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ORIGINAL EMPIRICAL RESEARCH

The effects of customer acquisition and retention orientations on a firm's radical and incremental innovation performance

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Abstract The effect of a firm's strategic focus on acquiring new customers and/or retaining existing customers (customer acquisition and retention orientations) on innovation performance is evaluated. With dyadic primary data collected from 225 strategic business units, the authors demonstrate that a firm's focus on customer acquisition enhances its radical innovation performance but hinders its incremental innovation; a firm's strategic orientation toward customer retention has the opposite effects. These effects are mediated by both customer knowledge development and the firm's resource configuration decisions. In addition, the authors provide insight into the impact of managerial decision trade-offs when implementing customer engagement strategies. The results suggest that the effect of customer acquisition and retention orientations on customer knowledge and investment decisions, and ultimately on innovation performance, is amplified when a firm consistently implements a specific engagement strategy. Implementing a dual strategy by attempting to focus on both acquiring and retaining customers undermines resource configuration decisions, with diverse effects on both radical and incremental innovation.

Keywords Radical innovation · Incremental innovation · Innovation performance · Customer acquisition · Customer retention

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The orientation that a firm takes toward deepening current customer relationships, or developing new customer relationships, has the potential to significantly impact overall firm performance (Kumar et al. 2006; Morgan and Hunt 1994; Palmatier et al. 2006). Few empirical studies, however, investigate how the trade-offs made between devoting resources to the pursuit of new customers, versus pursuing deeper relationships with current customers, affect overall innovation performance (Atuahene-Gima 2005; Slater and Narver 1998). This is surprising, given that innovation appears critical to maintaining long-term competitive advantage in a progressively service-based economy (Lusch et al. 2007). Further, research that investigates a firm's customer-focused strategic orientation tends to investigate retention, loyalty, and share of wallet from existing customers (e.g., Gomez et al. 2004; Pan and Zinkhan 2006) without addressing the potential role played by innovation and customer acquisition. While such a focus upon customer retention through building deeper relationships may enhance the short-term performance of a firm, it is quite possible that there are unintended consequences associated with a heightened concentration upon current customers, such as a firm's decreased willingness to invest in innovation (Chandy and Tellis 1998). Given this, the focus of this research is to investigate *how firms' customer acquisition and retention orientations differentially affect radical and incremental innovation performance*.

We investigate the impact of two orientation implementation decisions: within-orientation consistency and mixed-orientation effects. We propose that the effect of a firm's customer engagement orientation (acquisition versus retention) on customer knowledge, investment decisions, and innovation performance gets amplified by the firm's consistency in implementing a specific engagement strategy (i.e., acquisition versus retention consistency). Existing research provides managers with little strategic guidance, however, regarding the ideal balance between customer acquisition and customer retention.

With dyadic primary data collected from 225 business units, we demonstrate that the balance between radical and incremental innovation can be managed by developing appropriate levels of customer acquisition and retention orientations. Specifically, the multifaceted relationship between customer acquisition and retention involves complementarity derived from enhancing the diversity of customer knowledge, heightening radical innovation performance, and hindering incremental innovation. However, mixed orientations also potentially cause interference, which negatively affects resource configuration decisions and has mixed effects on radical and incremental innovation performance.

Finally, we uncover *the mechanisms by which firms' acquisition and retention orientations affect innovation performance* by applying organizational design theory to interfirm relationships (Tushman and Nadler 1978) and investigating the overlap between the consequences of orientation efforts and the antecedents of innovation provided in the literature. We propose two potential mediating pathways through which acquisition and retention foci can influence both customer knowledge development and resource configuration decisions, which differentially affect radical and incremental innovation performance. These pathways, which relate to customer knowledge development and a retailer's resource configuration decisions, are demonstrated in Fig. 1.

Theory development

Most researchers argue there are two basic customer engagement orientations or processes: customer acquisition and customer retention (Lewis 2006; Reinartz et al. 2004). A *customer acquisition orientation* refers to a firm's focus on gaining information about potential customers, measuring their potential value, and allocating resources to acquire those with greater long-term value. Take, for example, a financial services firm structuring multiple types of lending programs to cater to the needs of many different customer sets, including those not currently being served in order to acquire new customers. A *customer retention orientation*, conversely, entails a focus on obtaining information about, differentiating among, and allocating resources to manage relationships with existing customers on the basis of their long-term value. For example, cell phone companies tailoring plans around the development of friend and family networks to retain customers. Customer acquisition and retention orientations are not mutually exclusive because a business can choose to focus on both, though to different degrees (Reinartz et al. 2004).

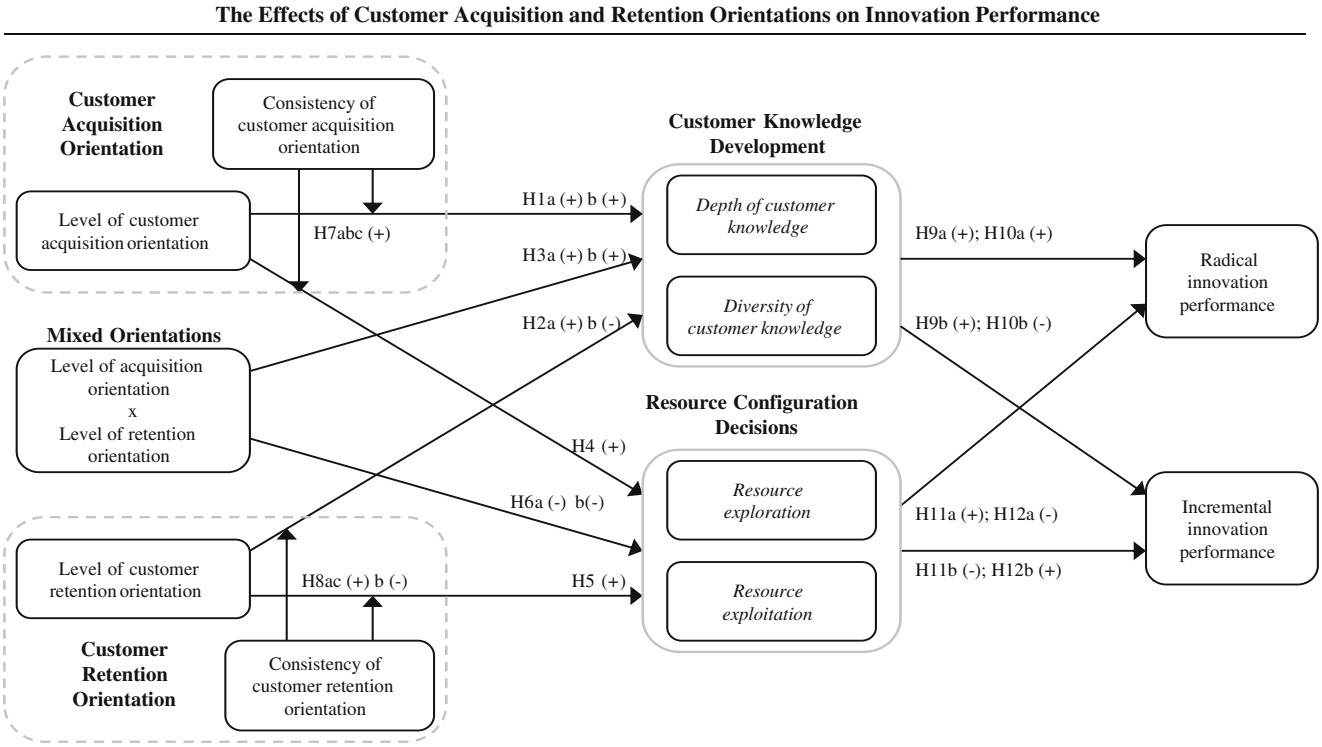
Retention and acquisition orientations, however, do not affect innovation directly. We propose that customer knowledge development and resource configuration decisions are the "bridges" between customer engagement orientations and innovation performance. Specifically, consistent with Prabhu et al. (2005), we evaluate two dimensions of customer knowledge: depth and diversity. The *depth of customer knowledge* refers to the amount and thoroughness of customer knowledge developed by a firm, whereas *diversity* is the range of and variety in that customer knowledge.

Further, two primary types of resource decision making are common subjects of investigation: resource exploitation and resource exploration (Leonard-Barton 1992). *Resource exploitation* refers to management decisions to invest in refining and extending a firm's existing product innovation knowledge, skills, and processes. *Resource exploration*, on the other hand, refers to the resource configuration decision to invest resources to acquire entirely new technology, skills, and processes.

Customer engagement orientation

To remain consistent with organizational design theory, which suggests that five different design elements drive specific business practices, we conceptualize customer engagement orientation as comprising structure, leadership, culture, strategy, and control (Tushman and O'Reilly 2002). These design elements serve as separate but interrelated components, such that firms represent "complex entities ... composed of tightly interdependent and mutually supportive elements" (Miller and Friesen 1984, p. 1).

First, the *structure* of a customer engagement orientation represents how employees are organized and customer engagement activities are arranged to support the acquisition of high-value new customers (acquisition orientation) or the retention of high-value existing customers (retention orientation) (Ruekert et al. 1985). Second, the *leadership* element of customer engagement orientation captures the emphasis top management puts on acquiring or retaining high-value customers as a strategic objective (Smith et al. 1984). Third, the *cultural* element of customer engagement orientation can be understood as a "system of shared values and norms that define appropriate attitudes and behaviors



Notes: Normal font: reported by Respondent 1; *Italicized font*: reported by Respondent 2.

Figure 1 The effects of customer acquisition and retention orientations on innovation performance.

for organizational members" (O'Reilly and Chatman 1996, p. 166); the shared norms of customer acquisition and retention orientations differ because they focus on acquiring valuable new customers versus retaining existing ones. Fourth, the *strategy* element of customer engagement orientation emphasizes "a complex set of activities and routines involved in the design and execution of marketing plans" (Menon et al. 1999, p. 46) and thus attempts to develop specific activities, tactics, and routines to acquire new customers with long-term value or maintain relationships with valuable existing customers. Fifth, the *control* element refers to the system in place to monitor, incentivize, or punish relevant employees as a result of their activities in acquiring new customers or retaining existing customers with high profitability (Oliver and Anderson 1994).

The existence of these multiple elements suggests a potentially critical aspect of a firm's orientation implementation, namely, the degree of consistency across the five elements. We use two constructs to indicate the different aspects of these engagement orientations: level and consistency. The *level of a customer acquisition (retention) orientation* refers to the magnitude of the firm's emphasis on the acquisition (retention) of new (existing) customers, as reflected in structure, leadership, culture, strategy, and control. The *consistency of customer acquisition (retention) orientation* refers to the conformity of structure, leadership, culture, strategy, and control to support the acquisition (retention) of new (existing) customers.

Effects of customer acquisition and retention orientations on knowledge development

The elements that comprise *both* customer acquisition and retention orientations can enhance the depth of customer knowledge, because their cultural and leadership aspects provide individual employees with motivation to acquire and disseminate new or existing customer information, as well as assist in institutionalizing such information (Slater and Narver 1995). The structural aspect of organizational design and specific strategic imperatives to implement customer acquisition- or retention-related actions may enhance employees' behaviors and increase their effectiveness in customer information collection and dissemination (Menon et al. 1999). Finally, the control aspect offers individual employees specific guidelines and directs their behaviors toward customer information collection and dissemination, because it details the relevant incentives/punishments (Oliver and Anderson 1994).

However, customer acquisition and retention orientations have opposite effects on the diversity of customer knowledge captured. An acquisition orientation encourages employees to look beyond the organization's existing customers to collect diverse customer knowledge (Day 1994). In contrast, a high level of customer retention orientation likely leads to homogenous customer knowledge (Verhoef 2003). Although such an orientation does not preclude the collection and dissemination of diverse customer knowledge across multiple business segments, organizational elements that focus on retaining existing customers influence individual employees' interpretations and institutionalize customer knowledge to reflect the homogenous characteristics shared among customers (Crossan et al. 1999).

H1: The level of customer acquisition orientation positively relates to the (a) depth and (b) diversity of customer knowledge.

H2: The level of customer retention orientation (a) positively relates to the depth and (b) negatively relates to the diversity of customer knowledge.

In addition to their independent effects on customer knowledge development, customer acquisition and retention orientations likely have a synergistic effect on knowledge development. Specifically, organizational learning literature suggests that the knowledge creation process, in terms of both diversity and depth, can be improved greatly by combining knowledge obtained from different sources (Gargiulo and Benassi 2000). A simultaneous emphasis on new and existing customers or a mixed orientation requires the firm to target multiple customer types, including existing and new customers, which prompts employees to collect information from different sources and develop different mental modes of knowledge interpretation (Nahapiet and Ghoshal 1998).

Similarly, work in relation to innovation (e.g., Christensen 1997) and cultural understanding (Arnould and Wallendorf 1994; McCracken 1990) describes the importance of "outside" information to the development of unique insights into applications and processes that would not have been possible when focusing only upon the collection of information that is consistent with current views (i.e., information from only current customers). Indeed, in order to obtain diverse knowledge, a systematic gathering of opinions that are inconsistent with current views is essential. Therefore, when deliberate attention is focused upon gaining understanding of marginal uses, problems and markets (marginal in relation to current customer needs), which is then complemented by a concomitant focus upon the gathering of current customer information, areas of overlap between current and potential customer needs that were not previously identifiable might begin to emerge (i.e., diversity of knowledge is enhanced).

H3: The level of customer acquisition and retention orientations interacts and positively relates to the (a) depth and (b) diversity of customer knowledge.

Effects of acquisition and retention orientation on resource configuration decisions

Acquiring new customers, especially from competitors, requires a firm to change its resource configurations significantly by either differentiating its product and service offerings or reducing the cost of offering those products and services (Eisenhardt and Martin 2000). Further, such a focus upon acquisition is likely to relate positively to resource configuration changes where organizational units can exchange and combine resources in ways that add value to product innovation (Burt 1997). Even if a firm successfully acquires new customers without changing its resource configurations, uncertainties associated with acquiring new customers, as well as their potentially distinct needs and preferences, may demand that the firm invest resources to acquire new technology, skills, and processes and thereby achieve flexibility and novelty through increased variation and experimentation (Teece et al. 1997).

In contrast, researchers suggest that across a wide range of product and service categories, the most important customer retention driver remains customer satisfaction (e.g., Fornell et al. 1996; Gomez et al. 2004; Verhoef 2003). This satisfaction focus prompts a business to improve elements in which it already has invested, as well as refine and extend its existing product innovation activities (Mithas et al. 2005). A firm in this position is less likely to use resource exploration, which involves significantly different customer interface technologies.

H4: The level of customer acquisition orientation positively relates to resource exploration.

H5: The level of customer retention orientation positively relates to resource exploitation.

In addition, customer acquisition and retention orientations have negative interactive effects on resource exploitation and exploration. Specifically, managers' decisions to focus on resource exploitation and exploration may be dampened by simultaneous emphases on both customer acquisition and retention orientations rather than pure acquisition or retention orientations. As indicated by March (1991), managers' decisions to engage in resource exploitation versus resource exploration constitute two different

strategic choices that require different organizational perspectives. A dual focus on acquiring new customers *and* retaining existing customers (i.e., a high level of resource allocation to both perspectives) can increase confusion throughout the decision-making process and induce conflict (Amason 1996). As He and Wong (2004, p. 482) suggest, resource exploitation and exploration use "fundamental[ly] different logic that creates tensions." Such tension would take the form of employee confusion in trying to simultaneously enact (or, at least, respect and acknowledge) two distinct strategies, likely with the result of neither outcome being optimized (He and Wong 2004). This suggests that a desirable allocation would likely consist of a mix of a high/low distribution of resources slanted toward either acquisition or retention, respectively.

H6: The level of customer acquisition and retention orientations interacts negatively where (a) resource exploration will be relatively higher with a high acquisition/low retention combination, while (b) resource exploitation will be relatively higher with a low acquisition/high retention combination.

Moderating effects of acquisition and retention orientation consistency

As different design elements (e.g., leadership, structural, control) get consistently implemented, their individual effects on organizational outcomes are magnified (Tushman and O'Reilly 2002). Similarly, a firm can execute its strategy more effectively when it has the support of an organizational framework with consistent structure, leadership, and control. Therefore, we expect the consistency of customer acquisition and retention orientations to amplify the individual effect of the levels of customer acquisition and retention orientations on customer knowledge development and resource configuration decision making (i.e., inconsistencies will result in poorer execution).

H7: Consistency in customer acquisition orientation amplifies the positive relationship between the level of customer acquisition orientation and (a) depth of customer knowledge, (b) diversity of customer knowledge, and (c) resource exploration.

H8: Consistency in customer retention orientation amplifies the (a) positive relationship between the level of customer retention orientation and depth of customer knowledge, (b) negative relationship between the level of customer retention orientation and diversity of customer knowledge, and (c) positive relationship between the level of customer retention orientation and resource exploitation.

Effects of knowledge development and configuration decisions on innovation performance

Radical innovation performance pertains to financial benefits obtained from an innovation that incorporates substantially different technology and fulfills novel and emerging customer needs, whereas *incremental innovation performance* refers to financial benefits obtained from an innovation that involves minor technology changes and relatively incremental customer benefits (Atuahene-Gima 2005). Because deep knowledge about customers' adoption of an innovation represents the primary prerequisite of a successful innovation, both radical and incremental innovations require that the firm obtain in-depth customer knowledge to fit the innovations to customer needs and preferences (Zahra and George 2002).

The diversity of customer knowledge, however, likely has opposite effects on radical and incremental innovation. Radical innovation originates from diverse or even conflicting customer information (Sethi et al. 2001). If customer information lacks diversity, radical innovation will suffer, because a business cannot identify problems, develop alternative hypotheses, or contradict any conventional expectations (Palmatier 2008; Torrance 1988). Alternatively, homogenous customer knowledge provides specific direction about the product and/or service improvements and minimizes any confusion or complexity in the innovation process by making it easier to establish formal, structured coordination mechanisms (Demsetz 1988).

H9: Depth of customer knowledge positively relates to (a) radical and (b) incremental innovation performance.

H10: Diversity of customer knowledge (a) positively relates to radical innovation performance and (b) negatively relates to incremental innovation performance.

Research also has established opposite effects of resource exploitation and exploration on radical and incremental innovations. For example, March (1991) articulates that exploiting existing resources increases the efficiency and effectiveness of incremental product improvements, because it identifies and integrates customer solutions that mirror current experience, but it hinders radical innovation because organizational resources get diverted away from novel ideas and concepts. Similarly, resource exploration involves experimentation that focuses on emerging markets and new technologies to develop ideas that produce radical rather than incremental innovations (Leonard-Barton 1992).

H11: Resource exploration (a) positively relates to radical innovation and (b) negatively relates to incremental innovation.

H12: Resource exploitation (a) negatively relates to radical innovation performance and (b) positively relates to incremental innovation.

Research method

Research context

Consistent with our research objectives, we focus on two distinct retail industries: financial services (standard industrial classification [SIC] codes 60–63) and general retail (SIC codes 52–57). Both industries have definitive customer acquisition and retention initiatives and demonstrate a high degree of sophistication in their customer engagement activities (Reinartz et al. 2004). In this sense, they offer an ideal context in which to understand customer acquisition and retention orientations. In addition, both industries have large customer bases and constantly allocate resources to refine or develop their customer service technologies under significant competitive pressures. Thus, they provide a good context for understanding customer knowledge development and resource configurations (Reinartz et al. 2004). Finally, innovation behaviors in both industries have been recognized as critical to achieving and sustaining competitive advantage (Bharadwaj et al. 1993). For example, in the financial services industry, both exploratory (e.g., fundamentally new loan structures or contingency contracts) and exploitative (e.g., aggressive lending, shopping the market, increased processing efficiency) innovation have been investigated in relation to firm performance (Uzzi and Lancaster 2003).

We adopted a key informant approach and collect cross-sectional surveys from two informants per firm from strategic business units (SBUs) in these two industries. The key informants are executives within the respective SBUs and are not store or branch level managers (i.e., they are not employed at the store or branch level). These SBUs operate regional stores or branches of U.S. national retailers and financial institutions. The observations are largely derived from separate companies. There are instances, however, where different SBUs of the same company are included (e.g., CITI credit card and CITI mortgage). In all instances, the SBUs operated as distinct profit/loss centers.

Within each SBU, we collected antecedent variables (customer acquisition and retention orientations), outcome variables (radical and incremental innovation performance), and control variables from the first respondent from each participating organization and mediation variables (depth and diversity of customer knowledge development, resource exploitation and exploration) from the second respondent. Thus, every hypothesis tested involves two constructs reported on by a different respondent, minimizing common methods concerns.

Data collection procedure

On the basis of interviews, we identified knowledgeable informants as marketing, sales, or customer service executives, typically at the level of vice president or general manager in an SBU. From a commercial list (InfoUSA), we developed a contact list of senior marketing, sales, and customer service managers from 2,500 SBUs in the financial services and retail industries.

We sent these informants e-mails to request their participation. The informants could either request a print version of the questionnaire or access an online version; the format of both the online and the print versions was identical. We followed with two more e-mail notifications at 1-week intervals. As a result of these efforts, 354 informants either responded through the online survey or completed a print questionnaire (14.2% response rate). Although this response rate is somewhat low, we contend that it is acceptable, given similar levels of response rates reported in similar data collection environments. For example, mail surveys by Wu et al. (2004) and Im and Workman (2004) reported response rates of 9.2% and 19.1%, respectively.

For respondents who requested print questionnaires, we sent the requested questionnaire, together with a prepaid return envelope and informative cover letter. We discarded eight responses of the 354 returned because of missing values. We also conducted knowledge and involvement checks. On 7-point scales, the mean of their knowledge is 6.11, and the mean of their involvement in SBU operations is 5.98. We eliminated 11 responses that suggested inadequate levels of informant knowledge and involvement (less than four on the 7-point scale). Thus, we obtained 335 usable responses from the first set of informants. Among these 335 responses, 28% respondents have the title of vice president of marketing, 25% respondents are vice president of sales and/or customer service, 22% respondents are marketing and/or customer service managers, 14% are general managers of the SBU.

In the questionnaires sent to the first informants, we asked them to identify the contact information of another manager from the same SBU who also was involved in and familiar with the operation of the SBU. Of the 335 respondents, 287 provided contact information for another manager, generally in charge of customer service, marketing, or IT. We telephoned these 287 managers to obtain responses to the survey questions and successfully contacted and got responses from 230 (80.1% response rate). On a 7-point scale, the mean of this group of respondents' knowledge is 6.06, and the mean of their involvement is 5.89. We eliminated five responses that show inadequate levels of information knowledge and involvement (less than four on a 7-point scale). Therefore, we secured complete

surveys from two respondents in 225 SBUs, of which 129 (representing 93 separate firms) were from the financial services industry (e.g., savings banks, credit unions, and mortgage brokers) whose average number of employees is 132.17 and average years of operation is 12.24. Ninety-six (representing 80 separate firms) were from the retail industry, whose average number of employees per SBU is 204.17 and average years of operation is 10.45.

We found no significant differences ($p>.10$) between early and late respondents for either the first or second respondent groups (first/last 25%; first/last 33%) across key demographic and study variables (Armstrong and Overton 1977). Our data collection process also supports other, stronger tests of nonresponse bias. That is, comparisons across key variables were made between first respondents included in the final sample and those who were eliminated from the study (i.e., lack of corresponding second respondent). Again, no significant differences are found. We also find no significant differences between respondents who provided data online or via a mail survey. Nonresponse bias does not appear to be a major concern.

Measurements

Our measurement development is based on existing measures and field interviews. We conducted six in-depth interviews with executives from financial services and retail companies. These interviews lasted approximately 3 h, and through them, we developed the measurement scales and crafted a pretest survey that we mailed to key informants in 20 companies in these two industries, from which we received seven responses. Respondents offered suggestions for improving the survey instrument; though it was generally sound, we modified several items for clarity. All items are measured using 7-point Likert scale items, unless otherwise noted. We detail the items, factor loading, and scale reliabilities in Appendix A.

Customer acquisition and retention orientations We developed new measures of customer acquisition and retention orientation for this research and obtained responses from the first informants. As noted above, the initial scale items were generated as a result of key informant interviews. From this point, item refinement was conducted through exploratory factor analyses. Item reduction took place, and the measures were then sent to key informants for item assessment (i.e., face validity and logic). In addition to the items appearing in Appendix A, remaining items that were initially included, but eventually eliminated include:

Customer Acquisition:

- The basic goals of our organization include targeting new customers with high value (culture dimension).
- Our business strategies are centered on how to gain information about potential customers, measure their potential value, and allocate resources to acquire valuable new customers (strategy dimension).
- The unit regularly monitors our employees' activities to acquire new customers (control dimension).

Customer Retention:

- Our business strategies are centered on information collection about our existing customers and allocate resources to retain valuable existing customers (strategy dimension).
- The basic goals of our organization include retaining existing customers with high value (culture dimension)
- The unit regularly monitors our employees' activities of customer relationship maintenance (control dimension).

After incorporating suggestions for item modification, which were few, the items were pre-tested to determine appropriateness within a logical nomological network of variables (including confirmatory factor analyses, as reported in subsequent sections—Churchill 1979). In total, we concluded with three items each to measure the structural, leadership, cultural, and strategy aspects of acquisition and retention orientations. Finally, we used four items to measure the control dimensions of customer acquisition and retention orientations.

The level of customer acquisition (retention) orientation reflects a factor score obtained from principle component analysis, with the five dimensions of customer acquisition (retention) orientations as input (Lastovicka and Thamodaran 1991). To determine consistency, we constructed a coefficient of variation among the five dimensions of customer acquisition (retention) orientations (mean divided by standard deviation). This measure describes the extent to which the five dimensions differ, adjusted by the mean, as has been used previously to measure market volatility (McKee et al. 1989) and price variation (Bolton 1989)

Depth and diversity of customer knowledge development We used three items to assess the amount of knowledge the unit has developed about customer profiles, behavior patterns, and engagement channels. We measured the diversity of customer knowledge with four items designed to assess the extent to which the customer knowledge developed by the unit covers a broad range of customer profiles and behavior patterns. Responses to both measures came from the second informants of the responding SBUs.

Resource exploitation and exploration We adapted measures of resource exploration and exploitation from Zahra et al. (2000) and Atuahene-Gima (2005). Specifically, we

used three items to measure resource exploitation and assess whether the SBU has increased resources for projects that improve the efficiency of existing innovation activities. For resource exploration, we used three items to identify the extent to which the SBUs have invested resources to acquire a service technological infrastructure that is entirely new to the organization. The second informants of the responding SBUs provided the responses for both these measures.

Radical and incremental innovation performance We adapt measures of both radical and incremental innovation performance from Atuahene-Gima (2005) and posed them to the first respondents of the SBUs. In particular, we used three items to measure the financial consequence of radical innovation by asking respondents to evaluate the extent to which their SBUs' incorporation of substantially different technologies into their service offerings enhances their financial performance. We used three items for incremental innovation performance, with which we asked respondents to evaluate the extent to which their SBUs' improvement of existing customer service technologies heightens their financial performance.

Control variables We included several control variables, with measures obtained from the first respondents of the SBUs (measures available in Appendix A). At the SBU level, we controlled for *customer relationship management (CRM) investment intensity*, which we measure as the percentage of the SBU's operating revenue dedicated to a variety of CRM investments (i.e., sales force automation, data warehousing, data analysis software, CRM hardware infrastructure, and CRM-related employee training), which may affect customer knowledge development and resource configuration decisions and thereby innovation performance (Mithas et al. 2005). At the industry level, we controlled for three environmental variables—market dynamism, competitive intensity, and technology turbulence—that may influence customer knowledge development, resource configuration decisions, and innovation performance (Jayachandran et al. 2005). *Market dynamism* pertains to rate of changes in customers and their preferences, *competitive intensity* assesses the behavior, resources, and ability of competitors to differentiate, and *technology turbulence* is concerned with the rate of technology changes in the industry. We measured these constructs with items adapted from Jaworski and Kohli (1993).

Measurement model assessment

In order to determine the appropriateness of combining data from the financial services and general retail contexts, we estimated loading invariance as suggested by Steenkamp and Baumgartner (1998). In order to pool databases from two contexts, full or partial metric invariance must be satisfied. A series of nested confirmatory factor model comparisons was estimated using AMOS multi-group analysis. First, each construct with all loadings set to be equal was estimated across the two samples. Second, the same model with one loading set free was estimated across the two samples. Finally, the chi-square difference between these two models was obtained. All constructs realized full or partial metric invariance.

We examined the unidimensionality and convergent validity of the constructs with confirmatory factor analyses using LISREL. First, we ran two factor analyses. For customer acquisition orientation, the measurement model fit indices are as follows: chi-square $_{(94\ \text{d.f.})}$=171.25, goodness of fit index (GFI)=.92, normed fit index (NFI)=.91, comparative fit index (CFI)=.93, incremental fit index (IFI)=.92, and root mean square of approximation (RMSEA)=.06; for customer retention orientations, they are chi-square $_{(94\ \text{d.f.}}$=180.10, GFI=.91, NFI=.90, CFI=.93, IFI=.90, and RMSEA=.06. Second, we estimated the remaining constructs reported by the first informants of the SBUs (radical and incremental innovation performance, market dynamism, competitive intensity, and technology turbulence) and found chi-square $_{(80\ \text{d.f.})}$=145.29, GFI=.92, NFI=.91, CFI=.93, IFI=.90, and RMSEA=.06. Third, we estimated a measurement model for all constructs reported by the second informants of the SBU (depth and diversity of customer knowledge development, resource exploitation, and resource exploration) and achieved the following fit statistics: chi-square $_{(59\ \text{d.f.})}$=102.93, GFI=.94, NFI=.93, CFI=.94, IFI=.92, and RMSEA=.05. All measurement models suggest good fit, and each item significantly ($p<.01$) loads on its a priori designated factor, indicating unidimensionality and convergent validity. All construct coefficient alphas are .70 or greater, suggesting acceptable scale reliabilities.

To assess the discriminant validity of the constructs, we compared a model in which we constrained the correlation between each pair of constructs to 1 with an unconstrained model. To indicate discriminant validity, the unconstrained model must fit significantly better than the constrained model (Anderson and Gerbing 1988). The pairwise chi-square difference tests indicate that in each case, the chi-square difference statistic is significant at the .01 level, which provides evidence of discriminant validity. In addition, the average variance extracted is greater than the squared correlation between the two constructs, in further support of discriminant validity (Fornell and Larcker 1981). In Table 1, we present the correlation matrix and descriptive statistics.

Table 1 Correlation matrix and descriptive statistics

Variables	Mean	Standard deviation	Correlation matrix												
			1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.
1. Level of customer acquisition orientation	3.98	1.14	1.00													
2. Level of customer retention orientation	4.24	1.20	.34	1.00												
3. Consistency of acquisition orientation	0.24	0.11	−.11	−.03	1.00											
4. Consistency of retention orientation	0.23	0.13	.06	−.24	.37	1.00										
5. Depth of customer knowledge	5.48	1.03	.08	.17	−.11	−.09	1.00									
6. Diversity of customer knowledge	4.60	1.11	.19	−.16	−.07	.06	.42	1.00								
7. Resource exploitation	4.96	1.41	−.11	.24	.02	−.10	−.22	.18	1.00							
8. Resource exploration	4.12	1.32	.28	.08	−.08	−.05	.09	.04	.36	1.00						
9. Radical innovation performance	3.63	1.06	.13	.06	−.04	−.09	.08	.12	−.18	.15	1.00					
10. Incremental innovation performance	4.33	1.10	−.03	.14	−.08	−.10	.15	−.13	.20	.11	.33	1.00				
11. CRM investment intensity	0.22	0.20	.02	.16	.11	−.17	.05	−.08	.11	.17	.04	.11	1.00			
12. Market dynamism	5.47	1.11	.12	−.20	−.07	.10	.05	.10	.10	.11	.02	.11	.05	1.00		
13. Competitive intensity	5.11	0.95	.08	.03	−.10	.04	−.08	−.05	.04	−.03	.01	.10	.05	.25	1.00	
14. Technology turbulence	4.24	1.13	−.11	−.07	.09	.06	.10	.03	−.04	.07	.06	.05	−.06	.21	.24	1.00

$p<.05$ if the correlation is greater than .13 or less than −.13; $p<.01$ if the correlation is greater than .17 or less than −.17

Results

We used 3-stage least square (3SLS) to estimate our model for several reasons. First, the endogenous resource configuration decision and customer knowledge development have to be incorporated to avoid the misspecification of the model. Second, the error terms of the resource configuration decision and customer knowledge development might be correlated that there may be other factors not identified in the model that may affect them simultaneously. That being the case, the 3SLS is the appropriate estimation technique (Ailawadi and Harlam 2004).

In estimating our model, we first examined potential antecedents by inputting all hypothesized main effects and control variables (Models 1 and 3), and we then added all hypothesized interactions to the main-effects-only model (Models 2 and 4). We mean-centered the independent and moderating variables to reduce potential multicollinearity (Aiken and West 1991); the variance inflation factors range from 1.02 to 3.88, suggesting no serious problems. We present these results in Tables 2, 3 and 4.[1] Further, to provide clarity on the nature of our significant interaction effects, we present the interaction plots in Appendix B.

As we indicate in Table 2, Model 2, H1a, which hypothesizes a positive relation between level of customer acquisition orientation and depth of customer knowledge, is not supported (β=.05, n.s.). However, as we show in Table 2, Model 4, the level of customer acquisition orientation positively relates to the diversity of customer knowledge (β=.28, $p<.01$), in support of H1b. In addition, the level of customer retention orientation relates to the depth of customer knowledge (β=.15, $p<.05$) and negatively to the diversity of customer knowledge (β=−.26, $p<.01$), in support of H2a and H2b. Furthermore, the interactive term between levels of customer acquisition and retention orientation positively relates to the diversity of customer knowledge development (β=.16, $p<.05$), in support of H3b (see Appendix B, Plot A). However, H3a is not supported because the interactive term does not have a significant relationship with the depth of customer knowledge development.

Furthermore, as we indicate in Table 3, Model 2, the level of customer acquisition orientation positively relates to resource exploration (β=.24, $p<.05$), in support of H4. Results in Table 3, Model 4, also indicate that H5 is supported, in that the level of customer retention orientation relates positively to resource exploitation (β=.35, $p<.01$). For H6a and H6b, we first tested whether the predicted

[1] We also conducted separate analyses in the financial service and retailing industries and found no significant difference for any of the significant coefficients. For clarity, we present only the results from the pooled sample.

Table 2 Determinants of depth and diversity of customer knowledge development

Variables	Hypotheses	Depth of customer knowledge development		Diversity of customer knowledge development	
		Model 1	Model 2	Model 3	Model 4
Control variables					
Market dynamism		.07	.10***	.02	.04
Competitive intensity		−.20*	−.14*	−.06	−.13*
Technological turbulence		.16*	.16*	.04	.07
CRM investment intensity		.03	.05	−.03	−.03
Independent variables					
Level of customer acquisition orientation	$H_{1a/b}$	.01	.05	.23**	.28**
Level of customer retention orientation	$H_{2a/b}$	.17*	.15*	−.22**	−.26**
Consistency of customer acquisition orientation		−.09	−.06	−.04	−.01
Consistency of customer retention orientation		−.02	−.05	−.02	−.03
Interaction effects					
Level of customer acquisition orientation × Level of customer retention orientation	$H_{3a/b}$		.08		.16
Level of customer acquisition orientation × Consistency of customer acquisition orientation	$H_{7a/b}$		.05		.05
Level of customer retention orientation × Consistency of customer retention orientation	$H_{8a/b}$		.16*		−.13*
F-value:		1.93*	2.17*	2.28*	2.47**
R^2		.09	.12	.12	.15
Adj R^2		.04	.07	.06	.08

***p<.10.; **p<.01; *p<.05

Table 3 Determinants of resource exploration and resource exploitation

Variables	Hypotheses	Resource exploration		Resource exploitation	
		Model 1	Model 2	Model 3	Model 4
Control variables					
Market dynamism		.04	.06	.17*	.23**
Competitive intensity		−.08	−.10***	.03	.02
Technological turbulence		.14*	.05	−.07	−.05
CRM investment intensity		.16*	.15*	−.03	.04
Independent variables					
Level of customer acquisition orientation	H_4	.27**	.24*	−.07	−.04
Level of customer retention orientation	H_5	−.01	−.02	.31**	.35**
Consistency of customer acquisition orientation		−.08	.09		
Consistency of customer retention orientation				−.05	−.02
Interaction effects					
Level of customer acquisition orientation × Level of customer retention orientation	$H_{6a/b}$		−.18*		−.19*
Level of customer acquisition orientation × Consistency of customer acquisition orientation	H_{7c}		.17*		
Level of customer retention orientation × Consistency of customer retention orientation	H_{8c}				.05
F-value:		3.09**	4.06**	3.67**	4.73**
R^2		.15	.19	.14	.20
Adj R^2		.10	.14	.12	.18

***p<.10, **p<.01; *p<.05

Table 4 Hypotheses 6 a/b. Levels of resource exploration and exploitation across different combinations of customer orientations

Customer acquisition orientation	Customer retention orientation	
	High	Low
High	4.9/5.0	5.4/4.7
Low	4.8/5.6	4.4/4.4

negative interactive effect exists between acquisition and retention orientations (see Table 3). The interactive term is, indeed, significantly negative in relation to resource exploration ($\beta=-.18$, $p<.05$) and resource exploitation ($\beta=-.19$, $p<.05$). Further, we find specific support for H6a and H6b in that the level of resource exploration is significantly higher than with any other combination of resource allocation pattern when acquisition orientation is high and retention orientation is low ($p<.05$), while resource exploitation is significantly higher when acquisition orientation is low and resource orientation is high ($p<.05$) (see Table 4 and Appendix B, Plots B and C, respectively).

H7 and H8 pertain to the moderating effects of consistency in customer acquisition and retention orientations. Specifically, consistency in a customer acquisition orientation positively moderates its positive effect on resource exploration ($\beta=.17$, $p<.05$), in support of H7c (see Appendix B, Plot D). However, H7a and H7b are not supported because the interactive terms between consistency and level of customer acquisition orientation are not significant for the depth and diversity of customer knowledge. Further, consistency in customer retention orientation amplifies the positive effect of customer retention orientation on depth of customer knowledge ($\beta=.16$, $p<.05$) and the negative effect of level of customer retention orientation on diversity of customer knowledge development ($\beta=-.13$, $p<.05$) (see Appendix B, Plots E and F, respectively). Therefore, we find support for H8a and H8b. We do not achieve support for H8c, because the interaction between consistency and the level of customer retention orientation is not significantly related to resource exploitation ($\beta=.05$, n.s.).

As we indicate in Table 4, Models 1 and 3, the depth of customer knowledge does not significantly relate to radical innovation performance ($\beta=-.10$, n.s.) but positively relates to incremental innovation performance ($\beta=.27$, $p<.01$), in support of H9b but not H9a. H10a and H10b are supported in that the diversity of customer knowledge positively relates to radical innovation performance ($\beta=.31$, $p<.01$), while diversity of customer knowledge relates negatively to incremental innovation performance ($\beta=-.25$, $p<.01$). Resource exploration positively relates to radical innovation performance ($\beta=.24$, $p<.05$), while not significantly relating to incremental innovation ($\beta=-.06$, n.s.), in support of H11a but not H11b. Resource exploitation negatively relates to radical innovation performance ($\beta=-.30$, $p<.01$) and positively to incremental innovation performance ($\beta=.41$, $p<01$), in support of H12a and H12b (Table 5).

Finally, it should be noted that several control variables were significant. Market dynamism positively influences resource exploitation ($\beta=.23$, $p<.01$), while CRM investment intensity positively affects resource exploration ($\beta=.15$, $p<.05$). This is logical, given that a dynamic market would necessitate staying up-to-date on current customers, while the implementation of CRM activities would likely spur growth into new markets (Landry et al. 2005). Finally, competitive intensity negatively influences both depth ($\beta=-.14$, $p<.05$) and diversity ($\beta=-.13$, $p<.05$) of customer knowledge, while technological turbulence positively influences depth of customer knowledge ($\beta=.16$, $p<.05$). The negative effect of competitive intensity is somewhat counterintuitive, as increased competition would seem to necessitate having a better understanding of customer desires (both current and potential), as opposed to de-emphasizing such knowledge gains.

Discussion

Our objective was to differentiate between customer acquisition and retention orientations and examine their relationship to both customer knowledge development and resource configuration decision making, which are imperative for understanding radical and incremental innovation performance. We also explored how implementation consistency among different dimensions of customer acquisition and retention orientations amplify these relationships. The empirical analysis we conducted with primary data collected from 225 SBUs across the financial services and retail industries indicates some interesting results with important theoretical and managerial implications.

Theoretical and managerial implications

We demonstrate that a unit's customer acquisition and retention orientations differentially influence its radical and incremental innovation performance. Increasing a focus on acquiring customers enhances the diversity of customer knowledge development and resource exploration, which relates positively to greater radical innovation performance. On the contrary, because of the negative relationship between diverse customer knowledge and incremental innovation, increasing a focus on customer acquisition suppresses incremental innovation performance. Alterna-

Table 5 Determinants of radical and incremental innovation performance

Variables	Hypotheses	Radical innovation performance		Incremental innovation performance	
		Model 1	Model 2	Model 3	Model 4
Control variables					
Market dynamism		−.03	.04	.07	.10***
Competitive intensity		.02	.03	.05	.06
Technological turbulence		−.01	.11***	.03	.02
CRM investment intensity		.03	.01	.03	.04
Independent variables					
Depth of customer knowledge development	$H_{9a/b}$	−.06	−.10	.34**	.27**
Diversity of customer knowledge development	$H_{10a/b}$	.17*	.31**	−.30**	−.25**
Resource exploration	$H_{11a/b}$	.25**	.24**	−.08	.06
Resource exploitation	$H_{12a/b}$	−.31**	−.30**	.30**.41**	
Level of customer acquisition orientation	Mediation test		.32**		−11
Level of customer retention orientation	Mediation test		.07		.35**
F-value:		2.72**	4.03**	4.48**	5.53**
R^2		.12	.21	.19	.26
Adj R^2		.08	.15	.15	.22

***p<.10; **p<.01; *p<.05

tively, we demonstrate that increasing a focus on customer retention enhances incremental innovation performance through three mechanisms (enhanced depth of customer knowledge, suppressed diversity of knowledge, and increased resource exploitation decisions) but undermines radical innovation performance through reduced diversity of customer knowledge and decisions that prioritize resource exploitation.

Further, we demonstrate that the two customer engagement orientations are not independent but rather interact to influence radical and incremental innovation performance, though their interactions get reflected in complicated manners. First, their joint presence leads to *heightened* diversity of customer knowledge, which links negatively to incremental innovation performance and positively to radical innovation performance (although it should be noted that a similar effect may be found simply through a reduced emphasis upon customer retention and/or acquisition, as implied in Appendix B, Plot A). Second, their joint presence also *suppresses* both resource exploration (Appendix B, Plot B), which positively influences radical innovation, and exploitation (Appendix B, Plot C), which negatively influences radical innovation and positively influences incremental innovation. A suppression of both exploration and exploitation suggests the "confusion" alluded to in previous literature when attempting to simultaneously allocate heightened resources to both current and new customer pursuits.

Put simply, it does not appear that a simultaneously high level of resource allocation to both acquisition and retention orientations will ultimately strengthen innovation outcomes, regardless of the overall goals of the organization. That is, while an emphasis upon both acquisition and retention may heighten the diversity of customer knowledge, the same goal may be achieved through simply emphasizing an acquisition orientation and minimizing a retention focus or, somewhat surprisingly, by minimizing a focus upon either. This seems to imply that while a strong emphasis upon retention certainly weakens the creation of diverse customer information, an absence of such a focus results in a natural inclination toward the development of diverse knowledge. It could be that a normative curiosity exists to understand diverse customer needs unless a specific emphasis is given to only current customers. Therefore, in combination with our other findings, it would make managerial sense to simply emphasize acquisition if the desired goal is radical innovation. That is, because a high level of *both* acquisition and retention orientations hampers *both* forms of innovation, a manager should put resources toward the achievement of a desired innovation outcome (i.e., radical or incremental), while minimizing focus upon the competing alternative.

As such, this research implies that a firm's goal of achieving both radical and incremental innovation performance simultaneously is a complex challenge. Although there are certainly examples in the popular press regarding successes in such regards (i.e., "ambidextrous" organizations—see O'Reilly and Tushman 2004 and Jana 2007), the academic literature suggests that though theoretically appealing, simultaneous radical and incremental

innovation is very difficult, so most firms must choose a primary focus (He and Wong 2004). We reinforce this argument; because customer acquisition and retention orientations have conflicting effects on radical and incremental innovation, a firm must decide which innovation performance is its priority and develop consistent customer acquisition and retention orientations. At the same time, firms should consider the interactive effects between customer acquisition and retention orientations. For example, if the primary focus is incremental innovation performance, the focus should be on customer retention with an eye on leveraging the diversity of customer knowledge obtained while minimizing "resource rigidity" that results from the simultaneous development of customer acquisition and retention orientations. Managers might find alternative ways to enhance the depth and diversity of customer knowledge to supplement the identified weaknesses of a specific orientation.

Moreover, we demonstrate that researchers should examine customer acquisition and retention orientations in terms of both level and consistency. Extending from organizational design theory, we find that consistency across the five elements (i.e., leadership, structure, culture, strategy, and control) of customer engagement orientation amplifies the relationship between customer acquisition and retention orientations and customer knowledge development (Appendix B, Plot E and F) and resource configuration decisions (Appendix B, Plot D). Specifically, a heightened and consistent focus upon retention enables depth of knowledge, which then amplifies incremental innovation performance. In addition, a heightened and consistent focus upon acquisition significantly enhances resource exploration, which ultimately has a positive influence upon radical innovation performance. Consistency, therefore, seems relevant, while focusing on only a few of the elements of customer engagement orientation may lead to a biased view of an "actual" orientation.

These results also have implications for the market orientation literature. Despite extensive research into the relationship between market orientation and innovation, the results remain inconclusive. For example, Hurley and Hult (1998) and Han et al. (1998) find a positive effect of market orientation on a firm's innovation behaviors, whereas Voss and Voss (2000) argue that customer orientation has a negative impact because of the lack of breakthrough innovations it involves. More recently, Im and Workman (2004) have posited that customer orientation has a negative effect on new product novelty. We provide some possible explanations for this mixed picture. That is, the relationship between market orientation (more specifically, customer orientation) and innovation cannot be determined without understanding the specific customer engagement process emphasized by the customer orientation. Customer orientation pertains to customer needs, but we believe orientations toward existing versus new customers lead to different innovation outcomes. Our conceptualization of customer acquisition and retention orientations also suggests that market orientation research should include different organizational design elements, such as leadership, structure, culture, strategy, and control, to capture the full range of activities that may influence performance. These elements may not co-vary, so additional studies should examine consistency among the organizational design elements as well as the level.

Furthermore, managers should look beyond the traditional measurement metrics emphasized by CRM, such as customer satisfaction and direct financial returns, to include innovation outcomes. As innovation grows ever more critical to ensure the long-term success of a firm, this perspective becomes more significant. Specifically, firms must maintain a careful balance between customer acquisition and retention processes and ensure their strategic customer engagement orientation is aligned with their innovation goals. Firms also should monitor the processes of customer knowledge development and internal resource configurations, which help create a balance between radical and incremental innovations. With regard to customer knowledge development, firms should track depth and diversity, which have differing impacts on innovation. Firms also may want to monitor the allocation of resources in customer engagement processes, because achieving a balance between radical and incremental innovation requires the balance of resource allocations between refining existing product and service offerings and acquiring totally new technologies, processes, and procedures. In addition, firms should ensure that all of the different elements of their customer acquisition and retention process are aligned, because a consistent approach magnifies their effects on innovation performance.

Limitations and future research directions

Although we collect data from across financial services and retail industries and control for some sources of industry heterogeneity (e.g., market dynamism, which does have a significant effect upon resource exploitation), further research should extend our model to other contexts beyond service technologies. Further, we concentrate on a business-to-consumer context; additional studies might extend the model to a business-to-business context. For example, customers tend to play a more active role in product development and innovation activities in business-to-business contexts by participating in the innovation process (Prahalad and Ramaswamy 2000), implying that further studies should incorporate customers' expertise and knowledge.

Also, although we collect data from two different sources, recent literature suggests that the presence of

equivalent structural models might still be a problem (Henley et al. 2006). We tried to overcome this potential limitation by relying upon theory to suggest that the antecedent conditions to customer knowledge development and resource configuration decisions would be firm orientation toward either retention or acquisition (i.e., structure follows strategy). Still, future researchers who build upon this work should note the potential that knowledge development and resource configuration could drive firm orientation (although this is not the case with our data).

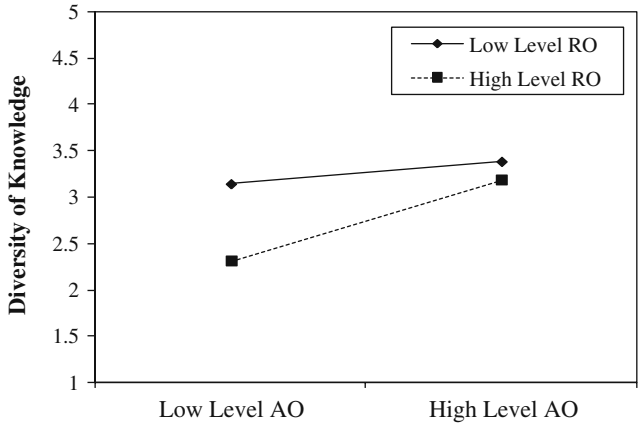
Another limitation exists because we do not specifically explore the financial consequence, such as firm value or return on investment, of a business unit's radical and incremental innovation performance. Additional studies that explicitly explore the financial consequences of a firm's innovation performance would provide a more detailed picture of the importance of radical and incremental innovation performance.

Appendix A

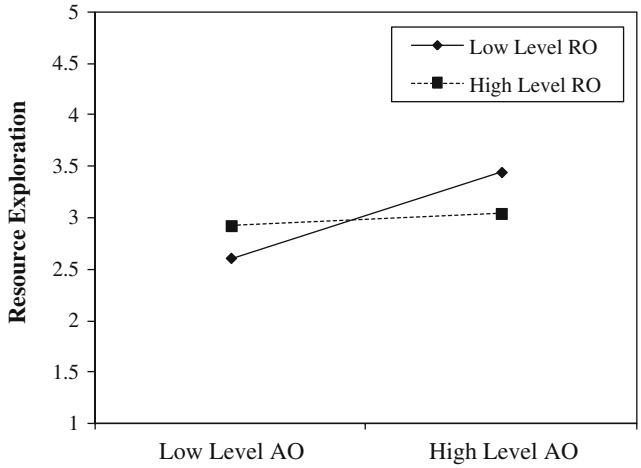
Constructs and Items	Loadings
Customer acquisition orientation (Reported by first informant)	
Structure (coefficient alpha: .71, composite reliability: .75)	
We have a formal system in place that differentiates engagement processes with new customers based on their potential value.	.88
Our organization is structured in a way to better acquire valuable potential customers.	.85
New customer segments are clearly defined in our unit's customer relationship management efforts.	.87
Leadership (coefficient alpha: .70, composite reliability: .66)	
Our senior management emphasizes very often the significance of acquiring valuable new customers.	.84
The leaders in our organization have a clearly defined mission driven by customer acquisition.	.80
Senior management communicates the importance to our unit of acquiring valuable new customers.	.79
Culture (coefficient alpha: .74, composite reliability: .66)	
Employees across the unit agree that being able to acquire valuable customers is the key to our competitive advantage.	.83
In our unit, differentiating and targeting valuable new customers is viewed more like an investment, instead of an expense.	.79
Acquiring valuable new customers is seen by employees as essential for the unit's success.	.82
Strategy (coefficient alpha: .73, composite reliability: .65)	
Our unit's strategy for competitive advantage is based on acquiring high-value customers from competitors.	.82
Our competitive advantage depends largely on differentiating and targeting valuable new customers.	.79
Our unit has a clear strategic planning process to identify and target new customer opportunities.	.81
Control (coefficient alpha: .78, composite reliability: .63)	
Employees' reward and promotion opportunities depend largely on how they successfully target and acquire valuable new customers for the unit.	.82
Employees are given specific guidance for acquiring new valuable customers.	.78
Our unit regularly measures how successfully employees acquire valuable new customers.	.74
Front-line employees' performance evaluations depend largely on how well they acquire new valuable customers.	.82
Customer retention orientation (Reported by first informant)	
Structure (coefficient alpha: .70, composite reliability: .62)	
We have a formal system for determining which of our current customers are of the highest value.	.78
Our organization is structured to optimally respond to existing customers with different values.	.77
We have a formal system to segment existing customers based on their economic value.	.82
Leadership (coefficient alpha: .72, composite reliability: .63)	
Our senior management emphasizes the significance of managing relationships with valuable existing customers.	.79
The leaders in our unit have a clearly defined mission driven by customer retention.	.74
Senior management communicates the importance to our unit of retaining valuable existing customers to the competitive advantage of the unit.	.85
Culture (coefficient alpha: .73, composite reliability: .65)	
Employees across the unit agree that being able to retain valuable existing customers is the key to our competitive advantage.	.79
In our unit, maintaining relationships with valuable existing customers is viewed more like an investment, instead of an expense.	.81
Being able to retain valuable existing customers is seen by employees as essential for the unit's success.	.81
Strategy (coefficient alpha: .80, composite reliability: .62)	
Our unit's strategy for competitive advantage is based on retaining valuable existing customers.	.81
Our competitive advantage depends largely on cross-selling and up-selling to our existing customers.	.80
Our unit has a clear strategic planning process to manage relationships with valuable existing customers.	.75
Control (coefficient alpha: .85, composite reliability: .62)	
Employees' reward and promotion opportunities depend largely on how they successfully maintain relationships with high value existing customers for the unit.	.81
Employees are given specific guidance for retaining high value existing customers.	.74
Our organization regularly measures how successfully employees retain valuable existing customers.	.82
Customer satisfaction is an important component of front-line employees' performance evaluations.	.77
Constructs reported by first informant	
Radical innovation performance (coefficient alpha: .71, composite reliability: .57)	

Constructs and Items	Loadings
Significant innovations in our customer service technologies have contributed significantly to our financial performance.	.74
The incorporation of substantially different technologies has helped to achieved significant profits.	.80
The introduction of radical innovations has helped our unit to achieve significant revenue growth.	.73
Incremental innovation performance (coefficient alpha: .73, composite reliability: .61)	
The incremental improvement in our existing customer service technologies has significantly helped our financial performance.	.81
The improvement of our existing customer service technologies has contributed significantly to our profits.	.80
We have gained significant revenue growth from improvements of our service offerings and service extensions.	.74
Market dynamism (coefficient alpha: .71, composite reliability: .73)	
In the market, customers' preferences change quickly over time.	.84
Market demand and consumer tastes have been upredictable.	.90
In the market, customers tend to look for new products and services all the time.	.83
Competitive intensity (coefficient alpha: .75, composite reliability: .62)	
Competition in our market is cutthroat.	.80
There are many "promotion wars" in our market.	.76
Anything that one competitor can offer, others can match readily.	.81
Technology turbulence (coefficient alpha: .73, composite reliability: .62)	
The technology in our market is changing rapidly.	.79
Technological changes provide big opportunities in our industry.	.76
It is very difficult to forecast where the technology in our industry will be in the next 2 to 3 years.	.81
Constructs reported by second informant	
Depth of customer knowledge (coefficient alpha: .79, composite reliability: .64)	
Our unit has gathered a large amount of customer information to help identify our high-value customers.	.83
Our unit has established a thorough understanding of customers lifetime values.	.77
Our unit has detailed knowledge about the appropriate channels to reach customers.	.80
Diversity of customer knowledge (coefficient alpha: .74, composite reliability: .61)	
Customer knowledge our unit has developed is very diverse.	.81
Our unit has developed customer knowledge which consists of distinctive customer characteristics.	.82
The customer knowledge our unit has developed is very homogeneous (reversed).	.77
Our unit has acquired customer knowledge with different profiles and behavior patterns.	.73
Resource exploitation (coefficient alpha: .73, composite reliability: .62) To what extent has your unit (very low	
Invested in enhancing skills in exploiting mature technologies that improve productivities of current innovation operations.	.75
Enhanced resource investments in searching for solutions to customer problems that are near to existing solutions rather than completely new solutions.	.80
Strengthened the resources for projects that improve efficiency of existing innovation activities.	.81
Resource exploration (coefficient alpha: .71, composite reliability: .59) To what extent has your unit (very low to	
Invested resources to acquire new service technological infrastructure entirely new to the organization.	.77
Strengthened resources for projects in areas where you had no prior experience.	.74
Acquired new service development processes entirely new to the industry.	.80

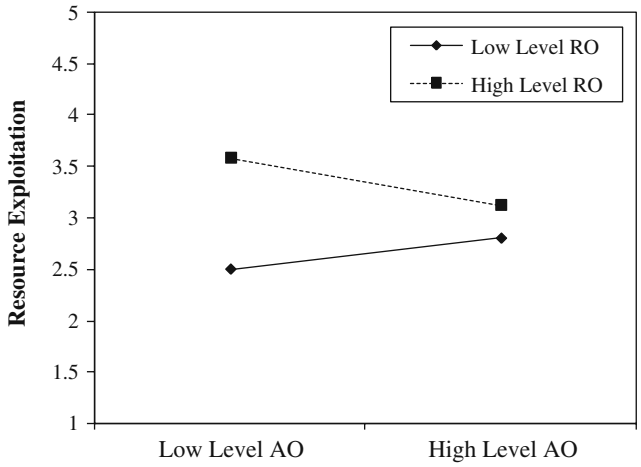
Appendix B: Significant Interaction Effects



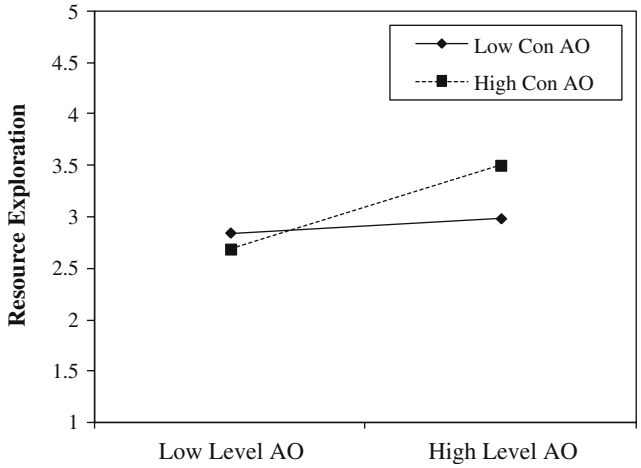
A. Diversity of Customer Knowledge DV: Level of Acquisition Orientation by Level of Retention Orientation



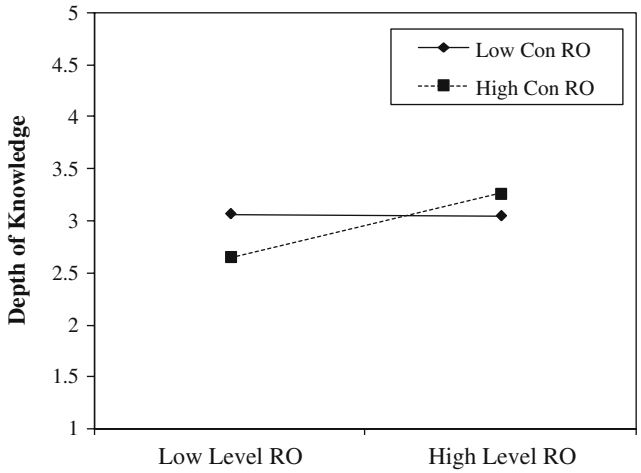
B. Resource Exploration DV: Level of Acquisition Orientation by Level of Retention Orientation



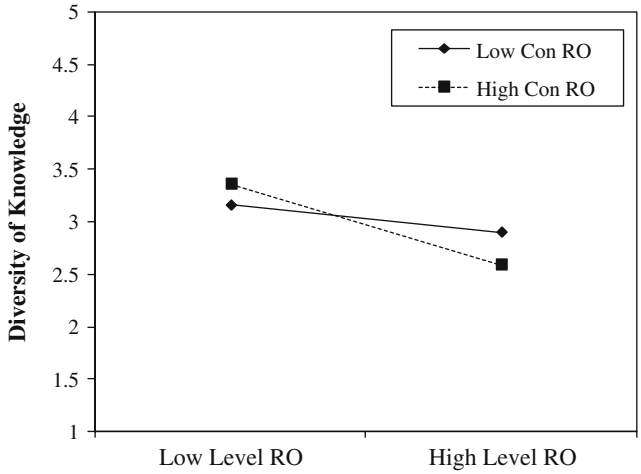
C. Resource Exploitation DV: Level of Acquisition Orientation by Level of Retention Orientation



D. Resource Exploration DV: Level of Acquisition Orientation by Consistency of Acquisition Orientation



E. Depth of Customer Knowledge DV: Level of Retention Orientation by Consistency of Retention Orientation



F. Diversity of Customer Knowledge DV: Level of Retention Orientation by Consistency of Retention Orientation

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