs will ultimately lead to the convergence of HRM practices across borders.

ENDNOTES

1. For companies with three or more manufacturing plants (356), separate questionnaires were mailed to top company officers. A Business Strategy questionnaire was mailed to the CEO or President, an Operations Strategy questionnaire was mailed to the top operations executive identified, and a HRM Strategy questionnaire was mailed to the top HRM executive identified. For firms having only one or two manufacturing plants, all three questionnaires were mailed to the CEO or President, who was requested to complete the Business Strategy questionnaire and ask the top operations and HRM executives to complete the Operations Strategy and HRM Strategy questionnaires, respectively. For firms with multiple supplier plants, respondents were instructed to answer all questions as they generally applied to their typical vehicle component manufacturing operations in the U.S.
2. Other researchers have created market-positioning typologies that integrate Porter's cost-differentiation distinction with Miles and Snow's offensive-defensive distinctions; in particular with respect to the strategic functional role of marketing (Walker & Ruekert, 1987; Slater & Olson, 2000).
3. To calculate odds ratios for dummy variables, take the reported exponential reported in Table 5 (provided in parentheses) and divide it by the reported exponential of the benchmark category. To calculate odds ratios for continuous variables, set the variable to alternative values and calculate the exponents. An odds ratio > 1 (say = 5) is interpreted as a ratio of 5-to-1, whereby the odds of choosing the first alternative are 5 times greater than the odds of choosing the second alternative. And an odds ratio < 1 (say = .05) is interpreted as a ratio of .05-to-1, in which the odds of choosing the first alternative are only $1/20^{\text{th}}$ of the odds of choosing the second alternative.
4. This is true whether the number of components is entered in logarithmic or linear form.

TABLE 1
Average Points Allocated to Emphases by Workplace Strategy
(10 Points Total)

Emphasis	Technical	<i>Workplace Strategy</i>		
		R&D/Eng.	HRM	Dual
Latest Technologies and Technical Processes	5.3	2.9	2.8	3.4
R&D and Engineering	2.2	5.0	2.0	3.7
Improvements in HRM	<u>2.5</u>	<u>2.1</u>	<u>5.2</u>	<u>2.9</u>
Total:	10	10	10	10

TABLE 2
Workplace Strategy Emphases by MNC Status

Emphasis (% of sample)	Technical	<i>Workplace Strategy</i>		
		R&D/Eng.	HRM	Dual
National Firms (45%)	41%	20%	24%	15%
U.S.-Owned MNCs (42%)	35%	30%	13%	22%
Foreign-Owned MNCs (13%)	50%	31%	19%	0%

TABLE 3
Selected Technology- & HRM-Based Characteristics by Workplace Strategy Emphases

Characteristics	Technical	Workplace Emphases		Dual
		R&D/Eng.	HRM	
<i>Technology-Based Characteristics</i>				
% New Equipment in Last 5 Years	41%	41%	32%	25%
Weekly Computer Use (>50%)	33%	35%	17%	10%
CNC/Logic Control (>50%)	75%	57%	42%	43%
% Workers with SPC/SQA	61%	81%	54%	70%
% Engineer and R&D Employees	9%	15%	9%	6%
<i>HRM-Based Characteristics</i>				
% in Work Teams	46%	38%	67%	43%
Performance-Based Bonuses?	53%	45%	69%	62%
Rotate Jobs?	77%	60%	77%	63%
Frequently Share Performance Info?	84%	60%	92%	100%

TABLE 4
Market Positioning Priorities by MNC Status

Positioning Priorities	National Firms	U.S.-Owned MNCs	Foreign-Owned MNCs
<i>Cost-Differentiation</i>			
Innovation	15%	13%	6%
Quality	34%	20%	19%
Cost Control	34%	32%	56%
Cost+Differentiation	9%	24%	19%
Quality+Innovation	9%	11%	0%
<i>Offensive-Defensive</i>			
<i>Existing markets...</i>			
Expansion	29%	24%	31%
Protection	20%	28%	50%
Expansion+Protection	51%	48%	19%
New Market Development	48%	44%	31%
<i>Product/Market Scope</i>			
# of Products	102	86	52
Customer Concentration	35%	30%	56%

TABLE 5
Multinomial Logit Estimates of the Odds of Choosing Workplace Strategy Emphases
(s.e. in parentheses)

Variable	<i>Contrast Among Workplace Emphases [ln(P_i/P₀)]</i>					
	<i>Equation 1</i>			<i>Equation 2</i>		
	<i>HRM</i> vs. <i>Tech.</i>	<i>HRM</i> vs. <i>R&D/Eng.</i>	<i>Tech.</i> vs. <i>R&D/Eng.</i>	<i>HRM</i> vs. <i>Tech.</i>	<i>HRM</i> vs. <i>R&D/Eng.</i>	<i>Tech.</i> vs. <i>R&D/Eng.</i>
<i>Cost-Differentiation Emphases</i>						
Innovation	-.72 (1.39)	-4.05* (1.81)	-3.34* (1.39)	1.92 (1.46)	.001 (1.55)	-1.92* (.93)
Quality	-2.64** (1.01)	-4.05** (1.52)	-1.42 (1.27)	<i>benchmark</i>		
Cost+Differentiation	<i>benchmark</i>			2.64** (1.01)	4.05** (1.52)	1.42 (1.27)
Cost Control	.18 (.79)	-2.50 (1.37)	-2.67* (1.27)	2.81** (.93)	1.56 (.99)	-1.26 (.74)
Quality+Innovation	2.213 (1.533)	-2.33 (1.70)	-4.54** (1.69)	4.85** (1.62)	1.73 (1.46)	-3.12* (1.35)
<i>Offensive-Defensive Emphases</i>						
<i>Existing markets...</i>						
Expansion	3.20** (.98)	2.00* (.98)	-1.20 (.79)	<i>benchmark</i>		
Protection	<i>benchmark</i>			-3.20** (.98)	-2.00* (.98)	1.20 (.79)
Expansion+ Protecton	2.01* (.85)	3.88*** (1.02)	1.87** (.74)	-1.19 (.79)	1.88** (.92)	3.07*** (.86)
New Market Development	-2.11** (.77)	-2.51*** (.87)	-.40 (.64)	-2.11** (.77)	-2.51** (.87)	-.40 (.64)

Product/Market Scope Variables

Log (# of Products)	-.01 (.18)	.02 (.21)	.03 (.18)	-.01 (.18)	.02 (.21)	.03 (.18)
Customer Concentration	.02 (.01)	.04** (.02)	.02* (.01)	.02 (.01)	.04** (.02)	.02* (.01)

Organizational Characteristics

Average Size	-.002* (.001)	-.003* (.001)	-.000 (.001)	-.002* (.001)	-.003* (.001)	-.000 (.001)
Single Plant	-1.05 (.86)	-1.67 (.92)	.61 (.72)	-1.05 (.86)	-1.67 (.92)	.61 (.72)
% Unionized	-.00 (.01)	-.02* (.01)	-.02* (.01)	-.00 (.01)	-.02* (.01)	-.02* (.01)
Intercept	-.72 (1.12)	1.94 (1.63)	2.65 (1.41)	-.16 (1.17)	-.12 (1.29)	.35 (1.11)

Equation $\chi^2 = 90.76^{***}$; $n=127$; * = significant $\leq .05$ level, ** = significant $\leq .01$ level, and *** = significant $\leq .001$ level, using two-tailed tests.

TABLE 6

**Odds Ratios of Choosing Workplace Strategy Emphases
(exponentials in parentheses)**

Variable	<i>Contrast Among Workplace Emphases</i>					
	<i>Equation 1</i>			<i>Equation 2</i>		
	<i>HRM vs. Tech.</i>	<i>HRM vs. R&D/Eng.</i>	<i>Tech. vs. R&D/Eng.</i>	<i>HRM vs. Tech.</i>	<i>HRM vs. R&D/Eng.</i>	<i>Tech. vs. R&D/Eng.</i>
<i>Cost-Differentiation Emphases</i>						
Innovation	.42 (.23)	.02 (.17)	.07 (1.38)	6.95 (.22)	1.00 (.17)	.15 (.63)
Quality	.05 (.03)	.02 (.17)	.24 (4.95)	(.03)	benchmark (.17)	(4.32)
Cost+Differentiation	(.66)	benchmark (9.71)	(20.37)	14.20 (.12)	57.63 (9.73)	4.12 (17.80)
Cost Control	.84 (.55)	.08 (.78)	.29 (1.41)	16.91 (.14)	4.75 (.80)	.29 (1.23)
Quality+Innovation	6.44 (4.24)	.11 (1.04)	.23 (4.60)	129.81 (4.15)	5.63 (.95)	.04 (.63)
<i>Offensive-Defensive Emphases</i>						
<i>Existing markets...</i>						
Expansion	24.78 (1.12)	7.38 (.47)	.33 (.42)	(1.12)	benchmark (.47)	(.42)
Protection	(.05)	benchmark (.06)	(1.49)	.04 (.05)	.14 (.06)	3.33 (1.49)
Expansion+ Protecton	7.53 (.34)	5.06 (.32)	6.46 (.01)	.30 (.33)	6.54 (3.11)	21.48 (9.62)
New Market Development	.12 (.08)	.08 (.16)	.67 (1.87)	.12 (.08)	.08 (.16)	.67 (1.87)

Product/Market Scope Variables

Customer

Concentration	(1.02)	(1.04)	(1.03)	(1.02)	(1.04)	(1.03)
@ 10%	.18	.23	1.24	.18	.23	1.24
@ 75%	.51	3.22	6.27	.51	3.22	6.27

Organizational Characteristics

Average Size	(1.00)	(1.00)	(1.00)	(1.00)	(1.00)	(1.00)
@ 100	.68	1.83	2.69	.68	1.83	2.69
@ 1000	.09	.18	1.96	.09	.18	1.96
%Unionized	(1.00)	(.98)	(1.02)	(1.00)	(.98)	(1.00)
@ 0%	.27	1.20	4.30	.27	1.20	4.30
@ 100%	.26	.17	.63	.26	.17	.63

Odds ratios are omitted for the variables # of Products and Single Plant since no estimates against these variables obtained statistical significance.

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