

# Getting More from Cross-Functional Fairness and Product Innovativeness: Contingency Effects of Internal Resource and Conflict Management

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*This research investigates how organizations' internal resource and conflict management influence the relationship between cross-functional fairness and product innovativeness. It considers two contextual dimensions of both internal resource management (job rotation and internal rivalry) and conflict-handling mechanisms (integrating and avoiding) as key components of the firm's ability to convert fair interactions, across departments, into product innovativeness. The tests of the study's hypotheses, based on a sample of more than 200 Canadian-based firms, confirm that the cross-functional fairness–product innovativeness relationship is amplified at higher levels of job rotation and integrative conflict handling but suppressed at higher levels of internal rivalry and avoidance of conflict handling. The authors discuss the study's implications and future research directions.*

Competitive global markets increasingly demand that organizations take an innovative posture (de Brentani, Kleinschmidt, and Salomo, 2010). To obtain a sustainable competitive advantage, organizations competing globally thus must introduce innovative products and services rapidly and effectively (Fallah and Lechler, 2008). Their innovative capability in turn is critically informed by their ability to access and integrate technology and markets that are dispersed throughout the world and across different parts of the organizations (Doz, Santos, and Williamson, 2001; Moon, 2010). Significantly, innovation success in such a global context demands that organizations effectively manage the exchanges that take place between their research and development (R&D) and marketing functions (Almeida and Phene, 2004). One particular feature thereof is the level of organizational justice, which may manifest itself in the propensity of geographically dispersed units to provide adequate justification to one another when communicating about critical decisions, to base their decisions on fair procedures, or to receive rewards that are in line with their contributions (Yi and Suh, 2001). To delve deeper into the origins of firms' global competitive advantage, it is therefore of critical importance to understand how their innovative capacity is shaped by the fairness of their intra-organizational interactions, and particularly how the innovation potential inherent in such

interactions might be promoted or impeded (De Clercq, Thongpapanl, and Dimov, 2011).

Beyond the particular challenges associated with operating in a global context, innovation literature suggests that collaboration among functional departments provides a necessary platform for new product ideas to emerge within organizations (e.g., McDonough, 2000). To create new products, firms must rely on the contributions of different key functional areas and stimulate interactions between R&D and marketing managers (De Luca and Atuahene-Gima, 2007; Griffin and Hauser, 1996). Cross-functional interaction typically appears in innovation literature as the level of communication and coordination among functional departments (Atuahene-Gima, 2005) or else the quality of knowledge exchange and involvement among managers (Song, Xie, and Dyer, 2000). The *fairness* inherent in intra-organizational interactions represents an important characteristic, yet it has received scant attention in the context of cross-functional collaboration. Interactional fairness captures the extent to which managers believe that they receive high-quality interpersonal treatment when interacting with others (Bies and Moag, 1986; Qiu, Qualls, Bohmann, and Rupp, 2009). We integrate the notions of cross-functional interaction and interactional fairness to consider the role of *cross-functional fairness* and address the following key questions: How and in what conditions does fairness in cross-functional interactions affect product innovativeness?

The level of fairness in the interactions between organizational units can have a direct impact on firms' product innovativeness; it facilitates the combination of

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different function-specific knowledge within the organization as a prime enabler of innovation (Thieme, Song, and Shin, 2003). While the issue of fairness plays a critical role in firms' innovative pursuits in different parts of the world—including North America (Qiu et al., 2009) and Europe (Bstieler, 2006)—whether and how this role might change in view of the need for organizations to reconcile their internal rival positions or perspectives remains an open question. Divergent positions likely emerge as organizations, in their innovative pursuits, strive to balance their long-term survival and short-term performance (March, 1991). Significantly, firms' innovative pursuits depend in important ways on how they manage their *resources* internally (Menguc and Auh, 2006), such as the flexibility with which their human resource base rotates across different functional departments (Hong and Vai, 2008), the extent to which different functions depend on one another's resources (Fisher, Maltz, and Jaworski, 1997), or the internal competition for company resources (Luo, Slotegraaf, and Pan, 2006). Further, interdepartmental dependencies and interactions inevitably create *conflicts* (Dyer and Song, 1998; Song, Dyer, and Thieme, 2006), so the ability to develop new products also depends on how organizations respond to conflict situations, particularly in terms of whether they apply cooperative or competitive approaches to resolve conflict (Noh, 2010; Rahim, 1983; Tjosvold and Chia, 1989; Xie, Song, and Stringfellow, 1998).

This study therefore situates the relationship between cross-functional fairness and product innovativeness in the context of two key managerial activities within the organization: resource management (which consists of job rotation and internal rivalry) and conflict management (which involves integrative and avoidance approaches to conflict resolution). Job rotation reflects the extent to

which managers rotate across different departments (Campion, Cheraskin, and Stevens, 1994). As a cooperative resource management tool, it enhances the development of mutual understanding and appreciation within the firm's human resource base (De Weerd-Nederhof, Pacitti, da Silva Gomes, and Pearson, 2002; Hong and Vai, 2008). Internal rivalry instead reflects a competitive element of intraorganizational functioning, in that it captures the perceived degree of competition for company resources, such as financial capital, personnel, or top management attention (Luo et al., 2006). In turn, an integrative approach to conflict is a cooperative conflict management mechanism, marked by high levels of concern for other departments, such that different functions attempt to bring issues into the open, resolve a particular conflict, and investigate to find a solution agreeable to all parties (Song et al., 2006). In contrast, an avoidance approach is competitive in nature and conveys low concern for other departments; managers attempt to keep differences of opinions quiet and the solutions to problems to themselves, even if the other departments could benefit from them (Song et al., 2006).

Our research complements extant work on the impact of internal resource and conflict management on innovation outcomes and performance (Luo et al., 2006; Song et al., 2000), in that it considers their role as context creators for cross-functional interaction and collaboration. It thus builds on recent work that emphasizes that such collaboration enhances product innovativeness only when matched with appropriate internal contextual situations (De Clercq et al., 2011). Although cross-functional fairness implies that various departments might openly share knowledge with one another (Rupp and Cropanzano, 2002; Skarlicki and Folger, 1997), the extent to which this potential can be realized as a means to enhance product innovativeness depends on the effective combination of knowledge across different departments (Alegre and Chiva, 2008; Sherman, Berkowitz, and Souder, 2005). We explicate how different facets of organizations' resource and conflict management may play instrumental roles in unlocking the innovation potential inherent in fair, cross-functional relationships.

## Theory and Hypotheses

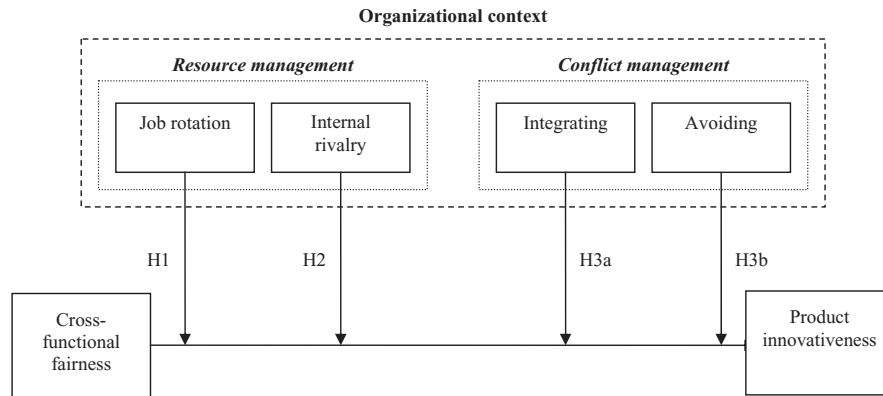
We seek to understand the internal contingencies that underlie the cross-functional fairness–product innovativeness relationship in the context of collaboration between midlevel managers responsible for functional areas such as R&D, engineering, marketing, or sales, or “functional managers.” These managers oversee the

### BIOGRAPHICAL SKETCHES

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**Figure 1. Conceptual Model**

subprocesses involved in implementing an organization's higher level, strategic decisions (Floyd and Wooldridge, 1997), and epitomize the enactment of a firm's innovative pursuits.

Ideally, regardless of its location, a firm should encourage interactions between R&D and marketing departments to develop new products and services that can serve both its domestic and international markets. These interactions vary, however, in the extent to which the exchange parties perceive that they receive care and respect in their treatment by others (Bies and Moag, 1986). Their perceptions might be enhanced if information exchange involves truthful details, the parties refrain from prejudicial statements, and decisions are well justified (Cropanzano, Prehar, and Chen, 2002). Cross-functional fairness—which is the extent to which functional managers feel that they are treated with respect by peers in other departments<sup>1</sup>—increases the potential for the exchange of ideas and function-specific knowledge, deemed necessary for product innovativeness (Thieme et al., 2003). When functional managers treat one another with respect and care for others' feelings and needs, they more likely are willing to discuss contentious issues and look beyond self-interests throughout the product innovation process (Qiu et al., 2009). Absent such cross-functional fairness, managers may withhold relevant market and technical information that could allow innovative product ideas to emerge within the organization (Kim and Mauborgne, 1998). Accordingly, this study starts with the intuitive

<sup>1</sup> Interactional fairness is distinct from distributive fairness and procedural fairness (Colquitt, 2001; Qiu et al., 2009). Distributive fairness captures the extent to which managers perceive particular outcomes (e.g., rewards and recognition) as in line with their contributions compared with those of relevant others; procedural fairness refers to the perception that the procedures used to reach a particular outcome are fair (Colquitt, 2001). In contrast, interactional fairness captures the feeling that the person is respected and cared for during interactions with others.

premise that cross-functional fairness enhances firms' ability to develop innovative products (Bstieler, 2006; Qiu et al., 2009) and focuses on internal contingencies that may moderate this relationship.

Even if cross-functional fairness increases the motivation among functional managers to collaborate and thus implies the potential for enhanced knowledge exchange (Rupp and Cropanzano, 2002), the effective combination of knowledge across departmental borders is fraught with various challenges. Different departments possess distinct "thoughtworlds" (Griffin and Hauser, 1996) and may not understand others' language, which results in different interpretations of problems that arise during the product innovation process (De Luca and Atuahene-Gima, 2007). Further, sharing and combining knowledge with other departments, although necessary for product innovativeness, may create a sense of relinquishing power to peers—even peers perceived as considerate and well meaning (Kim and Mauborgne, 1998). Such a perception may increase a functional manager's propensity to see his or her own department as a personal turf, whose resources need protection from outsiders (Luo et al., 2006). Finally, different departments might have conflicting opinions about which innovative solutions will best improve existing situations, so cross-functional interactions during the new product development process could be marked by strong disagreements and battles that require resolution (Song et al., 2006). We argue that the ability to combine knowledge across departments effectively, and thus fully reap the benefits of fair cross-functional interactions for the development of innovative products, depends on organizational context features that capture internal resource management (job rotation and internal rivalry) and conflict management (integrating and avoiding).

The conceptual model appears in Figure 1, and the subsequent discussion first considers the moderating

effects of two aspects of firms' internal resource management (job rotation and internal rivalry), followed by the two conflict management approaches (integrating and avoiding).

### *Moderating Effect of Job Rotation*

The positive relationship between cross-functional fairness and product innovativeness should be stronger for higher levels of job rotation. Job rotation leads to enhanced learning and skill acquisition (Campion et al., 1994; Kusunoki and Numagami, 1998) and an improved ability to be introspective about the strengths and weaknesses of different functional departments (Howard and Bray, 1988). Eriksson and Ortega (2006) indicate that introducing a job rotation system enables organizations to learn more about the potential of each of their key managers, which may help the organization better leverage intraorganizational relationships to support desirable outcomes. Similarly, in their case study of a Japanese R&D-oriented manufacturing firm, Kusunoki and Numagami (1998) find that job rotation is an effective way to exploit relationships with colleagues, particularly in the pursuit of innovative goals, and ultimately to achieve a sustained competitive advantage. Rotating managers across different functional departments also helps the organization develop a better understanding of interdependencies across its different departments (Campion et al., 1994; Fisher et al., 1997; Hong and Vai, 2008). Thus, job rotation can help functional managers understand how different pieces of knowledge, dispersed across the organization, relate (Campion et al., 1994; De Weerd-Nederhof et al., 2002; Hong and Vai, 2008), as well as how to integrate these pieces effectively and creatively to generate new products. In essence, job rotation provides a useful tool that helps train functional managers to become more "multiknowledge individuals" who are crucial and desirable in any cross-functional collaboration (Park, Lim, and Birnbaum-More, 2009).

In the same vein, job rotation should increase the extent to which cross-functional fairness can be leveraged to support product innovativeness because sharing human resources across functional departments can induce a common "dominant logic" or organization-wide preference for how to process knowledge and solve problems (Lane and Lubatkin, 1998). Such logic creates a deeper understanding of the knowledge that is most critical for solving a particular problem or how to combine knowledge in a synergistic manner (Lane and Lubatkin, 1998). In contrast, in organizations marked by low levels of job rotation, individual managers may be myopic toward

opportunities for effective knowledge sharing (De Weerd-Nederhof et al., 2002) and therefore less able to create synergistic value from different pieces of knowledge across functional areas (Floyd and Lane, 2000). Ultimately, without job rotation, individual managers may doubt that fair relationships can be leveraged across various functional areas, which would mitigate the innovation potential inherent in such fairness (Qiu et al., 2009).

*H1: The relationship between cross-functional fairness and product innovativeness is moderated by the level of job rotation, such that this relationship is stronger for higher levels of job rotation.*

### *Moderating Effect of Internal Rivalry*

Organizations differ in the extent to which managers of different functional areas perceive one another as competitors for company resources (Luo et al., 2006). Such rivalry therefore is an important mechanism governing intraorganizational knowledge sharing (Maltz and Kohli, 1996). We argue that the effectiveness of cross-functional fairness for product innovativeness should be suppressed at higher levels of internal rivalry, for several reasons. First, when functional managers perceive that they must fight for company resources, they are more sensitive to the chance that other departments may take advantage of their own shared knowledge (Tsai, 2002). Internal rivalry also may cause them to react more negatively to the interference of other departments in their decisions, which hampers the extent to which close interdepartmental relationships can serve to develop innovative products. They may suspect that peers in other departments, even those with whom they have considerate and respectful relationships, make decisions geared toward gaining more company resources for themselves, which harms the focal manager's own interests (Gupta and Govindarajan, 2000). Thus, with higher perceptions of rivalry between departments, individual managers likely feel more vulnerable to being misled by others, and their main focus may be the protection of their own turf (Moorman, Zaltman, and Deshpande, 1992) rather than the effective combination of function-specific knowledge.

Second, high levels of internal rivalry may reduce confidence that one's own opinions will even be taken into consideration by other departments (Tsai, 2002), which decreases managers' forthcoming expression of their viewpoints to colleagues (Larsson, Bengtsson, Henriks-son, and Sparks, 1998). Third, extant research on cross-functional collaboration suggests that when the goals of



different parties appear to be in competition, individual managers exhibit less willingness to share complete information (McDonough, 2000; Xie, Song, and Stringfellow, 2003), which reduces the innovation potential inherent in cross-functional fairness.

*H2: The relationship between cross-functional fairness and product innovativeness is moderated by the level of internal resource competition, such that this relationship is weaker for higher levels of internal resource competition.*

### *Moderating Effect of Conflict Handling*

In addition to resource management, two firm conflict management approaches may also play moderating roles: integrative and avoidance. First, to the extent that organizations use an integrative conflict-handling approach for certain decisions, functional managers voice their opinions about their expertise and compare it with that of colleagues from other departments (Song et al., 2006; Xie et al., 1998). Absent such integration, functional managers likely try to resolve disagreements by focusing on their own function-specific tasks and skills, with little interest in leveraging their relationships with others to achieve product innovation (Devinney, 1995). We thus expect cross-functional fairness to be more instrumental in attaining product innovativeness, to the extent that conflict is managed in an integrative manner.

An integrative approach implies more concern for other departments, such that different functional areas likely work together to reach a win–win solution when conflict arises (Rahim, 1983; Song et al., 2006). The knowledge needed to solve conflict likely gets brought out into the open, and the conflict situation prompts objective judgments of potential solutions (Dyer and Song, 1998). Thus, integrative conflict handling aims to “expand the pie” rather than to divide it (Xie et al., 1998). In the context of this study, it stands to reason then that fair and harmonious interactions between functional departments provide a fertile ground for product innovativeness, to the extent that there is a focus on the development of joint solutions. Although such an integrative conflict-handling approach may require some initial time investments, the resulting commitment across functions can speed up the exploitation of harmonious relationships to develop innovative products (Xie et al., 1998). Similarly, the integrative approach is characterized by departmental interconnectedness and team spirit (Menon, Bharadwaj, and Howell, 1996), which promote greater motivation and ability to combine disparate pieces of

function-specific knowledge into the innovative creation of jointly discovered solutions.

*H3a: The relationship between cross-functional fairness and product innovativeness is moderated by the level of integrative conflict handling, such that this relationship is stronger for higher levels of integrative conflict handling.*

Second, we hypothesize that the use of an avoidance conflict-handling approach will hamper the instrumentality of cross-functional fairness for enhancing product innovativeness. First, the use of an avoidance conflict-handling approach is manifest when functional departments exhibit a low concern for one another’s needs and interests (Rahim, 1983; Song et al., 2006). This approach—which essentially is competition driven (Tjosvold and Chia, 1989)—often leads to poor intraorganizational relationships (Rahim, 1983) and reduces the degree to which these relationships can be leveraged to achieve desired organizational outcomes (Song and Parry, 1999). For instance, such lack of concern for other departments can hamper the effective exploitation of intraorganizational relationships such that it increases the odds of product innovation failures (Souder, 1987).

Second, without a thorough debate about decision alternatives, organizations may fail to address critical issues that arise in cross-functional interactions during the early stages of the product development process, even if these interactions are marked by mutual respect and consideration, in which case they might focus on ideas that will be killed in subsequent stages (Xie et al., 1998). Similarly, conflict avoidance may decrease the innovation potential inherent to fair cross-functional interactions because the lack of involvement with other departments may make managers less *aware* of how they can integrate their knowledge with that of others to generate innovative product ideas. Moreover, interactions between parties who avoid confrontation are marked by fewer repeated efforts to exchange information (Blankenburg, Eriksson, and Johanson, 1999), lower receptivity to exchange partners’ knowledge (Tjosvold and Chia, 1989), and ultimately fewer conscientious efforts to combine function-specific knowledge to realize the innovation potential inherent to harmonious cross-functional relationships.

*H3b: The relationship between cross-functional fairness and product innovativeness is moderated by the level of avoidance conflict handling, such that this relationship is weaker for higher levels of avoidance conflict handling.*

## Research Methods

### Sample and Data Collection

Similar to approaches used in prior research (e.g., Simons and Peterson, 2000; Song et al., 2006), we employed a single-respondent design and obtained contact information about managers, active in either an R&D- or marketing-related function, who work for a Canadian-based firm. Because this is the first empirical study that examines the intricate interplay between cross-functional fairness on the one hand and organizations' internal resource and conflict management on the other hand, we undertook a single-country, Canadian-based study to avoid the possible confounding influence of culture-driven factors. We subsequently discuss, in the Limitations and Future Research section, how our findings might inform further investigations of global innovation management, particularly in the context of corporations with organizational units in different countries.

We sent survey instruments to these managers, using a random selection of 1500 firms from a database maintained by a private organization. The data collection relied on Dillman's (1978) total design method. We prepared a mailing packet that contained (1) a cover letter addressed personally to the functional managers of the sampled firms, (2) a questionnaire, and (3) a postage-paid return envelope. Two weeks after the initial mailing, we conducted "thank you" calls to those who had responded and reminder calls to those who had not. Four weeks after the initial mailing, we sent replacement questionnaires to nonrespondents. Some initially selected firms were unfit for the final sample because they were not active any more, had moved and their new address could not be identified, or no longer employed the selected respondents. We ended up with 950 potential respondents and received 232 completed surveys, for a response rate of 24%. No substantial differences mark respondents and nonrespondents or early and late respondents (Armstrong and Overton, 1977).<sup>2</sup>

### Construct Measures

Table 1 contains the measures used in the analysis. In line with the research focus, these measures assess respon-

<sup>2</sup>Following prior research (Yli-Renko, Autio, and Sapienza, 2001), the test of the validity of the study's key constructs employed a follow-up survey, conducted six months after the initial one. The follow-up survey contained a shortened format of the original questionnaire, such that each construct relied on a proxy item, different from the specific items in the original survey, which captured the content domain of the construct. The 78 responses to the follow-up survey indicated that all validation items correlated positively with the original measures.

dents' perceptions about the relationship between the R&D- and marketing-related functions in their organizations, and the questions in the survey were worded to capture phenomena that take place at the firm level rather than the functional manager level.

*Product innovativeness.* The items to measure product innovativeness reflect the extent to which the firm develops new products and services (e.g., accepts demands that go beyond existing products and services; experiments with new products or services in the local market), which are adapted from Jansen, Van Den Bosch, and Volberda (2006) and Uzzi and Lancaster (2003). The measure ( $\alpha = .80$ ) correlates positively with its single-item counterpart from the follow-up survey ( $r = .44, p < .001$ ). In confirmation of this measure's predictive validity, it correlates positively with income growth over the past year ( $r = .27, p < .001$ ), according to data gathered from a secondary source and pertaining to a subset ( $n = 70$ ) of firms in the sample.

*Cross-functional fairness.* The measure of cross-functional fairness is adapted from prior research that examines interactional fairness across individual managers (Colquitt, 2001; Masterson, 2001). For instance, respondents indicated whether people in their organization are treated in a polite manner or with kindness and consideration by colleagues in other functions, as well as whether people's rights as working partners are respected by the other function. The measure ( $\alpha = .87$ ) correlates positively with its single-item counterpart from the follow-up survey ( $r = .38, p < .001$ ).

*Job rotation.* To measure the level of job rotation, this study used a three-item scale adapted from Xie et al. (2003). Respondents indicated the extent to which employees rotate across functional areas and whether planned job rotation is emphasized as a device for developing employees' capabilities. The measure ( $\alpha = .80$ ) correlates positively with its single-item counterpart from the follow-up survey ( $r = .33, p < .01$ ).

*Internal rivalry.* The internal rivalry measure includes five items that reflect the level of competition for company resources among functional departments, all adapted from Luo et al. (2006). For example, respondents rated the extent to which people in different functions frequently compete with one another for the same resources (e.g., capital and personnel) or frequently compete for more attention and time from top executives.

**Table 1. Constructs and Measurement Items**

|  | Factor Loading    | t-Value |
|--|-------------------|---------|
| Product innovativeness ( $\alpha = .80$ ; CR = .81; AVE = .51)   |                   |         |
| Our company accepts demands that go beyond existing products and services.   | .597              | 8.068   |
| We focus on inventing new products and services.   | .773              | 10.036  |
| We experiment with new products and services in our local market.  | .745 <sup>a</sup> |         |
| We commercialize products and services that are completely new to our company.   | .740              | 9.948   |
| Cross-functional fairness ( $\alpha = .87$ ; CR = .87; AVE = .64)  |                   |         |
| <i>Generally speaking, in the working relationship between the R&amp;D- and marketing-related functions . . .</i>                |                   |         |
| People are treated in a polite manner by the other function.   | .881              | 17.714  |
| People are treated with kindness and consideration by the other function.  | .877 <sup>a</sup> |         |
| People's personal biases are suppressed and properly managed by the other function.  | .581              | 9.464   |
| People's rights as working partners are respected by the other function.   | .811              | 14.978  |
| Job rotation ( $\alpha = .80$ ; CR = .84; AVE = .64)   |                   |         |
| Planned job rotation of employees is emphasized as a device for developing employees' capabilities.                              | .801 <sup>a</sup> |         |
| Employees are rotated across functional areas.   | .989              | 11.508  |
| People in a given functional department (e.g., R&D, marketing) sometimes take on roles in another functional department.         | .549              | 8.859   |
| Internal rivalry ( $\alpha = .90$ ; CR = .91; AVE = .67)   |                   |         |
| <i>Generally speaking, in the working relationship between the R&amp;D- and marketing-related functions . . .</i>                |                   |         |
| Protecting one's functional turf is considered a way of life in our company.   | .750              | 11.304  |
| The two functions frequently compete with each other for the same resources (e.g., capital, personnel).                          | .740 <sup>a</sup> |         |
| The two functions frequently compete with each other for more attention and time from top executives.                            | .858              | 13.407  |
| Tensions frequently run high during talks about how resources should be distributed between the two functions.                   | .856              | 13.190  |
| The two functions frequently try to obtain more time and attention from senior managers, even at the cost of the other function. | .871              | 13.415  |
| Integrating conflict handling ( $\alpha = .88$ ; CR = .88; AVE = .65)  |                   |         |
| <i>Generally speaking, when conflicts arise between people in R&amp;D- and marketing-related functions . . .</i>                 |                   |         |
| The two functions try to investigate the issue to find a solution agreeable to both.   | .848 <sup>a</sup> |         |
| The two functions try to bring all issues into the open to resolve them in the best way.   | .924              | 17.701  |
| The two functions encourage others to express their feelings and views fully.  | .734              | 12.686  |
| The two functions look for middle ground to resolve disagreements.   | .701              | 12.125  |
| Avoiding conflict handling ( $\alpha = .85$ ; CR = .85; AVE = .59)   |                   |         |
| <i>Generally speaking, when conflicts arise between people in R&amp;D- and marketing-related functions . . .</i>                 |                   |         |
| The two functions try to keep differences of opinion quiet.  | .714              | 10.078  |
| The two functions avoid openly discussing disputed issues.   | .782              | 10.674  |
| The two functions believe it is better to keep feelings to themselves rather than create hard feelings.                          | .841              | 12.042  |
| The two functions look for ways to bypass unpleasant exchanges.  | .733 <sup>a</sup> |         |

Notes: <sup>a</sup> Initial loading was fixed to 1 to set the scale of the construct. CR, construct reliability; AVE, average variance extracted.

The measure ( $\alpha = .90$ ) correlates positively with its single-item counterpart from the follow-up survey ( $r = .31, p < .01$ ).

*Integrating conflict handling.* Drawing on prior research on conflict resolution management (Dyer and Song, 1998), the measure of the extent to which the firm uses an integrative approach to conflict management consists of four items. Respondents indicated, for example, whether when conflicts arise, people in R&D- and marketing-related functions try to bring all issues into the open to resolve them in the best way or encourage others to express their feelings and views fully. The measure ( $\alpha = .88$ ) correlates positively with its

single-item counterpart from the follow-up survey ( $r = .35, p < .01$ ).

*Avoiding conflict handling.* The use of an avoidance approach to conflict management consists of four items adapted from Dyer and Song (1998). For example, respondents indicated the extent to which people in different functions, when conflicts arise, try to keep differences of opinion quiet or avoid openly discussing disputed issues. The measure ( $\alpha = .85$ ) correlates positively with its single-item counterpart from the follow-up survey ( $r = .26, p < .05$ ). We also note that the correlation between the two conflict mechanisms is moderate ( $r = -.35$ ), in support of our

argument that these two mechanisms are not mutually exclusive.

*Control variables.* Several control variables take into account possible alternative explanations for variations in product innovativeness and help avoid model misspecifications. First, the control for *firm size* used a log transformation of the number of full-time employees. Second, the *firm age* control was measured as the number of years the firm has been in business. Third, to account for the possible variation across industries in terms of their maturity and associated propensity for product innovativeness, this study controls for the *industry* of the firm. Fourth, the study controls for whether the respondent represents the R&D or marketing *function*.

### Assessing the Reliability and Validity of Measures

A confirmatory factor analysis (CFA) of a six-factor measurement model that includes the six key constructs of the conceptual model reveals factor loadings greater than .40, normalized residuals less than 2.58, and modification indices less than 3.84 (Anderson and Gerbing, 1988). No deletions of scale items are needed to improve the model fit. The measurement model fits the data well:  $\chi^2_{(236)} = 344.23$ , goodness-of-fit index (GFI) = .90, Tucker–Lewis index (TLI) = .96, confirmatory fit index (CFI) = .97, and root mean squared error of approximation (RMSEA) = .05. The convergent validity of the scales is affirmed by the significant factor loadings in the measurement model ( $t > 2.0$ ) and the magnitude of the average variance extracted (AVE) estimates (equal to or greater than .50). Furthermore, the constructs indicate discriminant validity: None of the confidence intervals for the correlations between constructs includes 1.0 ( $p < .05$ ) (Anderson and Gerbing, 1988), and the AVE estimates of the constructs are greater than the squared correlations between the corresponding pairs of constructs (Fornell and Larcker, 1981).

As a check of whether common method bias is a concern, a CFA for a single-factor model reveals a poor fit with the data ( $\chi^2_{(251)} = 1702.07$ , GFI = .58, TLI = .49, CFI = .53, RMSEA = .16), significantly worse ( $\Delta\chi^2_{(15)} = 1357.84$ ,  $p < .001$ ) than the fit of the six-factor model. Furthermore, several pairs of structural equation models (SEM) enable a comparison of a model that includes an interaction term with another model with an added common method factor (Song et al., 2006). For example, for the SEM that includes the cross-functional fairness  $\times$  job rotation term (i.e., equivalent of model 4; Table 3), the comparison reveals virtually no differences

in the fit indices between the model without the common method factor ( $\chi^2_{(83)} = 132.57$ ; GFI = .94, TLI = .92, CFI = .95, RMSEA = .05) and the corresponding model with the added common method factor ( $\chi^2_{(82)} = 131.67$ ; GFI = .94, TLI = .92, CFI = .95, RMSEA = .05). The chi-square difference between the two models is not significant ( $\Delta\chi^2_{(1)} = .90$ ; ns), and only small changes in the size and significance of the paths across the two models emerge. The same pattern of results emerges for the SEM equivalents of the models that include the other two-way interactions. These results, together with arguments that common method bias is less prevalent in studies using highly educated respondents and multi-item scales (Bergkvist and Rossiter, 2007) and for moderating effects rather than main effects (Simons and Peterson, 2000), alleviate concerns related to the use of a common respondent in this study.<sup>3</sup>

### Analysis and Results

Table 2 includes the correlations and descriptive statistics, and Table 3 shows the hierarchical regression results. After mean-centering the interacting variables, the variance inflation factor (VIF) values are far below the threshold of 10, which suggests that multicollinearity is not a problem in these analyses (Aiken and West, 1991). Model 1 contains only the control variables, model 2 adds the effect of cross-functional fairness, and model 3 adds the direct effects of job rotation, internal rivalry, and the two conflict management approaches. Model 2, consistent with the starting point of the theoretical exposition, reveals a positive effect of cross-functional fairness on product innovativeness ( $\beta = .221$ ,  $p < .01$ ), and the fairness variable explains additional variance ( $\Delta R^2 = .033$ ,  $p < .01$ ). In model 3, of the four contextual variables, only the integrative and avoidance conflict handling variables have significant, direct effects on product innovativeness (positive [ $p < .10$ ] and negative [ $p < .01$ ], respectively).

H1–H3b predict moderating effects of the two internal resource management variables (job rotation and internal rivalry) and two conflict management variables (integrating and avoiding) on the relationship between cross-functional fairness and product innovativeness. To test these hypotheses, individual interaction terms enter models 4–7. Each of the interaction terms improves the explanatory power of the models. Model 4 reveals a

<sup>3</sup> The proxy item in the follow-up survey, which differs from the items used in the first survey, increases confidence that the positive and significant correlations between the original and the follow-up items provide evidence against the presence of common method bias (Yli-Renko et al., 2001).



**Table 2. Descriptive Statistics and Correlations ( $n = 232$ )**

| —                                | 1      | 2      | 3      | 4      | 5      | 6    | 7     | 8     | 9      | 10     | 11   | 12   | 13   | 14   | 15  | 16  |
|----------------------------------|--------|--------|--------|--------|--------|------|-------|-------|--------|--------|------|------|------|------|-----|-----|
| 1. Product innovativeness        |        |        |        |        |        |      |       |       |        |        |      |      |      |      |     |     |
| 2. Cross-functional fairness     | .21**  |        |        |        |        |      |       |       |        |        |      |      |      |      |     |     |
| 3. Job rotation                  | .16*   | .19**  |        |        |        |      |       |       |        |        |      |      |      |      |     |     |
| 4. Internal rivalry              | -.20** | -.63** | -.20** |        |        |      |       |       |        |        |      |      |      |      |     |     |
| 5. Integrating conflict handling | .29**  | .59**  | .23**  | -.58** |        |      |       |       |        |        |      |      |      |      |     |     |
| 6. Avoiding conflict handling    | -.28** | -.24** | -.08   | .37**  | -.35** |      |       |       |        |        |      |      |      |      |     |     |
| 7. Company size                  | -.04   | .04    | .05    | -.10   | .04    | -.07 |       |       |        |        |      |      |      |      |     |     |
| 8. Company age                   | -.17*  | .00    | -.01   | -.03   | -.03   | .04  | .52** |       |        |        |      |      |      |      |     |     |
| 9. Industry: manufacturing       | .05    | .13    | -.02   | -.13*  | .06    | -.01 | .11   | .09   |        |        |      |      |      |      |     |     |
| 10. Industry: services           | .02    | -.06   | -.07   | .05    | .02    | -.03 | -.16* | -.13* | -.58** |        |      |      |      |      |     |     |
| 11. Industry: mining             | -.08   | -.11   | .04    | .02    | -.07   | -.02 | -.06  | -.10  | -.31** | -.20** |      |      |      |      |     |     |
| 12. Industry: construction       | .12    | .07    | .06    | -.12   | .05    | .02  | .04   | .05   | -.13   | -.08   | -.04 |      |      |      |     |     |
| 13. Industry: transportation     | -.11   | -.02   | .05    | .10    | -.04   | .03  | .10   | .01   | -.23** | -.15*  | -.08 | -.03 |      |      |     |     |
| 14. Industry: wholesale          | .06    | .03    | .12    | -.02   | .05    | -.01 | -.07  | -.08  | -.19** | -.12   | -.07 | -.03 | -.05 |      |     |     |
| 15. Industry: retail             | .03    | -.07   | -.04   | .08    | -.03   | .02  | .08   | .35** | -.16*  | -.10   | -.05 | -.02 | -.04 | -.03 |     |     |
| 16. Marketing-related function   | -.06   | .00    | -.136* | .07    | -.07   | .02  | .17*  | .19** | .03    | -.04   | -.08 | .07  | -.01 | .03  | .00 |     |
| Mean                             | 3.62   | 3.68   | 2.49   | 2.34   | 3.54   | 2.47 | 5.65  | 32.87 | .47    | .27    | .09  | .02  | .06  | .04  | .03 | .49 |
| Standard deviation               | .87    | .72    | .91    | .97    | .77    | .79  | 1.99  | 36.31 | .50    | .45    | .29  | .13  | .23  | .19  | .16 | .50 |

Notes: \*\*  $p < .01$ ; \*  $p < .05$ .

positive and significant interaction effect between cross-functional fairness and job rotation on product innovativeness ( $\beta = .195$ ,  $p < .01$ ). In model 5, the interaction effect between cross-functional fairness and internal rivalry on product innovativeness is negative and significant ( $\beta = -.170$ ,  $p < .01$ ), in support of H2. Model 6 supports H3a; the interaction effect between cross-functional fairness and integrative conflict handling on product innovativeness is positive and significant ( $\beta = .145$ ,  $p < .05$ ). Finally, in model 7, we find support for H3b, which suggests that to the extent an organization relies on avoidance conflict handling, the relationship between cross-functional fairness and product innovativeness will be suppressed, although the statistical significance of this interaction effect is weak ( $\beta = -.179$ ,  $p < .10$ ).

## Discussion

### Theoretical Implications

To determine how firms can create a global competitive advantage, this study investigates the internal boundary conditions that influence how cross-functional relation-

ships can enhance product innovativeness. To this end, this investigation examines how a firm's ability to leverage such relationships in the form of product innovativeness depends on the extent to which the internal context facilitates the effective combination of knowledge, particularly with regard to the role of its internal resources and conflict management. In considering the role of two facets of intraorganizational cooperation (job rotation and integrating conflict handling) and competition (internal rivalry and avoiding conflict handling), this study focuses on the interplay between these contextual factors and the *fairness* dimension of cross-functional interactions (Bies and Moag, 1986; Qiu et al., 2009)—that is, the extent to which functional managers perceive that they are treated with respect and consideration by colleagues in other departments. Although international fairness increases managers' motivation to be involved with others and freely exchange knowledge (Rupp and Cropanzano, 2002; Skarlicki and Folger, 1997), the effectiveness of such knowledge combination for product innovativeness may not materialize automatically. Several hurdles for effective knowledge combination exist, including a lack of understanding of the assumptions underlying others' knowledge (De Luca and Atuahene-Gima, 2007), the

**Table 3. Regression Results (Dependent Variable: Product Innovativeness) (*n* = 232)**

| —  | Model 1           | Model 2           | Model 3           | Model 4           | Model 5           | Model 6           | Model 7            |
|--|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|--------------------|
| Company size (log employed)                                    | .045              | .042              | .023              | .031              | .024              | .022              | .021               |
| Company age (years)  | −.006***          | −.006***          | −.006**           | −.005**           | −.005**           | −.005**           | −.006**            |
| Industry: manufacturing <sup>a</sup>                           | .735*             | .673 <sup>+</sup> | .477              | .444              | .411              | .421              | .454               |
| Industry: services   | .679 <sup>+</sup> | .653 <sup>+</sup> | .427              | .450              | .363              | .379              | .402               |
| Industry: mining   | .397              | .409              | .174              | .176              | .151              | .148              | .143               |
| Industry: construction   | 1.512**           | 1.386**           | 1.202*            | 1.151*            | 1.097*            | 1.143*            | 1.217*             |
| Industry: transportation                                       | .250              | .222              | .029              | −.062             | −.009             | −.026             | −.022              |
| Industry: wholesale  | .861 <sup>+</sup> | .791 <sup>+</sup> | .504              | .463              | .430              | .446              | .419               |
| Industry: retail   | 1.307**           | 1.329**           | 1.071*            | .947 <sup>+</sup> | .843 <sup>+</sup> | .880 <sup>+</sup> | 1.026*             |
| Marketing-related function <sup>b</sup>                        | −.067             | −.062             | −.028             | −.051             | −.010             | −.007             | −.022              |
| Cross-functional fairness                                      |                   | .221**            | .077              | .124              | .102              | .099              | .072               |
| Job rotation   |                   |                   | .094              | .083              | .088              | .088              | .098               |
| Internal rivalry   |                   |                   | .047              | .056              | .020              | .031              | .039               |
| Integrating conflict handling                                  |                   |                   | .169 <sup>+</sup> | .154 <sup>+</sup> | .199*             | .186*             | .165 <sup>+</sup>  |
| Avoiding conflict handling                                     |                   |                   | −.225**           | −.223**           | −.195**           | −.201**           | −.199**            |
| H1: Cross-functional fairness × job rotation                   |                   |                   |                   | .195**            |                   |                   |                    |
| H2: Cross-functional fairness × internal rivalry               |                   |                   |                   |                   | −.170**           |                   |                    |
| H3a: Cross-functional fairness × integrating conflict handling |                   |                   |                   |                   |                   | .145*             |                    |
| H3b: Cross-functional fairness × avoiding conflict handling    |                   |                   |                   |                   |                   |                   | −.179 <sup>+</sup> |
| <i>R</i> <sup>2</sup>  | .099              | .132              | .204              | .224              | .228              | .219              | .216               |
| $\Delta R^2$   |                   | .033**            | .072***           | .020**            | .024**            | .015*             | .012 <sup>+</sup>  |

Notes: Unstandardized coefficients (two-tailed *P*-values). \*\*\* *p* < .001; \*\* *p* < .01; \* *p* < .05; <sup>+</sup> *p* < .10.

<sup>a</sup> Base case = Finance industry. <sup>b</sup> Base case = R&D-related function.

likelihood that parties involved in product innovation protect their own “turf” and safeguard their knowledge bases from others (Luo et al., 2006), and dysfunctional methods to address conflict situations (Song et al., 2006). We investigated various contingency factors that may enable or obstruct such effective combinations of knowledge across departments and thus affect how fairness supports product innovativeness.

First, we find that the contribution of cross-functional fairness to product innovativeness becomes stronger when managers rotate across functional departments or take specific roles in departments different from their own (Campion et al., 1994). When functional managers shift across departments, they gain greater exposure to new skills and experiences, which creates a more thorough and comprehensive understanding of how they can leverage close relationships with peers to attain product innovativeness (Xie et al., 2003). Thus, our findings show that by trying different “organizational hats,” managers may experience firsthand how cross-functional fairness plays out and how it can benefit innovation pursuits, such that they become more committed to leveraging cross-functional relationships to develop new products (Bstieler, 2006; Qiu et al., 2009). In contrast, without job rotation, managers may retain function-specific knowl-

edge only for themselves, which decreases joint problem-solving capabilities (Uzzi, 1997) and reduces sharing of tacit and sticky information across functional boundaries (Kim and Mauborgne, 1998), to the extent that cross-functional fairness may become counterproductive.

Second, we find that high levels of internal rivalry make the relationship between cross-functional fairness and product innovativeness negative, possibly because of managers’ hesitance to relinquish power to others through knowledge integration when they operate in highly competitive internal environments (Kim and Mauborgne, 1998; Moorman et al., 1992). When functional managers perceive a need to compete for the same resources and the protection of their own functional turf, they may invest less in productive exchanges that could unlock function-specific knowledge because they believe that other departments will take advantage of this knowledge to ensure their own preferential access to company resources (Maltz and Kohli, 1996). This finding thus shows that when functional managers perceive that they compete for scarce resources, they might become reluctant to share knowledge, which not only prevents a competing department from gaining new knowledge but also ensures little or no consideration of the competing function’s knowledge (Gupta and Govindarajan, 2000).

Third, we find that using an integrative approach to conflict handling amplifies the benefits of cross-functional fairness: The application of cooperative conflict-handling strategies, of which the integrative approach is a prime example, appears to be an effective tool to leverage intraorganizational exchange relationships (Rahim, 1983). Specifically, in environments that demand innovative throughput, cooperation-based mechanisms designed to resolve conflict may help unlock function-specific knowledge and facilitate the identification of synergies (Xie et al., 1998). In contrast, our findings suggest that when different functions are not willing to look for middle ground to resolve disagreements or work together to find solutions agreeable to all parties, fair interpersonal treatment across departments may discourage mutual adjustments and lead to complacency (Sethi, Smith, and Park, 2001).

Fourth, to the extent that managers use an avoidance approach to handle conflict situations, it is more difficult to leverage fair interactions across departments to achieve product innovativeness. When differences of opinions are kept quiet and functional managers look for ways to bypass, rather than tackle, unpleasant exchanges, organizations exhibit reduced responsiveness to others' knowledge, which hampers their successful leveraging of cross-functional interactions. Thus, we find support for our argument that without the confrontation of conflicting viewpoints, individual managers might become overly absorbed by their assigned, function-specific tasks (Rahim, 1983; Song et al., 2006), making them less likely to express interest in using their close relationships with peers in other departments to create innovation-oriented activities (McDonough, 2000).

### *Practical Implications*

From a practice perspective, this study suggests that in the pursuit of product innovation, top management should not only foster cross-functional interactions perceived as fair and based on mutual respect but also make sure that these interactions get exploited fully to realize their innovation potential. Thus, they must carefully consider the organizational context in which their key functional managers operate, particularly with regard to the internal management of the firm's resource base and conflict handling. They must understand how contextual factors influence the effective combination and integration of function-specific skills and knowledge. Fair cross-functional interactions, even when they provide a fertile ground for innovative products, can encounter various challenges before they bear fruitful results. Different

functional departments may play fundamentally different roles in the product innovation process, such that engineers attend mainly to the technical characteristics of new products, while marketing managers focus on how new products create value in new or existing market spaces (Gupta, Raj, and Wilemon, 1986). Accordingly, the development of new products becomes more cumbersome to the extent that different departments have a limited understanding of how other departments' knowledge contributes to the development of innovative ideas, concepts, and products (De Luca and Atuahene-Gima, 2007). Further, managers may believe that sharing their knowledge with colleagues in other departments reduces the ease with which they can access company resources (Gupta and Govindarajan, 2000), which prompts destructive power competitions to gain top management attention and resources (Luo et al., 2006). Similarly, conflict situations during the product innovation process may cause individual departments to protect their own turf, while disregarding or even ignoring others' viewpoints (Rahim, 1983; Song et al., 2006). In response, this study suggests that as much as it can, top management should encourage rotations by functional managers across functional boundaries, reduce perceptions of internal rivalry, and stimulate conflicting resolution strategies that promote the integration of others' ideas while discouraging their avoidance.

This study also offers important implications for the management of innovation in a global context. When considering the issue of cross-functional fairness in the context of internal rivalry and conflict handling, global corporations should recognize that employees in different countries likely might respond differently in the aftermath of resource battles and conflict (Suwartono, Pra-wasti, and Mullet, 2007). For example, as Kurzynski (1998, p. 77) notes, managers in individualistic cultures are less inclined "to forgive others their trespasses." Such disposition and unwillingness to forgive after severe battles or conflicts might not only deteriorate current working relationships but also preemptively create disharmony in future collaborations with other functional partners, thereby hampering the firm's long-term ability to enhance its product innovativeness.

More generally, the application of our findings to the context of intra-organizational collaboration within global corporations implies that to maximize the innovation potential inherent to close intra-organizational relationships across country borders, top management must encourage key managers to move away from function- or country-specific identities and imagine themselves (and others) as partners who share a set of common

organizational interests. They must be willing to combine their knowledge with that of colleagues in other parts of the organization, even if they reside in distant locations, if their mutual interactions are to support the realization of the corporation's innovation potential. The intra-organizational boundary conditions studied herein thus explicate how global corporations that aim to develop more innovative products may benefit from encouraging pie-expanding efforts that increase people's willingness and ability to convert dispersed pieces of knowledge into an integrated knowledge set that spans the entire corporation, rather than focusing on function-specific tasks.

The findings also might provide insight into the selection criteria that global corporations with innovative aspirations should maintain. Individual managers should be not only proficient in their respective domains of expertise but also willing to learn about other parts of the organization, even if it requires close interactions with departments in distant locations. Thus, global corporations that aim to achieve high levels of product innovativeness should pursue and retain managers who are versatile enough to rotate successfully through different parts of the organization, are team players who do not engage in destructive competitive games, and are willing to go out of their way to integrate their viewpoints with others', rather than to avoid them, when conflict situations arise.

### *Limitations and Future Research*

This study contains some limitations that offer opportunities for further research. For example, by focusing on four specific contextual dimensions, this study ignores other factors that may be relevant for the successful conversion of cross-functional fairness into product innovativeness, such as the extent to which managers depend on colleagues in other departments to accomplish their jobs (Fisher et al., 1997), the formality of the decision-making processes during innovation (Auh and Menguc, 2007), or the development of social capital between managers (De Clercq, Dimov, and Thongpapanl, 2010). Furthermore, because this study uses cross-sectional data, reverse causality may be an issue. Another potential research stream pertains to whether the interaction effects examined herein might work differently for radical versus incremental innovations (Garcia and Calantone, 2002).

Although this study focused on one country, the nature of the theoretical arguments that underpin the hypotheses makes it likely that its findings are applicable to a wide set of countries. Nevertheless, this study also suggests

important avenues for further research on global innovation management, particularly with respect to investigations of global corporations whose functional departments might be dispersed across different countries. Because perceptions of resource and conflict management may vary across countries (Song, Kawakami, and Stringfellow, 2010; Song et al., 2000; Xie et al., 2003), the extent to which these issues can facilitate or impede the cross-functional fairness–product innovativeness relationship likely is not identical in different cultural settings. Future research could examine, for example, the potency of job rotation for enhancing cross-functional relationships toward product innovativeness in individualistic countries (e.g., United States, Great Britain, and Canada) versus in their collectivistic counterparts (e.g., Japan, Hong Kong, and Mainland China).<sup>4</sup> In individualistic countries, achieving success through personal means is regarded more highly than success derived through collective efforts, so managerial practices in these countries typically emphasize functional specialization over the development of generalist skills (Song et al., 2010)—despite the benefits of the latter for product innovativeness. Consequently, future research should explore whether individualistic societies might attain greater marginal value from the introduction of job rotation as a mechanism to facilitate knowledge combination, compared with collectivistic countries, which “more automatically” value and encourage interactions with peers throughout the organization (Song et al., 2010). Future research also could examine the extent to which functional managers in countries marked by higher levels of individualism might exhibit stronger resistance to the installation of a job rotation system.

Another avenue for future research in the area of global innovation management involves the interplay between a country's culture and the dysfunctional effect of internal resource competition. The impediments that internal resource competition imposes on the extent to which harmonious relationships enhance product innovativeness may be more problematic for organizational units in individualistic countries, in which functional managers' decision making more likely is guided by personal interests rather than by the interests of other departments or the organization as a whole (Hofstede, 1980).

Future research could also investigate how the conflict-handling mechanisms studied herein are perceived differently across cultures and thus how their impact on the effective leveraging of cross-functional

<sup>4</sup>These cultural dimensions reflect the extent to which functional managers prefer to act as individuals rather than as members of the organization (Hofstede, 1980).



relationships in support of product innovativeness might vary in different locales. For example, in collectivistic countries, functional managers tend to be more sensitive to the possibility of losing face when they confront conflict situations, so the use of avoidance tactics in such countries might be more legitimate and less dysfunctional than it would be in individualistic settings (Friedman, Chi, and Liu, 2006).

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