



Sectoral Ego and Data Integration Performance in an Extension Communication Perspective

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HIGHLIGHTS

- Conflict and abuse of authority weakened innovation diffusion performance
- Non-compliance unexpectedly supported quality, responsiveness, cooperation, and agility
- Distrust strengthened defensive coordination but weakened collaborative readiness
- Sectoral ego acted as a barrier to extension communication
- Innovation diffusion required adaptation, trust-building, and collaborative learning

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ABSTRACT

The study examined how sectoral ego shaped innovation diffusion performance within the Indonesia One Data Forum across ten provinces. Drawing on an extension communication perspective, the study aimed to explain the paradoxical effects of sectoral ego on organisational performance in implementing integrated development data governance. A quantitative descriptive design combined with path coefficient analysis was employed using data collected from March to August 2025 from 415 forum members selected through multistage random sampling. The findings showed that sectoral ego did not uniformly produce negative effects on organisational performance. Conflict and abuse of authority negatively affected quality, efficiency, cooperation, agility, and timeliness, indicating that communication barriers constrained innovation diffusion and collaborative performance. In contrast, non-compliance and distrust positively influenced quality, responsiveness, cooperation, and agility, suggesting the emergence of adaptive leaning and informal coordination within bureaucratic systems. The findings further revealed that high responsiveness was not accompanied by strong cross-sector cooperation, indicating that communication alone was insufficient to support innovation adoption. The study concluded that innovation diffusion depends not only on formal coordination mechanisms but also on behavioural adaptation, trust-building, and collaborative learning. Extension communication therefore provides a useful framework for strengthening collaborative readiness and supporting sustainable data integration initiatives.

INTRODUCTION

In data-driven development, the successful implementation of digital transformation policies is determined not only by the availability of technology, regulations, and infrastructure, but also

by the effectiveness of communication and extension mechanism (Godara et al., 2024a; Godara et al., 2024b; Tommy et al., 2025). The extension communication perspective places significant emphasis on learning, knowledge exchange, and behavioural adaptation in supporting the adoption of innovation and

organisational transformation (Salam et al., 2024). The diffusion of innovation is contingent on communicative processes that foster trust, collective commitment, and coordination between organisations (Everett, 2003; Putra & Pedersen, 2018).

A paucity of trust and collective commitment within the Indonesia One Data Forum (IODF) has impeded the management of development data. The number of regional IODF that have integrated their data in portal (<https://data.go.id/>), in 2024, remains below 50% of the total 514. IODF constitutes a collaborative governance mechanism that has been established in accordance with Presidential Regulation No. 39 of 2019. This forum serves as a platform for knowledge exchange, the dissemination of data standards and interoperability, and the facilitation of organisational learning. Conceptually, the IODF represents a form of organisational innovation diffusion within bureaucratic systems, with the potential to encourage organisations to change the way development data is managed and exchanged (Fan & Pan, 2023). The IODF acts as an agent of change driving innovation adoption, institutional adaptation, cross-organisational collaboration, and supports collaborative problem-solving. Nevertheless, the implementation process continues to encounter obstacles related to communication and collaborative readiness amongst organisations (Bernot et al., 2024).

One of the main challenges in IODF is sectoral ego, which refers to the tendency of organisations to prioritise institutional interests and authority over collective governance objectives (Islami, 2021). This phenomenon is reflected in the reluctance to share data, weak compliance with common standards, institutional competition, and resistance to cross-sectoral coordination mechanisms (Nurahmani, 2024a). Sectoral ego reflects incomplete organisational behavioural change in accepting data integration as a collective necessity (Jacob et al., 2024). Consequently, the formulation of development policies in Indonesia has not been sufficiently targeted; for instance, disputes over village discrepancies in geospatial data, the misallocation of health care aid, and inconsistent mortality data have resulted in discrepancies in the number of voters in general election (Ardani & Cahyani, 2022; Fajriyansyah & Apriani, 2024; Wayudi & Mukhlisun, 2020).

Studies predominantly conceptualise collaborative governance, extension communication, and the diffusion of innovation as separate analytical domains (Yigzaw, 2021). The majority of studies on extension communication continue to adopt approaches that are designed to modify the behaviour of individuals working within the agriculture and health sectors (Strayer et al., 2020; Chaturvedi & Vatta, 2026). Based on these gaps, the present study analyses the influence of sectoral ego on the data integration performance of the IODF. Theoretically, the study extends the application of extension communication in digital data governance by explaining the influence of communication barriers on innovation diffusion performance. Practically, the research findings are expected to support the strengthening of extension communication strategies to reinforce sustainable cross-sectoral data collaboration.

METHODOLOGY

The study was conducted between March and August 2025 within the Indonesia One Data Forum (IODF) across 10 of Indonesia's

38 provinces. The selected provinces represented the highest-performing regions in implementing data integration innovation according to the 2024 IODF Implementation Index (Secretariat of Indonesia One Data, 2024). Provincial performance was assessed based on the number of integrated datasets, metadata availability, data standardisation, interoperability, and data-sharing practices.

The sample size was determined using Slovin's formula with a 5% margin of error, resulting in a minimum of 400 respondents from a population of 7,742 IODF members. A multistage sampling approach was applied across three institutional levels. Stage 1: included all six National IODF members. Stage 2: included all 60 Provincial IODF members from the selected provinces. A census approach was used at both levels because of their relatively small populations. Stage 3: allocated the remaining sample ($n = 334$) proportionally across Regency/Municipal IODF using ($n_i = (N_i/N) \times n$), where (N_i) represents the number of regencies/municipalities in each province and (N) the total across the ten provinces. Respondents at the Regency/Municipal level were then selected through random sampling.

The independent variable, sectoral ego was conceptualised as organisational-level behaviour through reluctance to collaborate and share information; arrogance, conflict of interest, unfair competition, distrust, organisational conflict, non-compliance, and abuse of authority (Wulandari & Iriani, 2021), measured using 29 negatively worded items. The dependent variable, organisational performance in implementing data integration innovation, comprised responsiveness, quality, quantity, cooperation, timeliness, efficiency, agility, and accuracy (Sadeghi et al., 2024), measured using 25 positively worded items. The instrument was adapted from previous studies and contextualised to the IODF, and its content validity was reviewed by experts. The hypotheses tested were: H_0 , sectoral ego has no significant effect on organisational performance; and H_1 , sectoral ego has a significant negative effect on organisational performance.

A five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree) was employed. Descriptive statistics were used to assess indicator and variable achievement levels. SmartPLS analysis was conducted in two stages. First, the measurement model was evaluated using indicator loadings (>0.70), Composite Reliability (>0.70), Cronbach's alpha (>0.70), Average Variance Extracted (AVE >0.50), and discriminant validity using the Heterotrait-Monotrait Ratio (HTMT <0.90) (Sarstedt et al., 2021). Second, the structural model was assessed using R^2 values, path coefficients (β), and bootstrapping procedures to test the significance of relationships between variables (Sonu & Jha, 2025).

RESULTS

Sectoral ego indicator performance

The descriptive statistical analysis results showed the levels of sectoral ego and innovation implementation performance within the Indonesia One Data Forum (IODF). Detail across each indicator, as presented in the following in Table 1.

Descriptive findings of sectoral ego indicators

Based on the negatively worded items, the overall achievement level of sectoral ego indicators remained relatively low (27.55%),

Table 1. Descriptive quantitative of Variables and Indicators

Variable/Indicators	Average Score	Percentage Achievement	Criteria
Sectoral Ego (X)	1.17	27.55	Low
Arrogance	0.81	16.17	Low
Conflict Of Interest	1.23	30.88	Low
Unfair Competition	1.30	31.68	Low
Distrust	1.08	26.79	Low
Conflict	1.33	30.70	Low
Non-Compliance,	1.01	24.80	Low
Abuse Of Authority	1.37	31.82	Low
Performance (Y)	3.52	64.07	Moderate
Responsive	3.76	75.15	High
Quality	3.34	55.71	Moderate
Quantity	3.65	60.76	Moderate
Cooperation	3.29	63.77	Moderate
Ontime	3.56	67.24	High
Efficiency	3.47	65.37	Moderate
Agility	3.50	58.29	Moderate
Accuracy	3.62	66.25	Moderate

Source: Primary data, 2025

Note: The criteria of achievement is categorized into three levels based on the same interval classification: Low (0-33.33%), Moderate (33.34-66.67%), and High (66.68-100%).

suggesting that sectoral ego was not dominant overall within the IODF. Nevertheless, the findings demonstrate that abuse of authority recorded the highest achievement level among all indicators (31.82%). This tendency was more frequently identified among middle-level officials (39.04%). Whereas the achievement levels among top-level officials (31.57%) remained slightly lower than those of staff members (32.19%). This pattern suggests that operational directives are more commonly transmitted through middle-level officials rather than directly by senior leadership, thereby increasing the potential for organisational intervention and authority misuse within inter-organizational coordination processes.

A similarly important pattern emerged unfair competition, which recorded an achievement level of 31.68%. Respondents perceived that other IODF institutions were perceived to perform less affectively in implementing development data integration innovation (39.37%). However, perceptions that their institutions has integrated more data remains relatively low (26.99%). These findings indicate the existence of sectoral ego characterised by a tendency for organisations to perceive themselves as superior without corresponding organisational performance outcomes. This pattern aligns with the relatively high achievement level of the conflict indicator (30.70%). Within the implementation of innovation diffusion, IODF members perceived that development data integration innovation had the potential to generate inter-organisational conflict. Respondents also reported the existence of conflicts among IODF institutions (33.98%). At the individual level, members acknowledged experiencing personal conflict during the implementation of innovation diffusion processes (30.36%).

The conflict of interest indicator likewise remained comparatively high achievement level (30.88%). IODF members continued to perceive that development data integration innovation was perceived as offering limited direct institutional benefits

(37.43%). This finding further reinforces the argument that sectoral ego reflects a tendency to prioritise sectoral interests over collective governance objectives. Limited acceptance of innovation diffusion was further reflected in non-compliance indicator (24.80%). Institutionally, non-compliance remained evident (24.58%), while staff members demonstrated the highest level of individual non-compliance (31.31%).

In contrast, arrogance recorded the lowest achievement level among all sectoral ego indicators (16.17%). At the sectoral level, resistance to implementing data integration innovation remained relatively low (17.25%). Nevertheless, a hierarchical discrepancy emerged in which middle-level officials (16.34%) demonstrated slightly higher levels of arrogance than top-level officials (16.05%). This finding may indicate ambiguity in organisational roles and authority structures within the implementation of collaborative data integration governance.

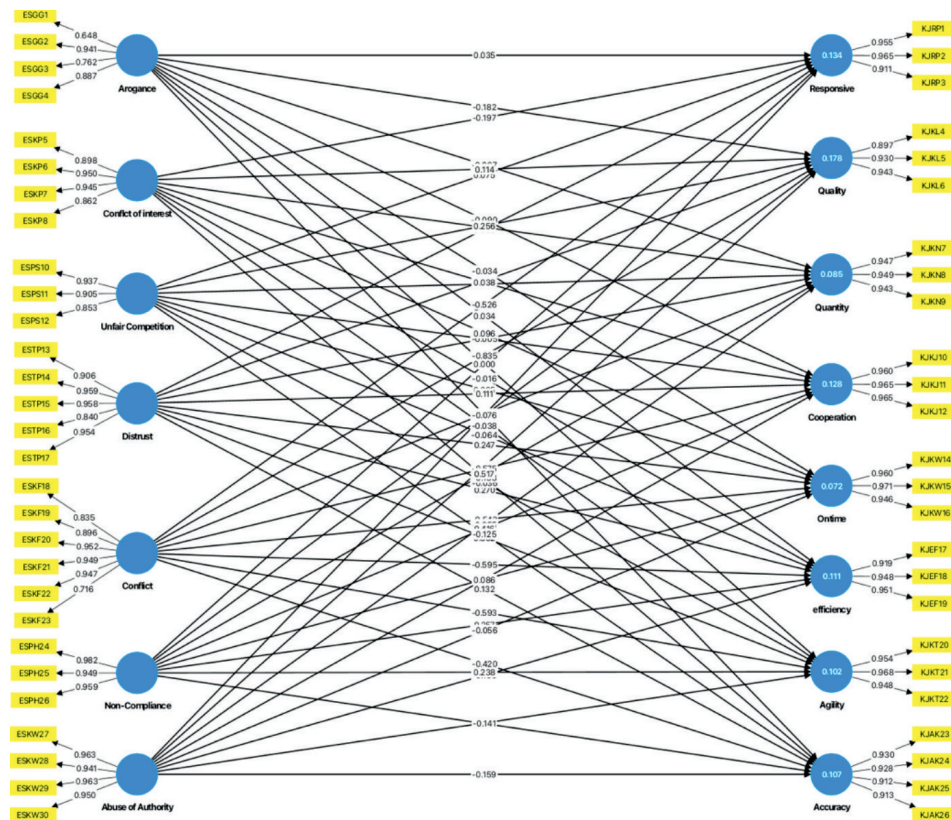
Descriptive findings of innovation diffusion performance indicators

The performance of the Indonesian One Data Forum (IODF) in implementing development data integration innovation remained moderate (64.07%), indicating that innovation diffusion performance had not yet reached an optimal level. Among all indicators, quality emerged as the weakest indicator (55.71%). The quality of integrated data remained below half of the expected integration criteria (45.74%), particularly regarding data standardisation and metadata availability. Nevertheless, in contrast, quantity indicator demonstrated a comparatively higher score (60.76%), reflected in dataset fulfilment (60.44%), dataset completeness (60.44%), and the amount of integrated data (61.81%). This finding may reflect varying institutional understandings of data quality standards required for integrated development data governance.

A similar pattern was observed in the timeliness indicator, which achieved a moderate score (67.24%). IODF demonstrated relatively high punctuality in submitting data (70.51%) and verifying data (72.00%). However, delays remained evident in completing the overall stages of the data integration process (59.20%). This condition may be associated with the relatively low *agility* score (58.29%). The IODF had not yet demonstrated consistent organisational readiness in implementing innovation diffusion processes, both at the individual (59.76%) and sectoral levels (54.58%). These findings suggest limited organisational capacity for innovation adoption. Implementation practices appeared to remain procedural rather than substantively innovation-oriented. Consequently, the stages required to achieve standardised, metadata-compliant, and interoperable data integration had not been fully achieved.

Despite these limitations, the IODF demonstrated a relatively high level of responsiveness (75.15%). Members responded actively to directives related to data integration processes (75.47%), including staff members (74.75%) and top-level officials (75.23%). However, a collaborative discrepancy emerged within the *cooperation* indicator, which remained at a moderate level overall (63.77%). High cooperation scores were observed only in the intensity of collaboration among members within the same institution (72.43%). In contrast, the intensity of collaboration with

Figure 1. Path coefficient analysis: Sectoral ego to performance in indicators area



IODF members from other institutions remained comparatively low (38.27%). This finding indicates that the IODF continues to face limitations in cross-sector innovation adoption, particularly regarding inter-organisational collaborative capacity. As a result, overall organisational performance has not yet reached a high-performance category because high responsiveness was not accompanied by strong cross-sector collaboration.

Path coefficient analysis results

The influence of sectoral ego on organisational performance and item factor loadings was examined across its indicator dimensions, as illustrated in Figure 1. The SmartPLS measurement model assessment is presented in Table 2. Overall, the results indicate that all constructs satisfied the recommended thresholds for indicator loadings, Composite Reliability, Average Variance Extracted (AVE), and discriminant validity, confirming the adequacy of the measurement model for subsequent path coefficient analysis.

The path coefficient analysis revealed that the influence of sectoral ego on innovation diffusion performance within the Indonesian One Data Forum (IODF) was not uniformly negative across all indicators. Although the initial hypothesis proposed that sectoral ego negatively affects organisational performance, the findings demonstrate more complex and paradoxical relationships among the dimensions of sectoral ego and innovation diffusion performance.

Among the sectoral ego indicators, conflict demonstrated the strongest negative influence across almost all dimensions of organisational performance. Conflict negatively affected quality ($\beta = -0.835$), efficiency ($\beta = -0.595$), cooperation ($\beta = -0.575$), agility ($\beta = -0.593$), responsiveness ($\beta = -0.526$), quantity ($\beta = -0.532$),

and timeliness ($\beta = -0.542$). These findings indicate that inter-organisational conflict substantially weakens collaborative performance and disrupts the implementation of integrated data innovation within cross-sector governance systems. Similarly, abuse of authority demonstrated consistently negative effects on organisational performance, particularly on quantity ($\beta = -0.355$), quality ($\beta = -0.179$), agility ($\beta = -0.141$), and efficiency ($\beta = -$

Table 2. Measurement model assessment results

Variables	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
Abuse of Authority	0.969	1.055	0.976	0.910
Accuracy	0.941	0.961	0.957	0.848
Agility	0.954	0.966	0.970	0.916
Arogance	0.902	0.754	0.888	0.668
Conflict of interest	0.940	1.157	0.953	0.837
Conflict	0.953	0.952	0.956	0.786
Cooperation	0.961	0.963	0.975	0.928
Distrust	0.960	1.044	0.967	0.854
Non-Compliance	0.969	1.633	0.975	0.928
On-time	0.957	0.984	0.972	0.920
Quality	0.913	0.921	0.945	0.852
Quantity	0.942	0.945	0.962	0.895
Responsive	0.939	0.956	0.961	0.891
Unfair Competition	0.891	1.018	0.926	0.808
Efficiency	0.934	0.959	0.958	0.883

Source: Primary analysis results, 2025

Note: Discriminant validity (HTMT) analysis results <0.90 (Supplementary)

0.135). This suggests that hierarchical intervention and authority misuse may hinder innovation diffusion processes and reduce institutional adaptability in collaborative governance practices.

However, several dimensions of sectoral ego demonstrated positive relationships with organisational performance. The most substantial positive effect was identified in the relationship between non-compliance and quality ($\beta = 0.749$), followed by quantity ($\beta = 0.517$), cooperation ($\beta = 0.416$), accuracy ($\beta = 0.396$), and responsiveness ($\beta = 0.323$). These findings suggest that certain forms of procedural non-compliance may facilitate flexibility and adaptive coordination during the implementation of innovation diffusion processes. A similar pattern was identified in the distrust indicator, which positively influenced agility ($\beta = 0.332$), efficiency ($\beta = 0.270$), timeliness ($\beta = 0.247$), and cooperation ($\beta = 0.111$). These findings indicate that distrust does not always function as a purely destructive organisational condition, but may encourage stronger monitoring, faster coordination, and more cautious communication practices among institutions.

In contrast, arrogance demonstrated relatively weak and inconsistent effects across organisational performance dimensions, with most path coefficients remaining close to zero. This finding indicates that sectoral ego within the IODF is influenced more strongly by structural coordination barriers and institutional dynamics than by individual superiority attitudes. The explanatory power of the model remained relatively weak to moderate. The highest R-square value was observed for quality ($R^2 = 0.178$), followed by responsiveness ($R^2 = 0.134$), cooperation ($R^2 = 0.128$), and efficiency ($R^2 = 0.111$). These results indicate that sectoral ego explains a modest proportion of the variance in organisational performance dimensions. Nevertheless, all path relationships were statistically significant ($p < 0.001$), suggesting that sectoral ego constitutes a relevant, although not exclusive, factor influencing innovation diffusion performance. The relatively low R^2 values further indicate that additional organisational, institutional, and contextual factors may also contribute to performance outcomes.

DISCUSSION

The findings demonstrate that sectoral ego functions as an extension communication barrier in innovation diffusion processes rather than merely as an individual behavioural problem. Among all indicators, conflict emerged as the most destructive dimension, negatively affecting quality, efficiency, cooperation, timeliness, and agility. These findings support previous studies showing that institutional conflict weakens communication, disrupts knowledge exchange, and reduces collective commitment, thereby hindering innovation adoption (Zorlu & Korkmaz, 2021). From an extension communication perspective, communication facilitates collective learning and innovation adoption (Wisataone et al., 2026). Organisations should continue to assess and address the gaps in the less e-ready areas, such as organizational support, to ensure a holistic and sustainable approach, however, achieving and maintaining this level of readiness requires ongoing commitment and strategic planning (Sondarva et al., 2023).

Within the IODF, conflict reflects communication fragmentation that undermines alignment and collaboration in integrated data governance. When communication is dominated by

sectoral competition and institutional disagreement, organisations prioritise institutional interests over collective innovation adoption. A similar pattern was observed in the abuse of authority indicator, which negatively influenced quality, quantity, efficiency, and agility. This finding is consistent with evidence that hierarchical domination weakens participatory coordination, adaptive responses, and collaborative innovation (Sharifi et al., 2025; Wen et al., 2025). This study positions sectoral ego as an extension communication barrier within inter-organisational innovation diffusion. The findings indicate that barriers to integrated data governance arise not only from technical limitations but also from fragmented communication structures that restrict information exchange, weaken coordination, and impede innovation diffusion.

One of the most significant findings of this study is the paradoxical relationship between non-compliance and innovation diffusion performance. Contrary to conventional collaborative governance and organisational control perspectives, non-compliance positively influenced quality, quantity, cooperation, responsiveness, and accuracy. Contrary to previous studies linking non-compliance to coordination failure and reduced governance effectiveness (Thimm, 2022), limited procedural deviation may function adaptively within rigid bureaucratic systems.

This finding aligns with innovation diffusion and extension communication perspectives suggesting that innovation adoption often requires flexibility, informal coordination, and adaptive learning under administrative complexity (Li et al., 2024). Consequently, actors may develop informal communication patterns and procedural flexibility to support coordination and data integration.

These findings suggest that innovation diffusion depends not only on communication effectiveness but also on actors' capacity to learn and adapt. Innovation adoption requires behavioural flexibility beyond rigid routines and formal regulation (Martitah et al., 2021; Sharma et al., 2021). Thus, adaptive non-compliance reflects an organisational learning process through which institutions adjust to collaborative innovation demands that have not yet been fully institutionalised. Accordingly, this study shows how adaptive learning can facilitate innovation adoption under bureaucratic constraints.

A further paradoxical finding concerns the positive influence of distrust on agility, efficiency, timeliness, and cooperation within innovation diffusion performance. While collaborative governance studies generally associate distrust with weakened collaboration and coordination (Sever & Bana, 2026), the present findings suggest that distrust may encourage intensive coordination and verification across institutions.

Organisational communication literature suggests that distrust does not eliminate interaction; instead, uncertainty often increases monitoring, verification, and procedural checking to minimise risk (Wahl et al., 2025). Comparable patterns have been reported in inter-agency governance studies, where limited trust stimulated tighter supervision and more active communication among organisations involved in policy implementation (Abdullayev et al., 2025). Perceived institutional unreliability may encourage stronger monitoring and continuous coordination during data integration. These dynamics suggest that collaborative innovation may continue

despite limited trust because coordination remains operationally necessary. Such conditions produce defensive coordination, where interaction is maintained primarily to secure procedural certainty and protect organisational interests (Mittal & Randhawa, 2021).

These findings highlight the limitations of coordination mechanisms based primarily on verification and institutional control, as intensive communication alone does not guarantee collaborative transformation. Extension and social learning perspectives emphasise that sustainable collaboration requires shared understanding, mutual trust, and the internalisation of collective goals among actors. In the IODF context, distrust may strengthen short-term coordination efficiency but also reveals limited collaborative readiness and weak trust-based relationships. These findings highlight the importance of trust-building for sustained collaboration.

The findings indicate that the primary challenges within the IODF are not merely technical or administrative, but also behavioural and communicative in nature. Although responsiveness remained high, cross-sector cooperation remained comparatively weak, indicating that institutional actors tended to comply with formal directives without fully developing collaborative commitment across organisational boundaries. This finding supports previous organisational communication studies suggesting that formal communication mechanisms are effective for coordination and information exchange, yet often insufficient for fostering substantive collaborative transformation within complex governance systems (Maurer et al., 2023). Similar patterns have been identified in public sector innovation research, where procedural compliance does not necessarily produce collective ownership or inter-organisational collaboration (Calò et al., 2024).

From an extension communication perspective, these findings reflect incomplete innovation adoption within bureaucratic systems. Extension and social learning theories emphasise that innovation diffusion requires behavioural change, participatory engagement, and the internalisation of shared goals among actors (Feder & Savastano, 2006; Putra & Pedersen, 2018). The findings suggest that extension communication complements organisational communication by explaining how behavioural change and collective commitment influence innovation diffusion performance within collaborative governance systems.

CONCLUSION

The study demonstrates that sectoral ego influences data integration innovation performance in both constraining and adaptive ways within collaborative governance systems. Conflict and abuse of authority undermine performance by restricting communication, coordination, and cross-sector collaboration, whereas non-compliance and distrust may generate adaptive responses that sustain organisational effectiveness under bureaucratic constraints. These findings indicate that innovation diffusion in integrated data governance depends not only on technological readiness and regulatory arrangements but also on the capacity of institutions to exchange knowledge, build collaborative commitment, and adapt to new practices. The study contributes to extension communication scholarship by showing that barriers to innovation diffusion arise not only from technical and organisational factors but also from

communication structures that shape learning, trust-building, and behavioural change across organisations. Strengthening extension communication processes may therefore enhance collaborative readiness and support more sustainable data integration initiatives.

DECLARATIONS

Ethics approval and informed consent: Informed consent was obtained from the Ethics Committee of Universitas Gadjah Mada approval number (NO: KE/UGM/195/EC/2025). All participants provided informed consent prior to participation. Consent for publication not applicable as no identifiable personal data were included in this study.

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