

Biodiversity Monitoring as Organizational Action: How Ecological Data Becomes Actionable in SMEs

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Despite growing expectations for firms to engage with biodiversity, existing research has focused largely on disclosure and reporting, leaving unexamined a more fundamental question: how does biodiversity monitoring actually become useful inside organizations? This study investigates how ecological data is transformed into organizationally actionable objects, and why this so often fails.

Drawing on 32 qualitative interviews with SMEs and biodiversity-related organizations within the National Biodiversity Future Center (NBFC) program, the study adopts an inductive cross-case design. Rather than examining adoption decisions or environmental performance, it opens the black box between data production and organizational decision-making, a space prior research has largely treated as obvious.

Systematic cross-case analysis reveals three persistent findings. First, ecological data is never used raw: in all 32 cases, at least one transformation was required before data could enter a decision, as indicator, score, dashboard, certificate, or narrative. Second, intermediaries are central: in 27 of 32 cases, a third party mediated between data production and use. Third, who monitors rarely coincides with who decides, a structural gap captured through the construct of the decision loop, measuring how tightly data production is coupled to organizational decision-making.

These patterns produce five empirically grounded configurations: operational monitoring, monitoring infrastructure, managerial translation, intermediated governance, and hybrid cases. Each represents a different strategy for managing the persistent tension between ecological accuracy and organizational usability.

The study contributes a configurational framework for understanding biodiversity monitoring as organizational practice. The central finding is that the barrier to biodiversity integration is not technological but translational: the critical challenge is not whether firms monitor biodiversity, but how monitoring is transformed into objects that organizations can use to decide, report, or govern. This has direct implications for how NBFC and similar programs design support for SME engagement with biodiversity data.