

PUBLICATION 001

The Recursive Theory of Organizational Coordination

A Structural Theory of Ambition, Capability, and Organizational
Transformation

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The Recursive Theory of Organizational Coordination

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About this Publication

Publication 001 is the inaugural publication in the Recursive Theory of Organizational Coordination research program.

This publication introduces the foundational theory.

Future publications will include:

- Applied organizational contexts
- Comparative analyses
- Empirical research
- Observation methodology
- Case studies
- Validation studies

The canonical theory remains the governing source from which all publications are derived.

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Abstract

Organizations are commonly described through their visible forms: reporting lines, processes, roles, meetings, technologies, and governance. These descriptions are useful, but they leave a deeper question unanswered: why can a structure that once worked become incapable of realizing what the organization now seeks to achieve?

The Recursive Theory of Organizational Coordination begins with a more fundamental relationship. An actor seeks to realize an ambition. The actor has finite capability. When the ambition exceeds that capability—or when realization depends on the consequential state or action of another actor—coordination becomes necessary. Actors combine capability, regulate dependencies, produce changes in realized state, observe the result, and adapt. A coordination system may itself become an actor within a larger system, while autonomous actors may also remain connected through consequential cross-boundary dependencies. Organizational life is therefore recursive without being reducible to hierarchy.

The theory proposes five structural dimensions through which coordination capability can be examined: decision authority, state traceability, constraint visibility, failure containment, and adaptation capacity. Together, its constructs and dimensions support a predictive ambition: disciplined, probabilistic judgment about whether the current actor can become capable of realizing a declared ambition and what is most likely to fail first.

This paper defines the theory's constructs, causal model, structural dimensions, and predictive hypothesis. Its purpose is to establish a common conceptual foundation for future research and application. The predictive hypothesis remains to be tested prospectively.

1. The Problem: Transformation Outruns the Actor

Organizations rarely fail for lack of activity. They create plans, add people, reorganize teams, adopt technologies, establish governance, and measure performance. Yet consequential transformations repeatedly produce delay, contradiction, local optimization, and outcomes that fall short of intent.

The usual explanations often begin too late. They attribute failure to communication, leadership, culture, execution, resistance, incentives, or process. Each may describe something real. None, by itself, identifies the more general condition that makes organizational coordination necessary: the ambition under consideration exceeds the capability of the actor attempting to realize it, or depends on other actors whose consequential states and actions must be regulated across a boundary.

This mismatch is especially visible during growth, restructuring, mergers, technology adoption, and other consequential change. A structure capable of producing yesterday's outcome is asked to produce a materially different one. The organization may add work without adding the capability to coordinate it. It may distribute responsibility without making decision authority legible. It may increase interdependence without exposing constraints. It may demand experimentation while allowing local failure to destabilize the whole. It may collect observations without creating the capacity to adapt.

The central problem is therefore not simply whether an organization has enough resources. It is whether the current actor and its coordination system can evolve quickly enough to close the gap between current capability and the capability required by its declared ambition.

The Recursive Theory of Organizational Coordination offers a vocabulary and causal model for analyzing that problem before the outcome is known. Explanation is necessary; prediction is the larger objective.

2. Relationship to Existing Theory

The Recursive Theory of Organizational Coordination belongs to a broad intellectual tradition concerned with organizations as systems of decision, regulation, interpretation, learning, and collective action. It draws on that tradition while organizing the problem around the relationship among ambition, capability, and coordination.

Stafford Beer's work on viability, cybernetics, and recursive systems provides an important precedent for examining how systems remain capable across levels of organization (Beer 1972). Herbert Simon's bounded rationality grounds the recognition that actors decide under limits; this theory generalizes that insight from cognition to the broader construct of bounded capability (Simon 1997). Ronald Coase's account of firms and transaction costs illuminates why coordination occurs within some boundaries and across others (Coase 1937).

Karl Weick emphasizes sensemaking and the processes through which organizing is enacted (Weick 1995). James March contributes foundational accounts of organizational decision-making and learning (March 1991). Elinor Ostrom demonstrates how autonomous actors can govern consequential interdependencies without requiring a single containing hierarchy (Ostrom 1990). Russell Ackoff's work on purposeful systems and whole-system performance reinforces the importance of understanding actors in relation to intended outcomes and the systems of which they are part (Ackoff and Emery 1972).

The theory does not collapse these traditions into one account. It uses actors, ambitions, capability, decisions, state, coordination, observation, recursion, and dependency to ask a specific predictive question: given a declared ambition and an observable structural state, can the current actor become the actor required to realize it, and what is most likely to fail first? Detailed comparison with prior work belongs to the continuing research program; the purpose here is to locate the theory's central concern.

3. The Core Thesis

The theory begins with four linked propositions:

- 1 Organizations emerge when an ambition exceeds the capability of an individual actor.
- 2 Coordination enables multiple actors to combine and direct capability or to regulate consequential dependencies in pursuit of an intended state.
- 3 A sufficiently coherent coordination system may itself function as an actor within a larger coordination system, producing recursive organizational structure.

- 4 Organizational success and failure arise from the relationship among declared ambition, current capability, required capability, and the structural quality of the coordination system through which the capability gap must be closed.

These propositions shift attention from organizational form to organizational function. A team, company, partnership, network, or ecosystem is not treated as an actor merely because it has a name or formal boundary. It may be treated as an actor when it has a sufficiently coherent boundary, ambition, and capacity for coordinated action.

The resulting view is recursive but not exclusively hierarchical. Actors can compose larger actors. They can also remain autonomous while depending on one another across boundaries. A construction project may contain teams and contractors within a larger system of coordinated work while depending on an external supply chain it neither owns nor contains. Both relationships matter, but they are structurally different.

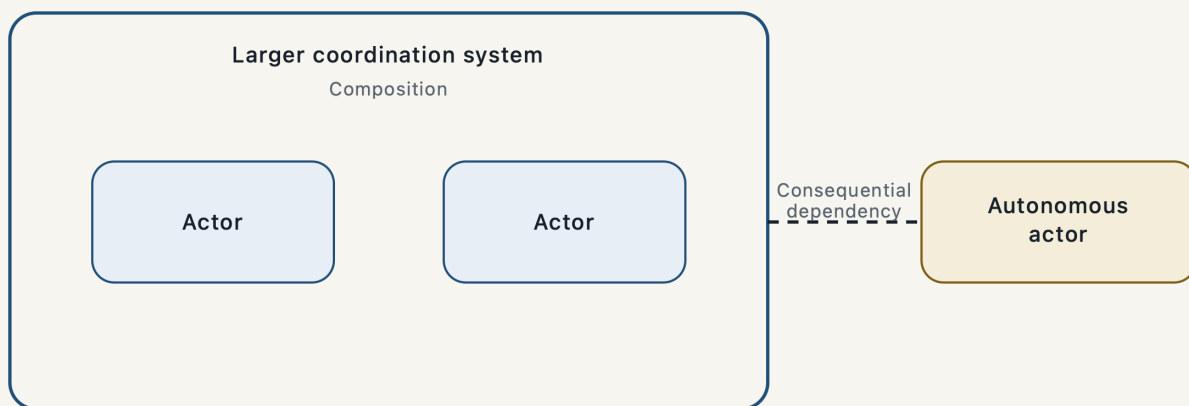


Figure 1. Composition and cross-boundary dependency. Actors may compose a larger coordination system while autonomous actors remain connected across boundaries through consequential dependencies. Derived from Recursive Theory of Organizational Coordination, Working Canonical v0.2.0. Canonical figure RT-F03.

The theory's central predictive hypothesis follows:

Given a declared ambition and the observable structural state of a coordination system, it should be possible to determine probabilistically whether the current actor can become the actor required to realize that ambition—and, when it cannot, what is most likely to fail first.

The hypothesis is probabilistic: it seeks evidence and likelihood rather than certainty.

4. Fundamental Constructs

4.1 Actor

An actor is any entity capable of making decisions, changing state, and participating in coordination.

An individual can be an actor. So can a team, an organization, a partnership, a network, or an ecosystem. An actor may be composed of other actors, may participate in more than one coordination system, and may depend on actors outside its own boundary.

The construct is deliberately scale-independent. Scale adds actors, boundaries, ambitions, decisions, constraints, obligations, and dependencies. It does not create a fundamentally different kind of entity.

4.2 Ambition

Ambition is a desired future state an actor intends to realize.

Ambition is the causal antecedent of the model: it creates the need for state change. An ambition may remain within one actor's capability, or it may require coordinated capability. When coordinated action is necessary, the relevant intended future state must become sufficiently available to the actors whose decisions and actions are required. Formal documentation may help, but the theory does not require it.

Ambition is always evaluated relative to the intended state under analysis. An organization may possess adequate capability for one ambition and inadequate capability for another.

4.3 Capability

Capability is the finite capacity of an actor to realize an ambition.

It includes cognition, knowledge, attention, time, authority, expertise, resources, relationships, physical ability, geographic presence, and access to complementary actors or systems. The construct incorporates bounded rationality but is broader than cognition: actors are bounded in every form of capacity required to move from intended state to realized state.

Capability is relational, not absolute. The useful question is not whether an actor is capable in general, but whether its current capability is adequate for the declared ambition.

4.4 Decision

A decision is a legitimate change to the informational state of a system.

A decision can establish an intended future state, commitment, priority, allocation, or constraint. It does not, by itself, change realized reality. Its effect depends on whether the changed informational state is sufficiently accessible, interpretable, persistent, and precise for the actors whose behavior it is meant to influence.

The word legitimate matters. The theory distinguishes a decision capable of changing the system's governing informational state from a preference, suggestion, or unauthorized declaration that the system need not treat as binding.

4.5 Coordination

Coordination is the mechanism through which actors regulate consequential dependencies and, where required, combine and direct capability in pursuit of the intended state under analysis.

Coordination is more specific than interaction and broader than collaboration. Actors may interact without their states being consequential to one another. They may coordinate without sharing ownership, identical ambitions, consensus, or cooperative intent.

4.6 Informational and Realized State

The theory distinguishes two forms of state.

Informational state consists of shared understanding, decisions, commitments, priorities, constraints, and declared intentions. It varies in accessibility, interpretability, persistence, and precision.

Realized state is the observable condition of reality produced through execution and coordination.

A decision changes informational state. Coordination changes realized state. This distinction prevents a declared intention from being mistaken for an accomplished outcome.

4.7 Observation

Observation is evidence about realized state and the conditions that produced it. Observation makes comparison between intended and realized state possible and supports adaptation.

Observation is not identical to measurement. Quantitative measures may be observations, but so may other evidence about outcomes and causal conditions.

4.8 Recursion

Recursion describes the composability of actors. A coordination system may be treated as an actor within a larger coordination system when it possesses a sufficiently coherent boundary, ambition, and capacity for coordinated action.

Recursion explains why similar coordination problems recur at different scales. A person, team, business unit, enterprise, partnership, and ecosystem can each face a gap between current capability and required capability.

4.9 Dependency

A dependency is a relation in which the state or action of one actor is consequential to another actor's ability to pursue an intended state.

Consequence is the threshold. Interaction alone does not establish dependency. A dependency also does not imply containment: autonomous actors may depend on one another while retaining distinct boundaries and ambitions.

5. The Causal Model

The model can be expressed as a recurring sequence:

Ambition → Decision → Coordination → Realized State → Observation → Adaptation → Next Ambition

Ambition creates the need for change. Decisions alter informational state by declaring intentions, commitments, priorities, allocations, or constraints. Coordination translates that informational state into realized state by directing capability and regulating dependencies. Observation supplies evidence about what occurred and under what conditions. Adaptation changes the actor, system, ambition, or some combination of them. Each cycle therefore creates both an outcome and new evidence about the actor's ability to realize its ambition.



Figure 2. The coordination cycle. Ambition creates the need for state change; decision, coordination, observation, and adaptation connect intended state to the conditions of the next cycle. Derived from Recursive Theory of Organizational Coordination, Working Canonical v0.2.0. Canonical figure RT-F01.

A complementary capability sequence makes the transformation problem explicit:

Current Actor → Current Capability → Declared Ambition → Required Capability → Capability Gap → Coordination System Evolution → Realized Outcome

The required evolution may be a new team, a different distribution of authority, access to an external actor, a revised interface, a new coordination practice, or a reduction in ambition. What matters is whether the resulting actor can supply and coordinate the capability the ambition requires.

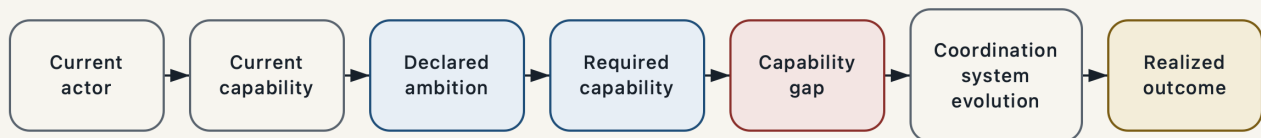


Figure 3. The capability gap. Consequential transformation requires the current actor and its coordination system to evolve so that required capability can be brought to bear on the declared ambition. Derived from Recursive Theory of Organizational Coordination, Working Canonical v0.2.0. Canonical figure RT-F02.

Cross-boundary dependencies add a third representation:

Autonomous Actor State or Action → Consequential Dependency → Coordination Across Boundaries → Realized Outcome

This representation distinguishes recursive composition from universal hierarchy. Some consequential relationships cross boundaries that remain intact.

Taken together, the three representations connect intended future state, structural condition, and realized outcome. That connection is what gives the theory a path from explanation toward prediction.

6. The Structural Dimensions of Coordination Capability

The theory identifies five dimensions as structural invariants. Their appropriate operating ranges vary by context, but each dimension remains relevant wherever capability must be coordinated.

6.1 Decision Authority

Question: Who can legitimately change state?

Decision authority concerns whether the actors affected by a decision can identify who has the legitimate capacity to establish the relevant intention, priority, commitment, allocation, or constraint. Ambiguous, conflicting, inaccessible, or mismatched authority degrades coordination even when individual participants are highly capable.

6.2 State Traceability

Question: Can actors see the conditions, evidence, and reasoning that influenced a decision?

Traceability connects current informational state to its origins. It allows actors to interpret decisions, test whether their premises still hold, and adapt without reconstructing history through rumor or inference.

6.3 Constraint Visibility

Question: Can actors see what is preventing realization of the declared state?

Constraints may include missing capability, competing commitments, unavailable resources, unresolved dependencies, incompatible decisions, or conditions outside the actor's control. When consequential constraints remain hidden, coordination proceeds on a false account of what is possible.

6.4 Failure Containment

Question: Can actors take action and learn without a local misstep destabilizing the larger system?

Containment defines the system's ability to absorb local error, experimentation, or underperformance without allowing it to cascade into unacceptable harm. The required degree and form of containment depend on context: an airline, hospital, startup, and research laboratory cannot tune risk identically.

6.5 Adaptation Capacity

Question: Is the coordination system intentionally learning and improving as reality changes?

Adaptation capacity concerns whether observation can produce meaningful changes in the actor, coordination system, ambition, or their relationships. A system that detects divergence but cannot alter its governing conditions has observation without adaptive capability.

The dimensions can be examined within a coordination system and at an interface between autonomous actors. Applying them at an interface leaves the actors' boundaries and distinct ambitions intact. For example, a supplier relationship may require legible authority, traceable commitments, visible constraints, contained failure, and the capacity to revise coordination even when each party remains autonomous.

The dimensions make structural condition observable in relation to a particular ambition. They supply the bridge between the causal model and its predictive hypothesis: recurring patterns of authority, traceability, constraint visibility, containment, and adaptation should reveal where a capability gap is likely to become consequential.

7. Coordination Debt

The theory proposes coordination debt as the accumulated consequence of allowing ambition to outpace the evolution of the coordination systems required to realize it.

Growth does not break an organization. Friction, delay, contradiction, and failure accumulate when an actor pursues a larger or different ambition without evolving the capability and structural conditions needed to coordinate it.

The debt metaphor describes deferred structural evolution: an organization may continue operating, but the cost compounds in future coordination.

An organizational chart can be read as a partial historical record of capability boundaries already crossed. A new team, function, or governance layer often records an attempt to create an actor capable of carrying part of a larger ambition. The chart alone cannot show whether the attempt succeeded, whether the relevant cross-boundary dependencies are regulated, or whether the five structural dimensions operate adequately.

8. From Explanation to Prediction

The constructs establish what to examine. The causal model explains how intended state becomes realized state. The structural dimensions identify conditions that shape that movement. Their culmination is a forward-looking question: given this ambition and this coordination system, what is most likely to happen next?

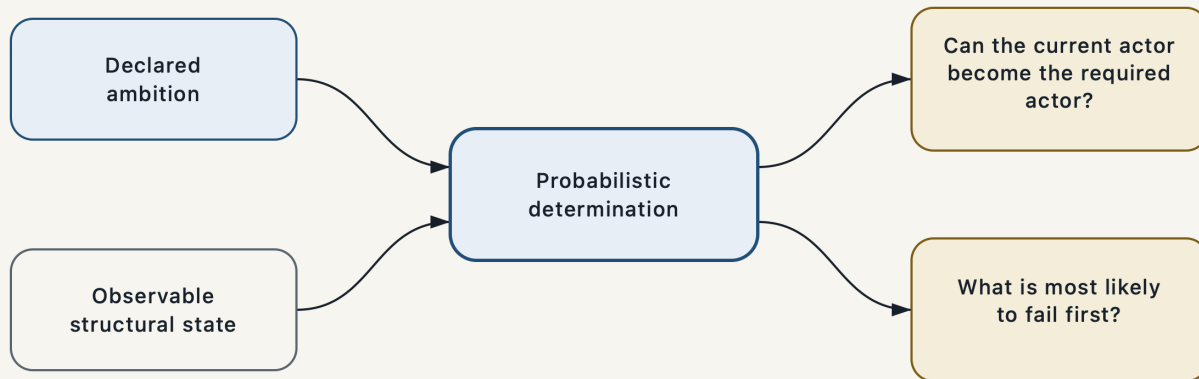


Figure 4. The predictive hypothesis. The theory seeks to determine probabilistically whether the current actor can become the actor required by its ambition and, when it cannot, what is most likely to fail first. Derived from *Recursive Theory of Organizational Coordination*, Working Canonical v0.2.0. Canonical figure RT-F05.

The working hypothesis is that structural analysis can support probabilistic predictions about:

- whether the current actor can realize the declared ambition;
- which capability gaps will become consequential;
- where coordination friction is likely to emerge;
- what is most likely to fail first;
- whether a new actor will integrate successfully;
- whether a larger system can absorb technological or structural change; and
- what adaptation is required before execution risk becomes unacceptable.

The theory's predictive value depends on a sufficiently clear ambition, adequate observation of the coordination system and its consequential dependencies, and valid operational interpretations of the constructs and structural dimensions. Prediction remains probabilistic and contextual: the intended result is a reasoned estimate of outcomes and failure modes, expressed with uncertainty.

Prospective testing is essential. A mature research program would record the declared ambition, observed structural conditions, expected failure modes, confidence, time horizon, and relevant boundaries before the outcome is known. It would then compare each prediction with realized state, examine alternative explanations, and identify the conditions under which the theory succeeds or fails. Repeated prospective tests would determine whether structural analysis can reliably anticipate transformation outcomes rather than merely explain them afterward.

9. Why the Theory Matters During Consequential Transformation

Consequential transformation changes what an organization must be capable of doing, not merely what it intends to do. This is why a strategy can be coherent while the transformation built around it still fails.

The theory directs leaders and researchers to examine several linked questions:

- 1 What intended future state is the transformation actually trying to realize?
- 2 What capability does that ambition require?
- 3 What capability does the current actor possess?
- 4 Which capability gaps must be closed through composition, cross-boundary dependency, or adaptation?
- 5 Are decision authority, state traceability, constraint visibility, failure containment, and adaptation capacity adequate for the transformation's context?
- 6 What evidence will distinguish changed informational state from changed realized state?

This framing applies across domains. A founder-led company may coordinate ten customers through the attention and judgment of one actor; serving 10,000 requires a different actor with additional capabilities and coordination systems. Adding people without evolving authority, traceability, visibility, containment, and adaptation can increase nominal capacity while deepening coordination debt.

A merger presents the same underlying problem at another scale. Joining two formal organizations does not immediately create one coherent actor. Distinct ambitions, authority structures, informational states, capabilities, and dependencies remain. Integration succeeds to the extent that a coordination system capable of realizing the combined ambition emerges.

The examples show how the theory organizes inquiry across contexts. The predictive task is to move beyond recognizing these patterns after the fact and identify, in advance, which structural conditions will shape the outcome.

10. Theory and Application

The Recursive Theory of Organizational Coordination concerns the structural relationship among actors, ambition, capability, decisions, state, coordination, observation, recursion, dependency, and the five structural dimensions. It is neither an organizational design template nor a prescribed governance system. It does not assume that hierarchy is inherently desirable or that actors share an ambition, ownership, consensus, or cooperative intent.

Applications operationalize selected constructs for a particular context. In doing so, they introduce choices about boundaries, observation, measurement, uncertainty, and action. Those choices require validation on their own terms and neither redefine nor independently validate the theory.

11. Scope, Evidence, and Current Limits

The paper distinguishes theory from the explanation used to make it accessible and from evidence used to test it. Examples clarify an interpretation; evidence supports, refines, or challenges a claim. Contextual applications and recommendations add choices beyond the theory. Opinion and speculation remain separate from theoretical claims.

The canonical source records active engagement with prior work in cybernetics, bounded rationality, organizational decision-making, transaction costs, sensemaking, collective action, and purposeful systems. Its detailed comparative record remains in development, as does the empirical program required to test the predictive hypothesis.

Important questions remain unresolved, including:

- the empirical conditions sufficient for treating a collection of actors as one coherent actor;
- methods for identifying actor and coordination-system boundaries;
- reliable measurement of current and required capability;
- empirical identification of consequential rather than incidental dependencies;
- whether the five structural dimensions are necessary and jointly sufficient;
- how power, coercion, conflict, and competing ambitions alter the model;
- the relationship between emergence and recursion; and
- the evidence required for reliable first-failure prediction.

Together, these questions define the theory's present research frontier.

12. Research and Falsification Agenda

Predictive standing requires prospective and disconfirming tests.

One useful research sequence would:

- 1 define an actor or system in focus and justify its boundary;
- 2 record the actor's declared ambition with enough precision to identify a realized outcome;
- 3 characterize current and required capability;
- 4 map consequential internal and cross-boundary dependencies;
- 5 observe the five structural dimensions using explicit, reproducible methods;
- 6 state a probabilistic prediction, including the first expected failure mode and time horizon;
- 7 observe realized state and the conditions that produced it; and
- 8 compare the outcome with the prediction and plausible competing explanations.

Evidence that would challenge the theory includes repeated cases in which ambitions substantially exceed current capability without coordination or dependency regulation becoming necessary; reliable realization despite persistently inadequate structural conditions; systematic failure of the proposed dimensions to distinguish outcomes; or superior predictions from simpler explanations after accounting for context.

The research objective is to determine where the theory explains organizational coordination without distortion, where it predicts non-trivial outcomes, and where its constructs require refinement or rejection. Prediction is the decisive standard because it forces the theory to specify its expectations before outcomes can be rationalized.

13. Conclusion

Organizations exist because ambition can exceed individual capability. They change as ambitions, capabilities, boundaries, and dependencies change. Their visible structures record repeated attempts to combine capability and regulate dependency; they are consequences of coordination, not its deepest explanation.

The Recursive Theory of Organizational Coordination provides a scale-independent account of that process. Actors pursue ambitions through decisions and coordination. Coordination changes realized state. Observation enables comparison and adaptation. Coordination systems may become actors within larger systems, while autonomous actors remain connected through consequential dependencies. The structural quality of this activity can be examined through decision authority, state traceability, constraint visibility, failure containment, and adaptation capacity.

Consequential transformation therefore presents a precise organizational problem: a current actor must become capable of producing a future beyond its current capability. The gap cannot be closed by ambition alone. It must be closed through the evolution of capability and the coordination system that directs it.

The theory's ultimate test is whether those relationships can be observed early enough to anticipate what happens next. Its destination is disciplined, probabilistic prediction: whether an actor can become what its ambition requires, where the attempt will encounter structural limits, and what is likely to fail first.

Organizations, in this view, are coordination systems engaged in an enduring task of becoming. They seek to become actors capable of realizing ambitions beyond the capability from which they began.

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Future versions of this paper should identify the exact canonical theory version from which they were derived. Revisions to the theory should not be introduced silently through publication edits.

References

- Ackoff, Russell L., and Fred E. Emery. 1972. *On Purposeful Systems: An Interdisciplinary Analysis of Individual and Social Behavior as a System of Purposeful Events*. Chicago: Aldine-Atherton.
- Beer, Stafford. 1972. *Brain of the Firm: The Managerial Cybernetics of Organization*. London: Allen Lane, The Penguin Press.
- Coase, R. H. 1937. "The Nature of the Firm." *Economica* 4 (16): 386–405.
<https://doi.org/10.1111/j.1468-0335.1937.tb00002.x>.
- March, James G. 1991. "Exploration and Exploitation in Organizational Learning." *Organization Science* 2 (1): 71–87.
<https://doi.org/10.1287/orsc.2.1.71>.
- Ostrom, Elinor. 1990. *Governing the Commons: The Evolution of Institutions for Collective Action*. Cambridge: Cambridge University Press. <https://doi.org/10.1017/CBO9780511807763>.
- Simon, Herbert A. 1997. *Administrative Behavior: A Study of Decision-Making Processes in Administrative Organizations*. 4th ed. New York: Free Press.
- Weick, Karl E. 1995. *Sensemaking in Organizations*. Thousand Oaks, CA: Sage.