








# “The impact of knowledge absorptive capacity on the success of knowledge transfers in alliances: The mediating role of interorganizational link strength”

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# THE IMPACT OF KNOWLEDGE ABSORPTIVE CAPACITY ON THE SUCCESS OF KNOWLEDGE TRANSFERS IN ALLIANCES: THE MEDIATING ROLE OF INTERORGANIZATIONAL LINK STRENGTH

## Abstract

Knowledge transfer success in alliances can establish competitive advantages by enhancing an organization's ability to identify, assimilate, and apply new knowledge, commonly referred to as absorptive capacity of knowledge. This process is facilitated through interorganizational relationships, connections, or links characterized by trust, reciprocity, and frequent interactions, which improve the flow of knowledge between partners. This study aims to investigate the impact of the absorptive capacity of knowledge on the success of knowledge transfer, with interorganizational link strength considered as a mediating variable. The analysis was conducted with an initial sample of 154 organizations from the agro-industry cluster in the Santander region of Colombia. Data were collected using a structured Likert-scale questionnaire, targeting leaders and project managers involved in collaborative initiatives. Structural equation modeling (SEM) was employed to analyze the data and test the proposed hypotheses. The results reveal that absorptive capacity significantly and positively influences both the success of knowledge transfer and interorganizational link strength. Besides, interorganizational link strength has a positive and significant impact on the success of knowledge transfer. Furthermore, interorganizational link strength mediates the relationship between absorptive capacity and knowledge transfer success. The study demonstrates that enhancing a firm's absorptive capacity of knowledge improves technology transfer outcomes in collaborative alliances. Also, it reveals that strong interorganizational relationships play a significant role in facilitating knowledge exchange. Together, these findings offer new insights into the synergistic interplay between absorptive capacity and link strength as key enablers of the success of knowledge transfers.

## Keywords

knowledge transfer, collaborative networks, link strength, absorptive capacity, mediation analysis

## JEL Classification

D80, O30, O32

## INTRODUCTION

Knowledge transfer within alliances often has barriers that hinder effective sharing and utilization of knowledge. A critical factor influencing the success of knowledge transfer is the absorptive capacity of knowledge of the participating organizations. When a partner lacks sufficient absorptive capacity of knowledge, it may struggle to comprehend or operationalize the shared or exchanged knowledge, leading to ineffective collaboration and wasted resources (Chen, 2004).

In addition to the absorptive capacity of knowledge, relational links within alliances have been shown to enhance the efficiency of knowledge transfer. When the links are strong, they foster trust and open



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### Conflict of interest statement:

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communication, which are fundamental to effective knowledge sharing (Shu-wen & Wen-an, 2013). However, weak relational links hurt that trust, and cultural differences emerge as significant barriers to knowledge transfer (Gomez et al., 2006).

A lack of trust between alliance partners results in the withholding of critical information and reduced engagement in the collaborative process, thereby impeding effective knowledge transfer (Sherwood & Covin, 2008). Similarly, cultural barriers, including differences in organizational norms, communication styles, and expectations, can create misunderstandings and misalignments, further limiting collaboration (Donate et al., 2012). These barriers, for example, generate the absence of a shared language and common interests, which restrict participants' ability to assess, share, and apply knowledge effectively. Furthermore, the lack of a shared language and common interests, originating from weak relational links, could also be attributed to a deficiency in the absorptive capacity of knowledge because of a misalignment and ineffective communication between partners.

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## 1. LITERATURE REVIEW AND HYPOTHESES

Interorganizational alliances are generally understood as collaborative agreements between two or more organizations to achieve shared objectives. The aim of alliances is to create synergies that enhance the competitive alliances of the involved entities (Kamaruzaman et al., 2021). One of the main objectives of alliances is to serve as a mechanism for facilitating knowledge transfer among organizations, which, in turn, can lead to innovation and strengthen competitive positioning (Drewniak & Karaszewski, 2020). Then, alliances function as vehicles for knowledge transfer by enabling knowledge sharing and exchange of experiences (Jiang et al., 2021).

Knowledge transfer refers to the process of exchange of knowledge between entities, emphasizing activities such as knowledge collection, development, and application within organizations (Wu et al., 2024). Knowledge is defined as a fluid mix of framed experiences, values, contextual information, and expert insights, providing a framework for evaluating and integrating new experiences and information (Prusak & Davenport, 1998). Within organizations, knowledge is not merely a resource but also a critical capability that enables firms to replicate, transform, integrate, and transfer it for competitive advantage (R. M. Grant, 1996; R. Grant & Phene, 2022). Knowledge transfer is a learning process where individuals and groups derive insights from the experiences of others (Easterby-Smith et al., 2008; Zheng & Jaideep, 2009).

Consequently, transferring new knowledge into practice has become a strategic task to generate high value in organizations (Alnahhal et al., 2022; Straková et al., 2021).

Success of knowledge transfer requires the recipient's ability to independently apply acquired knowledge, time, and budgetary investments, satisfaction with the knowledge transferred, and the degree of appropriation and commitment to its application (Argote & Ingram, 2000; Schulze et al., 2014). Cummings and Teng (2003) defined success of knowledge transfer, taking concepts from past research, such as satisfaction with acquired knowledge (Szulanski et al., 2004), commitment to its utilization (Pierce et al., 2001), and the extent of its application (Mowday et al., 1979). Schulze et al. (2014) further refined the success of the knowledge transfer concept by incorporating a comprehensive understanding and dissemination of knowledge. Guo et al. (2020) and Thomas (2020) expanded this framework, including considerations of the knowledge source, the recipient's intent to absorb and reuse knowledge, and the contextual conditions of the transfer.

The effectiveness of knowledge transfer depends on conditions and contextual factors, including organizational and network characteristics (Bacon et al., 2020; Jhamba & Steyn, 2021; Ren et al., 2019). On the one hand, organizational factors such as structure, mindset, capabilities, and absorptive capacity play a pivotal role in the knowledge transfer process (Khachlouf & Quélin, 2018). On the other hand, network-related factors, including geographical proximity, cultural distance, shared

values, trust, and link strength or interorganizational ties, also significantly influence the success of knowledge transfer (Argote & Fahrenkopf, 2016; Xie et al., 2016). The present analysis focuses on two of those factors, the absorptive capacity of knowledge and the interorganizational link strength.

The first factor of knowledge transfer effectiveness in alliances is the absorptive capacity of knowledge of the organization (Human, 2021). Absorptive capacity of knowledge refers to an organization's ability to identify, assimilate, and apply external knowledge to innovate and achieve a competitive advantage (Cohen & Levinthal, 1990). Wang et al. (2023) indicate that absorptive capacity of partner firms significantly impacts the efficiency of knowledge transfer, suggesting that firms with higher absorptive capacity are better positioned to benefit from alliances. Organizations with higher absorptive capacity are better equipped to integrate and leverage acquired knowledge, transforming it into actionable outcomes. Without sufficient absorptive capacity, organizations may acquire knowledge that they cannot effectively apply due to specific organizational constraints, thereby diminishing the effectiveness of the knowledge transfer process (Khachlouf & Quélin, 2018; Rangus & Slavec, 2017).

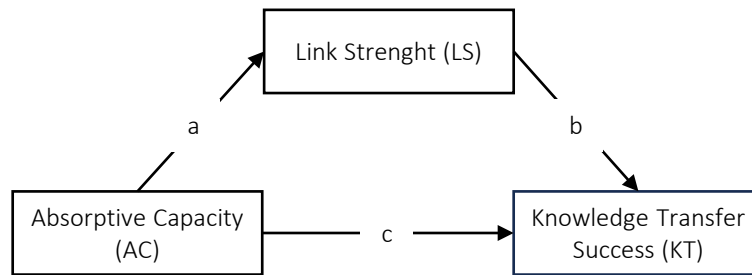
The second factor of knowledge transfer effectiveness is the strength of relational ties between organizations in the alliances. Hansen (1999) and Granovetter (1973) conceptualized link strength as a function of interaction frequency, emotional intensity, and mutual support. Tiwana (2008) expanded this conception by emphasizing trust, reciprocity, and interaction proximity as key components in interorganizational project alliances. Proximal and frequent interactions foster trust and open communication, enhancing the willingness to share knowledge (Ren et al., 2019). Trust, in particular, can reduce reliance on traditional control mechanisms in the knowledge transfer process, creating an environment conducive to collaboration and innovation (Massaro et al., 2019). Yoo and Yang (2015) concluded that a strong relationship between partners fosters a conducive environment for collaboration and mutual understanding, which is key in knowledge transfer settings.

Finally, there is an interaction between absorptive capacity of knowledge, link strength, and success of knowledge transfer. Khachlouf and Quélin (2018) argue that the effectiveness of strong relational links in facilitating knowledge transfer is contingent on the absorptive capacity of the participating organizations. Cohen and Levinthal (1990) and Henderson and Clark (1990) highlight the importance of communicative links within organizations for effective knowledge acquisition and utilization. Zheng and Jaideep (2009) further assert that high absorptive capacity of knowledge, when combined with trust-based and proximal interorganizational links, enhances knowledge transfer between organizations. Organizations with higher absorptive capacities are not only more adept at processing and integrating knowledge but also more likely to establish and maintain strong relational ties, thereby reinforcing the flow and application of new acquired knowledge.

In summary, knowledge transfer success in interorganizational alliances is a complex process influenced by multiple factors, two of which are the organizations' absorptive capacity and the strength of their relational links. These elements not only facilitate the acquisition and integration of knowledge but also enhance collaboration, trust, and innovation among partner entities. Besides, understanding their interaction could potentially increase the success of knowledge transfer in alliances and support long-term competitive advantages.

Based on the literature review, this study aims to investigate the mediating role of link strength between organizations in the impact of absorptive capacity of knowledge on the success of knowledge transfer. The conceptual model is presented in Figure 1, and the research hypotheses are as follows:

- H1: The absorptive capacity of knowledge of an organization has a significant impact on the success of knowledge transfer in collaborative settings.*
- H2: The link strength between organizations significantly impacts the success of knowledge transfer.*



**Figure 1.** Theoretical framework

*H3: The link strength between organizations mediates the relationship between an organization's absorptive capacity of knowledge and the success of knowledge transfer.*

## 2. METHODS

The sample for this study comprised initially 154 organizations belonging to the agro-industry cluster in the Santander region of Colombia. Data were collected using a 26-item questionnaire distributed to organization directors and project managers involved in collaborative projects. Responses were measured on a five-point Likert scale, with 1 indicating “strongly disagree” and 5 denoting “strongly agree.” To ensure reliability, a pilot test was conducted with 20 participants prior to full-scale data collection, yielding Cronbach's alpha values above 0.9 for all latent variables ( $\alpha_{FE} = 0.94$ ;  $\alpha_{CA} = 0.97$ ;  $\alpha_{KT} = 0.90$ ), which demonstrates high internal consistency and strong correlation for the constructs measured (George & Mallery, 2003; Hill, 1998).

The questionnaire was distributed during a project workshop and subsequently via email. This process yielded 100 completed questionnaires, resulting in a response rate of 64.9%. This exceeds the minimum sample size of 66, calculated based on statistical power standards (Lee et al., 2012; Preacher & Coffman, 2006), which account for a power level of 0.8, an optimal fit of 0.05, and a maximum misfit level of 0.08. These parameters align with commonly accepted standards in academic research (Murphy et al., 2014).

The study investigated three primary latent variables: absorptive capacity of knowledge, link strength, and knowledge transfer success. The

variables were measured using the 26 questionnaire items shown in Table 1, operationalized as follows: absorptive capacity of knowledge (items 1–16) was adapted from Backmann et al. (2015), link strength (items 17–21) was measured based on Tiwana's (2008) evidence, and knowledge transfer success (items 22–26) was assessed using an adaptation of Schulze et al. (2014). The operational definitions of variables are given in Table 1.

The study applied structural equation modeling (SEM) for hypothesis testing. The SEM analysis was conducted using the Lavaan package in RStudio, following the guidelines provided by Rosseel (2012). The model's validity was evaluated through confirmatory factor analysis (CFA), composite reliability (CR), and average variance extracted (AVE). In addition, the study used the robust maximum likelihood estimation method to correct for data normality violations (Gana & Broc, 2019). Both local fit and global goodness-of-fit measures were analyzed to ensure the model's robustness and validity.

## 3. RESULTS

The initial measurement model employed 26 items to evaluate the three primary constructs: absorptive capacity of knowledge, link strength, and knowledge transfer success. The reliability of the constructs was confirmed, with Cronbach's alpha values exceeding the 0.8 threshold, indicating internal consistency. Additionally, factor loadings for all items ( $\lambda \geq 0.6$ ) and the explained variances of the items in relation to their latent constructs ( $\lambda^2 \geq 0.4$ ) were statistically significant, confirming the model's convergent validity. The average variance extracted (AVE) exceeded the 0.5 benchmark, providing additional evidence of convergent va-

**Table 1.** Definitions of operational variables

Variable	Item
Absorptive Capacity	Item 1. Interacting with partner organizations to acquire new knowledge
	Item 2. Visiting the partner project team
	Item 3. Gathering new information from the partner's team
	Item 4. Regular meetings with the partner's team
	Item 5. Regular approaches to the partner's team
	Item 6. Interpreting and analyzing information from the partner's team
	Item 7. Understanding information from the partner's team
	Item 8. Processing information from the partner's team
	Item 9. Understanding opportunities from knowledge of the partner's team
	Item 10. Consequences of new knowledge obtained from the partner
	Item 11. Understanding new information from the project
	Item 12. Knowing how to execute this project
	Item 13. Clear vision of roles and responsibilities
	Item 14. The best ways to exploit the knowledge from the project
	Item 15. Applying the acquired knowledge to the project work
	Item 16. Using the acquired knowledge in decision-making
Link Strength	Item 17. Personal interaction with the partner's team
	Item 18. Equitable collaboration among project members
	Item 19. Mutual trust among members
	Item 20. Mutual respect among members
	Item 21. Personal friendships among members
Success of Knowledge Transfer	Item 22. Satisfaction with knowledge acquired
	Item 23. Telling others we are working with new knowledge
	Item 24. Applying the knowledge without the partner
	Item 25. Transferring the new knowledge to others
	Item 26. Knowledge successfully transferred

lidity. However, the data's discriminant validity had problems because the square root of the AVE did not exceed the correlations among the latent variables (Nodari et al., 2016).

Global fit analysis, based on seven indices (Rosseel, 2012), highlighted discrepancies between the empirical covariance matrix and the hypothesized model. The Chi-square test statistic ( $\chi^2$ ) indicated a misalignment between the observed data and theoretical expectations, requiring model refinement to improve fit.

To address these discrepancies, the number of observed variables was reduced to simplify the model while maintaining its conceptual integrity. Five of the 16 items initially measuring absorptive capacity were retained based on their explanatory power, following the guidelines of Backmann et al. (2015). Similarly, three of the five items related to knowledge transfer were excluded due to their low variance explained (<40%) by the latent variable (Gana & Broc, 2019). Additionally, to enhance model fit, correlated errors between five item pairs were ad-

justed as indicated by modification indices. This adjustment, ensuring a  $\chi^2$  reduction of at least 3.84 points, was implemented to justify the associated decrease in degrees of freedom. Additionally, one link strength item was removed due to significant overlap with absorptive capacity, as indicated by its modification index. The final adjusted model retained 12 observed variables distributed across the three constructs, with the original item numbering preserved for traceability.

Table 2 presents the reliability and validity metrics for the adjusted model. Cronbach's alpha values demonstrated high reliability for all constructs ( $\alpha_{AC} = 0.94$ ;  $\alpha_{LS} = 0.91$ ;  $\alpha_{KT} = 0.89$ ). Composite reliability (CR) values exceeded the 0.7 threshold, and AVE values surpassed 0.5, confirming satisfactory convergent validity. Confirmatory factor analysis (CFA) indicated factor loadings ranging from 0.651 to 0.939, further affirming the model's robustness.

Global fit indices, shown in Table 3, validated the revised model, demonstrating strong goodness of

**Table 2.** Cronbach's alpha, average variance extracted (AVE), composite reliability (CR), and factor loading

Variable	Alpha ( $\alpha$ )	AVE	CR	Item	Load
Absorptive capacity of knowledge (AC)	0.94	0.754	0.833	Item 3	0.845
				Item 7	0.852
				Item 9	0.886
				Item 11	0.922
				Item 15	0.835
Link strength (LS)	0.91	0.747	0.796	Item 18	0.924
				Item 19	0.939
				Item 20	0.911
				Item 21	0.651
Knowledge transfer success (KT)	0.89	0.747	0.748	Item 22	0.921
				Item 23	0.888
				Item 26	0.776

**Table 3.** Goodness of fit

Global fit indices	Value	Threshold	Information
Chi-Square ( $\chi^2$ )	$\chi^2 = 113.835$ $p$ -value = 0.18	$p$ -value > 0.05	Harmony between model and data
Yuan-Bentler scale correction factor.	1.122	>1	Moderate correction
Comparative fit index (CFI)	0.989	>0.9	At the threshold of acceptability
Tucker Lewis Index (TLI)	0.986	>0.9	At the threshold of acceptability
Robust root mean square error of approximation (RMSEA)	0.036	<0.08	Compatibility between the model and the data
Upper limit of the confidence interval of the RMSEA	0.038	<0.1	Compatibility between the model and the data
Standardized root mean square residual (SRMR)	0.061	<0.08	Harmony between model and data

fit (Chi-Square  $p$ -value = 0.18; CFI = 0.989; TLI = 0.986; RMSEA = 0.036; SRMR = 0.061). These results indicate that the adjusted theoretical model aligns closely with the empirical data, reflecting an improved fit compared to the initial model.

The final structural model, presented in Figure 2, illustrates the refined factor loadings and relationships between constructs. The model integrates 12 observed variables: five for absorptive capacity, four for link strength, and three for knowledge transfer success. Path analysis results, detailed in Table 4, reveal significant relationships among the variables. Knowledge transfer success is positively influenced by absorptive capacity ( $\beta = 0.522$ ,  $p < 0.001$ ) and link strength ( $\beta = 0.489$ ,  $p < 0.001$ ),

supporting hypotheses H1 and H2. Additionally, absorptive capacity positively influences link strength ( $\beta = 0.825$ ,  $p < 0.001$ ), suggesting that higher absorptive capacity fosters stronger inter-organizational ties.

Table 4 also examines the mediation effect, revealing the relationship between the absorptive capacity of knowledge and the success of knowledge transfer when mediated by link strength. Results indicate a significant mediation effect ( $\beta = 0.403$ ,  $p < 0.001$ ), confirming hypothesis H3. This finding highlights the role of link strength in amplifying the impact of absorptive capacity on knowledge transfer, emphasizing the importance of robust relational ties for successful knowledge transfer.

**Table 4.** Path coefficients

Hypotheses	Path	Coeff	p-Value	Decision
H1	AC $\rightarrow$ KT (c)	0.522	0.000	Accepted
H2	LS $\rightarrow$ KT (b)	0.489	0.000	Accepted
Support for H3	AC $\rightarrow$ LS (a)	0.825	0.000	Accepted
H3	AC $\rightarrow$ LS $\rightarrow$ KT (a*b)	0.403	0.000	Accepted

Note: AC = absorptive capacity; KT = knowledge transfer; LS = link strength.

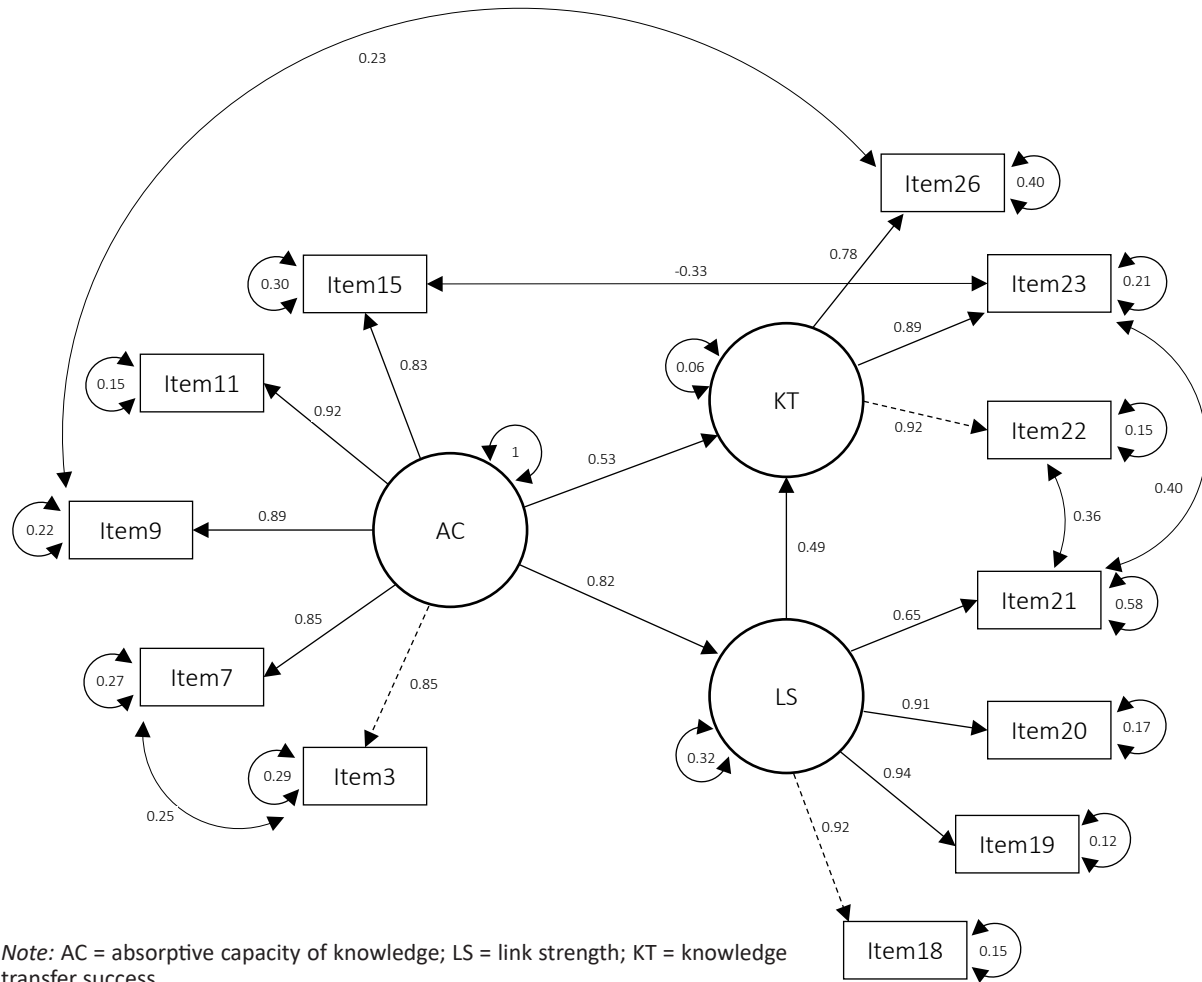


Figure 2. Final adjusted structural model

## 4. DISCUSSION

The analysis of the first hypothesis (H1) confirms that absorptive capacity of knowledge has a positive and significant impact on the success of knowledge transfer. While earlier studies have identified barriers to effective knowledge transfer due to insufficient absorptive capacity on the part of recipient organizations (Kumar et al., 2009), the findings align with a broader consensus emphasizing the critical role of absorptive capacity in facilitating successful knowledge transfer (Khachlouf & Quélin, 2018; Rangus & Slavec, 2017). Specifically, absorptive capacity is reaffirmed as a dynamic organizational capability that supports competitive advantage by enabling the assimilation and application of external knowledge (Human, 2021). For instance, Saraf et al. (2013) demonstrated that absorptive capacity interacts with institutional pressures to enhance knowledge assimilation, while

Sharma et al. (2012) found it to significantly contribute to the effective implementation of technological systems. Furthermore, organizations with high absorptive capacity not only integrate external knowledge effectively but also foster greater alignment in knowledge bases, resulting in higher success rates in knowledge transfer (Schulze & Brojerdi, 2012).

The analysis of the second hypothesis (H2) reveals that the link strength between organizations also has a positive and significant influence on the success of knowledge transfer. Contrary to prior studies that highlight the contingent nature of link strength on knowledge transfer outcomes (Hansen, 2002; Reagans & Mcevily, 2003), the findings suggest that link strength acts as a determinant of successful knowledge transfer. Takahashi et al. (2018) supported this conclusion, emphasizing the role of link strength in fostering

an environment conducive to knowledge sharing through trust, reciprocity, and interaction proximity. Link strength, characterized by frequent interactions, shared experiences, and mutual trust, facilitates deeper communication and understanding between partners, which is essential for effective knowledge sharing. This is consistent with Liu et al. (2023), who demonstrate that connection intensity in collaborative networks significantly enhances research performance and the effectiveness of knowledge transfer.

A comparison of the coefficients indicates that absorptive capacity of knowledge exerts a slightly stronger influence on the success of knowledge transfer than the link strength between organizations. This finding underscores the critical role of absorptive capacity in assimilating and applying new external knowledge (Backmann et al., 2015). Absorptive capacity enables organizations to bridge gaps in knowledge, integrate external insights, and align these with internal processes, thereby ensuring successful outcomes in knowledge transfer (Schulze et al., 2014).

Additionally, the results highlight a significant and positive relationship between the absorptive capacity of knowledge and the link strength between organizations. This finding suggests that greater absorptive capacity enhances the establishment of common understanding and shared language between organizations, which in turn fosters effective communication and stronger relational ties. These results are consistent with Cohen

and Levinthal's (1990) foundational theory, which links absorptive capacity to the development of communicative and proximate ties within networks. Organizations with high absorptive capacity often exhibit robust internal and external communication practices, which facilitate trust and alignment among collaborative partners (Zheng & Jaideep, 2009).

Finally, the empirical analysis of the third hypothesis (H3) confirms that the link strength between organizations mediates the relationship between absorptive capacity of knowledge and the success of knowledge transfer. This finding highlights the complementary nature of absorptive capacity and link strength, demonstrating that stronger absorptive capacity enhances relational links, which, in turn, contribute to greater success in knowledge transfer.

By demonstrating that higher absorptive capacities lead to stronger interorganizational links, the study provides a nuanced view that complements and extends previous research (Todorova & Durisin, 2007). Organizations with strong absorptive capacity in collaborative settings are better equipped to assimilate and apply knowledge received through interorganizational ties (Chang et al., 2012). However, the results challenge the notion that absorptive capacity can substitute for strong ties (Khachlouf & Quélin, 2018) by illustrating that absorptive capacity fosters the development of stronger ties, thereby enhancing the overall efficiency and effectiveness of knowledge transfer.

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## CONCLUSION

This study aims to investigate the impact of the absorptive capacity of knowledge on the success of knowledge transfer, with interorganizational link strength considered as a mediating variable. The findings demonstrate that absorptive capacity of knowledge has a significant positive influence on both the success of knowledge transfer and the strength of interorganizational links. Furthermore, link strength mediates the relationship between absorptive capacity and knowledge transfer success, further emphasizing its critical role in collaborative alliances.

The results highlight the need for managers to foster organizational environments that prioritize and enhance the absorptive capacity of knowledge and emphasize the importance of actively building and maintaining strong interorganizational relationships. This study offers a new understanding of the relationship between absorptive capacity and link strength to create a synergistic effect that increases the success of technology transfer in collaborative alliances. Based on the findings, further research could focus on the impact of absorptive capacity and link strength on the success of knowledge transfer,

checking whether the knowledge transferred is tacit or explicit. Furthermore, future studies could investigate how varying levels of link strength – ranging from weak to strong – modulate this mediation effect. Finally, the effects on link strength and knowledge transfer success could be analyzed based on the specific dimensions of potential and realized absorptive capacity.

## AUTHOR CONTRIBUTIONS

Conceptualization: Hugo Martínez, Monica Dueñas.

Data curation: Monica Dueñas.

Formal analysis: Hugo Martínez, Monica Dueñas.

Funding acquisition: Luis Becerra.

Investigation: Hugo Martínez, Monica Dueñas, Luis Becerra.

Methodology: Hugo Martínez, Monica Dueñas.

Project administration: Hugo Martínez, Luis Becerra.

Resources: Luis Becerra.

Supervision: Hugo Martínez, Luis Becerra.

Validation: Hugo Martínez, Monica Dueñas.

Visualization: Hugo Martínez, Monica Dueñas.

Writing – original draft: Hugo Martínez, Monica Dueñas.

Writing – review & editing: Hugo Martínez, Luis Becerra.

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## REFERENCES

1. Alnahhal, M., Alshehhi, Q., Sakhrieh, A., Altawil, S., & Tabash, M.I. (2022). Impact of integration management on performance in the UAE. *Problems and Perspectives in Management*, 20(1), 58-68. [https://doi.org/10.21511/ppm.20\(1\).2022.06](https://doi.org/10.21511/ppm.20(1).2022.06)
2. Argote, L., & Fahrenkopf, E. (2016). Knowledge transfer in organizations: The roles of members, tasks, tools, and networks. *Organizational Behavior and Human Decision Processes*, 136, 146-159. <https://doi.org/10.1016/j.obhdp.2016.08.003>
3. Argote, L., & Ingram, P. (2000). Knowledge transfer: A basis for competitive advantage in firms. *Organizational Behavior and Human Decision Processes*, 82(1), 150-169. <https://doi.org/10.1006/obhd.2000.2893>
4. Backmann, J., Hoegl, M., & Cordero, J. L. (2015). Soaking it up: Absorptive capacity in interorganizational new product development teams. *Journal of Product Innovation Management*, 32(6), 861-877. <https://doi.org/10.1111/jpim.12295>
5. Bacon, E., Williams, M. D., & Davies, G. (2020). Coopetition in innovation ecosystems: A comparative analysis of knowledge transfer configurations. *Journal of Business Research*, 115, 307-316. <https://doi.org/10.1016/j.jbusres.2019.11.005>
6. Chang, Y.-Y., Gong, Y., & Peng, M. W. (2012). Expatriate knowledge transfer, subsidiary absorptive capacity, and subsidiary performance. *Academy of Management Journal*, 55(4), 927-948. <https://doi.org/10.5465/amj.2010.0985>
7. Chen, C. (2004). The effects of knowledge attribute, alliance characteristics, and absorptive capacity on knowledge transfer performance. *R&D Management*, 34(3), 311-321. <https://doi.org/10.1111/j.1467-9310.2004.00341.x>
8. Cohen, W. M., & Levinthal, D. A. (1990). Absorptive capacity: A new perspective on learning and innovation. *Strategic Learning in a Knowledge Economy*, 35(1), 57-86. <https://doi.org/10.2307/2393553>
9. Cummings, J. L., & Teng, B. S. (2003). Transferring R&D knowledge: the key factors affecting knowledge transfer success. *Journal of Engineering and technology management*, 20(1-2), 39-68. [https://doi.org/10.1016/S0923-4748\(03\)00004-3](https://doi.org/10.1016/S0923-4748(03)00004-3)
10. Donate, M. J., Guadamillas, F., & Sánchez de Pablo, J. D. (2012).

- Knowledge management for strategic alliances. *International Journal of Strategic Information Technology and Applications*, 3(3). <https://doi.org/10.4018/jsita.2012070101>
11. Drewniak, R., & Karaszewski, R. (2020). Diffusion of knowledge in strategic alliance: Empirical evidence. *International Entrepreneurship and Management Journal*, 16(2), 387-416. <https://doi.org/10.1007/s11365-019-00589-2>
  12. Easterby-Smith, M., Lyles, M. A., & Tsang, E. W. K. (2008). Inter-organizational knowledge transfer: Current themes and future prospects. *Journal of Management Studies*, 45(4), 677-690. <https://doi.org/10.1111/j.1467-6486.2008.00773.x>
  13. Gana, K., & Broc, G. (2019). *Structural equation modeling with lavaan*. Wiley.
  14. George, D., & Mallery, P. (2003). *SPSS for Windows step-by-step: A simple guide and reference, 14.0 update* (7<sup>th</sup> ed.). Allyn and Bacon Publisher.
  15. Gomez, F. G., Donate Manzanares, M. J., & Sánchez de Pablo González del Campo, J. D. (2006). Sharing knowledge in strategic alliances to build collaborative advantage. In *Utilizing Information Technology in Developing Strategic Alliances Among Organizations* (pp. 92-121). IGI Global. <https://doi.org/10.4018/978-1-59140-893-2.ch005>
  16. Granovetter, M. S. (1973). The strength of weak ties. *American Journal of Sociology*, 78(6), 1360-1380. Retrieved from <https://www.jstor.org/stable/2776392>
  17. Grant, R. M. (1996). Toward a knowledge-based theory of the firm. *Strategic Management Journal*, 17(S2), 109-122. <https://doi.org/10.1002/smj.4250171110>
  18. Grant, R., & Phene, A. (2022). The knowledge based view and global strategy: Past impact and future potential. *Global Strategy Journal*, 12(1), 3-30. <https://doi.org/10.1002/gsj.1399>
  19. Guo, Y., Jasovska, P., Rammal, H. G., & Rose, E. L. (2020). Global mobility of professionals and the transfer of tacit knowledge in multinational service firms. *Journal of Knowledge Management*, 24(3), 553-567. <https://doi.org/10.1108/JKM-09-2017-0399>
  20. Hansen, M. T. (1999). The search-transfer problem: The role of weak ties in sharing knowledge across organization subunits. *Administrative Science Quarterly*, 44(1), 82-111. Retrieved from <http://www.jstor.org/stable/2667032>
  21. Hansen, M. T. (2002). Knowledge networks: Explaining effective knowledge sharing in multiunit companies. *Organization Science*, 13(3), 232-248. <https://doi.org/10.1287/orsc.13.3.232.2771>
  22. Henderson, R. M., & Clark, K. B. (1990). Architectural innovation: The reconfiguration of existing product technologies and the failure of established firms. *Administrative Science Quarterly*, 35(1), 9-30. <https://doi.org/10.2307/2393549>
  23. Hill, R. (1998). What sample size is "enough" in internet survey research? *Interpersonal Computing and Technology: An Electronic Journal for the 21st Century*, 6(3-4), 1-10.
  24. Human, G. (2021). Linking absorptive capacity, knowledge transfer and transactive memory. *Journal of Business & Industrial Marketing*, 36(10), 1740-1754. <https://doi.org/10.1108/JBIM-01-2020-0060>
  25. Jhamba, A., & Steyn, H. (2021). Knowledge transfer across different boundaries in a project environment: A case study of a Botswana mining organisation. *South African Journal of Industrial Engineering*, 32(1), 182-195. <https://doi.org/10.7166/32-1-2326>
  26. Jiang, X., Jiang, F., Sheng, S., & Wang, G. (2021). A moderated mediation model linking entrepreneurial orientation to strategic alliance performance. *British Journal of Management*, 32(4), 1338-1358. <https://doi.org/10.1111/1467-8551.12428>
  27. Kamaruzaman, N., Asmawi, A., & Chew, K. W. (2021). University-industry R&D alliances – An exploration of alliance capabilities measures. *F1000Research*, 10, Article 959. <https://doi.org/10.12688/f1000research.73093.1>
  28. Khachlouf, N., & Quélin, B. V. I. (2018). Interfirm ties and knowledge transfer: The moderating role of absorptive capacity of managers. *Knowledge and Process Management*, 25(2), 97-107. <https://doi.org/10.1002/kpm.1564>
  29. Kumar, N., Rose, R. C., & Muijen, N. F. A. (2009). The influences of absorptive capacity and social capital on knowledge transfer. *Journal of Applied Business Research (JABR)*, 25(4), 99-108. <https://doi.org/10.19030/jabr.v25i4.1020>
  30. Lee, T., Cai, L., & MacCallum, R. C. (2012). Power analysis for tests of structural equation models. In R.H. Hoy (Ed.), *Handbook of structural equation modeling* (pp. 181-194). The Guilford Press. Retrieved from <https://psycnet.apa.org/record/2012-16551-011>
  31. Liu, J., Guo, X., Xu, S., & Zhang, Y. (2023). Quantifying the impact of strong ties in international scientific research collaboration. *PLOS ONE*, 18(1), Article e0280521. <https://doi.org/10.1371/journal.pone.0280521>
  32. Massaro, M., Moro, A., Aschauer, E., & Fink, M. (2019). Trust, control and knowledge transfer in small business networks. *Review of Managerial Science*, 13(2), 267-301. <https://doi.org/10.1007/s11846-017-0247-y>
  33. Mowday, R. T., Steers, R. M., & Porter, L. W. (1979). The measurement of organizational commitment. *Journal of Vocational Behavior*, 14(2), 224-247. [https://doi.org/10.1016/0001-8791\(79\)90072-1](https://doi.org/10.1016/0001-8791(79)90072-1)
  34. Murphy, K. R., Myors, B., & Wolach, A. (2014). *Statistical power analysis: A simple and general model for traditional and modern hypothesis tests*. Routledge.
  35. Nodari, F., Oliveira, M., & Maçada, A. C. G. (2016). Organizational performance through the donation and collection of interorganizational knowledge. *VINE Journal of Information and Knowledge Management Systems*, 46(1),

- 85-103. <https://doi.org/10.1108/VJIKMS-08-2014-0052>
36. Pierce, J. L., Kostova, T., & Dirks, K. T. (2001). Toward a theory of psychological ownership in organizations. *Academy of Management Review*, 26(2), 298-310. <https://doi.org/10.2307/259124>
37. Preacher, K. J., & Coffman, D. L. (2006). *Computing power and minimum sample size for RMSEA* [Computer software]. Retrieved from <https://quantpsy.org/rmsear/rmsear.htm>
38. Prusak, L., & Davenport, T. (1998). *Working knowledge: How organizations manage what they know* (1<sup>st</sup> ed.). Harvard Business School Press.
39. Rangus, K., & Slavec, A. (2017). The interplay of decentralization, employee involvement and absorptive capacity on firms' innovation and business performance. *Technological Forecasting and Social Change*, 120, 195-203. <https://doi.org/10.1016/j.techfore.2016.12.017>
40. Reagans, R., & Mcevily, B. (2003). Network structure and knowledge transfer: The effects of cohesion and range. *Administrative Science Quarterly*, 48(2), 240-267. <https://doi.org/10.2307/3556658>
41. Ren, X., Yan, Z., Wang, Z., & He, J. (2019). Inter-project knowledge transfer in project-based organizations: an organizational context perspective. *Management Decision*, 58(5), 844-863. <https://doi.org/10.1108/MD-11-2018-1211>
42. Rosseel, Y. (2012). lavaan: An R package for structural equation modeling. *Journal of statistical software*, 48(2), 1-36. <https://doi.org/10.18637/jss.v048.i02>
43. Saraf, N., Liang, H., Xue, Y., & Hu, Q. (2013). How does organisational absorptive capacity matter in the assimilation of enterprise information systems? *Information Systems Journal*, 23(3), 245-267. <https://doi.org/10.1111/j.1365-2575.2011.00397.x>
44. Schulze, A., & Brojerdi, G. J. C. (2012). The effect of the distance between partners' knowledge components on collaborative innovation. *European Management Review*, 9(2), 85-98. <https://doi.org/10.1111/j.1740-4762.2012.01031.x>
45. Schulze, A., Brojerdi, G., & Von Krogh, G. (2014). Those who know, do. Those who understand, teach. Disseminative capability and knowledge transfer in the automotive industry. *Journal of Product Innovation Management*, 31(1), 79-97. <https://doi.org/10.1111/jpim.12081>
46. Sharma, S., Daniel, E. M., & Gray, C. (2012). Absorptive capacity and ERP implementation in Indian medium-sized firms. *Journal of Global Information Management*, 20(4), 54-79. <https://doi.org/10.4018/jgim.2012100103>
47. Sherwood, A. L., & Covin, J. G. (2008). Knowledge acquisition in university-industry alliances: An empirical investigation from a learning theory perspective. *Journal of Product Innovation Management*, 25(2), 162-179. <https://doi.org/10.1111/j.1540-5885.2008.00292.x>
48. Shu-wen, M., & Wen-an, P. (2013). Impact of relationship strength and integration capability on the efficiency of knowledge transfer among technology alliances in China. *Journal of Science and Technology Policy in China*, 4(2), 136-151. <https://doi.org/10.1108/JSTPC-09-2012-0019>
49. Straková, J., Váchal, J., Kollmann, J., & Taliř, M. (2021). Development trends in organizational and management structures. *Problems and Perspectives in Management*, 19(2), 495-506. [https://doi.org/10.21511/ppm.19\(2\).2021.39](https://doi.org/10.21511/ppm.19(2).2021.39)
50. Szulanski, G., Cappetta, R., & Jensen, R. J. (2004). When and how trustworthiness matters: Knowledge transfer and the moderating effect of causal ambiguity. *Organization Science*, 15(5), 600-613. <https://doi.org/10.1287/orsc.1040.0096>
51. Takahashi, M., Indulska, M., & Steen, J. (2018). Collaborative research project networks: Knowledge transfer at the fuzzy front end of innovation. *Project Management Journal*, 49(4), 36-52. <https://doi.org/10.1177/8756972818781630>
52. Thomas, N. (2020). Debates around the nature of knowledge transfer: How well do we know about the construct? *VINE Journal of Information and Knowledge Management Systems*, 50(3), 409-425. <https://doi.org/10.1108/VJIKMS-09-2018-0077>
53. Tiwana, A. (2008). Do bridging ties complement strong ties? An empirical examination of alliance ambidexterity. *Strategic Management Journal*, 29(3), 251-272. <https://doi.org/10.1002/smj.666>
54. Todorova, G., & Durisin, B. (2007). Absorptive capacity: Valuing a reconceptualization. *Academy of Management Review*, 32(3), 774-786. <https://doi.org/10.5465/amr.2007.25275513>
55. Wang, X., van der Bij, H., & Dolfsma, W. (2023). Perceived knowledge relevance in an R&D alliance: The role of job experience, social network position and motivation. *Creativity and Innovation Management*, 32(4), 537-550. <https://doi.org/10.1111/caim.12571>
56. Wu, C., Lee, V., Yang, X., & Chen, Y. (2024). Risk control for knowledge transfer in the big data environment. *IEEE Access*. <https://doi.org/10.1109/ACCESS.2019.2919772>
57. Xie, X., Fang, L., & Zeng, S. (2016). Collaborative innovation network and knowledge transfer performance: A fsQCA approach. *Journal of Business Research*, 69(11), 5210-5215. <https://doi.org/10.1016/j.jbusres.2016.04.114>
58. Yoo, K.H., & Yang, Y.S. (2015). Technology-transfer through international network formation: Revisiting the role of cultural variation. *Management Studies*, 3(2). Retrieved from <https://www.davidpublisher.com/Public/uploads/Contribute/556809deba207.pdf>
59. Zheng, J. Z., & Jaideep, A. (2009). A multilevel perspective on knowledge transfer: Evidence from the Chinese automotive industry. *Strategic Management Journal*, 30(9), 959-983. <https://doi.org/10.1002/smj.780>