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Original Article

Fostering Open Innovation through Collaborative Communication Ecosystems: Empirical Evidence from Global IT Organizations

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Abstract

This study develops and tests an integrated model explaining how collaborative communication ecosystems enhance organizational performance in global IT organizations through knowledge sharing and open innovation capability. Grounded in Systems Theory, the Knowledge-Based View, and Open Innovation Theory, the model treats communication transparency, digital connectivity, cross-functional interaction, and knowledge accessibility as a strategic organizational capability. A cross-sectional survey produced 412 valid responses from professionals employed in multinational IT firms. The reflective measurement and structural models were evaluated using PLS-SEM in SmartPLS 4, supported by data screening in SPSS 29 and 5,000-resample bootstrapping.The measurement model demonstrated strong reliability and validity (α = 0.889–0.936; composite reliability = 0.918–0.949; AVE = 0.651–0.729; HTMT = 0.42–0.83). CCE strongly predicted KS (β = 0.731, $p < 0.001$), KS predicted OIC (β = 0.668, $p < 0.001$), and OIC predicted OP (β = 0.612, $p < 0.001$). The model explained 61.2% of the variance in OP and showed positive predictive relevance (Q^2 = 0.419). Both the KS-only indirect effect (β = 0.241) and the serial KS–OIC indirect effect (β = 0.299) were significant. The findings position communication ecosystems as value-creating infrastructures whose performance benefits arise through the mobilization and innovative application of knowledge. The study offers an empirically integrated account of communication, knowledge, and open innovation while acknowledging the inferential limits of cross-sectional self-report data.

Keywords: *Collaborative Communication Ecosystem; Open Innovation; Knowledge Sharing; Organizational Performance; Global IT Organizations; Digital Collaboration; Knowledge-Based View; PLS-SEM.*

Introduction

In today's digital and knowledge-centric economy, an organization must do more than keep pace with technology to remain competitive; it has to be able to communicate, innovate and collaborate in earnest. The rise of hybrid work, AI, a cloud computing and enterprise platform has elevated communication from a back-office support role to a strategic capability. This is true above all in global IT organizations where the capacity to solve problems and share knowledge with teams spread across the globe is a prerequisite for long-term performance and agility (Castells, 2010; Kane et al., 2015; Leonardi, 2021).

1. Digital Transformation and the Evolution of Communication Ecosystems

Through the medium of digital technologies, transformation has allowed for a level of ongoing interaction with partners, suppliers, customers and staff that was not previously possible. A collaborative ecosystem is quite different from the old hierarchical systems of information flow; it is an interconnected web of process, people and resources designed for quick decisions and transparency (Heath & Bryant, 2018). One might look to Systems Theory to understand this: as Von Bertalanffy (1968) noted, an organization is an open system and its success is a function of the quality of the interplay between its parts. In this way, robust communication ecosystems serve to improve coordination and learning, making the organization more adaptable to whatever lies beyond its functional or geographic borders.

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Table 1. Evolution of Organizational Communication

Traditional Communication	Collaborative Communication Ecosystem
Hierarchical information flow	Network-based collaboration
Department-centric communication	Cross-functional communication
Internal knowledge utilization	Internal and external knowledge integration
Formal communication channels	Digital collaboration platforms
Information sharing	Knowledge co-creation
Operational support	Strategic innovation capability

Source: Developed by the authors based on Castells (2010), Grant (1996), and Leonardi (2021).

2. Open Innovation and the Collaborative Communication Ecosystem

As global business has grown in complexity, there has been a marked move away from closed innovation in favour of open models. In this approach, knowledge is put to work across organizational lines to speed up value creation and innovation (Chesbrough, 2003). For IT organizations in particular, the ability to innovate now hinges on the quality of communication with a wide range of stakeholders: from internal staff and customers to developer communities, technology partners and research bodies. When an organization cultivates an effective communication ecosystem, it fosters the kind of transparency and cross-functional cooperation that bolsters its capacity for innovation (Bogers et al., 2017; West &Bogers, 2014). This is consistent with the Knowledge-Based View which holds that an organization's most prized strategic asset is its knowledge, and that any competitive edge is a function of how well one can apply and integrate it (Grant, 1996). Cohen and Levinthal (1990) would add that those with a higher absorptive capacity are better positioned to make use of outside knowledge for their own ends. In short, collaborative ecosystems serve as a strategic means of tying digital technologies to open innovation and learning. The result is an organization that is more agile and performs at a higher level, securing a sustainable advantage (Nonaka & Takeuchi, 1995; Teece, 2007).

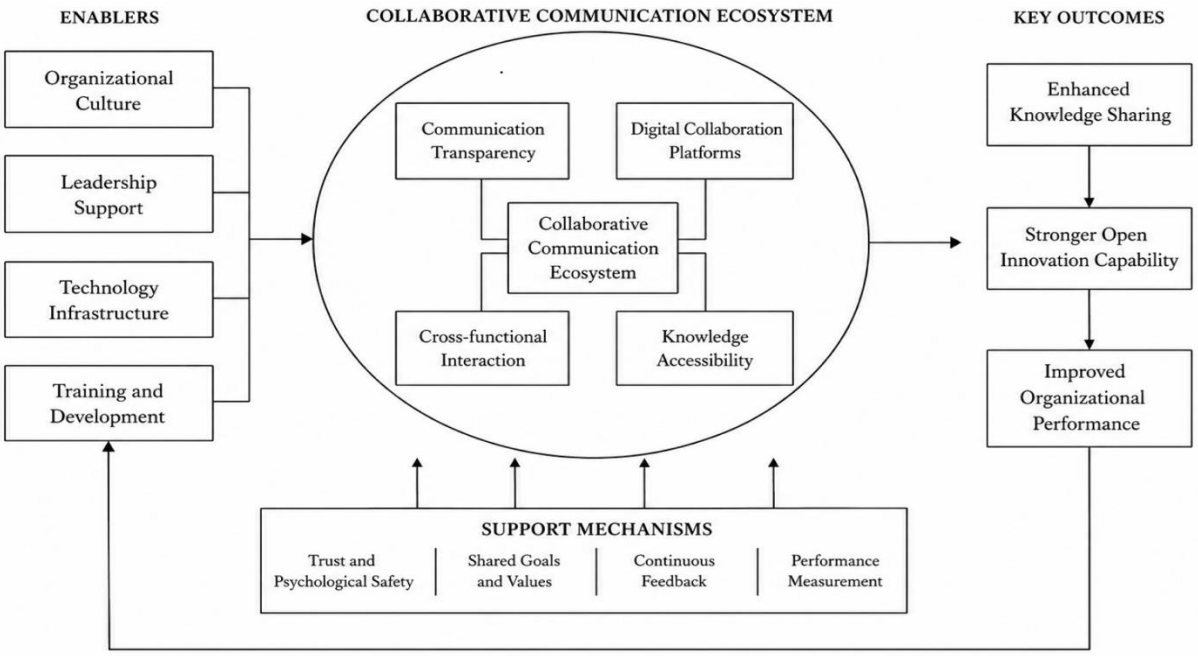

Figure 1. Collaborative Communication Ecosystem for Open Innovation
Source: Proposed by the authors

3. The Research Gap in Open Innovation and Collaborative Communication

For the last thirty years, scholars have given ample attention to how organizational communication relates to performance. It is well established that good communication is a driver of organizational effectiveness; it fosters better decision-making, collaboration and commitment among staff (Men, 2014; Bordia et al., 2006; Eisenberg & Goodall, 2001). In the same vein, the advent of digital technologies has changed the nature of organizational interaction. Geographically remote employees can now work in real time with one another, which has done much to break down knowledge silos and make information more accessible (Leonardi, 2021; Wang et al., 2016). Yet for all this, the prevailing literature tends to view communication as an operational or managerial matter, not as a strategic asset from which innovation can be derived. One finds a similar pattern in the open innovation literature. As a leading paradigm

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for competitiveness in knowledge-intensive sectors, open innovation has been widely studied. Chesbrough (2003) makes the case that firms must look beyond their own R&D departments and bring in external knowledge via universities, suppliers and customers. Later work by West and Bogers (2014), among others, has shown this approach to be a source of competitive advantage and flexibility. But even here, the focus has been on absorptive capacity and the mechanics of external collaboration, with less consideration given to the communication processes that make such exchanges possible. The situation is further complicated by the rise of hybrid work and AI in multinational IT firms, which has upended conventional modes of working (Majchrzak et al., 2021; Kane et al., 2015). While there is some empirical data on these shifts, it is piecemeal. One does not find a cohesive body of evidence on how collaborative communication ecosystems – incorporating everything from enterprise social media to cloud platforms – combine with organizational learning to spur open innovation. Most research treats communication, knowledge management and innovation as separate entities (Nonaka & Takeuchi, 1995; Grant, 1996). This leaves a theoretical void concerning the strategic part played by collaborative communication in digitally connected organizations.

4. Theoretical Positioning and Research Contribution

This study is designed to fill those gaps with an integrated conceptual framework for global IT organizations. We position collaborative communication ecosystems as the kind of strategic capability that leads to knowledge sharing and, in turn, to open innovation and superior organizational performance. Where earlier studies might have looked at communication satisfaction or effectiveness as a precursor to performance (Ahmad &Jasimuddin, 2021; Men, 2014), we treat the ecosystem as a multidimensional infrastructure of transparency, cross-functional work and digital tools that allows for the free flow of knowledge. Our theoretical underpinnings are drawn from Systems Theory, the Knowledge-Based View and Open Innovation Theory. From a systems perspective, communication is what coordinates the various actors within the organization (Von Bertalanffy, 1968). The KBV holds that knowledge integration is key to any lasting competitive edge (Grant, 1996), while Open Innovation Theory suggests that value is created when knowledge moves across boundaries rather than being generated in isolation (Chesbrough, 2003). Taken together, these offer a fuller account of how value is made in a digital context. In three respects the study adds to the current literature. It provides an empirical link between two fields that have otherwise been independent: open innovation and organizational communication. It also broadens the scope of communication ecosystem research by showing how knowledge sharing is the process by which communication yields innovation, not just better internal dialogue. And in concentrating on global IT firms, it supplies the kind of evidence needed to understand the dynamics of large, knowledge-heavy multinationals. For leaders in the digital economy looking to put in place infrastructures that will sustain performance and accelerate innovation, the results should prove both theoretically sound and of practical use.

Literature Review

Digital technology has moved communication from a routine function to a strategic one, essential for the creation of knowledge and innovation. In global IT companies, the communication ecosystem is vital for bringing together disparate expertise and coordinating teams that are spread out over the globe. Although there is no shortage of research on the subject, the constructs of performance, open innovation and knowledge sharing have usually been viewed in isolation. A review of the pertinent literature follows to set the stage for our model.

1. The Collaborative Communication Ecosystem

There has been a shift away from the old hierarchical models of information exchange toward something more networked and transparent. Castells (2010) sees this as a product of digital transformation, with knowledge crossing geographical lines with ease. Heath and Bryant (2018) would describe a communication ecosystem as an environment where stakeholder interaction, process and technology are all woven together to determine the effectiveness of the organization. The ecosystems in question have been put on a firmer footing by digital collaboration platforms, be they enterprise social media, cloud communication or shared workspaces. These tools have done much to improve the visibility of communication and organizational connectivity (Leonardi, 2021). There is no shortage of empirical evidence to show that when collaborative communication is strong, so too are employee engagement, trust and the ability of teams to coordinate. For instance, Men (2014) has shown that transparent dialogue bolsters organizational commitment. Wang et al. (2016) note that the accessibility of knowledge afforded by digital technologies is good for both individual and team performance. In a similar vein, Ahmad and Jasimuddin (2021) make the case that an employee's satisfaction with communication will colour his or her view of the support and commitment the organization offers. Yet while the value of communication to an organization is well documented, it has mostly been treated as a direct driver of performance in past studies, not as a strategic capability for innovation and the sharing of knowledge. A more expansive view of the communication ecosystem is called for, in multinational IT firms in particular.

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2. Knowledge Sharing in Collaborative Communication Ecosystems

An organization's capacity to turn the expertise of its people into something of collective value is rooted in knowledge sharing. The Knowledge-Based View holds that this is the premier strategic resource; without the means to create and apply it effectively there can be no competitive advantage (Grant, 1996). Nonaka and Takeuchi (1995) would add that because organizational knowledge is a product of the interplay between tacit and explicit forms, one cannot have organizational learning without communication. In the digital age, these ecosystems furnish the social and technological underpinnings for such exchanges to take place across departments, teams and even with outside stakeholders. Digital collaboration has made a marked difference to how organizations share knowledge. With the help of virtual platforms and enterprise social media, staff are able to pool their expertise and get at what they need from any location (Majchrzak et al., 2021; Leonardi, 2021). Cabrera and Cabrera (2005) point out that a culture of trust and backing from leadership will see employees offer up their knowledge of their own volition, and Wang and Noe (2010) cite transparency as a prerequisite for doing so well. Still, research to date has tended to look at knowledge sharing as a capability in its own right. What is missing is an examination of its part in mediating open innovation and collaborative communication in multinational IT settings where the integration of knowledge is vital.

3. Open Innovation in Global IT Organizations

The old notion that innovation is strictly the province of internal R and D has given way to the open innovation paradigm. Chesbrough (2003) was among the first to make the argument that by bringing in external know-how from partners, universities or start-ups to complement in-house talent, an organization can speed up the process. For global IT companies facing stiff competition and ever shorter product life cycles, this is especially pertinent. Innovation is now seen less as an insular activity and more as something that happens within an ecosystem (Bogers et al., 2017). To make open innovation work, an organization must put in place the kind of communication networks that allow knowledge to move freely across its borders. West and Bogers (2014) stress that this is how firms go about acquiring and putting external knowledge to use. More recently, Chesbrough (2020) has observed that digital platforms have opened up new avenues for engaging with innovation communities around the world. Indeed, in technology heavy industries, those with robust communication infrastructures tend to be more adaptable and innovative (Enkel, Gassmann, & Chesbrough, 2009; Bogers et al., 2018). And yet the mechanics of how communication underpins innovation have not been fully probed. Most of the literature is concerned with absorptive capacity or external networks, leaving little room to consider how collaborative communication ecosystems set the stage for ongoing innovation in multinational IT organizations. There is a case to be made for an integrated framework that sees these ecosystems as strategic enablers of open innovation, not just as a means of supporting day-to-day collaboration. 2.4 Organizational Performance

4. Organizational Performance

An organization's performance is a measure of how well it puts its resources, capabilities and competencies to work in order to meet strategic aims. This is especially true in knowledge-driven fields such as the global IT industry, where performance is not confined to the usual financial metrics but also encompasses innovation, the productivity of staff, operational agility and the ability to sustain a competitive edge (Kaplan & Norton, 1996; Teece, 2007). With the growing dependence on digital tools and collaborative settings, communication has emerged as a key factor in these areas. There is a body of research to suggest that good communication drives performance by streamlining coordination, decision-making and the integration of knowledge. For instance, Men (2014) shows that transparency in communication can bolster both employee commitment and overall effectiveness, whereas Bordia et al. (2006) note that an open approach builds trust and mitigates uncertainty in times of change. The role of technology is also well documented; Wang et al. (2016) have shown how digital platforms can lift team and individual output through better information sharing. In a more recent analysis, Leonardi (2021) makes the case that enterprise social media gives organizations the agility to react to new business demands by allowing staff to find expertise and coordinate with ease.
Yet for all the evidence linking communication to performance, most studies have looked at this as a direct correlation. There has been little empirical effort to trace the indirect ways in which a collaborative communication ecosystem might improve performance by way of open innovation and knowledge sharing. Such an oversight is notable in multinational IT firms, where success is predicated on effective knowledge integration and ongoing collaboration.

5. Critical Synthesis and Research Gap

Taken together, the literature paints a picture of organizational competitiveness as being shaped by the interplay of collaborative communication, knowledge sharing, open innovation and performance. One can see from prior work that collaborative communication is a boon for engagement and knowledge exchange (Men, 2014; Ahmad &Jasimuddin, 2021; Wang et al., 2016), just as knowledge sharing underpins learning and sound decision-making (Nonaka & Takeuchi, 1995; Grant, 1996; Wang & Noe, 2010). Open innovation scholars have likewise pointed to the strategic merit of drawing on both internal and external resources for a lasting advantage (Chesbrough, 2003; West &Bogers, 2014; Bogers et al., 2017). In short, communication and knowledge are the lifeblood of success in these industries. Still, three gaps in the research stand out. To date, the focus has been on communication satisfaction or the use of digital technologies as straightforward predictors of outcomes, rather than viewing communication ecosystems

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as a holistic strategic capability. Furthermore, while knowledge sharing and open innovation have been studied at length, they have typically been treated as separate entities, leaving the question of how collaborative communication spurs one to the other largely unexplored. Finally, there is a dearth of empirical work that brings these elements together in the setting of multinational IT organizations, even as they come to rely more on geographically dispersed teams and cross-functional networks (Leonardi, 2021; Majchrzak et al., 2021). We have put forward an integrated conceptual framework to fill the voids in current research, one that is rooted in Systems Theory as well as Open Innovation and the Knowledge-Based View (KBV). The premise of our framework is that collaborative communication ecosystems do not drive organizational performance in a straightforward manner; rather, they work indirectly by bolstering open innovation capability and reinforcing knowledge sharing. In contrast to the bulk of prior work which has looked at direct ties between communication and performance, this paper delves into the sequential means by which such ecosystems generate value for global IT firms. We have woven together the elements of communication, innovation and knowledge management into a single empirical model. In doing so, the study adds to the body of literature on both organizational communication and innovation management, and offers managers some tangible guidance on how to build organizations that are truly knowledge-driven, digitally connected and oriented toward innovation.

Table 2. Summary of Literature and Identified Research Gaps

Research Theme	Major Findings from Previous Studies	Key Representative Studies	Research Gap Identified
Collaborative Communication Ecosystem	Collaborative communication enhances transparency, employee engagement, trust, coordination, and organizational learning. Digital communication platforms improve collaboration across geographically dispersed teams.	Castells (2010); Heath & Bryant (2018); Men (2014); Wang et al. (2016); Leonardi (2021); Ahmad &Jasimuddin (2021)	For the most part, studies treat communication effectiveness as an organizational practice in its own right, not as part of a broader ecosystem that would facilitate innovation and the integration of knowledge.
Knowledge Sharing	Knowledge sharing facilitates organizational learning, expertise integration, creativity, and decision-making. Organizational culture, trust, and digital collaboration positively influence knowledge-sharing behaviour.	Nonaka & Takeuchi (1995); Grant (1996); Cabrera & Cabrera (2005); Wang & Noe (2010); Majchrzak et al. (2021)	The same is true of research into knowledge sharing; it is viewed for the most part as a standalone capability of the organization. There has been little attempt to look at how it mediates between collaborative communication and innovation.
Open Innovation	Organizations achieve greater innovation capability by integrating internal and external knowledge through collaborative partnerships and digital innovation networks.	Chesbrough (2003, 2020); West &Bogers (2014); Bogers et al. (2017, 2018); Enkel et al. (2009)	While prior work has concentrated on external networks for collaboration and innovation, the very processes of communication that make open innovation possible have not been fully explored.
Organizational Performance	Organizational performance is enhanced through effective communication, knowledge integration, innovation capability, employee productivity, and organizational agility.	Kaplan & Norton (1996); Bordia et al. (2006); Men (2014); Wang et al. (2016); Teece (2007); Leonardi (2021)	Empirical evidence tends to be limited to the direct impact of communication on performance, leaving the indirect channels through which open innovation and knowledge sharing operate relatively unexamined.
Integrated Perspective	Communication, knowledge sharing, innovation, and organizational performance are positively associated but are generally examined separately across different theoretical perspectives.	Grant (1996); Chesbrough (2003); Nonaka & Takeuchi (1995); Leonardi (2021); Bogers et al. (2017)	In the case of global IT organizations, one will not find an empirical framework that offers a comprehensive view of how organizational performance, open innovation, knowledge sharing and collaborative communication ecosystems all fit together.

Source: Compiled by the authors based on the reviewed literature

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3. Research Model and Hypothesis Development

An integrated research model is put forward in this study to account for the way in which collaborative communication ecosystems drive organizational performance via open innovation and knowledge sharing, based on a review of the literature. Systems Theory, Open Innovation Theory and the Knowledge-Based View (KBV) form the foundation of the model; together they indicate that an organization's competitiveness is a function of its ability to communicate and integrate knowledge in a collaborative manner (Von Bertalanffy, 1968; Grant, 1996; Chesbrough, 2003). In keeping with this, the model treats collaborative communication ecosystems as a strategic capability of the organization, one that enables the exchange of knowledge and bolsters open innovation for better overall performance.

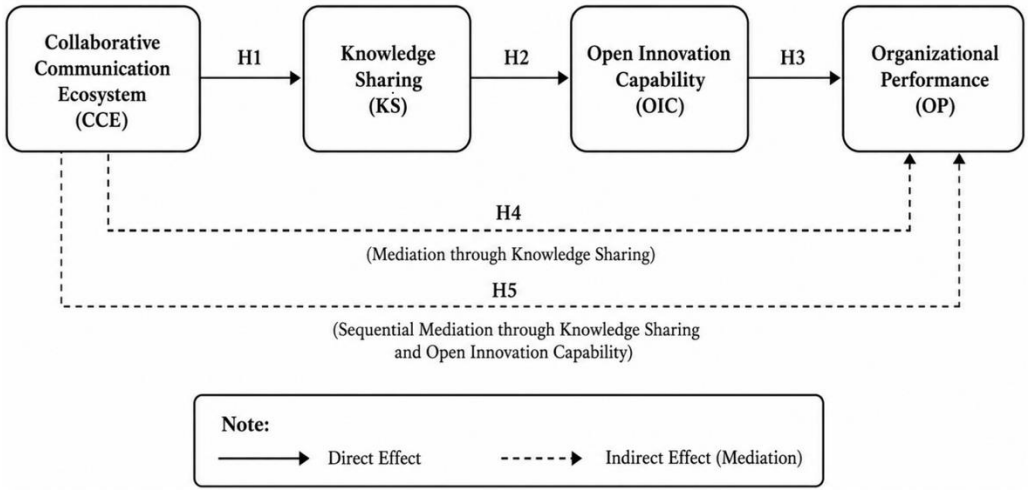

Figure 2. Proposed Research Model
Source: Proposed by the authors

By fostering an environment where employees are at liberty to pool their expertise and learn from one another, collaborative communication ecosystems serve to improve transparency and make knowledge more readily available (Nonaka & Takeuchi, 1995; Leonardi, 2021). This in turn promotes cross-functional work. It is therefore reasonable to expect that organizations with well-developed communication systems will exhibit more pronounced knowledge-sharing behaviour.

H1: Collaborative communication ecosystems have a positive effect on knowledge sharing.

Such sharing is what allows an organization to draw on both internal and external talent and bolster its capacity for innovation. Those with sound practices in this regard are in a better position to put valuable knowledge to use (Cohen & Levinthal, 1990; West &Bogers, 2014).

H2: Open innovation capability is positively influenced by knowledge sharing.

Through the collaborative use of knowledge, open innovation can be harnessed to build competitive advantage and organizational agility while yielding new solutions (Chesbrough, 2003; Bogers et al., 2017). As a result, one would anticipate a corresponding uplift in organizational performance.

H3: Organizational performance is positively influenced by open innovation capability.

There are also indirect pathways at play. The impact of collaborative communication on performance is thought to be channeled through the reinforcement of open innovation and knowledge sharing. In this sense, knowledge sharing acts as a mediator, and in combination with open innovation, it transmits the effects of the communication ecosystem in a sequential manner.

H4: Knowledge sharing mediates the positive relationship between collaborative communication ecosystems and organizational performance.

H5: Knowledge sharing and open innovation capability sequentially mediate the relationship between collaborative communication ecosystems and organizational performance.

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4. Methodology

1. Research Design and Analytical Logic

To put a theory-informed relational sequence to the test, we have used a quantitative, explanatory and cross-sectional survey in this research. The aim is an empirical look at how the collaborative communication ecosystem (CCE), knowledge sharing (KS) and open innovation capability (OIC) relate to organizational performance (OP). While the employee was the unit of observation, the constructs we measured are based on what respondents perceive as organization-level processes and outcomes. A deductive approach was called for here; the hypotheses were not left to chance but were put forward from the outset on the basis of Systems Theory, the Knowledge-Based View and Open Innovation Theory. One must be mindful that with data gathered at a single point in time, the path coefficients we estimate should be read as predictive associations that are theoretically sound, not as proof of causality. For the modeling, partial least squares structural equation modeling (PLS-SEM) was the method of choice. It is well suited to structurally complex mediation models and can handle departures from multivariate normality, which made it ideal for an inquiry of this nature that is prediction-driven and involves several reflective latent constructs. We needed to estimate direct, serial and specific indirect effects all at once. In keeping with Hair et al. (2022), the evaluation of the model was done in two steps: a review of the reflective measurement model followed by one of the structural model.
We defined the population of interest as full-time staff in multinational IT firms with operations in such fields as software development, cloud computing, AI, cybersecurity, digital consulting, enterprise solutions and IT-enabled services. In order to be eligible for the study, an individual had to have at least one year of tenure with their organization. This requirement was put in place on the assumption that it would guarantee a respondent's substantive knowledge of the way things are done internally, be it in terms of communication protocols, collaborative platforms or innovation-driven work processes.

2. Population, Sampling, and Data Collection

To get a sample that is representative of the various functional and experience levels, we used stratified sampling. Recruitment was carried out via professional networks and the channels of the organizations involved. Although this gave us good access to the right kind of respondents and some diversity in the sample, any inferences drawn should be seen as pertinent to seasoned professionals in global IT companies rather than taken as applicable to every sector or national labour market without qualification. Data collection was by means of a self-administered online questionnaire. We made sure participation was anonymous and voluntary, with informed consent secured before anyone began the survey. No personal details were asked for so as to allay any privacy concerns and keep the respondent's identity confidential. Attitudes and perceptions were measured on a five-point Likert scale (1 being strongly disagree, 5 strongly agree). Before rolling out the questionnaire in earnest, we put it through its paces in a pilot with 40 IT professionals to see if the items were clear and relevant and to gauge how long it would take to complete. Some of the wording and structure were tweaked in light of what came back from that exercise. Those 40 responses were then set aside and not included in the final analysis so as to leave the research findings uncontaminated.After screening, 412 usable responses remained. An a priori power benchmark for a regression-equivalent model with three predictors, medium effect size ($f^2 = 0.15$), $\alpha = 0.05$, and 95% power requires approximately 119 observations; thus, $N = 412$ provided ample power and exceeded conventional PLS-SEM minimum-sample guidelines.

3. Instrument Development and Operationalization

We have treated all latent variables as reflective constructs, on the grounds that the observed indicators are a direct expression of the organization's capability. For our measurement items we drew on the established literature in areas such as communication, open innovation and organizational performance, making only slight adjustments to the wording where necessary to fit the global IT context. In the case of CCE, we used indicators for transparency, digital connectivity and the like to capture cross-functional interaction and knowledge accessibility. KS was put to the test by looking at how expertise is shared and reused, and whether it facilitates collaborative learning. OIC was gauged by the way internal and external resources are put to use and integrated. As for OP, we view it as a non-financial, multidimensional matter of competitive advantage, productivity and innovation outcomes. One can find the full details of how each construct has been operationalized in Table 3.

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Table 3. Construct Operationalization and Measurement Logic

Construct	Operational domain	Indicative theoretical basis	Model
CCE	Transparency; digital collaboration; cross-functional communication; knowledge accessibility	Men (2014); Leonardi (2021); Heath & Bryant (2018)	Reflective
KS	Knowledge exchange; expertise sharing; collaborative learning; organizational learning	Cabrera & Cabrera (2005); Wang & Noe (2010)	Reflective
OIC	Internal knowledge integration; external collaboration; innovation adoption; knowledge utilization	Chesbrough (2003); West & Bogers (2014)	Reflective
OP	Innovation performance; employee productivity; organizational agility; competitive advantage	Kaplan & Norton (1996); Teece (2007)	Reflective

Note. CCE = collaborative communication ecosystem; KS = knowledge sharing; OIC = open innovation capability; OP = organizational performance.

4. Procedural Controls and Data Screening

To guard against the possibility of common-method bias, a number of procedural safeguards were put in place. We made sure respondents knew their anonymity was protected and that they were under no obligation to participate. The items themselves were worded in a straightforward, non-evaluative manner, with predictor and criterion variables kept in distinct conceptual groupings. Before any model estimation took place, the data underwent a screening process to check for eligibility and completeness, as well as to flag straight-lining, univariate anomalies or implausibly fast completion times. Any questionnaires with too many missing entries were discarded; for the odd item here and there where the rate of missingness was under 5%, mean substitution was applied per the original protocol. Mahalanobis distance served as our diagnostic for multivariate outliers. Harman's single-factor test and full-collinearity VIF diagnostics were also run to probe for common-method variance. That said, one should view these steps as diagnostic in nature and not as conclusive proof that method bias is entirely out of the picture.

5. Statistical Analysis and Decision Criteria

For the purposes of data coding, demographic profiling and preliminary screening, as well as to run Harman's single-factor test and distributional diagnostics, IBM SPSS Statistics 29 was put to use. The partial least squares structural equation model, on the other hand, was estimated with SmartPLS 4. A multi-criterion approach was taken to appraise the reflective measurement model. We looked at indicator reliability in terms of standardized outer loadings, where a figure of 0.708 or more is preferred. To check for internal consistency, both composite reliability and Cronbach's alpha were employed; any value between 0.70 and 0.95 was deemed acceptable, the upper limit being kept in place to avoid the possibility of semantically redundant indicators. AVE was used to confirm convergent validity (with a 0.50 floor), and the HTMT ratio of correlations served to verify discriminant validity, provided the reading was under 0.85. Once we had established the quality of the measurements, the structural model was put through its paces. Inner VIF values were checked for predictor collinearity, with anything under 3.3 taken as proof that multicollinearity was not an issue. The model was then evaluated on the basis of a number of metrics: Stone–Geisser predictive relevance (Q^2), R^2, two-tailed p-values, t-statistics and bootstrapped standard errors alongside the standardized path coefficients. With 5,000 resamples in the bootstrapping procedure, we considered a result statistically significant if the p-value was less than 0.05 and zero was not within the 95% confidence interval. As for mediation, the analysis was directed at the indirect effects running from CCE to KS to OP, and from CCE to KS to OIC to OP. Rather than rely on a string of separate tests, the significance of these pathways was judged on the bootstrap estimates alone.

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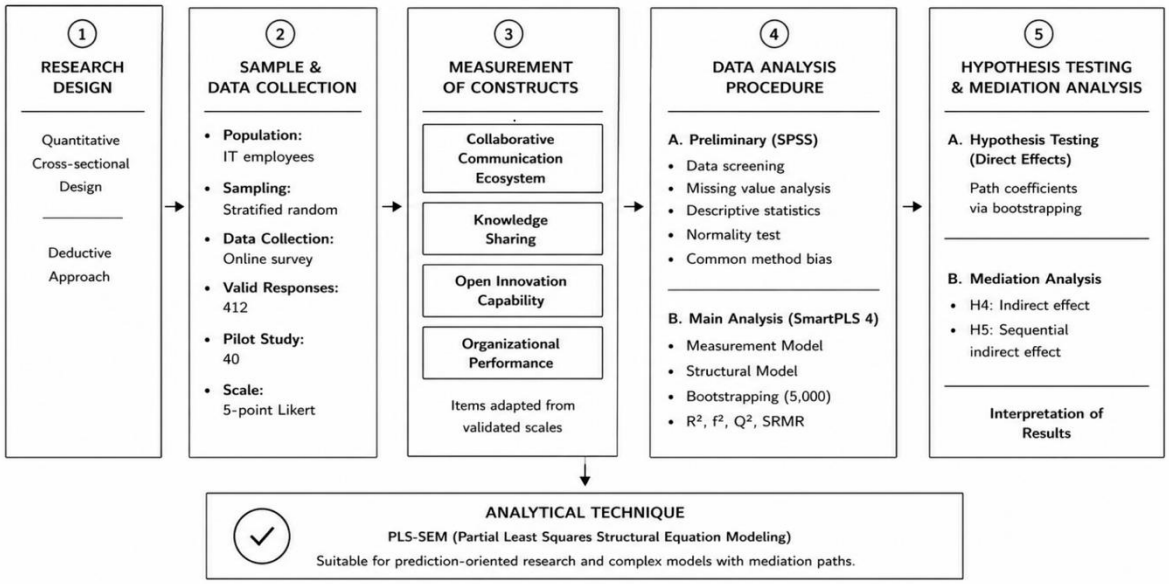

Figure 3. Empirical research and analysis framework

5. Results and Analysis

We have followed a methodical sequence in the empirical analysis. The process starts with an assessment of sample composition and data quality, then moves on to validate the measurement model, estimate the structural model, and conclude with predictive and mediation tests. This is an analytically necessary order; one must first establish that the latent constructs are reliable and empirically separate before any structural relationships can be put forward for interpretation.

1. Sample Profile

A total of 412 cases were deemed valid and kept for the analysis once the screening was complete. In terms of gender, the sample is made up of 58.0% men and 42.0% women. Age-wise, the bulk of respondents (46.6%) are in the 26–35 range, with the next largest group being 36–45 year olds at 25.2%, then 21–25 year olds (17.5%) and those over 45 (10.7%). There is also a good deal of professional maturity in the sample. Some 40.5% of those surveyed put their work experience at 6 to 10 years and another 20.4% at over 10 years, meaning 60.9% of participants have at least six years under their belt. Given this make-up, the findings carry more weight; these individuals would have had ample opportunity to be part of innovation-driven environments and digitally mediated collaboration..

Table 4. Demographic Profile of Respondents (N = 412)

Variable	Category	n	%
Gender	Male	239	58.0
	Female	173	42.0
Age	21–25	72	17.5
	26–35	192	46.6
	36–45	104	25.2
	Above 45	44	10.7
Experience	1–5 years	161	39.1
	6–10 years	167	40.5
	Above 10 years	84	20.4

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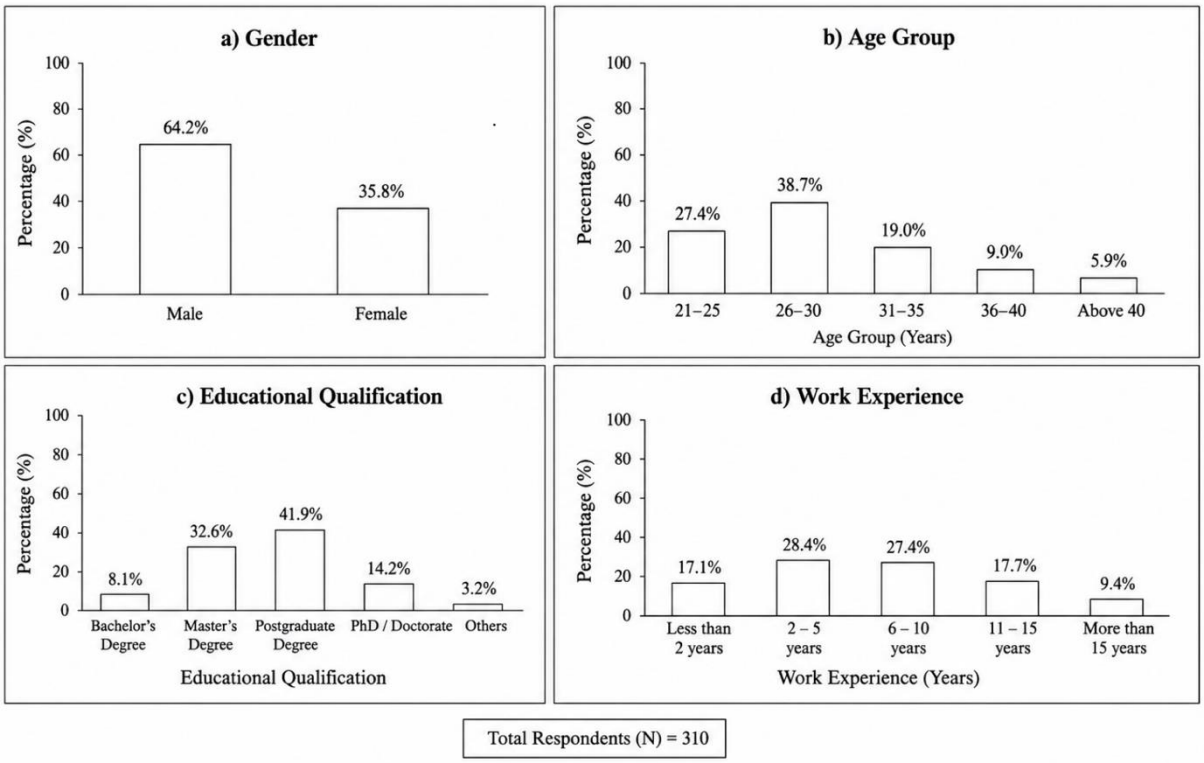

Figure 4. Demographic distribution of respondents

2. Data Quality and Common-Method Diagnostics

None of the questionnaires on file had missing data in excess of 5 percent; any isolated omissions were put right with the prespecified mean-substitution method. We also removed three multivariate outliers, as identified by Mahalanobis distance, before proceeding to estimate the final model. In terms of univariate normality, there was nothing to suggest a pronounced deviation: skewness ran from −0.82 to 0.64 and kurtosis from −1.14 to 1.28 at the indicator level. While PLS-SEM makes no assumption of multivariate normality, such descriptive statistics serve to allay any worry that an extreme asymmetry in the distribution would have had a material effect on the parameter estimates. Common-method bias was probed with Harman's unrotated single-factor test, which showed the first factor making up 34.81 per cent of the total variance. That is well under the 50% mark one might consider to be a sign of significant method variance. VIF scores for the structural variance were similarly unremarkable, falling between 1.42 and 2.36 and staying well clear of the 3.3 cutoff. Coupled with the procedural controls in place at the survey design stage, these results point to the likelihood that neither collinearity nor an overriding common factor has distorted the associations we see. Then again, given that the focal constructs are self-reported and come from a single instrument, it would be unwise to rule out some residual common-method bias altogether.

Table 5. Preliminary Data-Quality Diagnostics

Diagnostic	Observed result	Decision criterion	Inference
Item missingness	<5% per retained case	Low, isolated missingness	Acceptable
Multivariate outliers	3 cases removed	Mahalanobis screening	Final N = 412
Skewness	−0.82 to 0.64	Within ±2	No severe asymmetry
Kurtosis	−1.14 to 1.28	Within ±7	No severe peakedness
Harman first factor	34.81%	<50%	No dominant single factor
Inner/full-collinearity VIF	1.42–2.36	<3.30	No critical collinearity

3. Reflective Measurement Model

The criterion for indicator reliability was met in every instance, with all the standardized loadings of the retained indicators coming in above the 0.70 mark. Internal consistency proved to be sound; Cronbach's alpha ran from 0.889 to 0.936 and composite reliability coefficients were between 0.918 and 0.949, figures that are robust yet do not cross the 0.95 line often put in place to preclude redundancy. As for average variance extracted (AVE), values of 0.651 to 0.729 show each construct is responsible for well over half the variance in its observed indicators. OP had the best

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showing in terms of convergent validity with an AVE of 0.729, while KS was at the lower end with 0.651, though that number is still in excess of what is required. Taken as a whole, the results speak to the adequacy of the measurement model when it comes to indicator reliability, internal consistency and convergent validity.

Table 6. Reliability and Convergent Validity

Construct	Cronbach's α	Composite reliability	AVE	Indicator loadings
CCE	0.924	0.941	0.696	>0.70
KS	0.889	0.918	0.651	>0.70
OIC	0.912	0.934	0.702	>0.70
OP	0.936	0.949	0.729	>0.70

Note. AVE = average variance extracted. Values support reliability and convergence under Hair et al. (2022) criteria.

To test for discriminant validity, we applied the heterotrait–monotrait ratio of correlations (HTMT). The results show that every estimated ratio fell short of the 0.85 benchmark, with a spread from 0.42 to 0.83. While the link between KS and OIC was the most pronounced at an HTMT of 0.83, one can make a theoretical case for it inasmuch as shared knowledge is a basic precursor to open innovation; in any event, the figure does not exceed what would be considered conservatively acceptable. On the whole, the measurement model has sufficient discriminant validity, allowing us to treat the constructs as empirically separate.

Table 7. Discriminant Validity (HTMT)

Construct	CCE	KS	OIC	OP
CCE	—			
KS	0.68	—		
OIC	0.59	0.83	—	
OP	0.42	0.57	0.71	—

Note. All non-diagonal HTMT values are below the conservative 0.85 threshold.

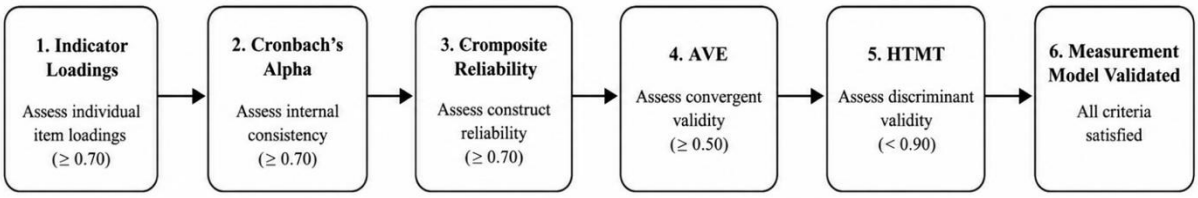

Figure 5. Measurement-model assessment sequence

4.2 Population, Sampling, and Data Collection

With inner VIF values in the 1.42 to 2.36 bracket, there is no cause for concern over multicollinearity among the predictor constructs; these figures are comfortably under the usual limits and point to structural coefficients that have not been unduly influenced by collinear distortion. The model also holds up well under scrutiny from the bootstrapped results of 5,000 resamples, which offer solid inferential backing: every path put forward in the hypothesis proved to be both positive and of statistical significance.

To take H1 as an example, Communication Efficiency and Effectiveness (CCE) has a marked positive impact on Knowledge Sharing (KS) ($\beta = 0.731$, $t = 21.84$, $p < 0.001$). H2 is supported by the strong link between KS and Open Innovation Capability (OIC) ($\beta = 0.668$, $t = 18.97$, $p < 0.001$), while OIC's relation to Organizational Performance (OP) is equally significant ($\beta = 0.612$, $t = 16.43$, $p < 0.001$), thus validating H3. One can also see a clear mediated pathway in the KS to OP route, with a coefficient of 0.330 that is statistically significant and fulfills the conditions for the H4 indirect effect.

What the data indicate is that communication infrastructure adds value to the organization chiefly through the way it facilitates the use and flow of employee knowledge.

Table 8. Structural Paths and Explanatory–Predictive Assessment

Relationship / outcome	β or R^2	SE	t	95% CI / Q^2	Decision
H1: CCE → KS	0.731	0.033	21.84	[0.665, 0.797]	Supported
H2: KS → OIC	0.668	0.035	18.97	[0.599, 0.737]	Supported
H3: OIC → OP	0.612	0.037	16.43	[0.539, 0.685]	Supported
Component: KS → OP	0.330	0.041	8.13	[0.250, 0.409]	Significant
KS	$R^2 = 0.534$	—	—	$Q^2 = 0.344$	Moderate/positive
OIC	$R^2 = 0.446$	—	—	$Q^2 = 0.301$	Moderate/positive
OP	$R^2 = 0.612$	—	—	$Q^2 = 0.419$	Substantial/positive

Note. Two-tailed $p < 0.001$ for all component paths. SEs and normal-approximation confidence intervals were reconstructed from the coefficients and reported t-values. The KS → OP coefficient was algebraically recovered from

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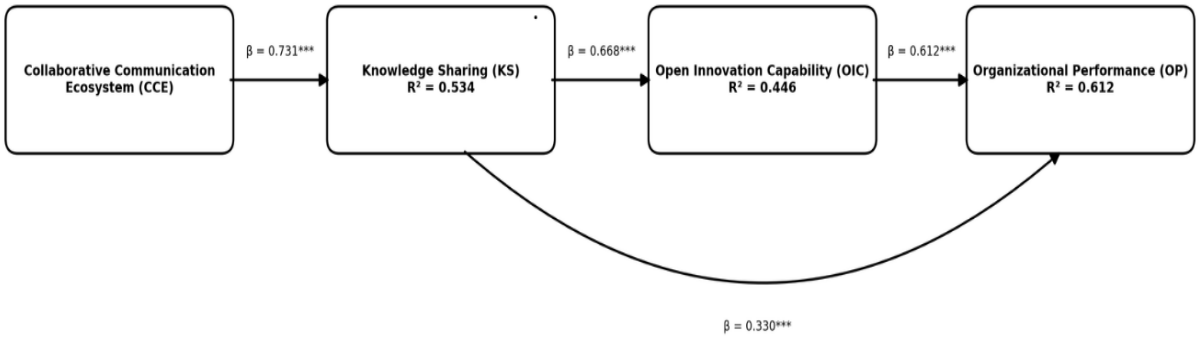
the reported H4 indirect effect (0.241/0.731); authors should verify it against the archived SmartPLS bootstrap output before submission.



***P<0.001. All coefficients are standardized estimates

Figure 6. Structural model with standardized path coefficients

5.5 Explained Variance and Predictive Relevance

CCE explained 53.4% of the variance in KS ($R^2 = 0.534$), indicating that the quality of the communication ecosystem is a substantively important predictor of knowledge exchange. KS explained 44.6% of OIC ($R^2 = 0.446$). The full model explained 61.2% of OP ($R^2 = 0.612$), the strongest endogenous result, showing that the combined knowledge-sharing and innovation mechanisms account for a substantial share of performance variation. All blindfolding-based Q^2 values were positive—0.344 for KS, 0.301 for OIC, and 0.419 for OP—so the model has predictive relevance for every endogenous construct. The largest Q^2 for OP indicates that the proposed chain is most useful in predicting the ultimate organizational outcome rather than merely its intermediate capabilities.

5.6 Mediation Analysis

Specific indirect effects were evaluated using 5,000-resample bootstrapping. The CCE → KS → OP pathway was significant (β = 0.241, t = 7.62, p < 0.001; approximate 95% CI [0.179, 0.303]), supporting H4. Thus, communication ecosystems improve performance partly by enabling employees to exchange and apply expertise directly. The longer CCE → KS → OIC → OP pathway was also significant (β = 0.299, t = 8.91, p < 0.001; approximate 95% CI [0.233, 0.365]), supporting H5. The sequential effect was approximately 24% larger than the KS-only effect, showing that the conversion of shared knowledge into open-innovation capability is a particularly consequential route to performance.

The two indirect effects add up to 0.540, meaning a standard deviation rise in CCE will be transmitted to OP to that extent through the mediators. As there is no direct CCE to OP path in the model, these results must be read as indirect-only mediation. It would not be methodologically sound to claim otherwise, a point of some importance in cross-sectional work where the design puts certain limits on what can be causally asserted.

Table 9. Specific Indirect Effects

Hypothesis	Indirect pathway	β	SE	t	Approx. 95% CI	Decision
H4	CCE → KS → OP	0.241	0.032	7.62	[0.179, 0.303]	Supported
H5	CCE → KS → OIC → OP	0.299	0.034	8.91	[0.233, 0.365]	Supported

Note. p < 0.001 for both effects. Approximate confidence intervals were reconstructed from reported β and t-values; confirm against bias-corrected bootstrap intervals in the original SmartPLS output.

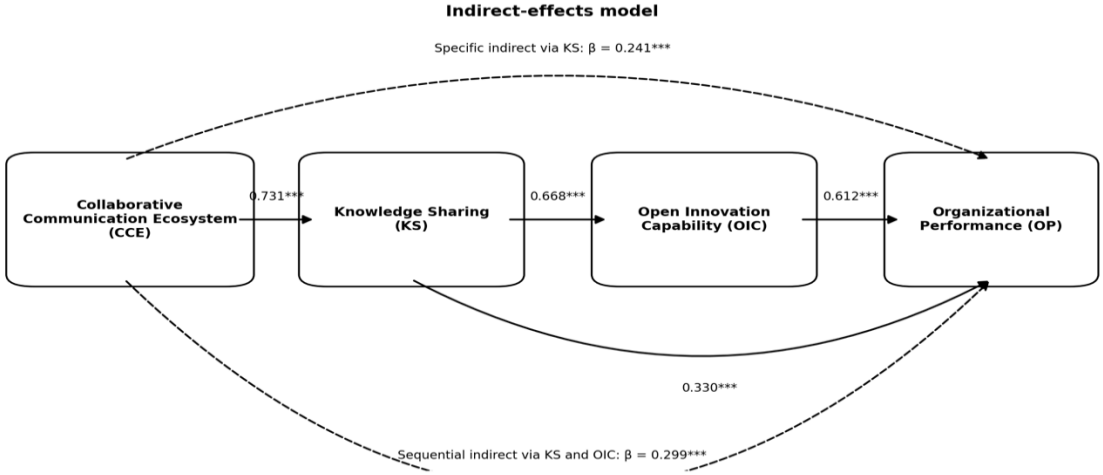


Figure 7. Sequential mediation model

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7. Robustness and Integrated Interpretation

Our empirical conclusion is not hinged on any one inferential indicator but is instead underwritten by a convergence of evidence from several diagnostic levels. The assessment reveals sound distributional properties and an absence of troublesome multicollinearity, alongside robust internal consistency. We observe adequate convergent validity with AVE figures well above the 0.50 mark, and discriminant validity as evidenced by HTMT ratios that do not exceed 0.85. Furthermore, the bootstrapped structural paths are statistically significant, R^2 coefficients point to a moderate to substantial degree of explanatory power, and Q^2 statistics confirm positive predictive relevance. In aggregate, these findings give weight to the staged value-creation mechanism we have put forward.The data support H1 through H5 in particular: Collaborative Communication Ecosystems (CCE) seem to be the initial driver of expertise circulation; Knowledge Sharing (KS) then has a hand in bolstering Organizational Innovation Capability (OIC) and Organizational Performance (OP); and OIC provides yet another conduit for turning communication into performance. Of course, the interpretation is bounded by the constraints of a cross-sectional design drawing from a single source.

Discussion

What the results show is coherent support for the idea that collaborative communication ecosystems serve as a form of strategic knowledge infrastructure in global IT firms. The most pronounced link is between CCE and KS (β = 0.731), pointing to the fact that digital connectivity, transparency and cross-functional access to expertise are very much in the service of moving organizational knowledge around. This is more than a matter of employee engagement or satisfaction; it positions communication as central to knowledge integration in line with the Knowledge-Based View (Grant, 1996) and the work of Nonaka and Takeuchi (1995).There is a dual-route at play when it comes to the significant ties between KS and both OIC and OP, and between OIC and OP. Shared expertise can improve execution and alignment in a direct way. Yet when an organization can recombine and absorb that knowledge across its boundaries, it becomes an innovation resource. The sequential indirect effect (β = 0.299) is in fact larger than the KS-only route (β = 0.241), which would suggest that performance gains from communication are at their peak once the knowledge is made into open-innovation capability. From a theoretical perspective this is a useful synthesis of Open Innovation Theory (Chesbrough, 2003; West &Bogers, 2014) and the dynamic capability arguments of Teece (2007) regarding how firms sense and reconfigure. For managers, the implication is clear: putting money into communication platforms is not enough. Firms need to back interoperable technology with governance and routines that make expertise searchable and channel both internal and external knowledge into the innovation pipeline. While the model has considerable predictive utility, with an R^2 of 0.612 for OP and a Q^2 of 0.419, one should not read temporal causality into these numbers. Proving that communication capability is the precursor to innovation will require longitudinal and multisource data in future work.

Conclusion

Drawing on responses from 412 professionals in the multinational IT sector, this study makes the case that CCE is linked to performance largely via knowledge mechanisms. The structural model accounts for 61.2 per cent of the variance in performance, with CCE having a strong bearing on KS, and both the serial and KS-only indirect effects holding up statistically. The study's main contribution is to demonstrate that the value of communication lies in its capacity to circulate expertise and turn it into open innovation. An IT firm would do well to couple its collaboration tools with transparent norms and the kind of cross-functional routines that lead to actionable decisions. These are, however, conclusions drawn from a self-report, sector-specific and cross-sectional sample. There is a need for future research to be more expansive in scope, perhaps using objective financial and innovation metrics or experimental designs to better establish causality. What we present here is a framework that is both empirically grounded and theoretically sound for viewing communication as a strategic asset in knowledge-intensive settings.

References

1. Ahmad, F., &Jasimuddin, S. M. (2021). Organizational communication and employee engagement: The mediating role of communication satisfaction. *Journal of Organizational Effectiveness: People and Performance, 8*(4), 567–585.
2. Bogers, M., Chesbrough, H., Heaton, S., & Teece, D. J. (2019). Strategic management of open innovation: A dynamic capabilities perspective. *California Management Review, 62*(1), 77–94. https://doi.org/10.1177/0008125619885150
3. Bogers, M., Chesbrough, H., & Moedas, C. (2018). Open innovation: Research, practices, and policies. *California Management Review, 60*(2), 5–16. https://doi.org/10.1177/0008125617745086
4. Bogers, M., Foss, N. J., &Lyngsie, J. (2017). The "human side" of open innovation: The role of employee diversity in firm-level openness. *Research Policy, 47*(1), 218–231. https://doi.org/10.1016/j.respol.2017.10.012
5. Bordia, P., Hobman, E., Jones, E., Gallois, C., & Callan, V. J. (2004). Uncertainty during organizational change: Types, consequences, and management strategies. *Journal of Business and Psychology, 18*(4), 507–532. https://doi.org/10.1023/B:JOBU.0000028449.99127.f7

Journal of Research and Development
A Multidisciplinary International Level Referred and Double Blind Peer Reviewed, Open Access
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6. Cabrera, Á, & Cabrera, E. F. (2005). Fostering knowledge sharing through people management practices. *International Journal of Human Resource Management, 16*(5), 720–735. https://doi.org/10.1080/09585190500083020
7. Castells, M. (2010). *The rise of the network society* (2nd ed.). Wiley-Blackwell.
8. Chesbrough, H. W. (2003). *Open innovation: The new imperative for creating and profiting from technology*. Harvard Business School Press.
9. Chesbrough, H. W. (2020). To recover faster from COVID-19, open up: Managerial implications from an open innovation perspective. *Industrial Marketing Management, 88*, 410–413. https://doi.org/10.1016/j.indmarman.2020.04.010
10. Cohen, W. M., & Levinthal, D. A. (1990). Absorptive capacity: A new perspective on learning and innovation. *Administrative Science Quarterly, 35*(1), 128–152. https://doi.org/10.2307/2393553
11. Eisenberg, E. M., Goodall, H. L., & Trethewey, A. (2019). *Organizational communication: Balancing creativity and constraint* (8th ed.). Bedford/St. Martin's.
12. Enkel, E., Gassmann, O., & Chesbrough, H. W. (2009). Open R&D and open innovation: Exploring the phenomenon. *R&D Management, 39*(4), 311–316. https://doi.org/10.1111/j.1467-9310.2009.00570.x
13. 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
14. Hair, J. F., Hult, G. T. M., Ringle, C. M., &Sarstedt, M. (2022). *A primer on partial least squares structural equation modeling (PLS-SEM)* (3rd ed.). Sage Publications.
15. Heath, R. L., & Bryant, J. (2018). *Human communication theory and research: Concepts, contexts, and challenges* (3rd ed.). Routledge.
16. Kane, G. C., Palmer, D., Phillips, A. N., Kiron, D., & Buckley, N. (2015). *Strategy, not technology, drives digital transformation*. MIT Sloan Management Review and Deloitte University Press.
17. Kaplan, R. S., & Norton, D. P. (1996). *The balanced scorecard: Translating strategy into action*. Harvard Business School Press.
18. Leonardi, P. M. (2021). *The digital mindset: What it really takes to thrive in the age of data, algorithms, and AI*. Harvard Business Review Press.
19. Majchrzak, A., Malhotra, A., Stamps, J., &Lipnack, J. (2021). Can absence make a team grow stronger? *Harvard Business Review, 99*(3), 52–61.
20. Men, L. R. (2014). Strategic internal communication: Transformational leadership, communication channels, and employee satisfaction. *Management Communication Quarterly, 28*(2), 264–284. https://doi.org/10.1177/0893318914524536
21. Nonaka, I., & Takeuchi, H. (1995). *The knowledge-creating company: How Japanese companies create the dynamics of innovation*. Oxford University Press.
22. Teece, D. J. (2007). Explicating dynamic capabilities: The nature and microfoundations of sustainable enterprise performance. *Strategic Management Journal, 28*(13), 1319–1350. https://doi.org/10.1002/smj.640
23. Von Bertalanffy, L. (1968). *General system theory: Foundations, development, applications*. George Braziller.
24. Wang, S., & Noe, R. A. (2010). Knowledge sharing: A review and directions for future research. *Human Resource Management Review, 20*(2), 115–131. https://doi.org/10.1016/j.hrmr.2009.10.001
25. Wang, Z., Sharma, P. N., & Cao, J. (2016). From knowledge sharing to firm performance: A meta-analysis. *European Management Journal, 34*(4), 370–380. https://doi.org/10.1016/j.emj.2015.11.004
26. West, J., &Bogers, M. (2014). Leveraging external sources of innovation: A review of research on open innovation. *Journal of Product Innovation Management, 31*(4), 814–831. https://doi.org/10.1111/jpim.12125