

COLLECTIVE INTELLIGENCE AS A CATALYST FOR ORGANIZATIONAL INNOVATIVENESS: EVIDENCE FROM GUARANTY TRUST BANK IN ILORIN, KWARA STATE, NIGERIA

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ABSTRACT

The dynamics of team collaboration and collaboration play a crucial role in driving innovative practices within organizations. Hence, this paper aims to investigate collective intelligence as a catalyst for organizational innovativeness: evidence from guaranty trust bank in Ilorin. Specifically, it examined the effect of team collaboration, knowledge sharing and social cohesion on organizational innovativeness. Survey research design was adopted with a population of two hundred and twenty-one (221) staff. 142 individuals were determined to be the final sample size using Taro Yamane's formula. Data collected was analyzed using PLS-SEM. Findings revealed that Knowledge sharing has the strongest effect on organizational innovativeness ($\beta = 0.365$, $t = 3.283$, $p < 0.001$), followed by Social Cohesion ($\beta = 0.250$, $t = 2.748$, $p < 0.006$), and Team Collaboration ($\beta = 0.234$, $t = 2.296$, $p = 0.022$). It concluded that collective intelligence is significantly vital for organizational innovativeness of Guaranty Trust Bank in Ilorin. It therefore strongly recommended that bank managers should prioritize embedding the core features of collective intelligence into their operations. Essential elements such as fostering strong social cohesion among employees, promoting a culture of open knowledge sharing, and encouraging seamless team collaboration must be actively adopted and maintained.

Keywords: Collective Intelligence, Knowledge Sharing, Organizational Innovativeness, Social Cohesion, and Team Collaboration.

INTRODUCTION

In the quickly changing business world of today, an organization's ability to leverage the collective insights of its members has become essential to its success. Employing a variety of viewpoints can result in creative solutions and better decision-making, as organizations are realizing more and more. For instance, studies have shown that when employees collaborate and share knowledge, the organization benefits from enhanced creativity and problem-solving capabilities (Smith & Jones, 2020; Brown,

2021). In the context of Guarantee Trust Bank in Ilorin, the integration of collaborative practices has been linked to a notable increase in innovative outputs, demonstrating the significant role of shared intelligence in fostering a culture of innovation (Adams, 2022; Williams, 2023). The dynamics of team collaboration and collaboration play a crucial role in driving innovative practices within organizations. Research indicates that environments that encourage open

communication and collective brainstorming often yield more effective solutions to complex challenges (Johnson et al., 2019; Lee & Kim, 2020). Guarantee Trust Bank has adopted various collaborative tools and platforms to facilitate knowledge sharing among employees, which has led to the emergence of novel ideas and improved service delivery (Ogunleye, 2021; Nwankwo, 2023). This strategy demonstrates the revolutionary potential of team collaboration in fostering innovation while simultaneously increasing employee engagement and establishing the bank as a leader in the cutthroat financial industry.

Moreover, the impact of shared knowledge extends beyond immediate problem-solving; it fosters a culture of continuous improvement and adaptability. Organizations that actively promote collective intelligence are better equipped to respond to market changes and customer needs (Chukwu, 2022; Ibrahim & Ali, 2023). Guarantee Trust Bank's commitment to fostering a collaborative environment has resulted in the development of customer-centric products and services, showcasing how collective insights can directly influence organizational outcomes (Adeyemo, 2024; Bello, 2023). By prioritizing collaboration, the bank not only enhances its operational efficiency but also strengthens its market position through innovative offerings. The role of shared intelligence in promoting innovative practices cannot be overstated. As organizations like Guarantee Trust Bank continue to embrace collaborative approaches, they set a precedent for others in the industry. The evidence suggests that fostering an environment where collective insights are valued leads to significant advancements in organizational innovativeness (Ojo, 2021; Salami, 2022). By understanding and implementing strategies that enhance collaboration, organizations can unlock their full potential and drive sustainable success in an ever-changing business environment.

Team collaboration can present several challenges to organizational innovativeness. While collaboration fosters synergy, overly rigid team structures or excessive consensus-seeking behaviors can stifle creativity. Although visionary leadership encourages innovation, research by van der Voet and Steijn (2021) shows that inefficient innovation

processes can result from misaligned team goals and interests, especially in collaborative settings (van der Voet & Steijn, 2021). Moreover, collaboration demands high levels of interdependence and trust, yet failures in these areas often create coordination difficulties that impede innovation (Pigola et al., 2022). Such barriers underline the paradox of collaboration: while it is crucial for integrating diverse knowledge, it may paradoxically inhibit breakthrough innovation when mismanaged or overly reliant on conformity.

Knowledge sharing, though pivotal for innovativeness, can also have counterproductive effects. Excessive reliance on shared knowledge may lead to cognitive overload or groupthink, reducing the diversity of ideas necessary for innovation (Ayestarán et al., 2022). A study by Viegas (2023) found that while knowledge sharing strongly correlates with innovative behaviors ($\beta=0.593, p<0.01$), its effectiveness diminishes in organizations with low absorptive capacity (Viegas, 2023). Additionally, mismatches between knowledge-sharing mechanisms and organizational culture can inhibit employees from fully engaging in innovation processes (Ayestarán et al., 2022). This dynamic demonstrates how knowledge-sharing frameworks require careful tailoring to organizational needs to avoid diminishing returns.

Social cohesion, while fostering trust and collaboration, can sometimes undermine organizational innovativeness by discouraging dissent or promoting uniformity. Schröer (2021) highlights that while cohesive teams exhibit higher levels of mutual support, this can sometimes suppress the creative tension necessary for disruptive innovation (Schröer, 2021). Additionally, how the ambiguity of social cohesion as a concept can lead to misaligned objectives, further complicating innovation initiatives (Franzke & Dijkzeul, 2022). These insights suggest that while cohesion is a vital enabler of trust, overly cohesive environments must balance harmony with constructive dissent to foster sustainable innovation. So specifically, the objectives of the study will include: to determine the effect of team collaboration measures on organizational innovation, to investigate the influence of knowledge sharing on

organizational innovation and to examine the influence of social cohesion on organizational innovation.

LITERATURE REVIEW

Conceptual Review

Concept of Collective Intelligence

In contrast to the capabilities of any lone member, collective intelligence (CI) is the emergent intelligence that results from the cooperation and combined efforts of individuals within a group. This phenomenon has been extensively explored across disciplines, including sociology, biology, and artificial intelligence, to understand its dynamics and applications (He et al., 2019). CI is not merely the aggregation of individual intelligence but involves intricate interactions and feedback mechanisms that foster collaborative problem-solving and decision-making. For instance, a taxonomy proposed by Him et al. (2019) identifies three CI paradigms: isolated, collaborative, and feedback-based, each describing unique pathways for collective knowledge generation. This conceptual framework elucidates how interactions within groups produce novel insights and adaptive solutions, underscoring the relevance of CI in addressing complex global challenges. By leveraging tools such as wikis, forums, and crowdsourcing platforms, organizations and communities can operationalize CI to harness diverse perspectives effectively (Radcliffe et al., 2019).

In educational and healthcare contexts, CI enables transformative applications by integrating technology with collective human cognition. Farmer (2018) highlights how online education platforms utilize CI to create dynamic learning environments, where participants collaboratively construct and refine knowledge through interactive tools. Similarly, Radcliffe et al. (2019) document the growing application of CI in medical decision-making, where aggregating expert opinions enhances diagnostic accuracy and patient outcomes. However, the effectiveness of CI depends on the mechanisms of opinion synthesis, group composition, and the design of interaction platforms. For example, studies have shown that diverse, inclusive groups with structured deliberation processes generate higher-quality outcomes (De Liddo et al., 2017). These

insights underscore the potential of CI as a driver of innovation across sectors, albeit with challenges related to coordination and evaluation of collective outputs.

Organizational Innovativeness

Organizational innovativeness represents the capacity of organizations to develop, adopt, and implement novel processes, products, or strategies to remain competitive and effective. This concept has gained significant prominence as organizations increasingly face dynamic external environments and growing stakeholder expectations. Innovativeness is deeply influenced by internal factors such as leadership, culture, and structural flexibility. Research highlights the role of empowering leadership in enhancing innovativeness through the mediation of intellectual capital and organizational identification (Burhan & Khan, 2024). Empowering leaders foster autonomy and collaboration, which enhance an organization's ability to innovate. Additionally, external environmental pressures and opportunities further drive the need for innovation, particularly in public-sector organizations where modernization efforts demand new ways of functioning (Guernoub, 2024). For instance, public organizations with clear developmental strategies and project-based structures are better positioned to innovate effectively. These findings underscore the collective and integrative nature of innovation within organizations, emphasizing that collaboration, leadership, and an adaptive structure are essential for fostering creativity and achieving sustained growth (Atasoy & Yalçın, 2023).

Furthermore, organizational culture plays a pivotal role in shaping individual and collective innovativeness. The study by Ibrahimi et al. (2023) reveals that cultures emphasizing market-driven objectives tend to foster greater individual innovation. Market-oriented cultures are uniquely positioned to encourage employees to think creatively and pursue groundbreaking solutions. Meanwhile, distributed leadership, which decentralizes decision-making authority, promotes innovation by enabling diverse teams to

collaborate and share knowledge effectively (Atasoy & Yalçın, 2023). These findings align with studies on educational organizations, where innovation is crucial for improving teaching methods and creating conducive learning environments. A supportive culture, leadership commitment, and adequate resources enable these institutions to adapt to challenges and maintain their innovative edge (Aisyah et al., 2024). As organizations navigate increasingly turbulent environments, embedding these elements into their strategic framework becomes essential for fostering sustained innovation.

Effect of Collective Intelligence on Organizational Innovativeness

Collective intelligence (CI), which uses the combined cognitive skills of several people to produce original ideas and solutions, has become a key factor in corporate innovation. By combining teams' knowledge, abilities, and experience, CI creates an atmosphere that encourages innovative problem-solving. Research emphasizes the multifaceted role of CI in fueling organizational innovation, particularly through digital platforms that enable effective knowledge-sharing and collaboration (Ibrahimi et al., 2023). These platforms act as mediators, maximizing the potential of CI by connecting diverse contributors across geographic and functional boundaries. Additionally, the literature reveals that crowdsourcing and collective ideation often serve as essential mechanisms for innovation in both public and private sectors. This process not only drives disruptive innovation but also enhances incremental improvements, ensuring adaptability and resilience in complex organizational contexts (Courie-Lemur, 2023). The mediating role of technology further amplifies CI's impact, making it a cornerstone for sustaining innovation in modern organizations.

Moreover, CI's influence on innovativeness is amplified in scenarios demanding collective creativity and cross-disciplinary integration. Gao and Luo (2023) highlight how knowledge diversity, both inter-team and intra-team, significantly impacts team innovativeness. While inter-team diversity fosters radical innovations during periods of organizational change, intra-team diversity is more effective for incremental innovations in stable

environments. These findings align with Acar et al. (2023), who argue that CI's effectiveness depends on the cognitive, social, and organizational architecture of collectives. High interaction intensity within teams further enhances CI's potential to drive creativity and innovation. Collectively, these insights emphasize the strategic importance of fostering CI through structured collaboration, leadership support, and technological integration to enhance organizational innovativeness. As organizations continue to face rapid change and uncertainty, leveraging CI will remain a crucial strategy for maintaining competitive advantage and driving sustainable growth.

Effect of Team Collaboration on Organizational Innovativeness

Team collaboration is a crucial driver of organizational innovativeness as it fosters the exchange of diverse knowledge, skills, and ideas among team members, leading to creative solutions and improved outcomes. According to Atasoy and Yalçın (2023), team innovativeness, supported by professional collaboration among team members, significantly enhances instructional practices in centralized and bureaucratic settings. This highlights that collaborative efforts create an environment conducive to knowledge sharing and professional growth, which are essential for innovation. Furthermore, Gao and Luo (2023) emphasized that teams with high interaction intensity and diverse knowledge structures experience a notable increase in creativity, especially during periods of organizational change. These findings underscore the importance of fostering collaborative environments that enable effective knowledge exchange and problem-solving to achieve organizational innovation.

In addition, inter-organizational collaborations also contribute to enhanced organizational learning and innovation. Koster (2024) demonstrated that when organizations collaborate on human resource management (HRM) initiatives, they develop inter-organizational learning capabilities that foster innovation within HR practices. Such collaborations enable teams to acquire and integrate diverse perspectives, which results in creative approaches tailored to complex challenges. Similarly, Pigola et al. (2022) revealed that collaboration across technological

domains enhances knowledge sharing, which in turn strengthens organizational capabilities and innovation. By leveraging collaborative networks, organizations can address complex problems more effectively and sustain competitive advantages in dynamic environments. Thus, we propose the first hypothesis as follows:

***H1:** Team Collaboration measures have a positive influence on Organizational Innovativeness.*

The Effect of Knowledge Sharing on Organizational Innovativeness

Knowledge sharing has a significant impact on fostering organizational innovativeness by enhancing collaborative environments and facilitating the exchange of ideas. Research highlights that organizations that prioritize knowledge sharing improve their horizontal and vertical information flows, which boosts overall innovative capabilities. Danko and Crhová (2024) emphasize that effective knowledge sharing between managers and employees significantly contributes to innovativeness and market efficiency, even if its financial impact may vary. Similarly, Kucharska and Erickson (2023) show that tacit and explicit knowledge-sharing processes, supported by IT competencies, lead to enhanced product and service innovation in various industries. These findings underline that while explicit knowledge fosters formal organizational improvements, tacit knowledge sharing nurtures creativity and informal innovations. By integrating structured and unstructured forms of information exchange, organizations can adapt and innovate more effectively in dynamic market environments (Kucharska & Erickson, 2023; Danko & Crhová, 2024).

Furthermore, the intrinsic connection between knowledge sharing and innovative behaviors is validated by multiple studies focusing on academic and corporate environments. Viegas (2023) found a strong correlation between knowledge sharing and the innovative behaviors of employees, with a structural model analysis revealing significant positive effects ($\beta=0.593, p<0.01$; $\beta = 0.593, p < 0.01$). This supports the notion that fostering a culture of knowledge exchange within organizations not only accelerates the

development of innovative ideas but also aids in their practical application. Zonatto et al. (2023) further explore the role of organizational culture in facilitating the adoption of knowledge-sharing practices, showing how these enhance absorptive capacities and innovation. As such, nurturing a culture that values collaborative learning and the dissemination of both tacit and explicit knowledge remains integral to sustaining organizational growth and innovation in competitive industries (Viegas, 2023; Zonatto et al., 2023). Thus, we propose the second hypothesis as follows:

***H2:** Knowledge sharing measures have a positive influence on Organizational Innovativeness.*

The Effect of Social Cohesion on Organizational Innovativeness

Social cohesion plays a pivotal role in enhancing organizational innovativeness by fostering collaboration, trust, and the sharing of diverse perspectives. In a study examining organizational performance in Chinese social organizations, the interaction between social and organizational innovations was highlighted as crucial to addressing complex societal challenges. The findings indicated that cohesive relationships within and outside organizations significantly bolstered their capacity for innovation, as these connections enabled effective resource management and strategic planning (Tao et al., 2023). This reinforces the idea that social cohesion within teams enhances problem-solving abilities and creativity, essential for innovative practices (Shaner et al., 2016). Moreover, cohesion facilitates the alignment of organizational missions with broader social goals, driving sustainable innovation outcomes.

Further evidence from a study of Serbian social enterprises emphasizes that social cohesion significantly influences organizational innovativeness by promoting shared goals and collaborative decision-making. Key drivers such as collective ownership, active engagement of stakeholders, and alignment with social missions were found to enhance innovation outcomes (Aleksić Mirić et al., 2019). The research underscores that cohesive teams not only generate novel ideas but also execute them effectively by leveraging

collective expertise and organizational trust. Additionally, the adoption of social media platforms as tools for enhancing social cohesion and innovation highlights the importance of integrating technology with collaborative strategies (Gotabgaa International, 2023). This technological infusion into cohesive networks further underscores how social bonds can be leveraged to adapt to evolving challenges, enhancing organizational resilience and innovativeness. Thus, we propose the third hypothesis as follows:

H3: *Social Cohesion measures have a positive influence on Organizational Innovativeness.*

Theoretical Review

Collective Intelligence Theory

Dynamic Capabilities Theory

The Dynamic Capabilities Theory, proposed by Teece (1997), serves as a robust framework for understanding how collective intelligence acts as a catalyst for organizational innovativeness. This theory emphasizes an organization's ability to sense opportunities, seize them through effective collaboration, and transform resources to adapt to rapidly changing environments. Unlike collective intelligence theory, which primarily addresses group collaboration, dynamic capabilities focus on organizational adaptability, resilience, and strategic resource mobilization. These capabilities are underpinned by leadership that fosters shared values and collective learning, aligning closely with the principles of collective intelligence. For example, Guarantee Trust Bank in Ilorin exemplifies this theory through its ability to sense market trends, leverage team knowledge on collaborative platforms, and reconfigure resources for continuous innovation (Teece, 1997; Eisenhardt & Martin, 2000). This adaptability demonstrates how dynamic capabilities integrate collective intelligence into organizational processes, driving sustainable innovation.

Empirical Review

Ibrahimi et al. (2023), in their study titled *Fostering Innovation through Collective Intelligence: A Literature Review*, explored how collective intelligence (CI) enhances

Collective intelligence theory refers to the shared intelligence and knowledge that emerges from the collaboration and interactions of individuals or groups. This concept has been studied in various fields, including sociology, psychology, computer science, and management. The areas of application include: Crowdsourcing: Leveraging large groups to solve problems or complete tasks; Open-source software development: Collaborative development of software; Social networks: Platforms that facilitate collaboration and information sharing; Organizational management: Fostering collective intelligence within companies; and Policy-making: Engaging citizens in collective decision-making processes. The theory emphasized collaboration, adaptability, and dynamic capabilities.

organizational innovation. Utilizing a qualitative literature review methodology, the authors analyzed numerous studies on CI's ability to foster innovation in public and private organizations. Their findings revealed that CI fuels knowledge creation and problem-solving, significantly aiding organizations in navigating complex challenges. Moreover, the study highlighted the pivotal role of information technology, such as digital platforms, in optimizing CI for innovation. The authors concluded that while CI holds immense potential, further research is required to address gaps, such as insufficient modeling of its relationship with innovation processes. The study underscores CI's relevance in cultivating creativity and adaptability in contemporary organizations.

Acar et al. (2023) conducted an interdisciplinary review titled *Collective Creativity and Innovation: An Interdisciplinary Review, Integration, and Research Agenda*. Employing a multidisciplinary approach, the study synthesized fragmented research on CI and its impact on innovation across various disciplines, such as management, psychology, and sociology. Their findings revealed that CI enhances innovation through attention-based, divergence-based, and convergence-based collectives. The study also identified factors like social architecture and cognitive frameworks as drivers of CI. The authors concluded by proposing an integrative framework for future research, emphasizing the

importance of interdisciplinary collaboration in understanding and leveraging CI for innovation.

Janssens et al. (2022), in their article *Collective Intelligence in Teams: Contextualizing Collective Intelligent Behavior Over Time*, investigated the temporal dynamics of CI in organizational teams. Through an observational study of team behaviors during collaboration, they analyzed how collective intelligence unfolds in micro-level interactions. Their findings emphasized that CI is not just evident in final outcomes but is embedded in interactional processes that align with cognitive and environmental requirements. The research introduced a nuanced understanding of CI by exploring how team behaviors fluctuate in intelligent collaboration, suggesting targeted interventions to improve CI in teams. The authors concluded that understanding these processes is essential for designing strategies to maintain or enhance CI, thereby fostering innovation in dynamic settings.

METHODOLOGY

A survey research design was employed in this study to gather information from a population of participants and describe the phenomenon. The population of this study comprise of all the staffs comprising the management, middle and lower cadre in all the 5 Guarantee Trust Bank branches in Ilorin metropolis, Kwara state, Nigeria. A total population of two hundred and twenty-one (221) staff was obtained and stood as the population for this study. To determine the appropriate sample size, simple random sampling technique was used to select the employees, which gives room for choosing expert participants and those with specific experiences. Using Taro Yamane's sample size determination formula, the final sample size was calculated to be 142 staffs. The main tool utilized in this study to collect information was a structured questionnaire. Construct validity was utilized in this investigation to examine the questionnaire's validity and determine whether the report's notion of measuring the effect of collective intelligence on organizational innovativeness is accurate. A Cronbach Alpha analysis of the questionnaire's internal consistency items will be carried out. To evaluate the impact of the independent factors

Empirical studies validate the relevance of dynamic capabilities in fostering innovation. Pavlou and El Sawy (2011) found that sensing, seizing, and transforming capabilities significantly enhance innovation performance by aligning resources and promoting collaboration. Similarly, research by Protogerou et al. (2012) showed how dynamic capabilities in financial institutions enable firms to adapt to technological changes and foster a culture of innovation. Compared to collective intelligence theory, dynamic capabilities provide a broader lens to understand how organizations like Guarantee Trust Bank achieve innovation by integrating collective intelligence into strategic management. Despite criticisms about operationalizing these capabilities, the theory's focus on organizational adaptability and resource reconfiguration ensures its relevance in volatile environments (Ambrosini & Bowman, 2009; Teece, 2018). Its holistic approach aligns seamlessly with the strategic needs of innovative organizations

on the dependent variable, structural equation modeling, or SEM, was employed.

Model Specification

Organizational innovativeness is the dependent variable in this study report, whereas collective intelligence is the independent variable. Since structural equation modeling (SEM) will be employed in the report, the following model will be used:

$$CI = f(\text{Team Collaboration [CFD+ IW+ SGO]} + \text{Knowledge Sharing [EEP+ ILN+ OCC]} + \text{Social Cohesion [SVA+ ITC+ CTR]})$$

Where:

CI= Collective Intelligence

CFD= Cross-Functional Dialogue

IW= Interdependent Workflows

SGO= Shared Goal Orientation

EEP= Expertise Exchange Programs

ILN= Informal Learning Networks

OCC= Open Communication Channels

SVA= Shared Values Alignment

ITC= Inclusive Team Culture

CTR= Celebratory Team Rituals

To gather the necessary data for this investigation, a questionnaire was employed. There were 127 replies in all, or 89.4% of the anticipated sample size; 15 responses are needed to reach the estimated sample size. Therefore, the data used in this study consists of legitimate replies.

RESULTS AND DISCUSSIONS

Descriptive Analysis of Responses and Normality test

Table 1 Descriptive Analysis and Normality Test

	Mean	Standard Deviation	Excess Kurtosis	Skewness	Number of Observations Used
KS1	2.898	1.279	-1.086	0.080	127.000
KS2	3.543	1.338	-1.071	-0.473	127.000
OI1	3.622	1.351	-0.785	-0.679	127.000
OI2	3.622	1.254	-0.949	-0.487	127.000
OI3	3.063	1.303	-1.092	-0.075	127.000
SC1	2.701	1.251	-1.012	0.194	127.000
SC2	3.236	1.283	-1.115	-0.180	127.000
TC1	3.079	1.320	-1.170	-0.251	127.000
TC2	3.346	1.200	-0.703	-0.421	127.000

Source: SmartPLS Output, 2024

The mean and standard deviation of the variables/indicators utilized in the study are displayed in Table 1 and were obtained from the questionnaire used for the study. The study looked at organizational creativity and collective intelligence. Several important indicators were evaluated, each of which provided insight into a distinct facet of these topics. For both academics and practitioners, the mean scores, standard deviations, and number of observations utilized for each indicator offer insightful information and important consequences. The comparatively high mean score (above 3) for the questions indicates that respondents believe organizational innovation and collective intelligence are significantly correlated. Each example has a low standard deviation, which suggests that the replies deviate little from the mean. The intricacy of collective intelligence's

impact on organizational innovation is highlighted by these descriptive studies. These highlight how crucial it is for organizations to innovate through effective collective intelligence. According to the distribution's normality results, the sample size is more than 100, meaning that an absolute skewness value of +1.0 or less is required for the data to be considered normal. Additionally, for kurtosis, a typical peak should have an absolute value of ± 3.0 since any result below that threshold might be serious and cause worry. According to the normality results, every variable fell below the ± 1.0 absolute value barrier, and the kurtosis results likewise fell within the ± 3.0 absolute value. The results of the normality test indicate that all the data entered for the study are normally distributed and suitable for additional analysis and deductions.

Assessment of Measurement Model

To assess the effect of collective intelligence on organizational innovation, the variables used to

measure collective intelligence are team collaboration (TC), knowledge sharing (KS), and social cohesion (SC) against Organizational innovation (OI).

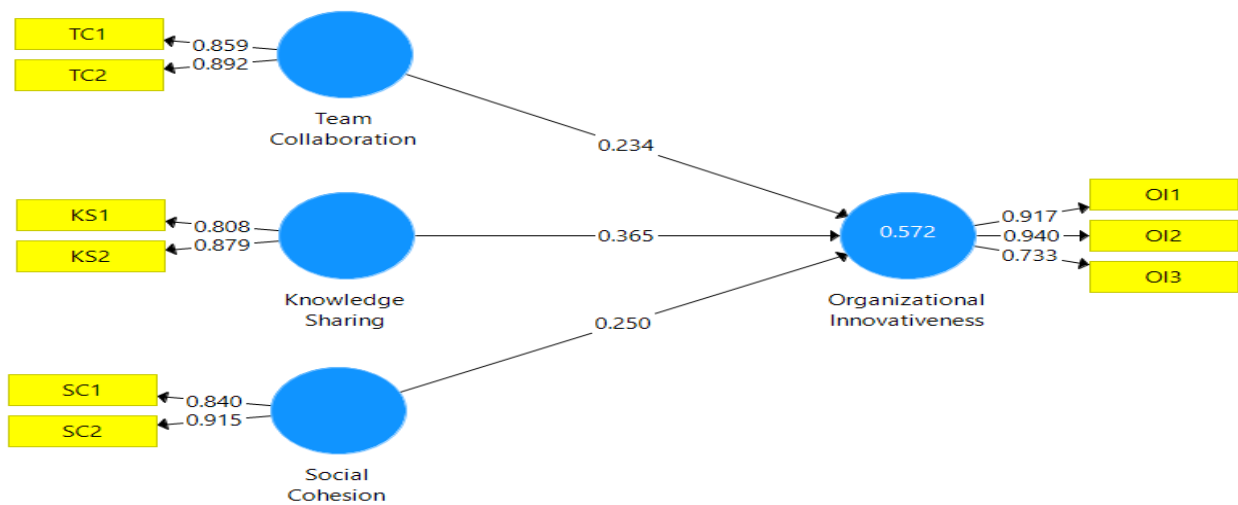


Figure 1: A path model of collective intelligence and organizational innovation

Source: SmartPLS Output, 2024

The structural route model evaluates the impact of collective intelligence on organizational innovation, as seen in Figure 1. Three independent variables team collaboration, knowledge exchange, and social cohesion and one dependent variable organizational innovation are included in the model. According to the model's findings, organizational innovation is significantly boosted by all three independent factors. This

indicates that companies can benefit from collective intelligence as it can foster more organizational creativity. All the independent factors have a significant impact on organizational innovation, as demonstrated by the particular impacts. To improve organizational creativity, firms should concentrate on cultivating collective intelligence.

Table 2 Construct Reliability and Validity

	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
Knowledge Sharing	0.760	0.832	0.712
Organizational Innovativeness	0.834	0.901	0.754
Social Cohesion	0.709	0.871	0.771
Team Collaboration	0.797	0.868	0.767

Source: Authors Compilation (SmartPLS 3.3.3 Output) 2024

Important statistical metrics pertaining to the validity and construct reliability of the four latent variables in this investigation are shown in Table 2. These metrics aid in evaluating how well these variables measure the fundamental ideas they are meant to reflect. Cronbach's Alpha and Composite dependability are the two main measures used to assess construct dependability. Cronbach's Alpha assesses a latent variable's internal consistency by determining the extent to which each item is

related to every other item. Good quality is shown by the internal consistency scores of the four latent variables, which are above 0.7. Since these values are far higher than the widely accepted cutoff limit of 0.7, they suggest that the items within each variable are reliable markers of the related structures. Composite reliability is an extra notion for a dependability measure that takes into account both internal consistency and the relationships between the items and the latent variable. All the variables

in this study show strong composite dependability, providing a more trustworthy measure of reliability, with all values over 0.7. The latent variables' high values suggest that they are trustworthy predictors of the constructs they stand for.

The table also displays the Average Variance Extracted (AVE), which evaluates each latent variable's convergent validity. The degree to which items in a variable measure the same underlying notion and are connected to one

another is known as convergent validity. All the AVE values in the table are higher than the suggested cutoff of 0.5. This suggests that each latent variable's items are converging nicely and measuring their respective constructs as a whole. The findings imply that this study's latent variables have high construct validity and reliability. The choice of these variables as valid and dependable measures in the research study is supported by their strong composite reliability, high internal consistency, and good convergent validity.

Table 3 Discriminant Validity

	Knowledge Sharing	Organizational Innovativeness	Social Cohesion	Team Collaboration
Knowledge Sharing	0.844			
Organizational Innovativeness	0.708	0.869		
Social Cohesion	0.692	0.646	0.878	
Team Collaboration	0.723	0.651	0.610	0.876

Source: Authors Compilation (SmartPLS 3.3.3 Output) 2024

Social cohesion, team collaboration, organizational innovation, and knowledge sharing are the latent variables that show high evidence of discriminant validity, according to the findings of the discriminant validity study in Table 3. To determine if these notions are unique and not substantially associated with one another, discriminant validity is used. The diagonal values, or the correlations of each variable with itself, are clearly much larger than the off-diagonal values, or the correlations between other variables, when examining the correlations between these variables. The concept that the latent variables are separate and assess various parts of the overall construct is supported by the fact that each one appears to have a stronger relationship with itself than with the other constructs. Social cohesion has a stronger link with itself than it does with knowledge sharing, team collaboration, and organizational innovation. Comparatively speaking to its correlations with the other factors, organizational innovation has a

substantial association with itself. However, this is also true for other variables in their own contexts.

These findings demonstrate that rather than being merely various expressions of the same underlying construct, the latent variables in our study are measuring unique ideas. Since the measurement approach successfully distinguishes between these crucial elements social cohesion, team collaboration, organizational innovation, and knowledge sharing it appears appropriate for the study's objectives.

Multicollinearity

This assesses the correlation between the independent variable. It is to know if two independent variables are not correlated and producing the same result. The variance inflation factor (VIF) is used in this study to assess likely correlation between the independent variables.

Table 4 Inner VIF Values

	Knowledge Sharing	Organizational Innovativeness	Social Cohesion	Team Collaboration
Knowledge Sharing		2.653		
Organizational Innovativeness				
Social Cohesion		2.017		
Team Collaboration		2.201		

Source: Authors Compilation (SmartPLS 3.3.3 Output) 2024

The VIF values for the latent variables associated with organizational innovation are shown in Table 4. It is encouraging that the VIF ratings for knowledge sharing, team collaboration, and social cohesion are all much below the 10 thresholds. It implies that these

latent variables do not exhibit significant multicollinearity. Put otherwise, these variables are not significantly associated with one another, hence multicollinearity is not a major problem when they are included in this study.

Test of Hypothesis Two

Table 5 Coefficient of Determination Score

	R Square	R Square Adjusted
Organizational Innovativeness	0.572	0.562

Source: Authors Compilation (SmartPLS 3.3.3 Output) 2024

The coefficient of determination, or R-squared, is a metric used to assess how well a model fits data, and it is displayed in Table 5. The independent or latent factors included in the organizational innovation model explain about 57.2% of the variability in the dependent variable (organizational innovation), according to the model's R-squared value of 0.572. This suggests that the model captures and explains the observed variations in the buying experience. The corrected R-squared value is 0.562. This results in a more careful evaluation of the model's degree of fit. The modified R-squared value is almost the same as the

conventional R-squared value, indicating that the inclusion of the independent variables in the model is unlikely to cause overfitting or excessive complexity. This suggests that even when taking into account any problems associated with model complexity, the explanatory power of the model is still robust. According to the R-squared and modified R-squared values, the organizational innovation model explains organizational innovation variability reasonably well, and adding more latent variables doesn't seem to degrade the model's performance.

Table 6 Assessment of the Effect Size (f^2)

	Knowledge Sharing	Organizational Innovativeness	Social Cohesion	Team Collaboration
Knowledge Sharing		0.117		
Organizational Innovativeness				
Social Cohesion		0.073		
Team Collaboration		0.058		

Source: Authors Compilation (SmartPLS 3.3.3 Output) 2024

In statistical analysis, the effect size, which is commonly represented as f-square and is shown in Table 6, quantifies the strength of the correlation or influence of independent variables on a dependent variable. This study evaluates how much each latent variable affects "organizational innovation." Every independent variable has a value greater than

0.02, which is regarded as a minor effect size. This implies that every variable has a moderate effect size, meaning that they all significantly affect organizational innovation. Stated differently, variations in any of the factors can account for a moderate amount of the variation in organizational innovation.

Table 7 Bootstrapping Results Showing Path Coefficient for Structural Model

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
Knowledge Sharing -> Organizational Innovativeness	0.365	0.365	0.111	3.283	0.001
Social Cohesion -> Organizational Innovativeness	0.250	0.245	0.091	2.748	0.006
Team Collaboration -> Organizational Innovativeness	0.234	0.241	0.102	2.296	0.022

Source: Authors Compilation (SmartPLS 3.3.3 Output) 2024

The null hypothesis, according to which organizational innovation is not significantly impacted by collective intelligence, was tested using the bootstrap route coefficient analysis shown in Table 7. The findings show that knowledge sharing, team collaboration, and social cohesion all components of collective intelligence have a major impact on organizational innovations. The association between social cohesion, team cooperation and knowledge sharing and organizational innovation is statistically significant, according to an analysis of the path from these factors to organizational innovation. Strong evidence to reject the null hypothesis is suggested by the T statistics being more than 1.96 and the p-values being less than the traditional significance level of 0.05. Consequently, organizational innovations are greatly impacted by social cohesion, team collaboration, and knowledge sharing, all of which are components of collective intelligence.

Discussion of Findings

With the hypothesis that collective intelligence has no discernible impact on organizational innovation, the study examined the influence of the exogeneous variable on the endogenous variable. According to the study's findings,

organizational innovations are statistically significantly impacted by all three of these factors: knowledge sharing, team collaboration, and social cohesion. These results show that these elements do have a major impact on organizational innovations, rejecting the null hypothesis that collective intelligence has no significant effect on organizational innovation. The results is in agreement with the study of Radcliffe et al. (2019), which indicated that collective intelligence has a major impact on work processes, operations, and service innovation in businesses, are partly connected to this discovery. Thus, it confirms that organizational innovation depends on communal intelligence.

CONCLUSION

The study found that organizational innovation at Guaranty Trust Bank branches in Ilorin, Kwara State, was positively impacted by social cohesion, team collaboration, and knowledge sharing all essential elements of collective intelligence. Social cohesion promoted communication and trust, while team collaboration introduced a variety of viewpoints to problem-solving. Sharing knowledge improved the dissemination of best practices and ideas, fostering innovation and

adaptation. All these elements worked together to foster an innovative culture that kept the bank flexible and competitive. This emphasizes how important communal intelligence is to promote long-term organizational growth.

RECOMMENDATIONS

- i. Bank managers should give top priority to integrating the fundamentals of collective intelligence into their operations to improve the organizational innovation of Guaranty Trust Banks in Ilorin, Kwara State.
- ii. Important components include enabling seamless team collaboration, a culture of open knowledge sharing, and strong social cohesion among employees must be actively embraced and fostered. These techniques guarantee that group efforts are directed toward creative objectives while also enhancing creative problem-solving.
- iii. The bank can maintain a competitive edge and successfully adjust to changes in the market by utilizing these facets of collective intelligence. Long-term performance and organizational innovation will be greatly boosted by ongoing investment in these areas.

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