

Knowledge Sharing in R&D Teams: How do Reward, Cohesion, and Organizational Support Shape the Willingness to Share?

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Abstract: Knowledge sharing is a critical yet discretionary behaviour underpinning innovation and performance in research and development (R&D) teams. Despite its importance, limited empirical attention has been given to the factors shaping knowledge sharing willingness (KSW), particularly within R&D teams in developing economies. Anchored in Social Exchange Theory (SET), this study examines how teams' reward, organizational support, and group cohesion influence KSW, and whether trust moderates these relationships. Using a cross-sectional survey design, data were collected from 75 R&D team members across three mobile telecommunication companies in Ghana. Correlation and hierarchical regression analysis were employed to test the proposed relationships. The results reveal that team reward, organisational support, and group cohesion are significant positive predictors of KSW. Furthermore, trust significantly moderates the relationships between these antecedents and KSW, strengthening their effects under high-trust conditions. These findings emphasize the relational and exchange-based nature of knowledge sharing in R&D contexts, where perceived reciprocity and reduced relational risk enhance individuals' willingness to share knowledge. This study extends the knowledge sharing literature beyond dominant Western contexts and highlights KSW as a distinct micro-behavioural construct. The study offers practical insights for R&D managers seeking to design reward systems, supportive structures, and a trust-based team environment that fosters sustained knowledge sharing.

Keywords: Knowledge sharing willingness, Reward, Organizational support, Group cohesion, Enterprise R&D team

1. Introduction

In an era of digital disruption and the booming sharing economy, knowledge has become a core driver of sustainable organizational development across industries (Xiao et al., 2021; Yeboah, 2023). Firms increasingly rely on the creation and transfer of knowledge to enhance innovation capabilities, strengthen R&D performance, and optimize strategic resources (Xiao et al., 2021; Tang et al., 2020; Meixia, Yunxia & Mardani, 2023). Knowledge sharing, particularly, is widely recognized as a fundamental mechanism for supporting creativity, facilitating problem-solving, and gaining a competitive advantage in knowledge-intensive environments (Coun, Peters & Blomme., 2019; Philipson & Kjellstrom, 2020; Anwar et al., 2019). Knowledge sharing between staff, teams, and organizations helps to develop and utilize resources in an efficient and timely manner (Xiao et al., 2021). This makes effective knowledge sharing crucial, especially for R&D teams whose expertise is dispersed, and innovation requires rapid, interactive information exchange and effective communication (Zhu, 2016; Feifei & Miles, 2023).

Past studies on knowledge sharing have mostly focused on the features of sharing parties, sharing knowledge factors, shared leadership, and the levels at which knowledge sharing occurred (Xiao et al., 2021). Knowledge sharing on R&D teams has concentrated on the behavior and process of knowledge sharing, team characteristics, motivation, and organizational culture. However, knowledge sharing willingness is not a static but a dynamic process (Xiao et al., 2021). That is, in the R&D teams, the willingness to share knowledge requires the interplay between individual efforts, a conducive trust environment, and organizational support. Also, existing research primarily examines knowledge sharing at the organizational or team level, resulting in a significant gap in understanding the micro-behavioral factors influencing knowledge sharing within R&D teams (Du et al., 2019). While there are studies on knowledge sharing (Xiao et al., 2021; Tang, 2020; Ipe, 2016), the sharing willingness as a dependent element has received attention in Ghana. In addition, there is an over-concentration on knowledge sharing in organizations rather than niche units like R&D teams, as emphasized in Yeboah's (2023) systematic review on knowledge sharing in organizations. In addition, most knowledge sharing literatures are

focused on the Western part of the world, creating a gap in the Ghanaian telecommunication context. This has led to investigating KSW among R&D teams in the telecommunication sector of Ghana. These telecommunication firms operate in a competitive, innovation-dependent environment with well-established R&D units, providing a suitable context for studying knowledge-sharing dynamics. This paper is essential and different from many empirical studies because it tests three sharing willingness enablers (reward, organizational support, group cohesion) on KSW. The study introduces trust, a key factor in the knowledge-sharing context, with the power to reduce exchange risk and uncertainty. Focusing on R&D teams in developing countries, this study provides evidence for understanding this underdeveloped area of knowledge sharing willingness behavior within the telecommunication ecosystems. The remaining section includes the literature review, methodology, results of the study, and conclusion.

2. Literature Review

2.1 Knowledge Sharing (KS)

The most often researched knowledge management process is knowledge exchange (Feifei & Miles, 2023). People usually transfer knowledge in one of two ways: formally, through training, workshops, and digital platforms, or informally, through storytelling, apprenticeships, and socializing (Edwards, 2022). Using data, information, and knowledge among diverse business partners is referred to as knowledge sharing (Zahedi, Shahin & Babar, 2016). Coordination of joint resources is facilitated by effective knowledge exchange, which also creates or increases value among key stakeholders (Shih et al., 2012). In order to increase the value of knowledge between the information owner and the knowledge receiver through various channels inside or between strategic alliances, knowledge sharing is a method of knowledge exchange and discussion. Knowledge sharing is thus defined as "the process by which individuals cooperatively and iteratively improve a notion, an idea, or a suggestion in the light of experience" (Chua, 2003). Knowledge sharing can be categorized into "tacit" and "explicit" knowledge, as generally viewed by some authors as a process stage within knowledge transfer. Hence, it exclusively addresses the one-way transfer of data from the sharer to the receiver. In order to maintain team members' mutually beneficial partnerships, a concept called "knowledge sharing" is used to encompass a wide range of knowledge-giving actions (Shao-nan et al., 2023). Knowledge sharing was described as the desire to share knowledge through common storage to achieve economic reuse of knowledge. Knowledge sharing is the process through which the source of the knowledge is encoded, made available, and then acquired, decoded, and eventually internalized by the knowledge recipient (Nima & Yeganeh, 2016).

2.2 Willingness to Share Knowledge

To develop a long-lasting competitive edge, businesses must be able to innovate (Ortigueira-S'anchez, Welsh & Stein, 2022). To achieve technological innovation, the subject of innovation must choose the best information sources from a variety of sources based on their own knowledge requirements. Even when the target has been accurately selected, the issue of the knowledge owner's willingness to share knowledge still exists. Knowledge is typically thought of as the exclusive property of an entity or person. It is exceedingly challenging to achieve knowledge sharing if an owner is unwilling to do so without charge (Chen & Huan, 2022). According to Husted and Michailova (2002), information sharing within an organization may endanger employees' exclusive positions within the company and diminish personal competition to the point that employees are reluctant to offer knowledge freely. The broad consensus among scholars is that incentives are what spur knowledge sharing. According to Liu and Xu (2019), the recipient's capacity for knowledge creation is favorably connected with the suppliers' willingness and capacity for sharing in the innovation collaboration entity. A good incentive system effectively motivates subjects to share knowledge, according to Zhou et al (2014), who argue that knowledge sharing does not happen automatically and that rewards have a major positive impact on knowledge sharing willingness. The innovation subject's readiness to share information will considerably grow when it receives enough rewards or when it requires the same amount of knowledge (Liao, 2008).

2.3 Research and Development (R & D) Teams

Several institutional structures have changed from individual-based systems to team-based arrangements to respond to the fast-shifting global competitive scene (Meixia, Yunxia & Mardani, 2023). This occurrence has prompted academics to investigate the daring features of a team-based work environment. According to Gerard (1995), a team is a fundamental unit that carries out an organization's strategic aim. Because of the diversity of its members' backgrounds, well-structured teams may help their organization meet a variety of environmental issues (McGrath, Arrow, & Berdahl, 2000). An R&D team is made up of experts in many fields of study. Team members are more likely to comprehend a variety of R&D activities when they acquire synergistic knowledge by

combining shared knowledge from others (Xiao et al., 2021). Team members might alter their talents or approaches to better their working style by discussing and synthesizing the various or complementary abilities and viewpoints from other team members through knowledge sharing. R&D is a knowledge-intensive process, and all team members are increasingly expected to have specialized knowledge to develop new technologies or products (Meixia, Yunxia & Mardani, 2023). Using the information that R&D members have gained from the sharing process, the best feasible solution to a problem can be found (Connelly, 2014). Team members can learn from one another to further abstract from and compare difficulties and use this information to apply experience-based abilities to new problems (Zhou et al., 2014). So, when information is known by numerous members, knowledge sharing may enhance group performance.

2.4 Influencing Factors of Knowledge Sharing Willingness within R&D Teams

2.4.1 Team rewards and knowledge sharing willingness

Reward systems have long been recognized as a central organizational mechanism for influencing employee attitudes and discretionary behaviors (Malik & Butt, 2017), including knowledge sharing willingness. Within R&D teams, where innovation outcomes depend heavily on collaborative expertise and the integration of dispersed knowledge, rewards can shape whether employees perceive knowledge sharing as beneficial or costly. Drawing from Social Exchange Theory (SET), employees are more willing to engage in behaviours that generate reciprocal benefits and recognition from the organization (Blau, 1964). Rewards include financial incentives, bonuses, promotions, and formal recognition as well as psychological satisfaction, reputation enhancement, learning opportunities, and feelings of contribution (Hu, Xi & Zhang, 2021). Connelly (2014) argued that employees become more willing to share specialized knowledge when they perceive adequate returns from the organization. Employees who perceive that sharing knowledge enhances their reputation and intellectual standing are more likely to engage in continuous collaborative exchanges. Thus, when organizations design equitable reward systems that acknowledge collaborative contributions, employees are more likely to perceive knowledge sharing as a valued and reciprocated activity. Team rewards reduce these perceived costs by aligning individual benefits with collective performance outcomes. Empirical studies indicate that financial incentives, recognition systems, and career advancement opportunities positively influence employees' willingness to share expertise and innovative ideas (Zhou et al., 2014; Chau, 2003). Therefore, employees who perceive fair and meaningful rewards are more likely to exhibit stronger KSW. This study proposes that:

H1: Team rewards positively influence knowledge sharing willingness among R&D team members.

2.4.2 Group cohesion and knowledge sharing willingness

Group cohesion refers to the extent of interpersonal attraction, unity, commitment, and emotional bonding among team members (Manus, 2016). In R&D teams, cohesion fosters collaborative relationships that facilitate communication, mutual understanding, and collective problem-solving. Since knowledge sharing is fundamentally social and relational, cohesive teams provide favorable conditions for the exchange of both explicit and tacit knowledge. Group cohesion strengthens interpersonal attachment, collaboration, and collective identity among team members. SET suggests that cohesive relationships foster reciprocal obligations and cooperative norms that encourage employees to contribute knowledge for collective benefit. In R&D teams, cohesive interactions facilitate open communication, collaborative problem-solving, and integration of specialized expertise. Xiao et al. (2021) argued that diverse R&D teams generate stronger innovation outcomes when members maintain collaborative and cohesive relationships that encourage knowledge integration. Research demonstrates that cohesive teams exhibit higher communication frequency, stronger trust relationships, and greater collaborative learning behaviors (Meixia, Yunxia & Mardani, 2023). Thus, stronger group cohesion is expected to enhance employees' willingness to share knowledge.

H2: Group cohesion positively influences knowledge sharing willingness among R&D team members.

2.4.3 Organizational support and knowledge sharing willingness

Perceived organizational support refers to employees' beliefs that the organization values their contributions and genuinely cares about their well-being (Eisenberger et al., 1986). Within knowledge-intensive environments, organizational support plays a critical role in shaping employees' willingness to share expertise, experiences, and innovative ideas. From an SET perspective, supportive organizational environments create reciprocal obligations that encourage employees to contribute behaviors beneficial to organizational goals, including KSW. Avila (2022) found that supportive organizational climates significantly enhance collaborative behavior and employees' willingness to exchange knowledge. Similarly, Bonuedie and Fombad (2026) argued that leadership support and

organizational encouragement foster stronger interpersonal interactions and collective learning behaviors. In innovation-oriented organizations, employees who perceive strong support are more likely to identify with organizational objectives and voluntarily contribute valuable expertise (Chang et al., 2021). Perceived organizational support signals that the organization values employees' contributions and supports their professional well-being. Under SET, employees reciprocate supportive treatment through positive discretionary behaviors such as knowledge sharing. Supportive organizational environments provide psychological safety, collaborative infrastructure, and managerial encouragement that reduce barriers to knowledge exchange. Studies have shown that employees who perceive high organizational support are more likely to engage in collaborative learning and knowledge-sharing activities (Chen & Hung, 2010). Therefore, organizational support is expected to positively influence KSW.

H3: Organizational support positively influences knowledge sharing willingness among R&D team members.

2.4.4 Moderating role of trust

Trust is widely regarded as one of the most critical relational mechanisms influencing KSW. Trust refers to the confidence that others will act fairly, reliably, and without opportunistic intentions (Shao-nan et al., 2023). In knowledge-sharing contexts, trust reduces fears associated with vulnerability, exploitation, and misuse of shared expertise. Since knowledge is a valuable strategic asset, employees often evaluate the risks and benefits of sharing before engaging in collaborative exchanges (Voogd et al., 2022). Employees who trust colleagues and organizational systems are more likely to interpret rewards, organizational support, and cohesive relationships positively. In contrast, low-trust environments may weaken the effectiveness of these mechanisms because employees remain skeptical about reciprocity and fairness. Prior studies indicate that trust strengthens collaborative behaviors and facilitates tacit knowledge exchange in innovation teams (Staples & Webster, 2008; Feifei & Miles, 2023). Trust is expected to strengthen the relationship between team rewards, organizational support, group cohesion, and KSW.

H4: Trust positively moderates the relationship between team rewards, organizational support, group cohesion, and knowledge sharing willingness among R&D team members.

2.5 Theoretical Framework

This study is primarily anchored in Social Exchange Theory, which posits that individuals engage in discretionary behaviors, such as knowledge sharing, when they perceive fair, beneficial, and trustworthy exchange relationships within their work environment. Social Exchange Theory (SET) best explains knowledge-sharing willingness in R&D teams because such behavior is voluntary, relational, and contingent upon perceived reciprocity, trust, and organizational support (Liao, 2008). Blau (1964) SET empowers employees to share knowledge when they believe benefits outweigh costs, while rewards and organizational support reciprocate contributions. The literature review pointed out many factors likely to influence the knowledge-sharing willingness in R&D teams. For instance, Cabrera and Cabrera (2002) suggested that implementing a strong reward structure and enhancing staff members' self-efficacy are effective ways to encourage knowledge-sharing practices. According to Staples and Webster's (2008) research, there is a strong positive association between trust and knowledge sharing for teams with various organizational models (local, mixed, and distributed). According to Xiao et al. (2021), members of R&D teams with a variety of knowledge, abilities, professional experience, and work experience can inspire innovative solutions, effectively boosting the depth and breadth of knowledge sharing. The study believes trust strengthens exchange relationships, which explains its moderating role. Trust is also considered a key relational factor. When team members trust each other, concerns about misuse of information or unequal contributions decrease, thus promoting greater openness. Trust can also enhance or weaken the effects of other predictors by influencing the interpretation of rewards, cohesion, and organizational support. In Figure 1, the study conceptualizes that trust, organizational support, group cohesion, and team reward will influence knowledge sharing willingness.

Hypothesis

H1: Reward to the R&D team has positive effects on knowledge sharing willingness (KSW)

H2: Group cohesion among R&D team members has positive effects on knowledge sharing willingness

H3: Organizational support to the R&D team has positive effects on knowledge sharing willingness.

H4: Trust moderates the relationship between reward, group cohesion, organizational support, and knowledge sharing willingness.

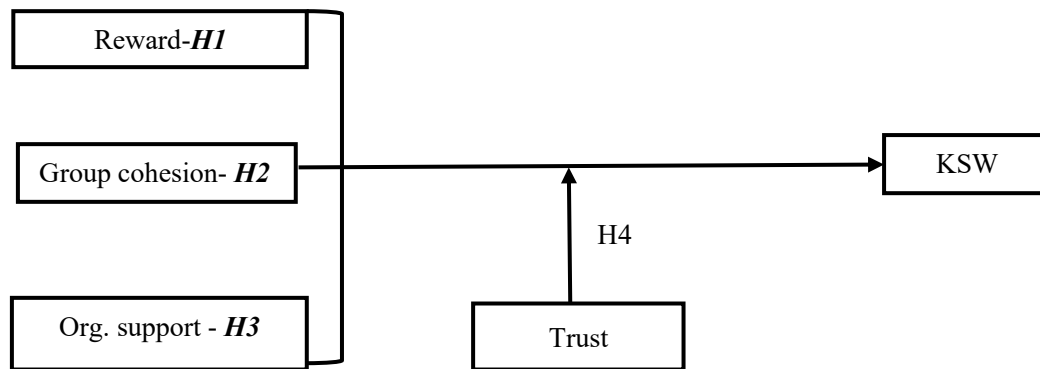


Figure 1: Research model

3. Methodology

3.1 Research Context: Ghana's Mobile Telecommunications Industry

Ghana's mobile telecommunications sector is a robust and highly active market, defined by high mobile penetration rates exceeding 130%. The industry is dominated by MTN Ghana, which commands roughly 60-70% of voice and data market shares, followed by Telecel Ghana (formerly Vodafone) and AT (AirtelTigo). The industry represents one of the fastest growing and most technologically dynamic sectors within the country's economy (West Africa Telecommunications Regulators Assembly, 2026). The sector has undergone substantial transformation over the past decade due to increasing mobile penetration, digitalization initiatives, internet expansion, and the growth of mobile financial services. Major telecommunications firms in Ghana compete aggressively through service innovation, network quality improvement, digital product development, and customer-centered technological solutions. Consequently, the industry has become highly knowledge-intensive, requiring continuous organizational learning, technological adaptation, and collaborative innovation. The competitive structure of the telecommunications industry places significant emphasis on Research and Development (R&D) activities. Telecom firms rely heavily on R&D teams to develop new digital products, optimize network systems, improve cybersecurity infrastructure, and enhance customer experiences through data-driven innovations. These activities require the integration of expertise from multiple disciplines, including software engineering, telecommunications engineering, information systems, data analytics, and digital finance. As a result, R&D teams operate within highly interdependent environments where collaboration and knowledge exchange are critical for achieving innovation objectives.

3.2 Research Design

This study adopted a cross-sectional survey design to examine the factors influencing R&D team members' willingness to share knowledge. As noted by Tharenou, Donohue and Cooper (2007), a cross-sectional design enables data collection from multiple individuals or groups at a single point in time, facilitating comparison across categories. This approach is cost-effective, time-efficient, and suitable for identifying relationships between independent and dependent variables. The design was considered appropriate because it captures R&D members' perceptions and behaviors at a specific period, ensuring the time validity of responses.

3.3 Participants

Given that not all enterprises maintain formal R&D departments, the study focused on mobile telecommunication companies in Ghana, an industry characterized by intense competition and continuous technological innovation. The sector's R&D teams play a pivotal role in driving advancements in artificial intelligence, Internet of Things (IoT), FinTech, and related technologies. The study employed a purposive sampling technique to select seventy-five (75) R&D team members. Unlike random sampling, which may include participants without sufficient familiarity with the knowledge sharing among team members, purposive sampling ensures that responses are obtained from individuals who are directly involved in R&D team projects. The researcher first obtained organizational consent before approaching team leaders, who facilitated access to participants. Owing to confidentiality concerns inherent in R&D activities, some demographic details were withheld at participants' request.

3.4 Data Collection Instrument

Data were collected using a structured, closed-ended questionnaire designed to capture measurable constructs related to knowledge sharing behavior. Questionnaires are widely used in management research due to their cost-effectiveness, reliability, and ability to measure latent constructs such as attitudes, perceptions, and behavioral intentions (Bryman, 2014). Except for demographic questions, all items were measured on a five-point Likert scale ranging from strongly disagree (1) to strongly agree (5). The questionnaire, administered in English, consisted of two main sections: demographics and the major variables under study. Before full deployment, the questionnaire underwent expert review and pilot testing to ensure clarity, accuracy, and content validity. After revisions, the final survey was distributed electronically using Google Forms, a method suited for geographically dispersed respondents. Links to the questionnaire were shared with R&D team leaders, who disseminated them to members via internal communication platforms such as WhatsApp. To ensure data reliability and confidentiality, responses were collected anonymously; each participant could submit only once, and all items required completion before submission. Data collection was conducted between 11th and 20th November 2025. The online data collection recorded 75 valid responses, all of which were included in subsequent analyses.

3.5 Measurement Instrument

The study employed a structured questionnaire based on a five-point Likert scale ranging from 1 = “Strongly Disagree” to 5 = “Strongly Agree” to measure the study constructs. The measurement items were adapted from previously validated scales in the literature to ensure validity and reliability. Knowledge sharing willingness and group cohesion were measured using scales adapted from Silva, Mosquera and Soares (2022) and Killingsworth et al. (2016). The constructs assessed respondents’ willingness to share knowledge and the level of interpersonal connectedness among R&D team members. Organizational support was measured using a four-item scale adapted from the Perceived Organizational Support Scale developed by Eisenberger et al. (1986). Team reward was measured using a three-item scale adapted from Meixia, Yunxia & Mardani (2023), focusing on recognition, rewards, and incentives associated with knowledge-sharing behaviors and team performance. Trust was measured using a four-item scale adapted from Kanawattanachai and Yoo (2002). The complete questionnaire items are presented in Appendix A.

3.6 Analytical Approach

Data were analyzed using Microsoft Excel and SPSS software. Excel was used for preliminary screening, graphical visualization, and data coding, while SPSS facilitated statistical analysis. The study employed descriptive statistics, correlation analysis, and hierarchical regression to examine relationships among variables and test hypotheses. To assess moderating effects, hierarchical regression analysis was performed by introducing interaction terms and comparing model variations across high and low levels of the moderating variable. Results were presented following APA guidelines, supported by tables, charts, and interpretive explanations.

4. Results of the Study

4.1 Background Information of Respondents

Table 1 revealed that 77.3% of the participants were males, and 22.7% were females. Also, among the team members, 46.7% were within the ages of 36 to 45, none was below 25 years, and 4% were more than 55 years. Moreover, 61.3% of the participants had a bachelor’s degree, and 26.7% had masters’ qualification.

Table 1: Respondents’ demographic characteristics

Description	Frequency	Percent (%)
Gender		
Male	58	77.3
Female	17	22.7
Total	75	100.0
Age (in years)		
Below 25	0	0.0
26-35	12	16.0
36-45	35	46.7

Description	Frequency	Percent (%)
46-55	25	33.3
Over 55	3	4.0
Total	75	100.0
Education		
Diploma	7	9.3
Bachelor's degree	46	61.3
Master's degree	20	26.7
Doctoral degree	2	2.7
Total	75	100.0
Years in organization		
Below 5 years	25	33.3
6-10 years	35	46.7
11-15 years	12	16.0
16-20 years	3	4.0
Total	75	100.0

4.2 Assessment of Reliability and Validity

All constructs demonstrated acceptable internal consistency based on Cronbach's alpha values. As shown in Table 2, Knowledge Sharing Willingness ($\alpha = 0.709$) and Trust ($\alpha = 0.725$) met the minimum reliability threshold. Group Cohesion recorded a strong coefficient ($\alpha = 0.824$), indicating highly consistent item responses. Organizational Support ($\alpha = 0.758$) and Team Reward ($\alpha = 0.799$) also showed satisfactory reliability. With all variables exceeding the recommended 0.70 benchmark, the measurement scales are considered reliable and appropriate for further analyses, including correlation and regression modelling.

Table 2: Reliability statistics of the variables

Variable	No. of items	Mean	Reliability
Knowledge sharing willingness	4	2.502	.70.9
Trust	4	3.45	.725
Group cohesion	4	3.21	.824
Organizational support	4	2.98	.758
Team reward	4	3.07	.799

In Table 3, exploratory factor analysis (EFA) was conducted to examine the dimensionality and adequacy of the study constructs. The Kaiser-Meyer-Olkin (KMO) values ranged from 0.535 to 0.794, indicating acceptable to good sampling adequacy, and the chi-square goodness-of-fit tests supported the suitability of the model for factor analysis. Knowledge sharing willingness demonstrated strong factor validity (KMO = 0.794), with high loadings (.635-.914) and 70.38% variance explained. Group cohesion also showed satisfactory validity (KMO = 0.666), with loadings between .582 and .908 and 67.76% explained variance. Organizational support exhibited adequate measurement properties (KMO = 0.735), explaining 58.22% of the variance, with one dominant indicator (OZ4). Team reward recorded a lower AVE (47.85%) and marginal KMO (0.535), suggesting weaker item convergence. Trust accounted for 64.10% of the variance (KMO = 0.638), though one item (T4) showed a very low loading, indicating potential measurement limitations. EFA results largely support the factorial validity of the constructs, with caution warranted for items with weak loadings.

Table 3: Exploratory factor analysis of constructs

Constructs	Factor loading	Extraction	% of Variance (AVE)	KMO
Knowledge sharing willingness			70.377	KMO = 0.794 Goodness-of-fit test $\chi^2 =$ 25.796
KS1	.840	.706		
KS2	.909	.827		
KS3	.914	.835		
KS4	.865	.749		
KS5	.635	.403		
Group cohesion			67.76	KMO = 0.666 Goodness-of-fit test $\chi^2 =$ 26.121
GC1	.908	.825		
GC2	.860	.739		
GC3	.582	.339		
GC4	.899	.808		
Organizational support			58.224	KMO = 0.735 Goodness-of-fit test $\chi^2 =$ 8.847
OZ1	.687	.472		
OZ2	.691	.477		
OZ3	.707	.500		
OZ4	.939	.881		
Team reward			47.852	KMO = 0.535 Goodness-of-fit test $\chi^2 =$ 7.56
TR1	.835	.769		
TR2	.749	.738		
TR3	.403	.313		
Trust			64.104	KMO = 0.638 Goodness-of-fit test $\chi^2 =$ 2.764
T1	.519	.269		
T2	.859	.738		
T3	.560	.313		
T4	.210	.044		

4.3 Correlation

The correlation results in Table 4 demonstrated inter-item correlation among the study variables. The study found that Knowledge Sharing Willingness was significantly and positively related to trust ($R = 0.699$, $p < 0.01$), Group cohesion ($R = 0.930$, $p < 0.01$), Organizational support ($R = 0.954$, $p < 0.01$), and Team reward ($R = 0.744$, $p < 0.01$). This means that the assumption holds for the proposition that reward, group cohesion, and organizational support will positively influence KSW among the R&D team. Although such high correlations may raise concerns regarding construct overlap and potential multicollinearity, several factors support the robustness of the findings. First, the reliability analysis (Table 2) demonstrated acceptable internal consistency for all constructs ($\alpha > 0.70$). Second, the exploratory factor (Table 3) analysis provided evidence of factorial validity, with most items loading adequately on their respective constructs and explaining substantial proportions of variance. Furthermore, the hierarchical regression results presented in Table 5 suggest that the explanatory variables are not perfectly redundant. The sequential inclusion of each explanatory variable resulted in incremental increases in explained variance (ΔR^2). From a theoretical perspective, strong correlations are expected within R&D team settings where organisational support, group cohesion, trust, and reward systems operate simultaneously and reinforce one another.

Table 4: Inter correlation matrix.

Variables	1	2	3	4
Knowledge sharing willingness	1			
Trust	.699**	1		
Group cohesion	.930**	.791**	1	
Organizational support	.954**	.673**	.857**	1
Team reward	.744**	.279*	.518**	.611**

***. Correlation is significant at the 0.01 level (2-tailed);* **. Correlation is significant at the 0.05 level (2-tailed).*

4.4 Direct and Indirect Effect Analysis

Table 5 presents the results of hierarchical regression analysis predicting knowledge sharing willingness. In Step 1, the control variables were entered, and education had a significant positive effect on knowledge sharing willingness, whereas gender was not significant. This initial model accounted for 24.0% of the variance, indicating a meaningful baseline contribution of demographic factors. In Step 2, the main effects of team reward (β 0.616, $p < 0.01$), group cohesion (β 0.44, $p < 0.05$), and organizational support (β 0.444, $p < 0.05$) were introduced. All three variables were positively and significantly related to knowledge sharing willingness. This resulted in a substantial increase in the explained variance (ΔR^2 .185). This finding suggests that team reward, group cohesion, and organizational support play a central role in fostering employees' willingness to share knowledge. As seen in Table 5, step 3 added trust as a moderating variable through the interaction terms. The interaction between team reward and trust was significant (ΔR^2 .086). This shows that rewards for knowledge-sharing willingness are strengthened in high-trust contexts. In Step 4, the interaction between group cohesion and trust was also significant. Step 5 showed a significant interaction between organizational support and trust, contributing an additional 5.6% to the explained variance. Moreover, Figure 2 exhibits the moderation analysis of trust and group cohesion, as well as trust and organizational support in Step 4 and Step 5, respectively. The outcome indicated that trust and group cohesion combined to influence KSW (Step 4: β 0.199, $p < 0.05$). The result indicated that when trust is high, knowledge sharing willingness is higher. In contrast, knowledge sharing willingness is weak when there is low team trust.

Table 5: Hierarchical regression model

Variables	Knowledge sharing, willingness & trust.				
	Step 1	Step2	Step 3	Step 4	Step 5
Control variables					
Education	1.424*	1.084	1.161*	1.192*	1.121*
Gender	.467	.345	.309	.292	.285
Main factors					
Team Reward		.616**	.510**	.490**	.491**
Group Cohesion		.049*	.079*	.091*	.173**
Organizational Support		.444*	.721*	.688*	.279*
Interaction term					
Reward*trust			.179**	.490**	.294**
Group cohesion *trust				.199*	.278**
Org. support*trust					.478**
R	.490	.652	.715	.719	.722
R ²	.240*	.425*	.511*	.561	.620
F	44.19*	55.68*	58.87*	47.83*	52.87*
ΔR^2	.240	.185	.086	.005	.056

N = 75, * $p < 0.05$, ** $p < 0.01$, dependent variable = knowledge sharing willingness

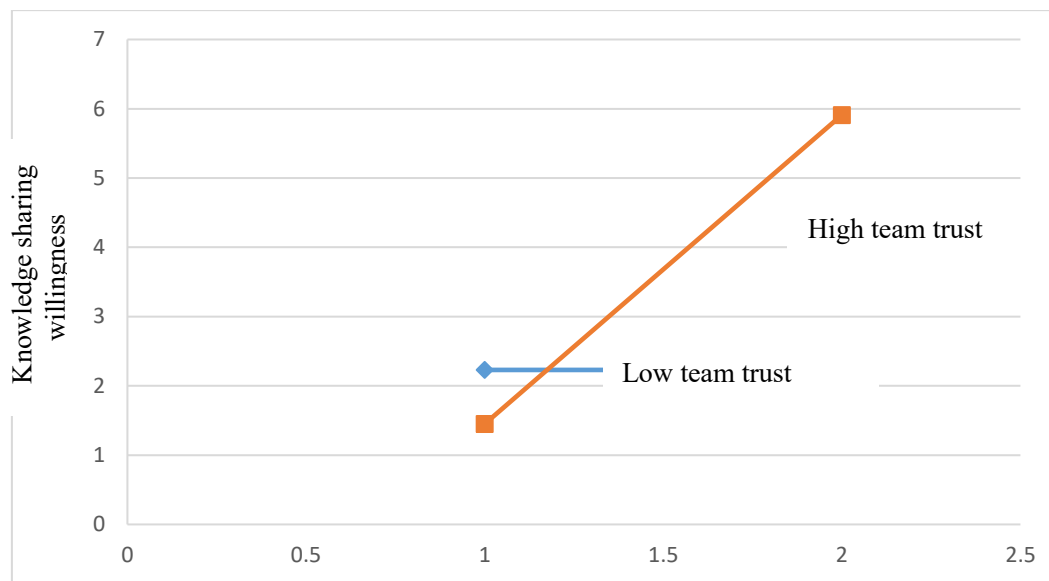


Figure 2: Low and high team trust

5. Discussion and Conclusion

5.1 Discussion of Results

This study examined the factors that influence knowledge sharing willingness within R & D teams in Ghana's mobile telecommunications industry using Social Exchange Theory (SET) as the analytical lens. The findings provide strong empirical and theoretical support for the proposition that knowledge sharing in R&D environments is fundamentally a socially embedded exchange behavior shaped by organizational, team, and relational conditions (Blau, 1964; Liao, 2008).

The positive effect of team rewards on KSW confirms SET's central argument that employees engage in discretionary behaviors when they perceive fair and beneficial reciprocity in the employment relationship (Blau, 1964). In R&D environments, knowledge is a strategic resource often associated with personal expertise and competitive advantage. As such, employees tend to protect rather than freely share it unless clear reciprocal benefits exist. For example, Cabrera and Cabrera (2002) argue that reward systems aligned with knowledge-sharing behaviors reduce perceived costs of contribution and increase employees' willingness to participate in collaborative knowledge processes. Similarly, Malik and Butt (2017) emphasize that rewards enhance creative and collaborative behaviors by reinforcing perceived organizational appreciation. Consistent with Hu et al. (2021), both intrinsic rewards (recognition, professional growth) and extrinsic rewards (bonuses, promotion) reinforce knowledge-sharing intentions, although intrinsic motivation often sustains long-term collaboration more effectively. However, the literature also warns that poorly designed reward systems may undermine intrinsic motivation (Akhavan et al., 2016). This suggests that reward effectiveness depends on whether employees perceive it as supportive reciprocity rather than transactional control.

The significant influence of organizational support on KSW aligns with SET and organizational support theory, which posits that employees reciprocate perceived organizational care with positive work behaviors (Eisenberger et al., 1986; Voogd et al., 2022). In this study, employees who perceive strong organizational support are more willing to share knowledge because they feel valued and psychologically obligated to contribute to organizational success. Prior studies reinforce this finding. Ahmad and Karim (2019) found that organizational support enhances employees' willingness to share knowledge by creating psychological safety and trust in organizational systems. Similarly, Wang (2023) argued that supportive organizational cultures foster open communication and collaborative learning in innovation-driven environments.

In telecommunications R&D settings, organizational support is particularly critical due to technological complexity and rapid innovation cycles (Xiao et al., 2021). Employees require access to digital tools, technical infrastructure, and managerial support to effectively exchange knowledge. When these resources are available, employees perceive a stronger exchange relationship and respond through increased knowledge sharing, consistent with SET's reciprocity mechanism.

The positive relationship between group cohesion and KSW highlights the importance of social identity and interpersonal bonding in knowledge exchange processes. Cohesive teams create stronger emotional attachment, shared identity, and mutual trust, which facilitate communication and reduce relational barriers to knowledge sharing (Carron et al., 2002). From a theoretical standpoint, SET explains cohesion as a mechanism that strengthens reciprocal obligations and cooperative norms. When employees identify strongly with their team, they are more likely to view knowledge sharing as a collective responsibility rather than an individual cost. For instance, Xiao et al. (2021) found that cohesive R&D teams demonstrate higher levels of knowledge integration and innovation performance due to stronger interpersonal collaboration. Similarly, Meixia, Yunxia and Mardani (2023) highlighted that cohesion enhances communication frequency and reduces defensive knowledge behaviors. This suggests that cohesion must be balanced with diversity to sustain innovation effectiveness. In Ghana's telecom context, cohesion is particularly relevant due to culturally embedded collectivist tendencies, where interpersonal relationships significantly influence workplace behavior and collaboration patterns.

The moderating role of trust provides one of the most theoretically important contributions of this study. Trust significantly strengthens the relationship between rewards, organizational support, group cohesion, and KSW, confirming that knowledge sharing is fundamentally a risk-based social exchange behavior (McEvily et al., 2003). Trust reduces perceived vulnerability and uncertainty in exchange relationships, making employees more willing to share tacit and strategic knowledge. Staples and Webster (2008) found that trust is a key determinant of knowledge-sharing behavior across different organizational settings, particularly in virtual and cross-functional teams. In R&D teams, where knowledge hoarding may arise due to competitive pressures, trust ensures that employees perceive knowledge exchange as safe and mutually beneficial. This study extends existing literature by demonstrating that trust does not merely influence KSW directly but also enhances the effectiveness of organizational mechanisms such as rewards, support, and cohesion. In low-trust environments, even well-designed systems may fail to generate knowledge-sharing behavior, whereas high trust amplifies the effectiveness of all enabling conditions.

5.2 Conclusion

This study investigated the factors that influence knowledge sharing willingness within R & D teams. The statistical analysis supported the propositions that group cohesion, team reward, and organizational support have a positive and significant association with knowledge sharing willingness in the R&D team. In a similar way, trust was found to be a significant predictor of knowledge sharing willingness. The moderation results indicated that when trust is high, KSW increases. But at a low level of trust, KSW is low. This study shows the importance of team reward, group cohesion, and organizational support through knowledge sharing willingness on R&D team performance. Previous studies reported that trust influenced knowledge sharing. However, this research discovered that trust facilitates knowledge-sharing willingness, which indirectly influences R&D team performance. The reason can be that members from the R&D team come from diverse backgrounds, and they may not communicate frequently, therefore the confidence level of whom to trust and or distrust is an ethical issue.

Several firms rely on the R&D team to lead innovations in the industry, and researchers are keen to examine the critical success factors. Knowledge transfer, sharing, and creativity are important soft elements that keep successful R&D teams. This study provides empirical support for all the hypotheses (reward, group cohesion, organizational support, and trust) provide directions for consideration in knowledge sharing willingness literature. Given the importance of R&D to firms in today's competitive industry, the study beliefs understanding the influencing factors to KSW will be valuable to theory building and policymakers.

5.3 Implication

This study presents several implications for industry practitioners, policymakers, researchers, and theory. First, telecom managers, the findings highlight the importance of designing reward systems that emphasize collective innovation outcomes rather than individual competition (Cabrera & Cabrera, 2002). Such systems encourage reciprocity and reduce knowledge hoarding. Organizations should strengthen perceived organizational support by ensuring access to digital infrastructure, continuous training, and supportive leadership practices (Ahmad & Karim, 2019). In R&D teams, psychological safety must be actively cultivated to encourage idea sharing (Edmondson, 1999). Managers should also invest in building group cohesion through team-based projects, cross-functional collaboration, and shared goal setting. However, cohesion should be balanced with diversity to prevent group thinking.

Finally, trust-building should be a strategic priority. Transparent communication, fair reward allocation, and ethical leadership practices are essential for sustaining knowledge-sharing cultures in telecom R&D environments.

For policymakers in Ghana, particularly within the telecommunications and digital economy sectors, the findings highlight the importance of strengthening national innovation systems that promote collaborative knowledge ecosystems. Policies should encourage telecom firms to invest in R&D capacity-building, knowledge management systems, and human capital development. Regulatory frameworks should also support inter-firm collaboration and innovation clusters to enhance knowledge diffusion across the industry.

Additionally, government-led digital transformation initiatives should prioritize trust-building ecosystems, data governance frameworks, and innovation incentives that enhance knowledge sharing across the telecommunications sector.

This study extends Social Exchange Theory by demonstrating that knowledge sharing willingness in R&D teams is shaped not only by direct reciprocity (rewards and support) but also by relational structures (cohesion and trust). It confirms that trust acts as a boundary condition that determines the strength of exchange relationships (McEvily et al., 2003). Additionally, the study integrates organizational support theory (Eisenberger et al., 1986) and group cohesion theory (Carron et al., 2002) into a unified framework, advancing knowledge sharing literature by offering a multi-level explanatory model. Researchers could explore the relational factors (cohesion, trust and other demographic factors) on KSW.

5.4 Limitations of the Study

Like all research, this paper has some limitations. First, the sample consisted of 75 R&D team members from mobile telecommunications companies in Ghana. While these individuals were intentionally chosen for their relevance, this may restrict the applicability of the findings to other sectors or contexts. Second, using self-reported questionnaire data may lead to common methods and social desirability biases, even though steps were taken to protect anonymity. Moreover, confidentiality issues restricted access to comprehensive demographic data, hindering subgroup analysis. Finally, regression-based analytical techniques may not fully account for the dynamic and interactive characteristics of knowledge sharing within R&D teams. Subsequent research may mitigate these constraints by employing longitudinal designs, larger and more heterogeneous samples, and mixed-method or sophisticated analytical techniques.

Conflict of Interest, Ethics Statement, and AI Declaration: The authors state that they have no conflicts of interest related to the publication of this research. Furthermore, all participants were duly informed, and their biodata was protected in accordance with ethical standards. Additionally, the authors declare that basic AI tools were used solely to assist with paraphrasing and reference editing. All content was critically reviewed and edited by the authors to ensure accuracy, originality, and scholarly integrity

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Appendix A

SECTION A: Background Information

1. Gender ☐ Male ☐ Female
2. Age ☐ Below 25 ☐ 26-35 ☐ 36-45 ☐ 46-55 ☐ Over 55
3. Highest educational level ☐ Diploma ☐ Bachelor's Degree ☐ Master degree ☐ Doctoral Degree
4. Years in organization Below 5 ☐ 6-10 ☐ 11-15 ☐ 16-20 ☐ 21 and above ☐

SECTION B: Knowledge sharing willingness in R&D team

Keys: Strongly Agree (SA) = 5, Agree (A) = 4, Neutral (N) = 3, Disagree (D) = 2 Strongly Disagree (SD)=1

S/N	Knowledge sharing willingness	1	2	3	4	5
KS1	I often communicate work reports and task ideas with my R&D team members.					
KS2	I always provide our R&D team members access to my manuals, techniques, and models.					
KS3	I regularly exchange ideas and experiences with my R&D team members.					
KS4	Whenever our R&D team members ask for information, I freely share instantly					
KS5	I make an effort to transfer knowledge gained from training and experience to my team members.					

SECTION C: Willingness to share knowledge factors

	Items	1	2	3	4	5
	Group cohesion					
GC1	There is a strong sense of unity among members of my team.					
GC2	I communicate to my team members frequently.					
GC3	Members of my R&D team maintain good personal relationships with one another.					
GC4	I feel connected my team members					
	Organizational support					
OZ1	R&D team members receive internet and other technological resources					
OZ2	The organization is committed to the needs of R&D team					
OZ3	Individual team members are reimbursed when they use personal resources for team activities					
OZ4	The organization ensures that R&D teams have what they need to perform work					
	Team Reward					
TR1	Members receive recognition and promotion when they share distinct ideas with others in R&D team					
TR2	Team gets reward (bonus) when I share hard-to-find knowledge					
TR3	The whole team is rewarded based on our team performance					

	Items	1	2	3	4	5
	Trust					
T1	My team members exhibit a high level of integrity.					
T2	I believe that members of my R&D team are honest in their dealings.					
T3	I can rely on my team members to do what they promise.					
T4	In general, my team members are reliable.					