The Worm as Transitional Intelligence: Inner Erosion, Unprecedented Systemic Collapse, and the Subversive Logic of Polycentric Reorganization

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Abstract

The worm — small, blind, earth-bound, working from within — constitutes one of the most semantically stable metaphors in recorded human culture. From Proto-Indo-European roots through Augustine's *vermis conscientiae* to modern idioms of "worming one's way out," the image encodes a precise cognitive structure: interiority, gradualism, and low-profile subversive agency. This article argues that this structure is not merely diagnostic but prescriptive for a civilizational condition that is genuinely unprecedented: the simultaneous convergence of (i) AI-driven fiscal and territorial decoupling of the nation-state, (ii) institutional adaptation rates structurally slower than information-substrate change, and (iii) nostalgic deprivation generating self-defeating restoration politics. We demonstrate, first, that monocentric solutions — whether populist restoration or technocratic globalism — are structurally incapable of resolving this convergence. Second, drawing on Ostrom's polycentric governance theory, Gunderson and Holling's panarchy framework, Friston's active inference formalism, and Boym's critical nostalgia studies, we develop the *worming-out model*: a theoretically grounded account of how nested, overlapping governance structures can be constructed *within* the decaying monocentric state, gradually rendering it ceremonial rather than substantive. The article concludes with a structured research agenda and a frank acknowledgment of the model's limitations.

Keywords: nation-state dissolution, polycentric governance, panarchy, active inference, nostalgic deprivation, transitional intelligence, civilizational complexity

1. Introduction: The Problem of the Unprecedented

Academic disciplines depend on precedent. Comparison, historical analogy, and pattern recognition across cases constitute the methodological backbone of both social science and the humanities. The present article begins with a frank epistemological admission: the civilizational condition it seeks to analyze has no adequate precedent. This is not rhetorical hyperbole. It is a structural claim that requires demonstration — and that demonstration shapes everything that follows, including the selection of analytical tools and the character of any viable solution.

The nation-state has faced crises before. The Thirty Years' War preceded Westphalia; the revolutionary period of 1789–1848 nearly destroyed the monarchical-territorial order; two world wars produced fundamental institutional redesign. What distinguishes the current phase from these precedents is not the severity of pressure but the *simultaneous* disruption of the three foundational

pillars on which the nation-state rests: its economic substrate, its informational coherence, and the psychological legitimacy contract between state and citizen.

These three disruptions have not merely co-occurred. They interact dynamically, each amplifying the others in ways that monocentric governance — by design — cannot contain.

This article proceeds as follows. Section 2 reconstructs the cross-linguistic cognitive structure of the worm metaphor, building on the historical analysis in Konstapel (2026a). Section 3 provides a precise account of the three-pillar convergence and why it is unprecedented. Section 4 examines why both dominant responses — populist restoration and technocratic globalism — are structurally unsuitable. Section 5 develops the *worming-out model* as a theoretically grounded alternative. Section 6 addresses the model's limitations and a structured research agenda. Section 7 concludes.

2. The Cognitive Structure of the Worm Metaphor

The worm's metaphorical richness is not accidental. Across seventeen languages and three millennia, the image encodes a recurrent and remarkably stable cognitive structure composed of three elements (Konstapel, 2026a):

Interiority: The worm works from within the host structure, invisible from outside, exploiting existing weaknesses rather than generating new force. Augustine's *vermis conscientiae* (worm of conscience) operates inside the self; the bookworm operates inside the text; institutional corruption "eats away" at legitimacy from within.

Gradualism: The process is temporally extended and non-revolutionary. The worm does not storm; it progresses through patient, incremental advance. The German idiom *es wurmt mich* captures ongoing, low-intensity but persistent erosion. This gradualism is not weakness — it is adaptive precision.

Lowliness: The worm occupies the bottom of the symbolic hierarchy: earth-bound, eyeless, small. Yet this lowliness confers specific capacities: access to substrate, invisibility to predators, and structural patience that high-profile actors cannot maintain. "Even a worm will turn" (Heyward, 1546) captures the subversive potential latent in precisely this abasement.

The phrase *er uit wurmen* — to worm oneself out — adds a fourth element absent from purely diagnostic usages: **agency of escape**. To worm out is not merely to erode but to create an exit from within, following the lines of least resistance until a new space opens. This directional quality transforms the metaphor from symptom to strategy.

We argue that these four elements constitute a *transitional cognitive model* that corresponds, non-accidentally, to the most viable pathway through an unprecedented systemic dissolution.

3. The Unprecedented Convergence

3.1 The First Pillar: Fiscal-Territorial Decoupling

The nation-state's economic viability rests on a foundational assumption: that productive activity occurs within bounded territory and can therefore be taxed. This assumption held with sufficient reliability from Westphalia (1648) through the late twentieth century. It is now being systematically violated by two converging dynamics.

First, digital capital mobility has structurally separated capital accumulation from territorial presence. Tax base erosion and profit shifting (BEPS) have been extensively documented (OECD, 2023), but the deeper issue is not merely corporate tax avoidance — it is that the legal and practical infrastructure of territorial sovereignty cannot contain the speed and complexity of global capital flows.

Second, and more fundamentally, artificial intelligence is beginning to decouple *productivity itself* from human labor at a rate that exceeds the adaptation capacity of redistributive fiscal systems. This is not the first automation wave. Previous waves (mechanization, computerization) displaced categories of labor while creating new ones within the same territorial and institutional framework. The current wave differs in two respects: its breadth across cognitive domains, and the fact that the productivity gains accrue disproportionately to capital owners operating across jurisdictions, while the displaced labor costs fall on territorial welfare states. The structural consequence is a widening gap between what the state promises its citizens (security, redistribution, public goods) and what its fiscal base can sustainably deliver (Streeck, 2014; Mazzucato, 2021).

This gap is not a policy failure awaiting a better government. It is a structural mismatch between the institutional form of the nation-state and the economic substrate it was designed to govern.

3.2 The Second Pillar: The Adaptation Rate Crisis

Complex adaptive systems maintain viability when their internal adaptation rate is faster than the rate of environmental change (Ashby, 1956; Beer, 1972). The nation-state's institutional adaptation rate — constrained by constitutional design, electoral cycles, bureaucratic inertia, and legitimacy requirements — was historically adequate because the information and economic environment changed on decade-scale timescales.

This condition has been progressively violated since the proliferation of digital networks in the 1990s and has now reached a critical threshold with large-scale AI deployment. The relevant asymmetry is not simply speed: it is the *complexity of the change* relative to the *representational capacity of monocentric institutions*. Democratic legislatures, regulatory agencies, and judicial systems operate on representational models of social reality that are structurally simpler than the systems they govern. As the complexity gap widens, governance becomes increasingly ceremonial — producing regulations that are nominally in force but practically unenforceable, and policies designed for a reality that no longer exists by the time they are implemented.

This dynamic has been theorized in cybernetic terms (Ashby's Law of Requisite Variety) and in complexity science (Stacey, 2010), but its political implications remain undertheorized. The key implication is this: the legitimacy crisis of contemporary democracy is not primarily a crisis of values (though values are implicated) — it is a crisis of *epistemic capacity*. Citizens correctly perceive that governing institutions do not understand, and therefore cannot effectively govern, the systems that shape their lives.

3.3 The Third Pillar: Nostalgic Deprivation and Self-Defeating Restoration

The psychological response to pillars one and two has been extensively documented in recent empirical literature. Sedikides and colleagues (2015, 2023) have established nostalgia as a

homeostatic regulatory emotion: it is triggered by threats to self-continuity, belonging, and meaning, and it functions to restore these by activating social memory and reaffirming identity. This is adaptive at the individual level.

At the collective level, however, nostalgic affect becomes available for political mobilization under conditions of structural loss — which is precisely what pillars one and two produce. The political exploitation of collective nostalgia generates what we term *nostalgic deprivation*: a chronic, politically activated sense of lost coherence, belonging, and national sovereignty (Konstapel, 2026b; cf. Boym, 2001).

The critical pathology of nostalgic deprivation is structural, not moral. Restoration politics — whether MAGA, national-populist European movements, or analogous formations — correctly diagnoses a real loss: the loss of a functioning Heimat, a coherent community of reciprocity, a state that can deliver on its promises. The diagnosis is accurate. The proposed therapy — re-bordering, ethnic homogenization, strongman restoration — is structurally incapable of addressing the causes identified in sections 3.1 and 3.2.

Crucially, and this is the point that standard liberal analyses miss: nostalgic politics does not merely fail to solve the problem. It *accelerates the dissolution* it claims to address. By delegitimating the institutions of liberal democracy while simultaneously strengthening the executive capacity of the state, restoration politics produces a hollow state: one that has lost the distributed legitimacy of democratic pluralism without acquiring the coherent purposiveness of any viable alternative. The worm's work is done for it.

The unprecedented quality of the current condition lies not in any one of these three dynamics but in their *simultaneous convergence and mutual amplification*. Historical precedents for individual pillars exist. The convergence does not.

4. The Inadequacy of Monocentric Responses

Two dominant response strategies present themselves in public and academic discourse: technocratic globalism (strengthen supranational institutions, harmonize regulation, coordinate AI governance) and populist restoration (strengthen national sovereignty, re-border, restore cultural homogeneity). Both are monocentric in structure: they presuppose that a single center of authority — whether national or supranational — can, in principle, govern the complexity of the current transition.

The theoretical argument against monocentric governance in complex adaptive systems is well-established (Ostrom, 2010; Pahl-Wostl, 2009). The empirical argument is increasingly compelling: the European Union's regulatory response to digital platform governance, the G20's BEPS framework, and the Paris Agreement's implementation record all demonstrate the structural limitations of coordinated monocentric responses to polycentric problems.

The deeper argument, however, is that both monocentric responses misidentify the nature of the problem. Technocratic globalism treats the crisis as a governance gap that can be closed by more sophisticated institutional design at a higher level. Populist restoration treats it as a coherence problem that can be resolved by reasserting territorial homogeneity. Neither addresses the structural fiscal-territorial decoupling (section 3.1), the adaptation rate crisis (section 3.2), or — most importantly — the self-defeating dynamic of nostalgic deprivation (section 3.3).

What is required is a *genuinely polycentric* response: one that builds governance capacity at multiple scales simultaneously, without presuming that any single center will eventually integrate or supersede the others. This is not a counsel of anarchy. Ostrom's empirical record demonstrates that polycentric systems can achieve sophisticated collective action outcomes — including the management of complex common-pool resources — that monocentric systems structurally cannot (Ostrom, 1990, 2010; Aligica & Tarko, 2012).

5. The Worming-Out Model

5.1 Theoretical Foundations

The worming-out model integrates three theoretical frameworks that are rarely brought into explicit dialogue.

Panarchy and the adaptive cycle. Gunderson and Holling (2002) describe ecological and social systems as cycling through four phases: rapid growth (r), conservation and increasing rigidity (K), release (Ω), and reorganization (α). Contemporary nation-states exhibit the diagnostic signatures of late K-phase: high connectivity and brittleness, reduced diversity of institutional forms, increasing mismatch between stored potential and adaptive capacity, and vulnerability to cascading failures from relatively small perturbations. The Ω-release phase — characterized by rapid, non-linear loss of stored structure — may be triggered by any of a range of events (financial crisis, pandemic, AI-driven labor market disruption). The crucial insight for governance is that the α-reorganization phase, which determines the character of the next cycle, depends critically on what structural and institutional resources are *already present* at the moment of release. Systems that have preserved or developed alternative organizational forms during K-phase have a reorganization resource; those that have not face a longer and more chaotic recovery.

The implication is stark: the time to build alternative governance structures is not after the release phase but *during the late K-phase* — now, from within the existing system, while it is still coherent enough to provide resources and cover.

Polycentric governance. Ostrom's foundational work (1990, 2010) and the Bloomington School's subsequent empirical program have established that polycentric systems — characterized by multiple overlapping governance units operating at different scales with different competences — exhibit higher adaptive capacity, greater resilience to shocks, and superior performance on complex common-pool resource problems than monocentric alternatives. The key mechanisms are: (i) local knowledge utilization without central aggregation, (ii) redundancy enabling experimentation and error correction, (iii) mutual monitoring and graduated sanctions within nested institutional layers, and (iv) the capacity to match governance scale to problem scale.

Recent extensions of this framework to post-growth economics (Soto-Oñate, 2026), global commons (Galaz et al., 2024), and AI governance (Dafoe, 2018) suggest that polycentric principles are not merely applicable to fisheries and irrigation systems but to the full range of collective action problems generated by technological and ecological complexity.

Active inference and collective intelligence. Friston's free energy principle and its extension to active inference (Friston, 2010; Friston et al., 2022) provides a formal, mechanistic account of how adaptive agents — whether neurons, organisms, or social groups — maintain viability by minimizing surprise (technically, variational free energy or the KL-divergence between expected and actual sensory states). At the collective level, Friston and colleagues have proposed an

"ecosystem of intelligence" model (Friston et al., 2024) in which groups of agents sharing generative models can achieve emergent collective intelligence without central coordination, provided they can effectively communicate and resolve unexpected discrepancies (surprisals) in their shared models of the world.

This framework provides a formal account of what polycentric governance is doing at a mechanistic level: it is distributing the work of model-updating and surprise-minimization across multiple agents and scales, thereby achieving greater adaptive capacity than any single agent could maintain. It also provides a formal criterion for evaluating governance designs: how efficiently does this institutional arrangement minimize collective free energy relative to its resource costs?

5.2 The Structure of Worming Out

Drawing on these three frameworks, the worming-out model describes a four-phase transitional strategy:

Phase 1: Interior entry (interiority). New governance structures do not announce themselves as alternatives to the existing state. They emerge within existing legal, social, and institutional frameworks — as cooperatives, commons, mutual aid networks, participatory budgeting schemes, regional energy communities, knowledge commons, and analogous forms. This is not disguise; it is the structural fact that nascent polycentric institutions must draw their initial resources, legitimacy, and personnel from within the existing system. The worm enters through the existing tissue.

Phase 2: Gradual elaboration (gradualism). The new structures incrementally expand their competence: from energy to water to food to care to local currency to participatory governance. Each expansion is tested against the criterion of active inference adequacy — does this arrangement actually reduce collective surprise (generate reliable predictions, resolve coordination failures, produce shared meaning) better than the available monocentric alternative? Failures are locally contained; successes propagate through network effects. This is polycentric experimentation operating on panarchic timescales.

Phase 3: Nested redundancy (lowliness). The emerging polycentric system does not compete frontally with the nation-state for legitimacy. It operates at scales and in domains where the state is least effective — the local, the relational, the commons-based. This is not strategic invisibility alone; it reflects a genuine insight about scale-matching. The state is structurally unsuited to governing local reciprocity networks, knowledge commons, or small-scale energy communities. Polycentric institutions built at appropriate scales do not need to defeat the state — they need only to be more effective at what they do.

Phase 4: Ceremonial transition (exit). As polycentric structures expand their competence and their legitimacy — measured by the active-inference criterion of effective collective surprise-minimization — the monocentric state gradually becomes ceremonial. It retains symbolic and some coordinative functions while the substantive governance of daily life migrates to the nested polycentric layer. This is not revolution. It is the worm completing its transit: the old structure remains nominally in place while its substance has been transformed from within.

5.3 The Role of Reflective Nostalgia

The worming-out model requires a specific psychological and cultural resource that Boym (2001) terms *reflective nostalgia* — distinguished from *restorative nostalgia* in that it acknowledges loss without demanding literal restoration. Reflective nostalgia can be mobilized in support of

polycentric community-building because it provides the affective energy of belonging and continuity without the exclusionary logic of restoration politics.

The practical implication is that polycentric governance initiatives should explicitly cultivate a *relational Heimat*: a sense of community and belonging grounded not in ethnic or territorial homogeneity but in shared practice, mutual investment, and participatory co-creation (Konstapel, 2026b). This is not a romantic aspiration. It is a design requirement: polycentric institutions that fail to generate genuine belonging will not attract the sustained participation they require.

6. Limitations and Research Agenda

The worming-out model is analytically coherent and theoretically grounded. Its limitations must be stated with equal care.

The coordination problem at scale. Polycentric institutions are demonstrably effective at managing local commons. The empirical evidence for their capacity to coordinate at national or transnational scale — where externalities, free-riding incentives, and distributional conflicts are qualitatively more complex — is thinner (Jordan et al., 2015). The model requires empirical testing at multiple scales.

The power problem. Worming out presupposes that existing elites and state actors will permit the emergence of polycentric alternatives. This is not guaranteed. Historically, nascent polycentric institutions have been suppressed, co-opted, or absorbed by monocentric powers before reaching critical mass. The conditions under which polycentric emergence is possible despite elite resistance require systematic investigation.

The timing problem. The panarchic framework identifies α-reorganization as the window for viable institutional redesign. But the timing and character of Ω-release are not predictable with precision. The worming-out strategy may succeed only if sufficient polycentric capacity exists before release; the risk is that release occurs before critical mass is achieved.

The AI wildcard. The active inference framework suggests that AI systems could function as powerful tools for polycentric coordination — reducing the cognitive costs of collective model-building and surprise-minimization across distributed institutions. But AI systems could equally function as powerful tools for monocentric surveillance and control, foreclosing the conditions for polycentric emergence. The governance of AI development is therefore not peripheral to the worming-out model — it is one of its central problems.

Research agenda:

1. Comparative empirical study of existing polycentric governance initiatives in the Netherlands, Spain, and Scandinavia, assessed against the active-inference criterion of collective surprise-minimization.

2. Formal agent-based modeling of worming-out dynamics under varying assumptions about Ω-release timing and elite resistance.

3. Analysis of the conditions under which reflective nostalgia can be politically mobilized in support of relational Heimat rather than restorative restoration.

4. Development of governance metrics for polycentric AI coordination: how can distributed institutions maintain requisite variety relative to AI-driven complexity increases?

7. Conclusion

The worm is patient. It does not storm the walls; it enters through existing tissue and works from within, gradually, at the level of substrate. The metaphor encodes — across seventeen languages and three millennia — a precise cognitive model of how transformation works when direct confrontation is unavailable or counterproductive.

We have argued that this model is not merely poetic. It corresponds to the only theoretically coherent strategy for navigating a genuinely unprecedented civilizational condition: one in which the economic, epistemic, and psychological foundations of the monocentric nation-state are simultaneously and mutually reinforcingly eroding, and in which both available monocentric responses — technocratic globalism and populist restoration — are structurally incapable of addressing the underlying dynamics.

The worming-out model offers no guarantees and no shortcuts. It requires sustained, low-profile, multi-scale construction of polycentric governance structures beginning now, within the existing system, drawing on both the formal resources of Ostrom's polycentric theory and Friston's active inference formalism, and the affective resources of reflective nostalgia and relational Heimat.

The decisive variable is not whether the nation-state will dissolve — the structural analysis strongly suggests it will, at least in its current monocentric form. The decisive variable is whether, when the Ω-release phase arrives, sufficient polycentric capacity will exist to make the α-reorganization orderly rather than catastrophic.

To worm one's way out is not to escape responsibility. It is to take responsibility for building the next structure while the current one is still standing.

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