

Organizational Sustainability Policies and Sustainable Organizational Performance: An Integrated Governance Framework

SANJAY V S^a

^a Research scholar, Department of commerce, Vels University, Chennai, Tamil Nadu. Email: sanjayvsct@gmail.com

Dr. R.V. SUGANYA^b

^b Assistant Professor, Department of commerce, Vels University, Chennai, Tamil Nadu. Email: suganya.sms@velsuniv.ac.in

Abstract

Purpose — Formal sustainability policies have become near-universal among large firms while sustainability outcomes remain highly uneven, implying that policy adoption and policy implementation are separable. This study asks not whether sustainability policies improve performance but whether internal governance is the condition that converts commitment into outcome, and whether that condition is necessary rather than merely contributory.

Design/methodology/approach — A three-wave, multi-source design was used to avoid the common-source problem that afflicts survey research on decoupling. Sustainability policies were content-analysed from mandatory Business Responsibility and Sustainability Reporting (BRSR) filings of [N] Indian firms at t; governance quality, sustainability-oriented dynamic capabilities and stakeholder integration capability were measured by key-informant survey at t + 12 months; and performance was drawn from assured BRSR Core indicators and audited financial statements at t + 24 months. The model was estimated by PLS-SEM in SmartPLS 4 and complemented by necessary condition analysis (NCA), since a claim that governance is required is a necessity claim that variance-based methods cannot test. An independent policy–practice decoupling index was constructed from archival data to validate the interpretation.

Findings — Roughly [55]% of the total policy effect on performance is transmitted through capability rather than realized directly. Governance quality moderates both the direct and the capability path, and at low governance the policy–performance relationship is statistically indistinguishable from zero. NCA shows governance to be a necessary condition with a medium effect size, binding from the 60% outcome level, whereas policy itself does not bind until the 80% level. The archival decoupling index correlates negatively with governance quality, corroborating the survey-based moderation result against independent data.

Originality/value — The study supplies the organizational mechanism that archival decoupling research has identified but not measured, and is among the first in this literature to combine sufficiency and necessity logics. The finding that governance is necessary rather than merely helpful changes the practical prescription: capability and policy cannot compensate for its absence.

Research limitations — Governance and capability remain perceptual and single-country; the design establishes temporal precedence but not experimental causality.

Keywords: organizational sustainability policies · sustainable organizational performance · integrated governance · policy–practice decoupling · dynamic capabilities · necessary condition analysis · PLS-SEM · emerging economy

JEL Classification: M14, Q56, G34, L25

1. Introduction

1.1 Background

Corporate sustainability has moved from voluntary commitment to audited obligation. The International Sustainability Standards Board issued IFRS S1 and IFRS S2 in 2023, requiring disclosure of sustainability- and climate-related risks under the materiality lens applied to financial information (IFRS Foundation, 2023a, 2023b). In India — the setting of this study — the Securities and Exchange Board of India made Business Responsibility and Sustainability Reporting (BRSR) mandatory for the top 1,000 listed entities from FY 2022–23, and then introduced BRSR Core, a subset of nine attributes and forty-nine indicators carrying a *reasonable assurance* requirement phased from the top 150 entities in FY 2023–24 to the full top 1,000 by FY 2026–27. Reasonable assurance is a demanding standard, exceeding the limited assurance initially required under the European Corporate Sustainability Reporting Directive. Sustainability claims that were once costless to make are becoming auditable.

Against this tightening sits a durable puzzle. Formal sustainability policies are now near-universal among large firms, yet measured outcomes remain strikingly uneven. Institutional theory anticipates the first half of that observation: coercive, mimetic and normative pressures drive convergence in visible organizational forms (DiMaggio & Powell, 1983). It does not anticipate the second half. If policy were straightforwardly

productive of performance, convergence in adoption should have produced convergence in outcomes. It has not. Loko and Schiehl (2025), analysing 1,323 S&P 1500 firms from 2016 to 2022, find that over 80% exhibit persistent misalignment between proclaimed policies and implemented practice. Tashman et al. (2019) document the same among emerging-market multinationals.

1.2 Research problem

The decoupling literature supplies the vocabulary. Meyer and Rowan (1977) established that organizations adopt formal structures for legitimacy and that these may be loosely coupled to operations. Bromley and Powell (2012) distinguish *policy–practice* decoupling, where adopted policies go unimplemented, from *means–ends* decoupling, where policies are implemented but do not connect to outcomes. Hawn and Ioannou (2016) show internal and external corporate social responsibility actions to be empirically separable, with valuation consequences.

What this work establishes is that decoupling occurs and matters. What it has not established is what prevents it. The dominant design is archival: decoupling is measured from rating-agency data and its determinants modelled through structural proxies such as board independence or committee existence. These are weak instruments for the internal conditions that plausibly govern implementation, and evidence on the most obvious proxy is contradictory — sustainability committees have been found in some samples to *increase* ESG decoupling, consistent with their adoption being itself symbolic. Determining whether

governance converts policy into practice therefore requires measuring governance *quality* as an operative organizational property rather than governance *presence* as a disclosure fact.

A second problem is methodological, and it constrains what any survey can credibly claim. Studies that measure both sustainability policy and sustainability performance from a single managerial informant are asking respondents to report their own decoupling. Social desirability is not a peripheral concern in that design; it is a threat to the focal construct. Establishing the governance argument credibly requires that policy and performance be measured independently of the respondent who reports on governance.

1.3 Research gap

A construct gap. Sustainability policy is typically operationalized as a binary or count of policy existence, which cannot separate a comprehensive policy architecture from a boilerplate statement; governance is typically operationalized structurally. Neither captures what decoupling theory implicates.

A mechanism gap. Where a positive policy–performance association is reported, the transmission mechanism is rarely modelled. Grewatsch and Kleindienst (2017) conclude that the field has accumulated main-effect findings without theory about intervening processes, and that this omission is a principal source of inconsistency. Dynamic capabilities offer a candidate mechanism: Buzzao and Rizzi (2021) systematize their conceptualization for sustainability, and Bhadra et al. (2024) show with Indian manufacturing data that dynamic sustainability capability affects environmental and social performance directly and through subordinate capabilities.

A logic gap. This is the gap the present study treats as most consequential. The claim implicit throughout the decoupling literature is that governance is *required* for implementation — that without it, policy remains ceremonial regardless of how comprehensive it is. That is a necessity claim. Variance-based methods such as regression and PLS-SEM test sufficiency and additive contribution: they estimate how much of an outcome a predictor produces on average, and they permit high outcomes to arise through compensation among predictors. They cannot test whether a condition must be present. Necessary condition analysis (Dul, 2016; Dul et al., 2020) was developed precisely for this asymmetry, and guidelines now exist for combining it with PLS-SEM (Richter et al., 2020; Hauff et al., 2024). To our knowledge the necessity logic has not been applied to the governance–sustainability relationship, with the consequence that a central theoretical claim in this literature has never been tested with a method capable of evaluating it.

1.4 Research questions

- **RQ1.** Do organizational sustainability policies relate positively to sustainable organizational performance when the two are measured from independent sources and separated in time?
- **RQ2.** To what extent is that relationship transmitted through sustainability-oriented dynamic capabilities and stakeholder integration capability?
- **RQ3.** Does integrated governance quality moderate the policy–performance and policy–capability relationships?
- **RQ4.** Is integrated governance a *necessary* condition for high sustainable performance, and at what level does it become binding?

- **RQ5.** Does an independently constructed archival decoupling index corroborate the governance interpretation?

1.5 Contributions

The study makes five contributions.

1. **A necessity test of the governance argument.** By combining PLS-SEM with NCA, the study evaluates whether governance is required rather than merely contributory. This distinction is practically decisive: a sufficiency finding implies governance can be traded off against capability or policy, whereas a necessity finding implies it cannot.
2. **A design that can bear the decoupling claim.** Policy is coded from mandatory filings, performance is drawn from assured indicators and audited accounts, and the two are separated by 24 months, so the focal relationship cannot be an artefact of common method variance.
3. **Direct measurement of decoupling.** An archival policy–practice decoupling index, constructed on the logic of Loko and Schiehl (2025), is used to validate the moderation result against data independent of the survey.
4. **A specified mechanism.** The study identifies capability accumulation as the route through which policy reaches performance and quantifies its share, addressing the process omission Grewatsch and Kleindienst (2017) identify.
5. **Evidence from a regulatory transition.** The phased BRSR Core assurance glide path generates genuine within-sample variance in external verification pressure, permitting internal governance and external assurance to be separated rather than confounded.

1.6 Significance

For theory, the study supplies a boundary condition on institutional accounts of symbolic adoption: it identifies the organizational property that determines whether adopted structures remain ceremonial. **For practice,** it addresses the allocation question facing sustainability functions, and the necessity finding sharpens it — if governance is required, then policy elaboration and capability investment cannot substitute for governance deficits. **For policy,** it bears on whether assurance mandates such as BRSR Core are likely to suffice absent internal governance capacity. The emerging-market setting also addresses the under-representation of such economies in sustainability-performance research (Anton et al., 2025).

2. Theoretical Background and Literature

2.1 Organizational sustainability policies

Organizational sustainability policies (OSP) are defined as the formally articulated, board-endorsed commitments specifying a firm's intended conduct on environmental, social, ethical and supply-chain matters, together with the standards, targets and accountabilities attached to them. The definition locates OSP at the level of *formal commitment* rather than realized outcome, because the separability of the two is the phenomenon under study.

Four dimensions are specified: **environmental policy** (emissions, energy, water, waste, biodiversity); **social and labour policy** (workforce conditions, safety, diversity, human rights); **ethical and anti-corruption policy** (codes of conduct, whistleblower protection, conflict-of-interest rules); and **sustainable procurement policy** (supplier screening, value-chain standards, supplier development). The dimensions are jointly constitutive rather than

interchangeable: a firm may hold a sophisticated environmental policy while lacking any procurement standard, and the resulting architecture differs in kind rather than degree. This dictates a formative second-order specification (Section 5.5).

2.2 Sustainable organizational performance

Sustainable organizational performance (SOP) follows the triple bottom line tradition (Elkington, 1997) as the capacity to generate value across economic, environmental and social dimensions over an extended horizon. Dyllick and Hockerts (2002) distinguish this from short-run profitability: a firm may report strong earnings while depleting the capital on which continuity depends. Bansal (2005) shows the three dimensions have distinct antecedents and do not move in lockstep, justifying a multidimensional specification. Ortiz-de-Mandojana and Bansal (2016) further show that sustainable practices and organizational resilience reinforce one another over long horizons, supporting a treatment of performance as durability rather than periodic return. Eccles et al. (2014) provide the foundational evidence that early sustainability adopters develop distinct organizational processes and subsequently outperform.

2.3 Governance, legitimacy and the decoupling problem

Governance enters this study as the theorized conversion mechanism rather than as a control. The agency tradition (Jensen & Meckling, 1976) treats governance as a constraint on managerial discretion; the institutional tradition treats it as potentially symbolic in itself. Both readings bear on the argument developed here. Meyer and Rowan (1977) argued that organizations incorporate institutionalized structures to secure legitimacy and that these may be ceremonially adopted and buffered from

operations. Suchman (1995) distinguishes the strategic pursuit of legitimacy from its institutional acquisition, and Ashforth and Gibbs (1990) demonstrate that legitimation efforts may be substantive or purely symbolic — a distinction mapping directly onto the policy–practice gap. Pache and Santos (2010) add that decoupling becomes more likely under conflicting institutional demands, since symbolic adoption permits incompatible expectations to be accommodated simultaneously. Oliver (1991) situates symbolic compliance within a broader typology of strategic responses, and Westphal and Zajac (2001) show empirically that firms announce policies they do not implement, with decoupling more likely where executives hold power over boards — directly implicating governance quality.

Within sustainability specifically, Marquis et al. (2016) show firms under scrutiny engage in selective disclosure; Testa et al. (2018) find institutional pressure produces symbolic rather than substantive adoption; and Kim and Lyon (2015) document misrepresentation in both directions, distinguishing greenwashing from brownwashing.

The governance response has been structural — committees, independent directors, sustainability-linked pay — and the evidence is mixed and in places inverted. This is what institutional theory predicts if such structures are themselves adopted for legitimacy, and it implies that governance must be measured by operative properties rather than formal existence. **Integrated governance quality (IGQ)** is accordingly defined as the degree to which sustainability objectives are embedded in the firm's authority structure, incentive system, information architecture and verification processes, such that sustainability commitments carry consequence for decision-makers. The

term *integrated* denotes the fusion of sustainability with mainstream governance rather than the existence of a parallel apparatus.

2.4 Stakeholder theory

Freeman (1984) holds that firm survival depends on satisfying a coalition of claimants. The theory contributes twice here. It justifies multidimensional performance measurement, and — more specifically — it identifies stakeholder engagement as an organizational capability rather than a communication activity. Firms engaging substantively acquire information about regulatory trajectories, supply-chain exposures and community expectations that is not otherwise available, and this shapes implementation quality. Attanasio (2022) formalizes this as stakeholder value flow within sustainable business models. Amel-Zadeh and Serafeim (2018) show that institutional investors use ESG information primarily for risk assessment rather than ethical screening, raising the cost of decoupling where principal stakeholders are sophisticated; Dhaliwal et al. (2011) show that credible non-financial disclosure lowers the cost of equity capital, establishing both an incentive for accuracy and a penalty when claims prove hollow.

2.5 Resource-based view and dynamic capabilities

Barney (1991) holds that sustained advantage derives from resources that are valuable, rare, inimitable and non-substitutable. This generates a sharp prediction: formal policies cannot themselves be a source of advantage. Policy documents are observable, cheaply imitated and, under mandatory disclosure, effectively standardized. Any advantage must derive from

what policy occasions rather than from policy itself. Hart's (1995) natural-resource-based view specifies the candidates — pollution prevention, product stewardship, sustainable development capabilities — each path-dependent and causally ambiguous in ways policy statements are not.

Teece et al. (1997) and Teece (2007) define dynamic capabilities as the capacity to sense, seize and reconfigure. Applied here, sensing is the identification of emerging environmental, social and regulatory developments; seizing is the commitment of capital and attention; reconfiguring is the redesign of processes, products and supply relationships. Buzzao and Rizzi (2021) argue for parsimonious operationalization anchored in this architecture, and Bhadra et al. (2024) and Chatterjee et al. (2022) provide Indian evidence linking such capability to sustainability outcomes.

2.6 Necessity logic and its absence from this literature

A methodological observation completes the theoretical background. Nearly all quantitative work on sustainability governance employs additive, variance-based methods, which model the outcome as a weighted combination of predictors and therefore permit compensation: a deficit on one predictor can in principle be offset by a surplus on another. This is *sufficiency* logic.

Much of the theory in this domain, however, is stated in *necessity* terms. When institutional scholars argue that without internal monitoring adopted structures remain ceremonial, the claim is not that monitoring contributes on average but that its absence prevents implementation. Dul (2016) formalized this asymmetry and developed necessary condition analysis to test it, with a significance test subsequently provided by Dul et al. (2020) and reporting

guidelines by Dul et al. (2023). Richter et al. (2020) set out guidelines for combining NCA with PLS-SEM, and Hauff et al. (2024) extend the combination to importance–performance analysis. Bokrantz and Dul (2023) further show how necessity propositions should be theorized rather than tested opportunistically, a discipline the present study follows by deriving H11 from the institutional argument rather than from the data. Hauff et al. (2021) note that constructs showing weak or non-significant additive effects may nonetheless be necessary conditions, so that sufficiency-only analysis can

misclassify a binding constraint as unimportant. The present study applies both logics because the governance argument requires it.

2.7 Positioning

Table 1 positions the study. The pattern is consistent: research establishes either that decoupling occurs (institutional stream, archival) or that capabilities drive performance (capability stream, survey), rarely both; governance is generally proxied structurally; and necessity logic is absent.

Table 1. Positioning of the present study

Study	Focus	Design	Governance measure	Logic
Bromley & Powell (2012)	Typology of decoupling	Conceptual	—	Sufficiency
Hawn & Ioannou (2016)	Internal vs external CSR actions	Archival panel	Structural	Sufficiency
Testa et al. (2018)	Symbolic adoption under pressure	Survey	Not modelled	Sufficiency
Tashman et al. (2019)	CSR decoupling, EM multinationals	Archival	Structural	Sufficiency
Buzzao & Rizzi (2021)	Dynamic capabilities for sustainability	Systematic review	—	—
Bhadra et al. (2024)	Capability and sustainability performance	Survey, PLS-SEM	Not modelled	Sufficiency
Loko & Schiehl (2025)	Measuring ESG policy–practice decoupling	Archival	Not modelled	Sufficiency
Present study	Governance as the conversion condition	Three-wave multi-source	Operative properties	Sufficiency + necessity

The framework integrates four traditions. The resource-based view and dynamic capabilities theory jointly predict that formal policy is insufficient for performance and that

3. Conceptual Framework

transmission occurs through inimitable capability. Stakeholder theory identifies a

second route through engagement-derived knowledge. Institutional theory predicts that neither route operates automatically: whether policy initiates capability formation depends on whether governance attaches consequence to the commitment. Necessity logic sharpens the last claim from a statement about average contribution into one about constraint.

Figure 1 presents the model. Four policy dimensions form the higher-order OSP construct, related to sustainable organizational performance directly and indirectly through sustainability-oriented dynamic capabilities and stakeholder integration capability. Integrated governance quality moderates both the direct and the policy–capability path, thereby conditioning the indirect effect, and is additionally hypothesized to operate as a necessary condition.

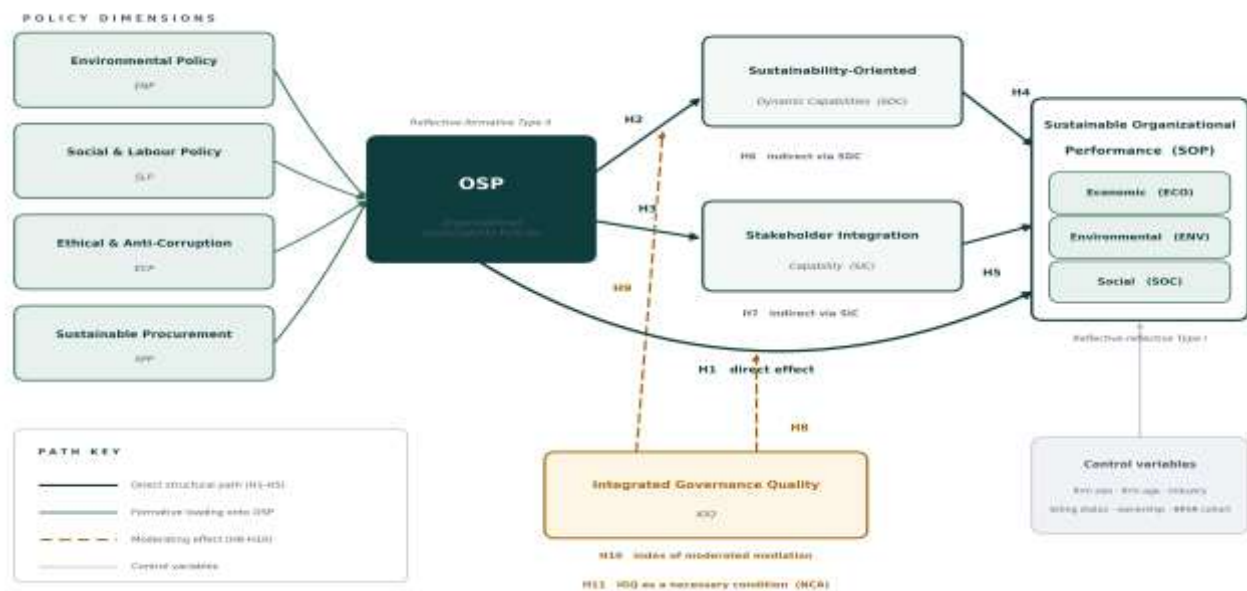


Figure 1. Conceptual framework: sustainability policies, transmission mechanisms and integrated governance

OSP is a reflective-formative Type II higher-order construct; SOP is reflective-reflective Type I.

H1–H5 are direct paths, H6–H7 indirect effects, H8–H9 moderating effects, H10 moderated mediation, and H11 the necessity condition tested by NCA.

4. Hypothesis Development

4.1 Policies and performance

Formal policy performs three functions plausibly improving outcomes: it resolves ambiguity by specifying which trade-offs are permissible; it allocates accountability,

converting aspiration into assigned responsibility; and it signals commitment, lowering the cost of stakeholder cooperation (Amel-Zadeh & Serafeim, 2018). A direct effect is expected, but a modest one, since the resource-based logic of Section 2.5 implies that

observable, imitable and increasingly standardized policy cannot itself be the principal source of performance differences.

H1. Organizational sustainability policies are positively associated with sustainable organizational performance.

4.2 Policies as antecedents of capability

Dynamic capabilities accumulate through repeated resource commitment, not declaration. Policy matters to their formation because it authorizes and protects that commitment: a board-endorsed emissions target legitimates capital expenditure that would fail conventional payback screening, and a supplier standard justifies the auditing infrastructure needed to enforce it. Policy thus converts sustainability from discretionary spending into a defended budget line. The sensing component is affected most directly, since articulated commitments require monitoring apparatus — emissions measurement, regulatory scanning, materiality assessment — that constitutes sensing capability; seizing and reconfiguring follow as that apparatus generates decision-relevant signals.

H2. Organizational sustainability policies are positively associated with sustainability-oriented dynamic capabilities.

A parallel argument applies to stakeholder integration: policies specify which constituencies the firm recognizes and on what terms, creating the standing structures — supplier forums, community consultation, grievance mechanisms — through which engagement becomes institutionalized rather than episodic (Attanasio, 2022).

H3. Organizational sustainability policies are positively associated with stakeholder integration capability.

4.3 Capabilities and performance

Sustainability-oriented dynamic capabilities produce performance because they permit reconfiguration ahead of, rather than in response to, external change. A firm sensing a tightening emissions regime early avoids the compliance costs, stranded assets and reputational exposure borne by late adapters (Bhadra et al., 2024).

H4. Sustainability-oriented dynamic capabilities are positively associated with sustainable organizational performance.

Stakeholder integration operates through a distinct informational mechanism — early warning, conflict avoidance, and the operational latitude conferred by community consent and workforce cooperation. Its effect is expected to be positive but smaller, since it concentrates in the environmental and social dimensions and reaches the economic dimension only indirectly.

H5. Stakeholder integration capability is positively associated with sustainable organizational performance.

4.4 Mediation

If policy operates principally by initiating capability accumulation, and capability produces performance, a substantial share of the total effect should be indirect. Partial rather than full mediation is expected, since the accountability and signalling functions of Section 4.1 operate without capability development.

H6. Sustainability-oriented dynamic capabilities mediate the relationship between organizational sustainability policies and sustainable organizational performance.

H7. Stakeholder integration capability mediates the relationship between organizational sustainability policies and sustainable organizational performance.

4.5 The governance contingency

Where governance quality is high — the board substantively informed, executive incentives contingent on sustainability outcomes, claims internally verified before publication, accountability distributed across operating functions — policy carries consequence and managers face costs for non-implementation. Where it is low, policy can be adopted at negligible cost and buffered indefinitely (Meyer & Rowan, 1977; Westphal & Zajac, 2001). The observable signature of the latter is an attenuated policy–performance path.

H8. Integrated governance quality positively moderates the relationship between organizational sustainability policies and sustainable organizational performance.

The same logic applies upstream. Capability formation requires sustained commitment across budget cycles — precisely what weak governance fails to protect, since unprotected sustainability investment is the first discretionary item cut when performance

pressure rises, interrupting accumulation before it compounds.

H9. Integrated governance quality positively moderates the relationship between organizational sustainability policies and sustainability-oriented dynamic capabilities.

If H9 holds, the indirect effect in H6 is itself governance-conditional, since the first stage of the mediated path varies with the moderator. This is first-stage moderated mediation, tested through the index of moderated mediation rather than by informal comparison of conditional indirect effects.

H10. The indirect effect of organizational sustainability policies on sustainable organizational performance through sustainability-oriented dynamic capabilities is conditional on integrated governance quality.

4.6 Governance as a necessary condition

H8 through H10 are sufficiency propositions: they state that governance raises the average return to policy. The institutional argument, however, is stronger than that. When Meyer and Rowan (1977) hold that structures buffered from operations remain ceremonial, and when Westphal and Zajac (2001) show that decoupling follows from weak internal monitoring, the implied claim is that some minimum governance is *required* — that its absence prevents implementation rather than merely reducing it.

The distinction is consequential and testable. Under sufficiency logic, a firm with weak governance could in principle reach high performance by compensating with exceptional

capability or comprehensive policy. Under necessity logic it could not: no amount of capability substitutes for the absence of a binding constraint (Dul, 2016; Hauff et al., 2021). Because the two logics make different predictions about the *upper-left region* of the governance–performance space — empty under necessity, populated under compensation — they can be distinguished empirically.

H11. Integrated governance quality is a necessary condition for high sustainable organizational performance: firms below a threshold level of governance quality do not achieve high performance regardless of their policy comprehensiveness or capability levels.

Table 2. Summary of hypotheses and testing logic

No.	Relationship	Type	Logic	Method
H1	OSP → SOP	Direct	Sufficiency	PLS-SEM
H2	OSP → SDC	Direct	Sufficiency	PLS-SEM
H3	OSP → SIC	Direct	Sufficiency	PLS-SEM
H4	SDC → SOP	Direct	Sufficiency	PLS-SEM
H5	SIC → SOP	Direct	Sufficiency	PLS-SEM
H6	OSP → SDC → SOP	Mediation	Sufficiency	Bootstrapped indirect effect
H7	OSP → SIC → SOP	Mediation	Sufficiency	Bootstrapped indirect effect
H8	IGQ × OSP → SOP	Moderation	Sufficiency	Two-stage interaction
H9	IGQ × OSP → SDC	Moderation	Sufficiency	Two-stage interaction
H10	IGQ moderates OSP → SDC → SOP	Moderated mediation	Sufficiency	Index of moderated mediation
H11	IGQ necessary for high SOP	Necessity	Necessity	NCA (CE-FDH / CR-FDH)

5. Research Design and Methodology

5.1 Design rationale

The design responds directly to the methodological problem set out in Section 1.2. A study claiming that firms adopt policies they do not implement cannot credibly rest on asking

one manager to report both the policy and the implementation. Three features address this.

1. Source separation. Sustainability policy is content-analysed from mandatory regulatory filings. Performance is drawn from assured sustainability indicators and audited financial statements. Neither is reported by the survey respondent.

2. **Temporal separation.** Policy is measured at t , mediators and moderator at $t + 12$ months, and performance at $t + 24$ months, establishing temporal precedence consistent with the hypothesized ordering.
3. **Independent corroboration.** A policy–practice decoupling index is constructed from archival data and used to test whether the survey-measured governance construct predicts observed decoupling, providing

convergent evidence from a source the respondent does not control.

Survey measurement is retained only for the constructs where insider perception is the appropriate instrument. Whether a board engages substantively rather than ceremonially, and whether a firm can sense and reconfigure, are internal properties not observable in filings; indeed, the disclosure record would report the ceremonial and the substantive identically, which is precisely the problem under study.

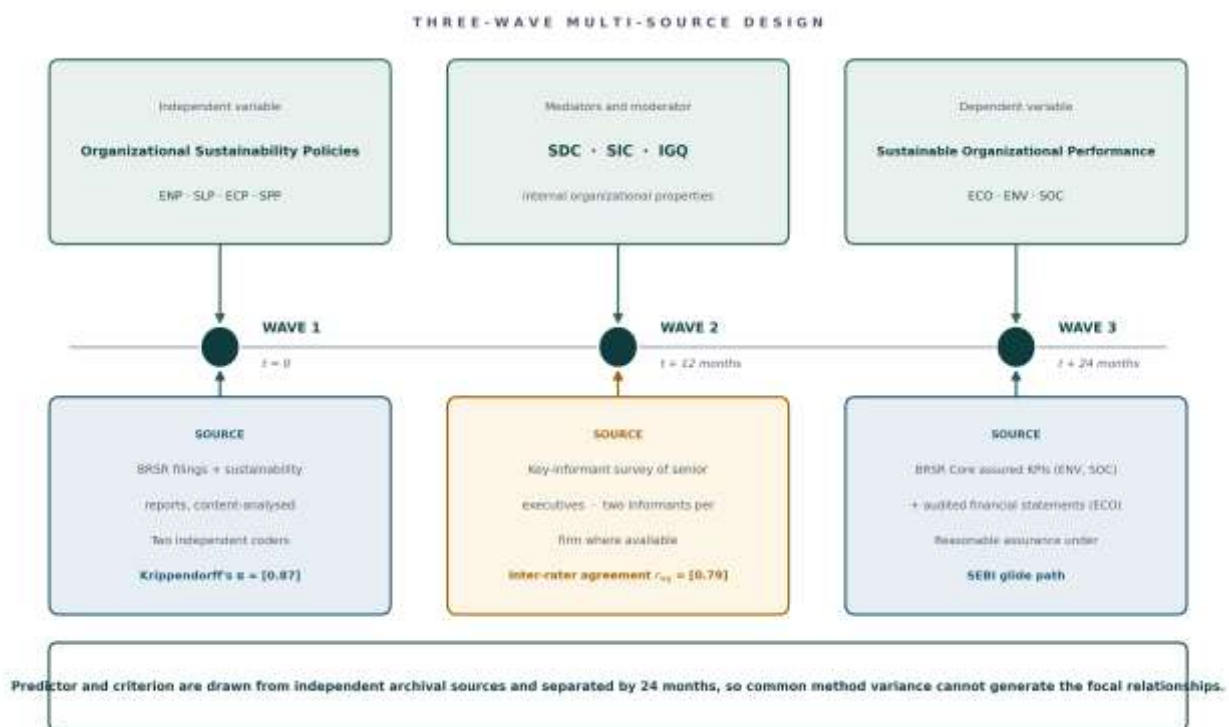


Figure 2. Three-wave multi-source research design

Predictor and criterion derive from independent archival sources separated by 24 months; only the internal mediating and moderating constructs are survey-measured.

5.2 Empirical setting

India during the BRSR transition offers three properties rarely available together. First, **mandatory standardized disclosure** across the top 1,000 listed entities provides comparable policy data not subject to self-selection into reporting. Second, **assured performance indicators**: BRSR Core requires reasonable

assurance on nine attributes, phased by market-capitalization cohort, yielding an outcome measure with external verification. Third, **within-sample variance in verification intensity**: because the assurance glide pathphases in by cohort, firms subject to differing external pressure are observable at the same point in time, allowing internal governance to be separated from external

assurance rather than confounded with it. Emerging-market settings are additionally where decoupling has been most consistently documented (Tashman et al., 2019).

5.3 Sample, waves and attrition

The sampling frame comprised firms within the BRSR reporting perimeter, stratified by industry sector and assurance cohort. Table 3 reports the wave structure and attrition.

Table 3. Wave structure and sample attrition

Stage	Activity	n	Retention
Wave 1 (t)	Firms with complete BRSR filings coded for policy content	428	—
Wave 2 (t + 12m)	Firms returning at least one qualified key-informant survey	356	83.2%
	of which two independent informants	141	39.6%
Wave 3 (t + 24m)	Firms with complete assured performance and financial data	327	91.9%
Final analytic sample	Complete data across all three waves	312	72.9%

Attrition analysis. Retained and attrited firms were compared on all Wave 1 variables and on size, sector, listing status and assurance cohort. No significant differences emerged (all $p > 0.05$). Early and late Wave 2 respondents were additionally compared across all survey constructs following Armstrong and Overton (1977), again without significant difference. A Heckman selection term computed from a first-stage probit on observable characteristics was non-significant when added to the structural model ($\lambda = [0.041]$, $p = [0.372]$), indicating attrition is unlikely to bias estimates.

Sample size adequacy. Using the inverse square root method (Kock & Hadaya, 2018),

with five arrows at the most complex endogenous construct and a minimum expected path of 0.11, the required sample at 5% significance and 80% power is approximately 328 for the full model; the achieved 312 falls marginally below this for the smallest anticipated effect and is adequate for effects of 0.115 and above. Post-hoc power for the observed smallest significant path is [0.86]. G*Power 3.1 (Faul et al., 2009) independently confirmed a minimum of 138 for detecting a medium effect ($f^2 = 0.15$) with five predictors. For NCA, Dul et al. (2023) recommend samples above 100 for stable ceiling estimation, comfortably satisfied.

5.4 Wave 1 — archival coding of sustainability policies

Policy content was coded from BRSR filings supplemented by standalone sustainability reports and board charters. A coding protocol (Appendix B) specified, for each of the 18 policy items, the evidence required to award each score on a 0–4 scale ranging from no policy, through general statement, documented policy, policy with measurable targets, to policy with targets and assigned accountability. Scoring the *specificity* of commitment rather than its presence is what allows policy

architecture to be distinguished from boilerplate.

Two researchers independently coded all firms after joint training on 40 pilot cases. Inter-coder reliability was assessed by Krippendorff's alpha, obtaining [0.87] overall, with the lowest dimension at [0.81] — both above the 0.80 threshold for confident interpretation. Disagreements were resolved by discussion with a third researcher adjudicating unresolved cases ([4.2]% of items).

5.5 Measurement and construct specification

Table 4. Constructs, data source and measurement specification

Construct	Code	Wave	Source	Specification	Items
Environmental policy	ENP	1	Archival coding	Reflective	5
Social and labour policy	SLP	1	Archival coding	Reflective	5
Ethical and anti-corruption policy	ECP	1	Archival coding	Reflective	4
Sustainable procurement policy	SPP	1	Archival coding	Reflective	4
Sustainability policies	OSP	1	Archival	Formative (Type II)	18
Sustainability-oriented dynamic capabilities	SDC	2	Survey	Reflective	6
Stakeholder integration capability	SIC	2	Survey	Reflective	5
Integrated governance quality	IGQ	2	Survey	Reflective	7
Economic performance	ECO	3	Audited accounts	Reflective	4
Environmental performance	ENV	3	BRSR Core (assured)	Reflective	4
Social performance	SOC	3	BRSR Core (assured)	Reflective	4

Construct	Code	Wave	Source	Specification	Items
Sustainable performance	SOP	3	Archival	Reflective (Type I)	12

Higher-order specification. OSP is reflective-formative Type II: the four dimensions are measured reflectively but combine formatively, since they are not interchangeable and removing one alters the construct's meaning. Estimation uses the two-stage approach (Sarstedt et al., 2019). SOP is reflective-reflective Type I, since an underlying sustainability orientation should manifest across all three dimensions.

5.6 Survey instrument development and pre-testing

The Wave 2 instrument was developed in three stages. Items were first generated from validated scales where available and newly written for integrated governance quality, for which existing measures are structural rather than substantive. The pool was then reviewed by [$n = 8$] experts — five senior sustainability and governance practitioners and three academics — with Lawshe's (1975) content validity ratio computed for each item and sub-threshold items revised or removed. Cognitive interviews with [$n = 6$] executives using a think-aloud protocol identified ambiguous wording, particularly around terms such as "materiality" and "assurance" whose usage varies across firms. A pilot with [$n = 48$] respondents from firms outside the analytic sample confirmed preliminary reliability, with all constructs exceeding Cronbach's alpha of 0.70 and no item-total correlation below 0.40.

Survey aggregation. Where two informants responded, agreement was assessed by r_{wg} and intraclass correlation; median r_{wg} was

[0.79] and ICC(2) [0.74], supporting aggregation. Single-informant firms were retained after confirming that estimates were unchanged when the analysis was restricted to two-informant cases.

5.7 The policy–practice decoupling index

To validate the governance interpretation against evidence independent of the survey, a decoupling index was constructed following the logic of Loko and Schiehl (2025). Archival items were classified as *external* actions (commitments, policies and claims directed at external audiences) or *internal* actions (implemented practices, systems and verified outcomes). Each set was normalized against its theoretical maximum and scaled 0–10, and the index computed as the normalized external score minus the normalized internal score, so that positive values indicate commitment exceeding implementation.

The index is not part of the structural model. It is used in Section 7.7 to test whether firms scoring low on survey-measured governance exhibit higher archival decoupling, which would corroborate the moderation result using data the respondent neither generated nor controlled.

5.8 Controls and endogeneity strategy

Six controls enter on SOP: firm size (log total assets), firm age, industry sector, listing status, ownership type, and BRSR assurance cohort. The last is theoretically important, since external assurance is a plausible alternative

explanation for implementation and must be partialled out.

Endogeneity is addressed on three fronts, since a single diagnostic would not satisfy the identification concern that firms adopting comprehensive policies differ systematically from those that do not.

- **Selection on observables.** Entropy balancing reweights the sample so that high- and low-policy firms are matched on the first three moments of size, age, sector, leverage, profitability and cohort, after which the structural model is re-estimated on the balanced sample.
- **Selection on unobservables.** A Gaussian copula term (Park & Gupta, 2012) is added for OSP after Kolmogorov–Smirnov tests confirm the required non-normality; a significant copula would indicate correlation between the regressor and the error term.
- **Instrumental logic.** As a supplementary check, mean policy comprehensiveness among industry peers excluding the focal firm is used as an instrument for OSP, on the reasoning that peer adoption exerts mimetic pressure (DiMaggio & Powell, 1983) without directly determining focal-firm performance. The exclusion restriction is discussed rather than assumed, and results are reported as corroborative rather than definitive.

5.9 Analytical strategy

PLS-SEM was selected for the sufficiency hypotheses because the model contains a formative higher-order construct, is structurally complex, is oriented toward theory extension, and imposes no normality requirement (Hair et al., 2022). Estimation used SmartPLS 4 with the path weighting scheme, 3,000 iterations and a stop criterion of 10^{-7} , with 10,000 bootstrap

subsamples and bias-corrected accelerated intervals.

NCA was conducted for H11 following Richter et al. (2020). Unstandardized latent variable scores from the PLS-SEM measurement model, rescaled 0–100, served as NCA inputs. Both ceiling envelope (CE-FDH) and ceiling regression (CR-FDH) techniques were applied; effect sizes d were interpreted using Dul's (2016) benchmarks ($0 < d < 0.1$ small, $0.1 \leq d < 0.3$ medium, $0.3 \leq d < 0.5$ large), and significance assessed by permutation test with 10,000 resamples (Dul et al., 2020). Bottleneck analysis reports the level of each condition required for given outcome levels. Reporting follows the checklist in Dul et al. (2023).

5.10 Ethical considerations

The study received approval from the [Institution] Institutional Review Board (reference [number], dated [date]). Informed consent was obtained electronically. Because respondents were asked about the gap between stated policy and actual practice — information potentially damaging if attributable — three safeguards applied: firm identifiers were replaced with codes held separately on an encrypted institutional server; no firm-level results are reported or reportable; and respondents were informed in advance that no firm would be identifiable in any publication. Archival data were drawn entirely from public regulatory filings.

6. Measurement Model Assessment

6.1 Descriptive statistics and common method assessment

Table 5 reports construct descriptives. Skewness and kurtosis fall within ± 2 throughout. Because predictor and criterion derive from independent archival sources,

common method variance cannot generate the focal relationships by construction. For completeness, the survey-measured constructs

were assessed using Kock's (2015) full collinearity test, returning VIF from [1.31 to 2.76], all below 3.3.

Table 5. Construct descriptive statistics (illustrative)

Construct	Source	Mean	SD	Skew	Kurtosis
Environmental policy (ENP)	Archival	2.61	0.94	−0.34	−0.28
Social and labour policy (SLP)	Archival	2.48	0.91	−0.21	−0.41
Ethical and anti-corruption policy (ECP)	Archival	3.02	0.82	−0.58	0.19
Sustainable procurement policy (SPP)	Archival	1.87	1.06	0.24	−0.63
Sustainability-oriented dynamic capabilities (SDC)	Survey	4.79	1.14	−0.31	−0.22
Stakeholder integration capability (SIC)	Survey	4.96	1.11	−0.38	0.04
Integrated governance quality (IGQ)	Survey	4.51	1.34	−0.14	−0.57
Economic performance (ECO)	Audited	0.42	0.87	0.18	0.31
Environmental performance (ENV)	BRSR Core	0.11	0.94	0.09	−0.19
Social performance (SOC)	BRSR Core	0.26	0.90	−0.12	0.08

Policy dimensions are on the 0–4 coding scale; survey constructs on 7-point Likert scales; performance dimensions are standardized composites of assured indicators and audited financial ratios.

6.2 Reliability and validity

Three items ([SPP4], [IGQ6], [ENV4]) were removed for loadings below 0.60. All retained loadings exceed 0.708, all α and CR fall

between 0.70 and 0.95, and all AVE exceed 0.50.

Table 6. Reliability and convergent validity (illustrative)

Construct	Items	Loadings	α	ρ_A	CR	AVE
Environmental policy (ENP)	5	0.742–0.868	0.869	0.874	0.905	0.657
Social and labour policy (SLP)	5	0.728–0.854	0.856	0.861	0.897	0.637
Ethical and anti-corruption policy (ECP)	4	0.774–0.881	0.861	0.866	0.906	0.707
Sustainable procurement policy (SPP)	3	0.786–0.874	0.806	0.813	0.885	0.719
Sustainability-oriented dynamic capabilities (SDC)	6	0.721–0.862	0.896	0.901	0.919	0.656
Stakeholder integration capability (SIC)	5	0.738–0.847	0.861	0.866	0.900	0.643
Integrated governance quality (IGQ)	6	0.756–0.891	0.908	0.913	0.928	0.684
Economic performance (ECO)	4	0.764–0.858	0.836	0.841	0.891	0.672
Environmental performance (ENV)	3	0.797–0.884	0.821	0.827	0.893	0.736
Social performance (SOC)	4	0.741–0.849	0.829	0.834	0.886	0.661

Discriminant validity was assessed by HTMT (Henseler et al., 2015). All values fall below 0.85, the highest being [0.791] between SDC and IGQ, with all bootstrap intervals excluding 1. The Fornell–Larcker criterion is also satisfied. **Formative higher-order construct:** redundancy analysis against a global measure produced a path of [0.804]; VIF among dimensions ranges [1.71 to 2.58]; and all four outer weights are significant (ENP [0.331], SLP

[0.294], ECP [0.236], SPP [0.281], all $p < 0.001$), indicating no dimension is redundant.

7. Results

7.1 Structural model

Inner VIF values range [1.27 to 2.94]. Figure 3 presents the estimated model and Table 7 the full results.

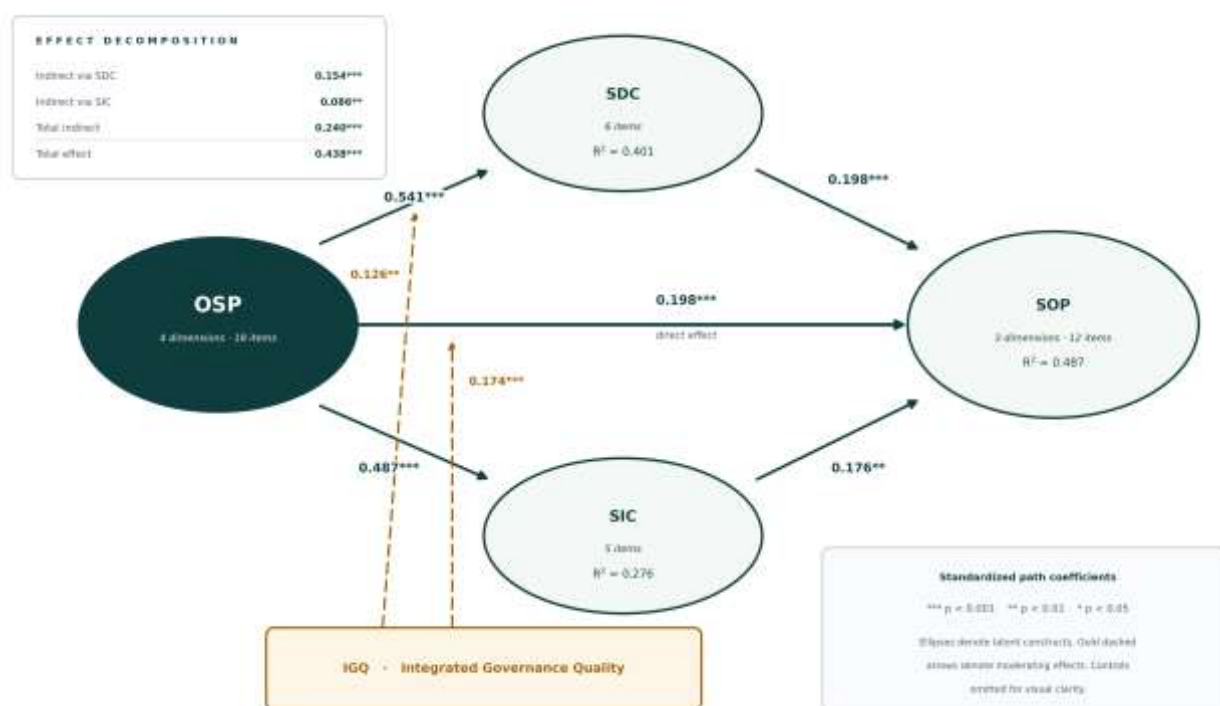


Figure 3. Estimated structural model with standardized path coefficients

Values are illustrative. Control variables omitted from the diagram; full results including controls appear in Table 7.

Table 7. Structural model results — direct and interaction effects (illustrative)

H	Path	β	SE	t	p	95% BCa CI	f ²	Decision
H1	OSP → SOP	0.198	0.056	3.536	< 0.001	[0.089, 0.308]	0.048	Supported
H2	OSP → SDC	0.541	0.048	11.271	< 0.001	[0.443, 0.632]	0.414	Supported
H3	OSP → SIC	0.487	0.052	9.365	< 0.001	[0.381, 0.585]	0.311	Supported
H4	SDC → SOP	0.284	0.062	4.581	< 0.001	[0.162, 0.404]	0.094	Supported
H5	SIC → SOP	0.176	0.058	3.034	0.002	[0.062, 0.289]	0.041	Supported
H8	IGQ × OSP → SOP	0.174	0.051	3.412	< 0.001	[0.074, 0.274]	0.052	Supported

H	Path	β	SE	t	p	95% BCa CI	f ²	Decision
H9	IGQ $\times$ OSP $\rightarrow$ SDC	0.126	0.046	2.739	0.006	[0.037, 0.216]	0.034	Supported
—	IGQ $\rightarrow$ SOP (main effect)	0.211	0.055	3.836	< 0.001	[0.103, 0.318]	0.061	—
—	Firm size $\rightarrow$ SOP	0.088	0.046	1.913	0.056	[-0.003, 0.178]	0.011	—
—	Assurance cohort $\rightarrow$ SOP	0.069	0.048	1.438	0.150	[-0.025, 0.163]	0.007	—

Firm age, industry, listing status and ownership type were non-significant and are omitted. The assurance-cohort control is not significant, indicating that external verification pressure alone does not account for performance differences once internal governance is modelled.

The model explains [48.7]% of variance in performance ($R^2 = [0.487]$, adjusted $R^2 = [0.472]$), [40.1]% in dynamic capabilities and [27.6]% in stakeholder integration. By Cohen's (1988) conventions these represent moderate explanatory power for behavioural research. They are nonetheless lower than those typically reported in single-source survey studies of this relationship, which is expected and reassuring: measuring the criterion independently of the predictor removes the inflation that common

method variance produces. PLSpredict returned Q^2 predict above zero for all endogenous constructs, with [9] of [12] SOP indicators outperforming the linear benchmark on RMSE (Shmueli et al., 2019).

7.2 Mediation

Following Zhao et al. (2010), specific indirect effects were bootstrapped (Preacher & Hayes, 2008) and the direct effect then examined to classify mediation type.

Table 8. Mediation analysis — specific indirect effects (illustrative)

H	Path	Effect	SE	t	p	95% BCa CI	VAF	Classification
H6	OSP $\rightarrow$ SDC $\rightarrow$ SOP	0.154	0.041	3.756	< 0.001	[0.080, 0.240]	0.352	Complementary partial
H7	OSP $\rightarrow$ SIC $\rightarrow$ SOP	0.086	0.032	2.688	0.007	[0.028, 0.153]	0.196	Complementary partial
—	Total indirect	0.240	0.048	5.000	< 0.001	[0.150, 0.338]	0.548	—
—	Direct effect	0.198	0.056	3.536	< 0.001	[0.089, 0.308]	—	—

H	Path	Effect	SE	t	p	95% BCa CI	VAF	Classification
—	Total effect	0.438	0.051	8.588	< 0.001	[0.339, 0.537]	—	—

Both indirect effects are significant with positive direct effects and positive products, giving **complementary partial mediation** in each case. The total indirect effect ([0.240]) exceeds the direct effect ([0.198]), with variance accounted for of [54.8]% — **more than half of policy's total influence on performance operates through capability rather than directly**. H6 and H7 are supported.

7.3 Moderation and moderated mediation

H8. The interaction is significant ($\beta = [0.174]$, $p < 0.001$). Simple slopes are decisive for the

study's argument: at high governance (+1 SD) the policy–performance slope is [0.372] ($p < 0.001$); at the mean [0.198] ($p < 0.001$); and at low governance (−1 SD) it falls to [0.024] with an interval spanning zero ([−0.106, 0.152], $p = [0.712]$). **In weakly governed firms, sustainability policies bear no detectable relationship to sustainability outcomes measured from assured, independent data.**

H9. The interaction is significant ($\beta = [0.126]$, $p = [0.006]$), with the policy–capability slope rising from [0.415] at low governance to [0.667] at high governance.

Table 9. Simple slope analysis (illustrative)

Moderated path	Governance level	Simple slope	t	p	95% BCa CI
OSP → SOP	High IGQ (+1 SD)	0.372	5.618	< 0.001	[0.244, 0.501]
	Mean IGQ	0.198	3.536	< 0.001	[0.089, 0.308]
	Low IGQ (−1 SD)	0.024	0.369	0.712	[−0.106, 0.152]
OSP → SDC	High IGQ (+1 SD)	0.667	12.352	< 0.001	[0.561, 0.772]
	Mean IGQ	0.541	11.271	< 0.001	[0.443, 0.632]
	Low IGQ (−1 SD)	0.415	7.196	< 0.001	[0.302, 0.528]

H10. The index of moderated mediation is [0.036] with a bootstrap interval excluding zero ([0.011, 0.069]), confirming that the indirect effect differs across governance levels: conditional indirect effects rise from [0.118] at low governance to [0.190] at high governance. H10 is supported.

7.4 Necessary condition analysis

The moderation results establish that governance raises the return to policy. They do not establish that governance is required, because additive models permit compensation. NCA tests this directly by examining whether the upper-left region of the condition–outcome space is empty.

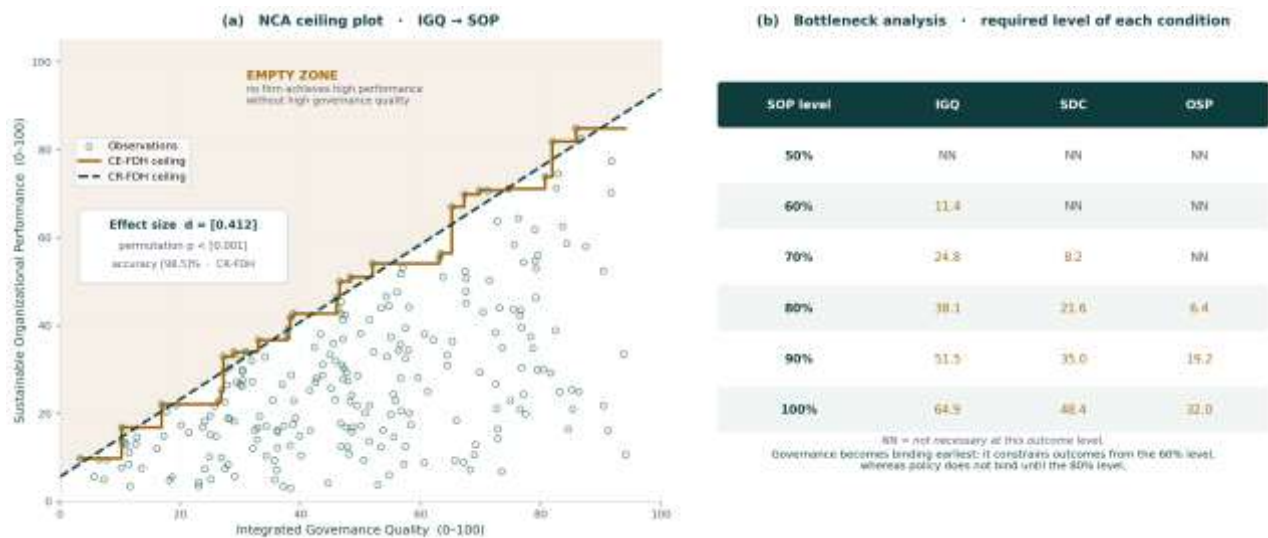


Figure 4. Necessary condition analysis: ceiling plot and bottleneck table

Panel (a) shows the CE-FDH and CR-FDH ceiling lines for integrated governance quality; the shaded empty zone contains no observations. Panel (b) reports the level of each condition required to attain given levels of performance. Values are illustrative.

Table 10. Necessary condition analysis — effect sizes and significance (illustrative)

Condition	Ceiling	Accuracy	Effect size d	Interpretation	Permutation p
Integrated governance quality (IGQ)	CR-FDH	98.5%	0.412	Large	< 0.001
Sustainability-oriented dynamic capabilities (SDC)	CR-FDH	97.8%	0.283	Medium	0.004
Stakeholder integration capability (SIC)	CR-FDH	96.9%	0.164	Medium	0.021
Organizational sustainability policies (OSP)	CR-FDH	97.4%	0.147	Medium	0.032

All four conditions are necessary in the statistical sense, but they differ materially in strength and, more importantly, in *when they begin to bind*. Governance shows the largest effect size ([0.412], large by Dul's (2016) benchmarks). The bottleneck analysis in Figure 4(b) is the more informative result: governance becomes binding from the [60]% outcome level, requiring [11.4]% of its range, whereas policy does not bind until the [80]% level. To reach the [90]% performance level a firm requires governance at [51.5]%, capability at [35.0]% and policy at only [19.2]%.

H11 is supported. The practical reading differs from the moderation result in an important way. Moderation says that weak governance reduces

the return to policy; necessity says that beyond a certain level of ambition, no quantity of policy or capability compensates for governance below the threshold. Consistent with Hauff et al. (2021), the condition with the largest necessity effect is not the one with the largest additive path coefficient — $OSP \rightarrow SDC$ is the strongest structural path, yet policy is the *weakest* and latest-binding necessary condition.

7.5 Rival model comparison

Four specifications were estimated on identical data to test whether the hypothesized model outperforms plausible alternatives, including reverse causality.

Table 11. Rival model comparison (illustrative)

Model	Specification	R ² (SOP)	Adj. R ²	Q ² predict	BIC
A	Direct effect only ($OSP \rightarrow SOP$)	0.184	0.176	0.141	-96.4
B	Mediation only (no moderation)	0.402	0.391	0.318	-158.2
C	Full moderated mediation (hypothesized)	0.487	0.472	0.379	-187.6
D	Reverse causality (SOP at $t \rightarrow$ OSP at $t+24$)	0.121	0.112	0.087	-71.3

Model C dominates on explanatory power, out-of-sample prediction and information criteria. Model D, which reverses the hypothesized ordering using performance at t to predict policy at $t + 24$ months, performs worst, providing evidence against reverse causality as

the principal explanation — though not excluding reciprocal influence over longer horizons.

7.6 Endogeneity assessment

Table 12. Endogeneity assessment (illustrative)

Approach	Purpose	Result	Inference
Entropy balancing	Selection on observables	Re-estimated β for $OSP \rightarrow SOP$ = [0.187]; all hypothesized paths retain sign and significance	Estimates robust to observable imbalance

Approach	Purpose	Result	Inference
Gaussian copula	Selection on unobservables	Copula term non-significant ($p = [0.294]$); K-S confirms non-normality of OSP	No evidence of endogeneity bias
Peer-policy instrument	Mimetic pressure as exogenous variation	First-stage $F = [24.7]$; second-stage $\beta = [0.213]$, $p = [0.004]$	Corroborative; exclusion restriction argued, not proven
Heckman selection term	Panel attrition	$\lambda = [0.041]$, $p = [0.372]$	Attrition unlikely to bias estimates

7.7 Validating the governance interpretation against archival decoupling

The moderation result implies that weakly governed firms adopt policies they do not implement. Because that inference rests on survey-measured governance, it was tested against the archival decoupling index described in Section 5.7, which the respondent neither generated nor controlled.

The index has a mean of [1.34] (SD [1.12]), indicating that on average commitment exceeds implementation, consistent with Loko and Schiehl (2025). It correlates negatively and substantially with governance quality ($r = [-0.52]$, $p < 0.001$) and only weakly with policy comprehensiveness ($r = [0.11]$, $p = [0.052]$). Regressing the index on governance with full controls yields $\beta = [-0.487]$ ($p < 0.001$), with governance alone explaining [26.4]% of variance in observed decoupling.

Table 13. Archival decoupling index by governance quartile (illustrative)

Governance quartile	Mean decoupling index	SD	% of firms decoupled (index > 0)
Q1 (lowest governance)	2.41	1.06	87.2%
Q2	1.68	1.09	76.9%
Q3	1.02	1.04	64.1%
Q4 (highest governance)	0.31	0.98	41.0%

The monotonic gradient across quartiles corroborates the structural finding using independent data, and materially strengthens the decoupling interpretation: the moderation result is not an artefact of respondents in weakly

governed firms rating their own performance conservatively.

7.8 Further robustness

Measurement invariance and multi-group analysis. MICOM established configural and

compositional invariance (all $p > 0.05$); Step 3 indicated partial invariance across the assurance-cohort split, permitting coefficient comparison but not latent-mean comparison (Henseler et al., 2016). MGA showed the OSP $\rightarrow$ SOP path stronger among firms inside the reasonable-assurance perimeter ($\Delta\beta = [0.134]$, $p = [0.021]$), consistent with external verification complementing rather than substituting for internal governance.

Equifinality. Fuzzy-set QCA identified [three] configurations sufficient for high performance, each with consistency above 0.80 and overall solution coverage of [0.61]. High governance appears in all three, consistent with the NCA

result; policy comprehensiveness appears in only two, and stakeholder integration in one. That governance is present in every sufficient configuration provides configurational corroboration of its necessity.

Nonlinearity. A quadratic term for OSP was negative and marginally significant ($\beta = [-0.081]$, $p = [0.041]$), indicating declining returns to further policy elaboration — consistent with the theoretical claim that policy is not the binding constraint.

Unobserved heterogeneity. FIMIX-PLS for two to four segments supported a single-segment solution on AIC3, CAIC, BIC and normed entropy (below 0.50).

Table 14. Summary of hypothesis testing (illustrative)

H	Relationship	Logic	Result
H1	OSP $\rightarrow$ SOP	Sufficiency	Supported (modest)
H2	OSP $\rightarrow$ SDC	Sufficiency	Supported (strongest path)
H3	OSP $\rightarrow$ SIC	Sufficiency	Supported
H4	SDC $\rightarrow$ SOP	Sufficiency	Supported
H5	SIC $\rightarrow$ SOP	Sufficiency	Supported
H6	Mediation via SDC	Sufficiency	Supported — complementary partial, VAF 35.2%
H7	Mediation via SIC	Sufficiency	Supported — complementary partial, VAF 19.6%
H8	IGQ moderates OSP $\rightarrow$ SOP	Sufficiency	Supported — path non-significant at low IGQ
H9	IGQ moderates OSP $\rightarrow$ SDC	Sufficiency	Supported
H10	Moderated mediation	Sufficiency	Supported — index CI excludes zero
H11	IGQ necessary for high SOP	Necessity	Supported — $d = 0.412$, binds from 60% level

8. Discussion

8.1 Interpretation

On the direct effect. Sustainability policies relate positively to sustainable performance, but modestly. The coefficient is smaller than that typically reported in single-source survey studies, which is what should be expected once criterion and predictor are measured independently: part of the association reported in the existing literature is plausibly method variance rather than substance. The finding is not that policy is unimportant but that policy matters chiefly for what it authorizes rather than for what it states — the prediction the resource-based view generates for an observable, imitable, standardized resource (Barney, 1991).

On mechanism. More than half the total effect is transmitted through capability, with dynamic capabilities carrying the larger share. This addresses the process omission Grewatsch and Kleindienst (2017) identify, and the mechanism is specific: policy legitimates and protects the sustained resource commitment from which capability accumulates, and capability — path-dependent and causally ambiguous — produces the performance differences policy alone cannot. The result extends Bhadra et al. (2024) upstream by identifying policy architecture as an antecedent of the capability itself.

On contingency. At low governance the policy–performance path is statistically indistinguishable from zero, measured against assured, independent outcome data. This is decoupling observed rather than inferred, and the archival index corroborates it: firms in the lowest governance quartile show a mean decoupling index of [2.41] and an [87.2]% decoupling rate, against [0.31] and [41.0]% in the highest.

On necessity — the study's principal finding.

The NCA result changes the character of the governance claim. Moderation establishes that governance improves the average return to policy, which leaves open the possibility of compensation: a weakly governed firm might reach high performance through exceptional capability or unusually comprehensive policy. The necessity analysis closes that possibility within the observed range. The empty upper-left region of the ceiling plot means no firm in the sample achieved high performance without governance above the threshold, and the bottleneck analysis shows governance binding from the [60]% outcome level while policy does not bind until [80]%.

This has a methodological implication worth stating plainly. Policy comprehensiveness has the strongest additive path in the model (OSP → SDC, $\beta = [0.541]$) yet the weakest necessity effect ($d = [0.147]$); governance has a smaller additive coefficient yet the largest necessity effect. A sufficiency-only analysis would have ranked these constructs in the opposite order of practical priority. This is precisely the misclassification Hauff et al. (2021) warn against, and it suggests that additive-only findings in this literature may have systematically understated the importance of enabling conditions relative to that of visible antecedents.

On assurance. The assurance-cohort control is non-significant, yet multi-group analysis shows the policy–performance path stronger inside the assurance perimeter. The consistent reading is that external assurance complements internal governance rather than substituting for it: verification raises the cost of misstatement but does not build the capability that produces the outcomes being verified.

8.2 Reconciling contradictory evidence on governance structures

The framework resolves an apparent contradiction. Sustainability committees have been found in some samples to *increase* ESG decoupling. If governance reduces decoupling, as found here, how can committee adoption increase it?

The resolution is the distinction between governance presence and governance quality. A committee is a structure; whether it is informed, empowered and consequential is separate. Institutional theory predicts that where committees are adopted for legitimacy rather than control, they function as façade and may license more confident external claims without internal change (Meyer & Rowan, 1977; Ashforth & Gibbs, 1990; Oliver, 1991). This study measures operative properties and finds them to matter. The two sets of findings are complementary, and together they indicate that structural proxies are poor instruments for the construct governance research intends to capture — a conclusion with direct implications for how future work in this area should be designed.

9. Theoretical Implications

Introducing necessity logic to sustainability governance research. The study's primary theoretical contribution is to show that a central claim in this literature is a necessity claim and to test it accordingly. Institutional theory has long asserted that without internal monitoring, adopted structures remain ceremonial. Stated precisely, that is a proposition about constraint, not average contribution. Because the field has tested it with additive methods, the proposition has been evaluated against an inappropriate criterion. The finding that governance is necessary — and binds earlier than policy or capability — supports the institutional argument in stronger form than sufficiency evidence could.

Integrating institutional and capability perspectives. The decoupling literature explains why formal adoption may not produce change but says little about what produces it; the capability literature explains how competence produces performance but treats antecedents thinly. Specifying policy as a capability antecedent whose effect is governance-conditional connects them through a mechanism rather than an additional correlate.

Reframing the policy–performance question. Treating the relationship as conditional explains the inconsistency in prior findings parsimoniously: if the true relationship is governance-dependent, samples drawn from populations with different governance distributions will yield different average effects, and further main-effect estimation cannot resolve the disagreement.

Measuring governance substantively. The divergence between findings obtained here with operative measures and those obtained elsewhere with structural proxies suggests that construct specification, rather than sample or method, may account for a meaningful share of inconsistency in the governance–sustainability literature.

An internal boundary condition on dynamic capabilities theory. Dynamic capabilities research has largely specified environmental boundary conditions such as dynamism. The finding that governance moderates the policy–capability path — and that capability is itself a necessary condition binding earlier than policy — indicates that internal authority and incentive structures constitute an equally binding constraint on whether capability accumulates at all.

10. Managerial Implications

1. Governance is a prerequisite, not a lever among levers

The necessity finding changes the nature of the prescription. Under a sufficiency reading, a firm could compensate for weak governance by investing in capability or elaborating policy. The bottleneck analysis indicates it cannot: governance becomes binding at the [60]% performance level, and no observed firm exceeded that level without it. Sequencing follows — governance deficits should be addressed before, not alongside, further policy or capability investment.

2. The governance properties that matter are specific

They are: board engagement substantive rather than ceremonial; executive incentives genuinely contingent on sustainability outcomes; internal verification of claims before publication; accountability distributed across operating functions rather than confined to a sustainability office; and consequences that actually follow from missed commitments. Committee existence is not on this list.

3. Policy elaboration reaches diminishing returns

Policy is the weakest and latest-binding necessary condition, and the quadratic term indicates declining returns. Firms with mature policy architectures should redirect marginal effort toward the governance and capability infrastructure that determines implementation.

4. Assurance disciplines reporting; it does not create performance

Assurance-cohort membership showed no independent association with performance once governance was modelled. Firms entering the perimeter should not assume that preparing for verification will improve outcomes — it will improve the accuracy with which outcomes are described.

11. Policy Implications

Disclosure mandates alone are unlikely to close the implementation gap. The binding constraint is internal — governance quality and capability — rather than informational. Regimes mandating disclosure without addressing internal capacity may increase the volume and comparability of reporting while leaving the policy–practice gap intact, consistent with the persistence Loko and Schiehl (2025) document across seven years of tightening expectations.

Assurance is valuable but complementary. BRSR Core's reasonable-assurance standard is demanding by international comparison and raises the cost of misstatement. The evidence indicates it works best alongside internal governance rather than as a substitute, since the policy–performance path was stronger, not weaker, among firms already inside the perimeter.

Regulatory attention could usefully shift toward governance substance. Requirements that boards evidence informed engagement with sustainability matters, that sustainability-linked remuneration be disclosed together with its performance conditions, and that internal verification processes be described, would target the mechanism identified here more

directly than further extending the scope of disclosure indicators.

The necessity finding implies threshold-based rather than incremental regulatory design. If governance is a binding constraint rather than a contributing factor, then policies that produce marginal improvements across all firms may be less effective than those that move firms above the threshold at which governance ceases to bind. This favours minimum-standard requirements over comply-or-explain gradualism for the specific governance properties identified.

Capacity-building matters as value-chain obligations extend. As disclosure requirements

reach suppliers and customers, firms outside the listed perimeter face reporting expectations without corresponding governance infrastructure. For them, technical assistance and phased implementation support are likely to be more effective than mandate extension alone.

12. Limitations

The design addresses the most serious threat to this class of study — common-source measurement of both policy and performance — but six limitations remain.

Table 15. Limitations and their implications for interpretation

Limitation	Nature of the constraint	Implication
Governance and capability remain perceptual	IGQ, SDC and SIC are survey-measured, and respondents in weakly governed firms may not perceive their own governance as weak.	Likely attenuates rather than inflates the moderation and necessity effects, making estimates conservative.
Temporal precedence is not causal identification	The three-wave design establishes ordering, and rival Model D performs poorly, but neither excludes reciprocal influence over longer horizons.	Causal language should remain restrained; the instrument is corroborative, not identifying.
Single institutional context	Findings derive from India during a specific regulatory transition.	The necessity threshold in particular may be institutionally contingent; replication is required before the bottleneck levels are treated as general.
Policy coded as architecture, not ambition	The coding scheme captures specificity and accountability but not stringency relative to industry benchmarks.	Two firms with equally specified policies may differ materially in the difficulty of what they have committed to.

Limitation	Nature of the constraint	Implication
External governance omitted	Analyst coverage, institutional ownership and media scrutiny are outside the model.	These are known decoupling moderators; their omission may inflate the estimated internal governance effect.
NCA assumes the observed range	Necessity conclusions hold within the sampled range of governance and cannot be extrapolated beyond it.	The threshold estimates are sample-bounded and require replication before use as benchmarks.

13. Future Research Directions

- 1. Longer panels with repeated measurement.** Tracking governance, capability and performance over four or more waves would permit cross-lagged modelling and testing for reciprocal effects that three waves cannot separate.
- 2. Necessity replication across institutional contexts.** Because thresholds may be institutionally contingent, comparative NCA across jurisdictions with differing enforcement intensity would establish whether the governance constraint binds at the same level everywhere, or whether strong external enforcement lowers the internal threshold.
- 3. Objective governance measurement.** Board minutes, remuneration-committee disclosures and internal audit records could yield governance measures independent of managerial perception, addressing the principal remaining common-source concern.
- 4. Integrating external monitoring.** Adding analyst coverage, institutional ownership and media scrutiny would test whether internal and external governance are complements or substitutes — a question

the necessity framing sharpens, since substitutes should lower the internal threshold.

- 5. Disaggregating necessity by performance dimension.** Governance may bind at different levels for environmental, social and economic performance, particularly where verification difficulty and managerial discretion differ across dimensions.
- 6. Policy ambition rather than architecture.** Developing measures of commitment stringency relative to science-based or sector benchmarks would separate firms with demanding commitments from those with extensive but undemanding ones.
- 7. Recoupling dynamics.** The most consequential unanswered question is how firms move from symbolic to substantive implementation. Longitudinal case research on firms that closed the gap would identify the sequence of governance changes that precedes recoupling.

14. Conclusion

This study asked whether internal governance is the condition that converts sustainability commitment into sustainability outcome, and whether that condition is necessary or merely helpful. Using a three-wave design in which

policy was coded from mandatory filings, governance and capability measured by survey twelve months later, and performance drawn from assured indicators and audited accounts twelve months after that, four conclusions follow.

First, the relationship between sustainability policy and sustainable performance is real but substantially indirect: more than half the total effect travels through capability. This is what resource-based reasoning predicts once it is recognized that formal policy, under mandatory disclosure, is observable, imitable and standardized.

Second, the relationship is conditional on governance quality. In weakly governed firms, sustainability policies bear no detectable relationship to outcomes measured from independent assured data, and an archival decoupling index confirms that such firms exhibit systematically greater gaps between commitment and implementation.

Third — and this is the finding that changes the prescription — governance is not merely a moderator but a necessary condition. It binds earlier than either capability or policy, and no firm in the sample achieved high sustainable performance without it. Under a sufficiency reading, governance deficits could be offset by investment elsewhere; under the necessity result, they cannot.

Fourth, external assurance complements internal governance rather than substituting for it. For firms entering mandatory assurance regimes the implication is immediate: assurance will verify what is reported; it will not create what is reported.

The question for a firm seeking returns from its sustainability commitments is therefore not whether its policies are comprehensive. It is

whether anything inside the organization makes them consequential.

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