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The Proximity Paradox: Why Faster Management Information Can Increase the Distance Between Decision-Makers and Reality

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ABSTRACT

Management digitalisation is widely theorised as a distance-collapsing technology: dashboards, integrated systems, and ESG data platforms are assumed to bring managers closer to the realities they govern. This conceptual paper challenges that assumption. It argues that digitalisation reliably reduces signal latency the time an event takes to reach a decision point while simultaneously increasing structural distance the number and opacity of layers standing between a representation and the reality it depicts. Because the architectural moves that compress latency (abstraction, standardisation, aggregation, automation) are the same moves that lengthen the mediating chain, speed and fidelity can move in opposite directions. Synthesising organisational information-processing theory, systems thinking, and the measurement-reactivity (Goodhart) literature, the paper defines a four-dimensional construct of managerial proximity representational, consequential, temporal, and relational distance and develops a two-by-two typology of digital governance regimes. It advances five testable propositions and reframes greenwashing not as a moral failure but as an architectural property of deep reporting systems in which no participant can traverse the distance between the representation and its referent.

Keywords: ESG Decoupling, Greenwashing, Management Digitalisation, Structural Distance, Systems Thinking

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INTRODUCTION

A premise underlies most of the management digitalisation literature so widely that it is rarely stated as a premise: that digital technologies bring managers closer to the operations, markets, employees, and environmental systems they are responsible for. Enterprise systems integrate the fragmented firm into a single informational plane (Davenport, 1998). Real-time analytics compress the gap between event and awareness (McAfee & Brynjolfsson, 2012). Supply-chain platforms render multi-tier networks legible to the focal firm (Sodhi & Tang, 2019), and environmental, social, and governance (ESG) data infrastructures promise to make ecological and social consequences visible and therefore governable (Eccles & Klimenko, 2019). Collectively these claims compose a narrative in which digitalisation is a distance-collapsing technology, and in which the residual problems of digital management are treated as implementation frictions rather than as properties of the architecture itself.

This paper argues that the narrative is incomplete in a way that matters, and that its incompleteness has become consequential precisely where this conference places its focus: the integration of ESG principles into management digitalisation. The central claim is that digitalisation performs two opposed operations at once. It reduces signal latency the elapsed time between an event occurring and a representation of that event arriving at a decision point. And it increases structural distance the number, depth, and opacity of the mediating layers standing between the decision-maker and the material reality the decision acts upon. These movements are causally linked: the architectural moves that compress latency (abstraction, standardisation, aggregation, automation, platform intermediation) are the same moves that lengthen the mediating chain. The result is a condition this paper terms the Proximity Paradox: managers have never received information faster, and have never been further from the referent of that information.

The paper addresses three questions. First, under what conditions does management digitalisation increase rather than decrease the structural distance between decision-makers and the realities they govern? Second, how does structurally produced distance generate governance decoupling specifically ESG decoupling independently of managerial intent? Third, what design logic can govern digital architectures under conditions where distance cannot be eliminated and where positive metrics of proximity would themselves be gamed? Following Jaakkola's (2020) typology of conceptual contributions, the paper is a theory-synthesis effort: it integrates previously disconnected theoretical streams to produce a novel construct and framework. It offers no empirical test, but a construct, a typology, and five propositions, each intended to be empirically contestable.

The contribution is fourfold. First, the paper distinguishes latency reduction from distance reduction, routinely conflated under the umbrella of 'visibility', and argues they are often empirically opposed. Second, it specifies managerial proximity as a four-dimensional construct, each dimension with distinct antecedents and failure modes, permitting propositions that an undifferentiated notion of visibility cannot generate. Third, it advances a structural theory of ESG decoupling, yielding the counterintuitive prediction that increasing ESG data density can increase decoupling. Fourth, it proposes a subtractive governance logic that survives its own critique: because any positive proximity metric would be gamed, governance is specified as a set of severance prohibitions rather than a score to be maximised. The argument is developed for management digitalisation generally but illustrated throughout with ESG governance, the fastest-growing frontier of digital management and the one where the gap between representation and referent is hardest to audit and most costly when it fails.

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LITERATURE REVIEW

The distance-collapse narrative has deep roots. Galbraith (1974) framed organisation design as the management of information-processing capacity relative to uncertainty; the implicit remedy for uncertainty is more information, faster. Zuboff (1988) introduced a more dialectical view, observing that information technology both automates and 'informates' generating abstract symbolic representations that distance management from embodied knowledge of production a shift she treated as ambivalent. Contemporary digital transformation research (Vial, 2019; Verhoef et al., 2021) inherits the optimistic residue: representations are treated as inputs to capability, and their fidelity to the underlying referent is regarded as a data-quality issue rather than a theoretical problem. Even in supply-chain research, where the central construct is literally visibility, blockchain traceability guarantees the immutability of records but not their correspondence to physical reality the oracle problem (Kshetri, 2018). A tamper-proof record of a false claim is a false claim with enhanced credibility.
The ESG measurement literature has independently documented anomalies that this paper interprets as symptoms. ESG ratings diverge sharply across providers, and the divergence is driven mainly by measurement rather than scope (Berg, Kölbel & Rigobon, 2022). Christensen, Serafeim, and Sikochi (2022) show that greater disclosure is associated with greater, not lesser, rating disagreement a finding directly counterintuitive under the distance-collapse narrative and directly predicted under the present one. In Indonesia, the drivers of ESG disclosure appear only weakly tied to financial performance and more strongly to environmental sensitivity of the sector (Apriono et al., 2023), suggesting that disclosure responds to external pressure rather than to a stable underlying signal. ESG information asymmetry has itself become a studied moderator of how sustainability claims translate into investor outcomes (Andriyansah & Sukendri, 2025), and firm-level evidence continues to show that the relationship between ESG scores and performance depends heavily on governance and audit conditions (Reyes & Cruz, 2025). Institutional theory supplies the vocabulary of decoupling, in which formal structures are adopted for legitimacy while operational activity proceeds on other logics (Meyer & Rowan, 1977; Bromley & Powell, 2012); this paper specifies an architectural rather than intentional mechanism for its production.

Three critical traditions supply the raw material for the framework. The legibility critique (Scott, 1998) shows how standardised representations imposed on complex realities are not neutral observation but active, and often destructive, transformation. The audit-society critique (Power, 1997) shows how verification activity expands while the substance verified thins, because auditability requires reducing complex performances to checkable traces. The measurement-reactivity critique—Goodhart's law in Strathern's (1997) formulation, elaborated by Espeland and Sauder (2007) and catalogued by Muller (2018)—holds that once a measure becomes a target it ceases to be a good measure. This last tradition is not merely a phenomenon the framework explains; it is a methodological constraint on the framework itself, because it forecloses any response that would convert proximity into a maximised index. Systems theory completes the apparatus: Meadows (2008) identifies delay, information fidelity, and goal alignment as the three properties that determine whether a feedback loop stabilises or degrades—an account that maps directly onto the layered structure of digital governance developed below.

What these traditions share, and what the mainstream digital transformation literature lacks, is attention to the epistemic status of representation. Vial's (2019) influential review synthesises the field around a process in which digital technologies trigger strategic responses that generate structural change and, subject to barriers, positive value outcomes; the fidelity of the representations on which those responses depend is not itself theorised. Yet the anomalies documented in the ESG literature (divergent ratings,

disclosure that increases rather than resolves disagreement, high-quality reports that omit material negative events) are precisely what a theory attentive to representational fidelity would predict. The gap this paper occupies is the intersection: a construct specifying how digital architecture produces distance, a theory of why that distance generates decoupling as a structural rather than moral outcome, and a design logic immune to its own Goodhart critique because it is prohibitive rather than optimising.

RESEARCH METHOD

This is a conceptual paper, and its method is theory synthesis in the sense of Jaakkola (2020) and MacInnis (2011): the deliberate integration of previously disconnected theoretical streams to produce a novel construct and an associated framework, together with propositions that render the framework empirically contestable. No primary data are collected and no hypotheses are statistically tested; the contribution is analytical rather than empirical. The procedure had three stages. First, a problematising review (Alvesson & Sandberg, 2011) of the digital transformation and ESG measurement literatures identified the shared, largely unexamined assumption that digital mediation reduces the distance between decision-makers and reality. Second, three explanatory traditions—organisational information-processing theory, systems thinking (Meadows, 2008), and the measurement-reactivity literature (Strathern, 1997)—were integrated around a single mechanism: the production of structural distance through functionally necessary intermediation. Ontological commensurability across these traditions was established on critical-realist grounds (Bhaskar, 1975): each assumes a reality independent of its representation, from which representations can systematically diverge through identifiable structures. Third, the synthesised mechanism was translated into a four-dimensional construct, a two-by-two typology, and five propositions, each stated with an indication of the evidence that would falsify it. The ESG reporting chain is used throughout as an illustrative case because its substrate is physical and therefore has determinate states independent of representation, making representational failure demonstrable.

RESULTS

The Construct: Four Dimensions of Structural Distance

Managerial proximity is defined as the degree to which a decision-maker's understanding of, and exposure to, the material reality affected by a decision is preserved across the mediating structure through which that decision is formed and executed. It is a property of structure, not of persons: a conscientious manager in a high-distance architecture has low proximity. Proximity is the inverse of structural distance, which is specified along four analytically distinct dimensions, summarised in Table 1.

Dimension	What it measures	Characteristic failure
Representational	Number and lossiness of transformations between a material state and the symbol acted upon	Acting confidently on a symbol whose link to reality is unknown at the decision point
Consequential	Separation between the party deciding and the parties bearing the consequences	Systematically biased risk-taking; indifference produced by insulation, not deception
Temporal	Delay of corrective feedback relative to confirmatory feedback	Learning on the wrong loop: skilled at the fast-visible, blind to the slow-onset
Relational	Absence of unmediated channels through which the affected can surprise the decision-maker	Elimination of the anomaly: only anticipated information has a path

Table 1. The four dimensions of structural distance

The Core Result: The Latency–Distance Inversion

The distance-collapse narrative implicitly assumes that reducing latency reduces distance. The central analytical result of this paper is that, under the architectural moves characteristic of management digitalisation, the two are inversely related across a wide and identifiable domain. The mechanism is that the same five operations reduce latency and increase distance. Abstraction: to transmit a state quickly it must be encoded compactly, discarding properties not anticipated as relevant (latency falls, representational distance rises). Standardisation: to aggregate across sites, categories are made uniform, and local particularity is absorbed silently. Aggregation: to render a large system comprehensible, states are summed or averaged, destroying the variance where anomalies live. Automation: to act quickly, human intervention is removed—precisely the point at which anomalous states were previously noticed. Platform intermediation: to coordinate across firms, a third-party infrastructure with its own objectives and opacity is interposed. The inversion is therefore not an implementation failure to be fixed; it is a property of the design moves that constitute digitalisation. One cannot obtain the latency benefit without incurring the distance cost, because both are produced by the same operations.

Two properties of the resulting architecture compound the problem. First, distance accumulates multiplicatively rather than additively. If each layer preserves a fraction of the decision-relevant signal, the fraction surviving to the decision point is the product across layers: seven layers each preserving ninety per cent preserve only forty-eight per cent. This is why architectures composed entirely of individually reasonable transformations produce unreasonable outputs. Second, the architecture is asymmetrically traversable. Signal flows upward at low cost, but interrogation flows downward with great difficulty, because a manager who doubts a figure must descend through many layers, each maintained by different actors using different tools. In practice this descent is almost never performed, so the figure functions as unfalsifiable within the decision process, regardless of how auditable it appears on paper. The paradox is also self-reinforcing: latency reduction is measurable, attributable, and quickly rewarded, whereas distance increase is unmeasurable by construction, unattributable, and manifests as failures that appear exogenous. The feedback structure of the organisation therefore selects for further distance production.

A Typology of Digital Governance Regimes

Crossing latency (high/low) with structural distance (high/low) yields four regimes (Table 2). The typology establishes that the paradox describes a tendency, not a necessity. Detached Analog (high latency, high distance) is the pre-digital bureaucratic baseline against which digitalisation is correctly judged an improvement. Embedded Analog (high latency, low distance) is the owner-operated workshop where feedback is slow but undistorted—a limiting case showing that low distance is not a function of technology. Hyper-Mediated Management (low latency, high distance) is the dominant contemporary regime and the characteristic product of the paradox: managers experience high control and possess low proximity, and failures arrive as surprises. Instrumented Proximity (low latency, low distance) is attainable but structurally disfavoured; it uses digital tools to lower the cost of direct contact rather than to substitute a representation for it.

	Low structural distance	**High structural distance**
Low signal latency	Instrumented Proximity (digital augmentation that preserves exposure; rare)	Hyper-Mediated Management (dominant; high perceived control, low actual proximity)
High signal latency	Embedded Analog (direct exposure, slow feedback; scale-limited)	Detached Analog (slow and mediated; the historical baseline)

Table 2. A typology of digital governance regimes

Propositions

P1 (Latency–Distance Inversion). Within a governance domain, investments that reduce signal latency are positively associated with increases in composite structural distance, and the association strengthens as the number of intermediating layers rises.

P2 (Multiplicative Degradation). Decision-relevant signal fidelity degrades multiplicatively across layers; architectures composed of individually validated transformations therefore exhibit aggregate fidelity far below what layer-by-layer validation implies.

P3 (Differential Feedback). Digitalisation reduces temporal distance for confirmatory feedback while leaving corrective feedback largely unchanged; the divergence between the two rates predicts governance failure better than the absolute level of either.

P4 (Data Density and Decoupling). Beyond a threshold, greater volume and granularity of governance data are associated with increased decoupling between formal representation and material outcome, because volume expands discretionary transformation surface faster than it expands substantive constraint.

P5 (Architectural Origin of Greenwashing). The incidence of sustainability decoupling is better predicted by the layer-depth and inferential composition of a firm's reporting architecture than by measures of managerial intent or ethical climate.

DISCUSSION

The framework's sharpest application is ESG governance, where the substrate is physical, the architecture is unusually deep, and the principal bearers of consequence future generations, ecosystems, distant communities are structurally excluded from the decision process. Consider a corporate carbon figure. A combustion event at a third-tier supplier is not measured but estimated from a fuel-purchase record, converted through an averaged emission factor, aggregated up several levels, assured at the level of process rather than substance, ingested by a rating vendor, and finally emitted as a score that moves capital. Between the boiler and the capital allocation lie roughly nine transformations, each defensible, each lossy, and each directional because every actor faces incentives pointing the same way. The chain is digitally mediated, so it is fast, auditable-looking, and almost impossible for any single participant to traverse end to end. This reframes greenwashing. The dominant view treats it as deliberate misrepresentation a firm knowing its performance and communicating otherwise. Where the architecture is deep, largely inferential, and asymmetrically traversable, the firm's own management does not possess knowledge of its performance independent of the representation. There is no privately known truth being publicly contradicted; there is a representation, produced by a system, that no participant is positioned to falsify. This architecturally produced decoupling differs from deception in three consequential ways. It is not deterred by liability, which presupposes a knowing misstatement. It is not remedied by disclosure, because disclosure operates at the upper layers while the divergence originates at the lower ones more disclosure of a distant representation is merely more distant representation. And it is worsened by assurance as currently practised, which certifies that estimation was performed as specified rather than that the output corresponds to the substrate. Proposition 5 follows, together with a prediction at odds with policy trajectory: mandating deeper, more granular digital ESG reporting will improve the internal consistency of the reporting system while leaving, or worsening, its correspondence to material outcomes.

This also explains the divergence of ESG ratings structurally. Raters do not observe attributes; they observe the output of firms' aggregations, transformed through their own layers. Divergence is the expected consequence of two deep, discretionary transformation chains applied to a common upstream representation that is already

several layers from the substrate. Under this reading, divergence is information about architectural depth, not a defect to be standardised away standardising raters would produce convergence on a shared distant representation without producing correspondence. The design response follows the same logic. Because any positive proximity metric would itself become a target and be gamed (Proposition 4; Strathern, 1997), the appropriate response is subtractive rather than additive: specifying what an architecture must not be permitted to sever, rather than a score it must maximise. In practice this means preserving at least one unmediated observational channel to the substrate, presenting distributional extremes alongside aggregates, disclosing the proportion of any figure that was measured versus estimated, and keeping open a channel for information the reporting system did not anticipate. Each is a prohibition, satisfied or violated rather than scored, and therefore resistant to optimisation. This paper is not, however, a case against digitalisation. Where digital tools are used to lower the cost of direct contact sensors that measure the substrate directly, remote sensing that verifies a physical state rather than accepting a report about it they reduce distance on every dimension at once. The framework's most practical use is to distinguish two technology investments that look identical in a budget and are opposite in governance effect.

Two brief contrasting cases make the distinction concrete. Continuous electronic temperature monitoring in vaccine cold chains places a sensor in direct contact with the thermal environment of the vial: the substrate is measured rather than estimated, the reporting chain is short, the operative statistic is a threshold breach rather than an average, and the health worker who reads the data bears the consequence of acting on it wrongly. This is Instrumented Proximity, and it satisfies the extremity-preserving requirement natively because cold-chain governance asks whether a limit was crossed, not what the average temperature was. By contrast, a supplier's self-declared deforestation-free attestation arriving on the same dashboard at the same speed is a claim, not a measurement; replacing it with satellite verification of land-use change converts a distant representation into direct instrumentation of a physical state. Both appear identical in a technology budget; they are opposite in governance effect. The lesson is not to digitalise less but to digitalise so as to lower the cost of contact with the substrate rather than to substitute a representation for it.

CONCLUSION

This paper argued that the widely shared premise of the digitalisation literature that digital technologies bring managers closer to the realities they govern conflates two distinct movements. Digitalisation reliably compresses the time a representation takes to reach a decision-maker, and reliably extends the structural chain between that representation and its referent, because both follow from the same architectural operations. The Proximity Paradox names this condition; the framework specifies it through four dimensions of structural distance, a four-regime typology distinguishing the dominant Hyper-Mediated Management from the attainable Instrumented Proximity, and five propositions. Applied to ESG governance, the framework yields a diagnosis that departs from the prevailing moral framing: a substantial share of greenwashing is not a firm knowing the truth and stating otherwise, but a firm whose architecture has placed the truth beyond the reach of any participant, including itself. The corresponding design logic is subtractive—governing what an architecture may not sever rather than what score it must achieve. Future research can develop coding protocols for architectural depth and inferential composition from public disclosure documents, and test whether reporting speed is unrelated or positively related to slow-onset governance failures a result that would be difficult to accommodate within the distance-collapse narrative.

LIMITATION

As a conceptual paper, this study offers no empirical test; its propositions are conjectures whose plausibility derives from theoretical coherence and consistency with existing findings. The framework argues against indexing proximity while relying on the ability to distinguish high from low distance; the resolution offered—that architectural depth and inferential composition are observable and codeable without a compensatory composite score—remains to be validated in operationalisation. The account is strongest for determinate, physical substrates such as emissions and weaker for domains where the object of governance is partly constituted by its representation. Finally, the framework emphasises the costs of digital mediation and, despite the Instrumented Proximity case, may understate its benefits.

DECLARATION OF CONFLICTING INTERESTS

The author declares no conflicting interests with respect to the research, authorship, or publication of this article.

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