Knowledge Transfer in Intraorganizational Networks: Effects of Network Position and Absorptive Capacity on Business Unit Innovation and Performance

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KNOWLEDGE TRANSFER IN INTRAORGANIZATIONAL NETWORKS: EFFECTS OF NETWORK POSITION AND ABSORPTIVE CAPACITY ON BUSINESS UNIT INNOVATION AND PERFORMANCE

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Drawing on a network perspective on organizational learning, I argue that organizational units can produce more innovations and enjoy better performance if they occupy central network positions that provide access to new knowledge developed by other units. This effect, however, depends on units' absorptive capacity, or ability to successfully replicate new knowledge. Data from 24 business units in a petrochemical company and 36 business units in a food-manufacturing company show that the interaction between absorptive capacity and network position has significant, positive effects on business unit innovation and performance.

Inside a multiunit organization, units can learn from each other and benefit from new knowledge developed by other units. Knowledge transfer among organizational units provides opportunities for mutual learning and interunit cooperation that stimulate the creation of new knowledge and, at the same time, contribute to organizational units' ability to innovate (e.g., Kogut & Zander, 1992; Tsai & Ghoshal, 1998). However, knowledge is often "sticky" and difficult to spread (Szulanski, 1996; Von Hippel, 1994). How can an organizational unit gain useful knowledge from other units to enhance its innovation and performance?

Prior research has suggested that organizational units not only hold specialized knowledge but also have the opportunity to learn from other units (Huber, 1991). However, not every unit can learn from all other units in the same organization. A unit may want to obtain knowledge from other units but may not be able to access it. Even though the knowledge is available, the unit may not have the capacity to absorb and apply it for its own use. Organizational units require external access and internal capacity to learn from their peers. Because of their differential external access and internal capacity, organizational units differ in their abilities to leverage and benefit from knowledge developed by other units.

Although the organizational learning literature has highlighted the importance of the capacity to

absorb knowledge by increasing R&D intensity (e.g., Cohen & Levinthal, 1990), much less attention has been focused on the process of gaining knowledge access. Getting access to new knowledge requires networking effort that is different from investing in R&D. In a multiunit organization, a unit can access new knowledge through a network of interunit links (Hansen, 1999). In this research, I conceptualize an organization as a network arrangement and investigate a unit's access to knowledge by analyzing its network position in its intraorganizational network. In addition, I argue that both external knowledge access and internal learning capacity are important for a unit's innovation and performance. Although a central network position allows a unit to access new knowledge developed by many other units, high learning capacity permits a unit to successfully apply or replicate new knowledge.

ORGANIZATIONAL LEARNING AND INTERUNIT KNOWLEDGE TRANSFER: A NETWORK PERSPECTIVE

Inside an organization, learning involves the transfer of knowledge among different organizational units. Such knowledge transfer occurs in a shared social context in which different units are linked to one another. Organizational units are embedded in a network coordinated through processes of knowledge transfer and resource sharing (Galbraith, 1977; Gresov & Stephens, 1993). Such a network of interunit links enables organizational units to gain critical competencies that contribute to their competitiveness in the marketplace.

Interunit links and networks are an important part of a learning process in which organizational units discover new opportunities and obtain new

knowledge through interacting with one another. The importance of interunit links has been documented in the strategy literature. For example, research on diversification has emphasized the benefits, for multiunit companies, of pursuing synergy through knowledge transfer and resource sharing among their strategic business units (SBUs). As Gupta and Govindarajan noted, "The potential for synergistic benefits from resource sharing varies across strategic contexts, and the realization of these potential synergistic benefits depends on how effectively linkages between SBUs are actually managed" (1986: 696). In addition, research on the knowledge-based view of the firm has suggested that social networks facilitate the creation of new knowledge within organizations (e.g., Kogut & Zander, 1992; Tsai, 2000). Through the development of interunit network links, horizontal transfer of knowledge broadens organizational learning. As Huber (1991) suggested, a learning organization is characterized by motivated units that are intimately connected to one another. By linking different units together, a network arrangement provides a flexible learning structure that replaces old hierarchical structures.

Drawing on a network perspective on organizational learning, I examined two important concepts, *network position* and *absorptive capacity,* that determine the effectiveness of interunit learning and knowledge transfer. Network position, a unit's location in an interunit network, describes its access to knowledge; absorptive capacity, a unit's R&D investment, describes its capacity to learn. Organizational units are not identically capable of acquiring knowledge; they are not equally efficient or effective learners. Because of differences in their knowledge access and learning capacity, organizational units have differing learning capabilities that in turn have a significant impact on their innovation and performance.

Network Position

Different network positions represent different opportunities for a unit to access new knowledge that is critical to developing new products or innovative ideas. An organizational unit's network position reveals its ability to access external information and knowledge. By occupying a central position in the interunit network, a unit is likely to access desired strategic resources. Such resources will fuel the unit's innovative activities by providing the external information necessary to generate new ideas. Equally, the innovative work of the unit will benefit from access to the new knowledge necessary to resolve design and manufacturing prob-

lems (e.g., Dougherty & Hardy, 1996; Ibarra, 1993; Van de Ven, 1986). However, such knowledge is usually distributed unevenly within an organization. As Szulanski (1996) argued, knowledge is difficult to spread across different units within an organization in which preexisting relationships among units are absent. Indeed, innovative ideas are often at the nexus of interunit links. To foster innovation, information and knowledge should be deliberately distributed. A network of interunit links provides channels for distributing information and knowledge in such a way as to stimulate and support innovative activities. A central network position is associated with innovation outcomes for individual units within an organization. As several scholars have argued, a unit's network position is an important aspect of "social structure" that can enhance the unit's ability to create new value and to achieve economic goals (e.g., Coleman, 1990; Tsai & Ghoshal, 1998). An organizational unit occupying a more central position in its intraorganizational network is likely to produce more innovations. Hence,

Hypothesis 1a. The centrality of an organizational unit's network position is positively related to its innovation.

Organizational units differ in their internal knowledge, practices, and capabilities. Networks of interunit links allow organizational units to access new knowledge from each other and may increase their cost efficiency through dissemination of "best practices" within organizations. As Hill, Hitt, and Hoskisson noted, networks of knowledge transfer among organizational units "enable the diversified firm either to reduce overall operating costs in one or more of its divisions, or to better differentiate the products of one or more of its divisions" (1992: 502). The centrality of a unit in the intraorganizational network may determine the unit's access to different knowledge, thus affecting its ability to recognize and respond to new market opportunities. A unit occupying a central network position can gain competitive advantages in the marketplace because of its unique access to other units' knowledge or practices. Such a central unit may enhance its profitability by applying other units' knowledge or practices to adapt its products to market needs, to respond to emerging market trends, and to deal with competitive challenges. Moreover, a central unit is likely to improve its business operations as it can enjoy the benefits of scope economies by sharing the knowledge developed by other units. As a result, performance differences among organizational units may be attributable to the differences

in their intraorganizational network positions. Hence,

Hypothesis 1b. The centrality of an organizational unit's network position is positively related to its business performance.

Absorptive Capacity

Organizational units also differ in their ability to assimilate and replicate new knowledge gained from external sources. Cohen and Levinthal (1990) labeled such ability "absorptive capacity." In discussing how it contributes to innovation, they argue that absorptive capacity tends to develop cumulatively and builds on prior related knowledge. Organizational units that possess relevant prior knowledge are likely to have a better understanding of new technology that can generate new ideas and develop new products. Organizational units with a high level of absorptive capacity are likely to harness new knowledge from other units to help their innovative activities. Organizational units must have the capacity to absorb inputs in order to generate outputs. Without such capacity, they cannot learn or transfer knowledge from one unit to another. For example, in a study of 122 "best practice" transfers in eight companies, Szulanski (1996) found that lack of absorptive capacity was a major barrier to internal knowledge transfer within organizations. Absorptive capacity results from a prolonged process of investment and knowledge accumulation. An organizational unit's absorptive capacity for learning depends on its endowment of relevant technology-based capabilities (Mowery, Oxley, & Silverman, 1996). R&D investment is a necessary condition for the creation of absorptive capacity. As Cohen and Levinthal suggested, the ability to utilize external knowledge is often a by-product of R&D investment. Organizational units with a high level of absorptive capacity invest more in their own R&D and have the ability to produce more innovations. Hence,

Hypothesis 2a. An organizational unit's absorptive capacity is positively related to its innovation.

An organizational unit's absorptive capacity also affects its business performance. According to Cohen and Levinthal (1990), absorptive capacity involves not only the ability to assimilate new external knowledge, but also the ability to apply such knowledge to commercial ends and, thus, create the opportunity for profits. Having good research and development, a unit with high absorptive capacity is likely to successfully commercialize its new products. In addition, a unit with high absorptive capacity is likely to apply new knowledge to improve its business operations. Increments to an organizational unit's knowledge base enhance the unit's business performance in that it can profit from the new knowledge it has absorbed. As a result, higher absorptive capacity is related to better business performance. Accordingly,

Hypothesis 2b. An organizational unit's absorptive capacity is positively related to its business performance.

Interaction between Network Position and Absorptive Capacity

Absorptive capacity is also likely to moderate the effect of network position on business unit innovation and performance. Although a central network position provides important access to new knowledge, its impact on business unit innovation and performance may depend on the extent to which a unit can absorb such new knowledge. A unit may be able to access certain new knowledge, but not enhance its innovation and performance if it does not have enough capacity to absorb such knowledge. The better a unit can access other units' knowledge, the more it needs absorptive capacity to benefit from such knowledge. An organizational unit occupying a central network position can access new knowledge from many other units. Such a central network position will have a more positive impact on the unit's innovation output and business performance if the unit has high absorptive capacity with which to effectively transfer knowledge from other units. The interaction between network position and absorptive capacity is critical to intraorganizational knowledge sharing. Without a simultaneous consideration of its network position and absorptive capacity, a unit is likely to encounter a "search-transfer problem" in which it cannot transfer the knowledge it identified through its network search (Hansen, 1999). The more central a unit is in an intraorganizational network, the broader the knowledge sources the unit has and the higher the absorptive capacity needed to transfer such knowledge. Hence,

Hypothesis 3a. The centrality of an organizational unit's network position is more positively related to innovation when the unit has high absorptive capacity than when the unit has low absorptive capacity.

Hypothesis 3b. The centrality of an organizational unit's network position is more positively related to business performance when

the unit has high absorptive capacity than when the unit has low absorptive capacity.

METHODS

Data Collection and Research Site

This research was conducted in two large multinational corporations, here given the fictitious names Taiplex Corporation and Resident Enterprise. Each had a typical multiunit organizational structure in which each unit was responsible for developing, manufacturing, and selling products. Although similar in organizational structure, the two companies specialized in different businesses and thus differed in many aspects of their operations. Taiplex specialized in the petrochemical industry and had annual revenues of $10.7 billion and total assets of $15 billion at the time of the study. Resident specialized in food manufacturing and had annual revenues of $4.1 billion and total assets of $3.8 billion. The two companies also targeted very different markets. Taiplex's products, which were mainly for industrial markets, included plastic raw materials, plastic secondary products, and industrial equipment. Resident's products, which were mainly for consumer markets, included edible oil, beverages, fast foods, and dairy products.

A questionnaire was distributed to all business units in the two companies in 1996. I used sociometric techniques in the questionnaire to collect relational data that described how units interacted with one another within each company. At the time of the survey, Taiplex had 24 business units and Resident had 36 business units. For each of these units, I contacted two individuals, the director and the most senior deputy director, to respond to my questionnaire. Therefore, I had a total of 120 potential respondents. Because top management in both companies approved and supported the study, all the contacts completed and returned my questionnaire. To ensure confidentiality, I promised that I would not reveal the true names of the companies, the units, and the respondents involved in this research. Respondents were asked to return their completed questionnaires directly to me instead of routing them through corporate headquarters. In addition to the questionnaire survey, corporate internal records were also used to collect data on business unit R&D intensity, innovation, and performance.

Because I had multiple respondents in each unit, I calculated interrater agreement to examine how responses varied within each unit. I used the mean percentage agreement, as suggested by Tsai and Ghoshal (1998), to measure interrater agreement for relational data. The mean percentage agreement is defined as the number of responses selected by both respondents in a unit divided by the number of responses selected by at least one of the two respondents in a unit. The value of the mean percentage agreement can range from 0.0 (perfect inconsistency) to 1.0 (perfect consistency). In this study, the mean percentage agreement was 0.93 in Taiplex and 0.77 in Resident for my network measure. The mean percentage agreement was calculated before I cross-validated the responses. For my statistical analyses, only validated data were used. The method for data cross-validation is detailed in the next section.

Dependent Variables

There were two dependent variables in this study: innovation and performance. Both were measured at the business unit level. Because units may specialize in different industries and have different strategic priorities, innovation and performance data needed to be adjusted to evaluate each unit (Gupta & Govindarajan, 1984). To do so, I used an innovation achieved rate, or the number of new products introduced in a unit in a particular year divided by the unit's target number in that year, and a profitability achieved rate—a unit's return on investment in a particular year divided by its target return in that year—to measure innovation and performance, respectively. The innovation and profitability targets were assessed and negotiated between unit managers and corporate managers each year. These managers considered business unit strategic priorities and industry-related factors when they set the targets. The achieved rates for all the units in this study were collected for the time period 1997–98 through corporate internal records.

Independent Variables

Absorptive capacity. Following Cohen and Levinthal (1990), I used R&D intensity (defined as R&D expenditure divided by sales) to measure absorptive capacity at the business unit level. Data on R&D expenditure and unit sales were obtained through corporate internal records. Consistent with the data collection period of other independent variables in this study, 1996 R&D intensity was used here.

Network position. To identify a business unit's intraorganizational network position, I developed a questionnaire item asking the respondents, "Which units provide your unit with new knowledge or expertise when your unit is seeking technical ad-

vice inside your organization?" A list of all the units was provided in the questionnaire, allowing respondents to simply select their answers from the list. To validate the data, I also asked the opposite question, that is, who came to them for new knowledge or expertise. I ascertained that there was a knowledge transfer relationship between units i and j if unit i indicated it had provided its knowledge to unit j and unit j also confirmed receiving knowledge from unit i (cf. Hansen, 1999; Krackhardt, 1990). Because I had multiple respondents per unit, I considered data valid if a knowledge transfer relationship (indicated by any respondent of the knowledge source unit) was confirmed by any respondent of the knowledge recipient unit. Using validated data, I constructed a relational matrix of interunit links for each company—a 24 by 24 matrix for Taiplex and a 36 by 36 matrix for Resident. In each matrix, the i, jth cell is coded 1 if unit i provided its knowledge to unit j.

Drawing on these relational matrixes of interunit links, I calculated in-degree centrality for each unit. In-degree centrality represents the total number of units from which a focal unit has received knowledge. The higher a unit's in-degree centrality, the more knowledge sources the unit has. As Freeman (1979) argued, in-degree centrality is the most suitable centrality measure for capturing an individual actor's information or knowledge access.

Control Variables

Size can affect a unit's innovation and performance. Large units tend to have more resources with which to enhance their innovation and performance. They are also usually more powerful than small units and have some advantages in gaining the headquarters' support for their business operations and innovation activities. In this study, I used the logarithms of unit sales and the number of employees in each unit as indicators of unit size. Since the two size indicators were correlated, I averaged them to create a composite measure. The Cronbach's alpha for this composite measure was .94 in Taiplex and .95 in Resident.

Local competition is another variable that can affect innovation and performance. To assess the extent of competition in different local markets, I used these two items: "Competition is intense in our local environment" and "Our unit has strong competitors in the marketplace" (1 = "strongly disagree," 7 = "strongly agree"; α = .82, Taiplex, and .89, Resident; r_{wg} = .92, Taiplex, and .88, Resident).

I also controlled for past innovation and past performance. Business units with a strong history of innovation tend to continue producing many innovations. Likewise, business units that performed very well in the past are likely to keep up a good performance. Hence, I included the innovation and performance measures for previous years (1993–96) in my statistical analyses.

RESULTS

Table 1 shows the mean values, standard deviations, and correlations for all the measured variables for both companies. Since I had two research sites, I performed a Chow test to examine the consistency of results; it indicated that the levels of significance found for my independent variables were not statistically different across the two companies (business unit innovation, $F_{4, 52}$ = 0.95, p = 0.44; business unit performance, $F_{4, 52}$ = 0.88, p = 0.48). Given the result of the Chow test, I pooled the data for all subsequent analyses. To see how much additional variance was explained by the independent variables after controls, I tested my hypotheses with hierarchical regression analysis, entering control variables in step 1, independent variables in step 2, and interactions in step 3 and tracing change in the multiple squared correlation coefficient (R^2) from step to step.

Table 2 shows the results of hierarchical regression analyses estimating the effects of absorptive capacity and network position on business-unit innovation. Hypothesis 1a states that a unit occupying a more central network position is likely to be more innovative. As shown in Table 2, the coefficient for network position is positive and significant ($p < .01$), indicating that a unit's centrality in its intraorganizational network contributes to its innovation. Hence, Hypothesis 1a is supported. Hypothesis 2a predicts a direct effect of absorptive capacity on business unit innovation. The coefficient for absorptive capacity is positive and significant ($p < .01$), indicating that a unit with high absorptive capacity is likely to be more innovative. Hypothesis 2a is confirmed. Hypothesis 3a states that absorptive capacity will moderate the relationship between network position and innovation. To test this hypothesis, I multiplied network position and absorptive capacity and entered the multiplicative interaction item into the regression. Following Aiken and West (1991), I mean-centered the variables (transforming the data into deviation score form with means equal to zero) and reran the regression to minimize the distortion due to high correlations between the interaction term and its component variables. As predicted, the coefficient of the interaction was positive and significant ($p < .01$), indicating that the effect of network position

TABLE 1
Means, Standard Deviations, and Correlations

Variable	Mean	s.d.	1	2	3	4	5	6	7
Taiplex									
1. Network position	24.64	17.47							
2. Absorptive capacity	8.52	4.64	.27						
3. Unit size	5.24	0.44	−.28	.20					
4. Competition	4.05	1.63	−.30	−.20	.05				
5. Prior innovation	94.24	49.78	−.16	.28	.38	.07			
6. Innovation	92.04	51.27	.36	.60**	.29	−.15	.49*		
7. Prior performance	113.83	15.55	.20	−.28	−.04	−.49*	.08	−.09	
8. Performance	115.29	23.95	.34	.33	−.34	−.39	−.07	.13	.16
Resident									
1. Network position	23.49	20.11							
2. Absorptive capacity	9.28	3.94	.09						
3. Unit size	3.76	0.43	.64**	−.06					
4. Competition	4.22	1.76	−.26	.19	−.07				
5. Prior innovation	106.50	71.44	.31	.37*	.23	−.22			
6. Innovation	101.39	40.11	.56**	.45**	.56**	.06	.46**		
7. Prior performance	103.97	14.67	.16	−.08	.13	−.43**	.21	.03	
8. Performance	105.11	18.16	.36*	.24	.22	−.47**	.41*	.31	−.08

$*p < .05$
$**p < .01$
Two-tailed tests.

on innovation is dependent on a unit's absorptive capacity. Hence, Hypothesis 3a is supported.

Hypothesis 1b states that a unit occupying a more central network position is likely to perform better than a unit in a less central position. As shown in Table 2, the coefficient for network position is not statistically significant, indicating that a unit's centrality in its intraorganizational network does not contribute to its performance. Hence, Hypothesis 1b is not supported. Hypothesis 2b predicts a direct

effect of absorptive capacity on business-unit performance. The coefficient for absorptive capacity is positive and significant ($p < .05$), indicating that a unit with high absorptive capacity is likely to have good performance. Hypothesis 2b is confirmed. Hypothesis 3b states that absorptive capacity will moderate the relationship between network position and performance. The interaction coefficient is significant ($p < .05$), indicating that the effect of network position on performance is dependent on a

TABLE 2
Results of Hierarchical Regression Analysis: Effects of Network Position and Absorptive Capacity[a]

Variable	Business-Unit Innovation			Business-Unit Performance		
	1	2	3	1	2	3
Unit size	34.50**	27.20**	32.30**	−2.41	−6.25	−4.51
Local competition	0.65	2.06	2.56	−5.72**	−4.93**	−4.69**
Company	57.33**	47.56**	57.78**	−10.49	−17.03	−13.63
Prior innovation	0.25**	0.14*	0.13*			
Prior performance				0.19	0.13	0.12
Network position		0.73**	0.60**		0.24	0.19
Absorptive capacity		4.12**	4.09**		1.27	1.24*
Network position × absorptive capacity			0.18**			0.06*
R^2	0.31	0.56	0.63	0.25	0.37	0.42
ΔR^2		0.24	0.08		0.12	0.05
ΔF		14.62**	11.01**		4.97**	4.41*

[a]$n = 60$. Data for the two research sites were pooled.
$*p < .05$
$**p < .01$

unit's absorptive capacity. Hypothesis 3b is supported.

To better explain the form of interactions reported in the above hierarchical regression analysis, I plotted the interaction effects in the graphs shown in Figure 1, using one standard deviation above and below the mean to capture high and low absorptive capacity (Cohen & Cohen, 1983).

Additional Analyses

In the above statistical analyses, a business unit's network position was measured as its in-degree centrality in its firm's intraorganizational network. I also performed additional analyses using an alternative measure of network position based on the similarity of ties among business units (e.g., Burt, 1976, 1987). To identify the similarity of ties, I ran structural equivalence analysis using UCINET IV (Borgatti, Everett, & Freeman, 1992). This alternative measure yielded the same pattern of results.

Finally, I also tested whether the effects of network position and absorptive capacity on business

FIGURE 1
Interaction Results

units' performance are mediated by their effects on business units' innovation by entering business-unit innovation as an additional control variable in the business unit performance analysis. The results show that absorptive capacity and its interaction with network position remain significant ($p < .05$) when business unit innovation has been entered as a control, indicating that the effects of network position and absorptive capacity on business-unit performance were not mediated by business-unit innovation in this study.

DISCUSSION AND CONCLUSION

How can an organizational unit gain useful knowledge from other units to enhance its innovation and performance? This research suggests that a unit's external knowledge access and internal learning capacity are critical to answering this question.

A unit's external knowledge access is characterized by its network position. By occupying a central network position, a unit is likely to access useful knowledge from other units. The result of this research indicates that a unit's innovative capability is significantly increased by its centrality in the intraorganizational network, which provides opportunities for shared learning, knowledge transfer, and information exchange. The result demonstrates the importance of gaining access to knowledge through networks and, at the same time, contributes to the literature on networks and innovations (e.g., Ibarra, 1993). Given that vigorous innovative activities usually take place in organizational units, it is indispensable to examine how internal social processes within organizations affect innovation at the organizational unit level. By showing how network position affects innovation in business units, this research provides motivation to study innovation processes within multiunit organizations. This research, however, does not show a significant association between a unit's network position and its business performance. It seems that the benefits of centrality may not always outweigh its costs. Although a central unit can gain a lot of information benefits, maintaining a central position may require intensive coordination efforts that lead to high administrative costs. More research is needed to investigate the net effect of a unit's network position on its performance.

An organizational unit's internal learning capacity determines the extent to which it can absorb new knowledge from other units (Cohen & Levinthal, 1990). Investing in absorptive capacity allows a unit to effectively assimilate and apply external knowledge for its own use. This research
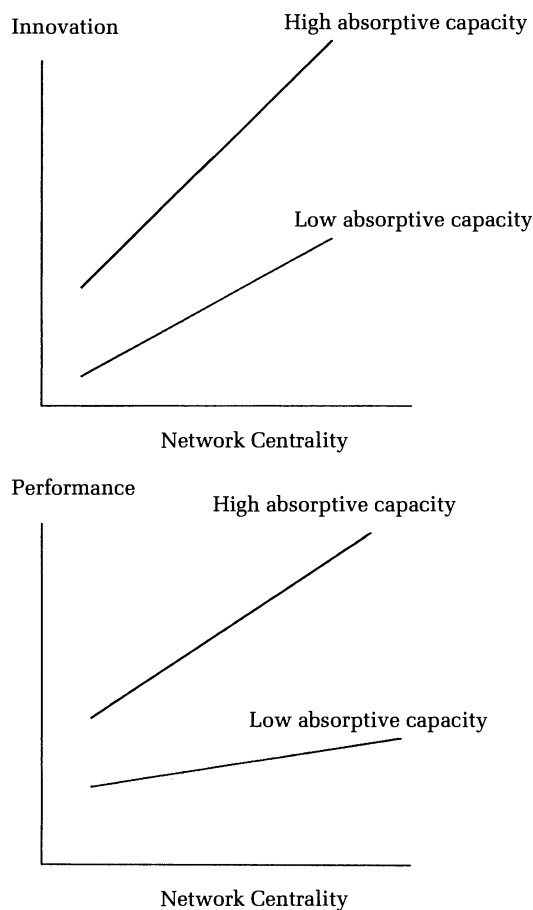
demonstrates that absorptive capacity significantly affects business units' innovation as well as their performance. The result suggests that high absorptive capacity is associated with a better chance to successfully apply new knowledge toward commercial ends, producing more innovations and better business performance. The result contributes to the research on business unit strategy, given that improving business performance is one of the most important objectives for business units in large, complex organizations (e.g., Gupta & Govindarajan, 1986).

This research also shows that the interaction between network position and absorptive capacity significantly affects business units' innovation and performance. This finding is interesting, given that previous research has focused on the direct effect of network structure in explaining business outcomes only, without addressing whether the effect might be dependent on the extent to which a unit can absorb knowledge (e.g., Tsai & Ghoshal, 1998). A central unit may be able to access knowledge through its network links but may not have sufficient capacity to absorb such knowledge. Hence, the better a unit can access other units' knowledge, the higher the absorptive capacity the unit should have. The result suggests that a unit has to invest significantly in its absorptive capacity when expanding its network links.

In this study, I focused on how the interaction between network position and absorptive capacity affected innovation and performance, respectively. Innovation may mediate the effects of absorptive capacity and network position on performance. However, this study does not demonstrate this potential mediation effect. It is possible that there is a significant time lag between innovation and a positive impact on performance. Future studies, including full longitudinal histories of business unit performance, could further explore this issue.

Although previous research has elaborated the concept of organizational learning, there is little systematic understanding of the social processes that underlie how organizational units learn from each other. Critical insights and ideas reside in organizational units. However, knowledge generated by individual units does not come to bear on an organization independently (Crossan, Lane, & White, 1999). Knowledge and ideas are shared and common meanings are developed through interactions. Knowledge is socially constructed, and organizational learning involves a complex social process in which different units interact with each other (Berger & Luckmann, 1966; Huber, 1991). An organization is a repository of knowledge. The ability to access knowledge and to integrate it effec-

tively is truly a source of competitive advantage. By examining the pattern of intraorganizational knowledge transfer and its performance implications, this research contributes to the organizational learning literature and highlights the importance of sharing firm-specific knowledge within organizations.

Providing further evidence that networks play an important role in shaping business outcomes, this research has significant implications for the growing body of research on networks. Specifically, it indicates that network position can promote social learning that makes linked units more astute collectively than they are individually (Kraatz, 1998). Using network analysis, this research indicates a way of exploring the relational profiles of organizational units and the patterns of interunit knowledge transfer. Although a few other studies have examined attributes of interunit networks, their findings are limited to a specific organization because of a one-site sampling scheme (e.g., Hansen, 1999). In contrast, this research examined network structures in two multinational companies specializing in different industries. The present results are stronger given that a similar pattern was found in two different interunit networks.

An organizational unit's network position and absorptive capacity represent its ability to leverage useful knowledge residing in other parts of its organization. A unit's network position reveals its relative strength in gaining access to new knowledge, a unit's absorptive capacity reveals its ability to replicate or apply such new knowledge. The present results show a positive association between network position and business unit innovation, and confirm the moderating role of absorptive capacity in this association. The influence of both network position and absorptive capacity should be studied simultaneously. Investing in absorptive capacity while expanding network links is critical to the success of organizational units in learning new knowledge that eventually leads to competitive advantage. Investigating network position and absorptive capacity also provides useful information a multiunit firm's corporate headquarters can use to understand the relational profiles and learning potential of its units. Although this research focuses on learning outcomes at the unit level, collectively these outcomes may influence the evolutionary path of an entire organization. Interesting results may accrue from examining how interunit learning affects the development of organizational capabilities and organization-level outcomes. Future research pursuing this line of inquiry has great potential to make significant contributions to management research.

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