SY-09 Capture-resistance scoring (meta-prompt, run with the library attached)

Theoretical Architecture of the Capture-Resistance Framework

Every governance arrangement operating over historical time faces an existential adaptive pressure: political systems inevitably attract individuals and organized factions displaying dark-triad behavioral phenotypes—narcissism, Machiavellianism, and psychopathy[1]. Within socio-ecological systems, narcissism supplies the grandiose entitlement necessary to subordinate collective welfare to individual vanity; Machiavellianism provides the calculative instrumentalism required to manipulate procedural ambiguities, weaponize patronage, and divide competing coalitions[3]; and psychopathy confers an affective deficit that enables the deployment of social terror, violent coercion, and predatory extraction uninhibited by empathy[3].

Capture resistance constitutes the structural capacity of an institutional design to neutralize, disperse, or absorb these behavioral strategies before concentrated authority displaces distributed collective rule[5]. The framework formalizes eleven structural criteria derived from comparative constitutional history, political anthropology, and institutional economics, operationalized to assess institutional durability against oligarchic consolidation across demographic scales.

Rubric Definitions and Scoring Criteria

Each criterion evaluates an institutional mechanism that mitigates predatory predation. Criteria are scored on a three-tier ordinal scale: 0 indicates institutional absence, formal deficiency, or acute structural vulnerability; 1 indicates partial, informal, or ambiguously enforced protection; and 2 indicates rigorous, institutionalized, structurally enforced capture resistance.

Index	Structural Criterion	Theoretical Mechanism against Predatory Exploitation	Scoring Operationalization (0, 1, 2)
C_1	**Openness of Eligibility List**	Neutralizes gatekeeping, clientelist grooming, and hereditary caste	**0**: Hereditary, property-restricted, or closed-caste franchise ($<$ of adult resident

		consolidation by democratizing access to decision-making roles[5].	population). **1**: Qualified franchise restricted by wealth, class, gender, or party screening ($10\%–50\%$). **2**: Universal, near-universal adult civic inclusion, or lot-based civic sortition ($\geq$).
C_2	**Tenure and Rotation**	Disrupts personal empire-building, bureaucratic entrenchment, and information monopolization through mandatory turnover.	**0**: Life tenure, indefinite eligibility, or self-perpetuating reappointment without limits. **1**: Multi-year terms with renewable re-election or weak informal rotation norms. **2**: Strict term limits, short mandates ($\leq$ years), sortition, and mandatory cool-off periods.
C_3	**Collegiality**	Forces consensus, mutual surveillance, and power distribution among peers, denying singular executive	**0**: Monocratic executive (single ruler, supreme commander, absolute executive chair).

		fiat.	**1**: Formal council subordinated to a dominant prime minister, president, or executive chair. **2**: Multi-member executive of juridical equals possessing mutual vetoes, co-equal authority, or rotating chairs.
C_4	**Audit at Exit**	Holds outgoing magistrates legally and financially liable for actions taken in office, breaking post-tenure impunity.	**0**: Absolute sovereign immunity or complete absence of judicial review post-tenure. **1**: Ad hoc judicial prosecution, politicized retroaction, or weak ombudsman reviews. **2**: Institutionalized, mandatory public accounting and judicial trial before an independent popular jury or assembly.
C_5	**Cheap Exit**	Guarantees non-violent dissociation, enabling dissenters to withdraw labor, capital, or	**0**: Violent suppression of departure, serfdom, execution for apostasy, or confiscation of

		allegiance without physical retaliation.	goods. **1**: High transaction costs for departure (heavy capital forfeiture, familial severance, exile penalties). **2**: Frictionless secession, foot voting, structural right of nullification, or costless hard forking.
C_6	**Emergency Limits**	Constrains the classic authoritarian mechanism of manufacturing crises to centralize, suspend, or prolong power.	**0**: Executive unilateral power to declare emergencies, suspend rights, and self-extend mandates indefinitely. **1**: Legislative oversight required for emergencies, but subject to executive manipulation or vague sunset clauses. **2**: Absolute constitutional bans on self-extension, external body trigger, strict automatic sunset ($\leq$ days), and ban on altering

			basic laws.
C_7	**Openness of Records**	Eliminates informational asymmetry, secret alliances, and backroom bargaining through open administrative records.	**0**: State secrets, closed archives, opaque accounts, and criminalized leaks (*arcana imperii*). **1**: Selective disclosures, freedom of information with massive executive carve-outs, or partial public access. **2**: Radical transparency: public stone inscriptions, open physical ledgers, transparent streaming, or immutable public chain logs.
C_8	**Limits on Money & Wealth**	Inhibits the conversion of private commercial wealth into institutional political capture, campaign leverage, and venality.	**0**: Unrestricted private political financing, direct purchase of offices, and plutocratic wealth concentration. **1**: Nominal contribution caps, easily bypassed PAC structures, or informal redistributive

			expectations. **2**: Absolute bans on private political expenditure, sumptuary laws, progressive wealth-destroying public liturgies, or moneyless egalitarian common property.
C_9	**Separation of War & Peace**	Decouples civil administration from martial command, preventing military commanders from enforcing domestic decrees.	**0**: Domestic executive directly commands armed force within civilian assembly halls; martial law is a civilian governance tool. **1**: Partial civilian control, but senior commanders hold civil political office concurrently. **2**: Absolute separation: war leaders hold zero domestic civil power, peace councils possess no standing army, or civilian militia holds arms.
C_{10}	**Women's Structural Share**	Inoculates governance against hyper-competitive male coalitions and	**0**: Total disenfranchisement, legal coverture, domestic seclusion,

		patriarchal domination via institutionalized female vetoes.	and zero institutional voice. **1**: Formal legal equality or voluntary party quotas yielding low to intermediate representation ($10\%–30\%$). **2**: Structural constitutional parity, dual-gender chambers, matrilineal confirmation/veto power, or female monopoly over executive appointments.
C_{11}	**Nesting & External Intervention**	Provides an external appellate tier capable of intervening to break localized tyranny, warlordism, or boss rule[6].	**0**: Autarkic, isolated unit vulnerable to local despots with no recourse, or pure centralist hierarchy with zero local subsidiarity. **1**: Loosely coordinated confederacies with weak mutual aid treaties but no binding judicial/military intercession. **2**: Robust polycentric federalism with

			independent appellate arbitration and collective security guarantees against rogue local elites.

The Composite Capture-Resistance Index (CRI) represents the unweighted sum of criterion scores:

$$CRI = \sum_{i=1}^{11} C_i \quad \text{where} \quad C_i \in \{0, 1, 2\}, \quad CRI \in [0, 22]$$

To evaluate institutional robustness on a standardized percentage scale, the raw score is normalized:

$$CRI_{\%} = \left(\frac{CRI}{22} \right) \times 100$$

Comprehensive Case Evaluations Across Twenty Governance Systems

1. Classical Athens (Fourth Century BCE, c. 403–322 BCE)

Following the overthrow of the Thirty Tyrants in 403 BCE, Athens revised its constitutional order to mitigate demagogic manipulation and factional coups[8]. The institutional core consisted of the sovereign *Ekklesia* (popular assembly of adult male citizens meeting 40 times per year on the Pnyx, requiring a quorum of 6,000 for grants of citizenship and major ostracisms)[9], the *Boule* of 500 (chosen by lot via the *kleroterion*, serving one-year terms with a lifetime limit of two non-consecutive terms), the *Nomothetai* (boards of sworn citizens selected by lot to pass substantive laws), and the *Dikasteria* (popular courts composed of 6,000 jurors chosen daily by sortition)[11].

Ladder Rung	Scale Band	Operational Status	Empirical Dynamics and Institutional Failure Modes

Household	4–10	Failed	Patriarchal *oikos* structure; absolute male authority over secluded women and enslaved persons.
Hamlet / Band	30–50	Worked	Local farming hamlets functioned via kinship mediation within the wider *deme* infrastructure.
Village	150–500	Worked	139 *demes* managed local lands, religious cults, civic registries, and assemblies under rotated *demarchs*[9].
Parish / District	1,500–5,000	Worked	*Trittyes* and 10 Cleisthenic tribes (*phylai*) merged urban, inland, and coastal units to break elite regionalism.
Town / Watershed	15,000–50,000	Worked	Core operating scale: ~30,000 adult male citizens across Attica (total population ~250,000–300,000)[9].
Region / Bioregion	0.5M–5M	Failed	The 5th-century Delian League degenerated into

			an extractive empire (*arche*), prompting interstate collapse.
Nation / Continent	50M–500M	Never Tried	Structural inability to extend direct sortition-based governance across continental landmasses.
Planet	8 Billion	Never Tried	Out of scale.

The primary capture vector in Athens was rhetorical manipulation of the *Ekklesia* by ambitious demagogues and litigious blackmail (*sykophantia*). Alcibiades leveraged narcissistic charismatic appeal in 415 BCE to push the Sicilian Expedition, while Antiphon and Phrynichus engineered the Oligarchic Coup of 411 BCE through targeted political assassinations and structural intimidation. The fourth-century restoration counteracted these vulnerabilities through the *Graphe Paranomon* (indictment of illegal proposals), making individual proposers personally liable to crushing fines, while transferring legislative authority from assembly decrees (*psephismata*) to the sortition-based *Nomothetai*[8].

Athenians conceptualized their system as an absolute realization of *isonomia* (equality before the law) and *isegoria* (equal right to speak). The operational record reveals that political leadership remained heavily concentrated among wealthy, aristocratically educated orators (*rhetores*) like Demosthenes and Lycurgus, supported by the forced labor of roughly 100,000 enslaved persons and the legal exclusion of women[9]. Modern political scholarship, led by Mogens Herman Hansen (1991) and Josiah Ober (1989), demonstrates that civic pay (*misthophoria*), large sortition bodies, and mandatory post-tenure accountability (*euthynai*) effectively prevented wealthy elites from transforming aristocratic status into permanent dynastic dominance[10].

Moses I. Finley (1973, *The Ancient Economy*) and Josiah Ober formulate the leading structural critique: Athenian direct democracy was functionally reliant on chattel slavery to free citizen time for assembly attendance, maintained structural misogyny, and demonstrated erratic judicial hysteria, such as the execution of the Arginusae generals in 406 BCE.

Athens scores:

$C_1 : 1, C_2 : 2, C_3 : 2, C_4 : 2, C_5 : 1, C_6 : 1, C_7 : 2, C_8 : 2, C_9 : 1, C_{10} : 0, C_{11} : 0$

. Raw: **14/22** ($CRI_{\%} : 63.6\%$).

2. The Roman Republic (Late Republic, c. 133–31 BCE)

The Roman constitution distributed institutional power across executive magistrates

possessing *imperium* (Consuls, Praetors), an aristocratic council of former magistrates (the Senate), and popular assemblies (*Comitia Centuriata*, *Comitia Tributa*, *Concilium Plebis*)[15]. Magisterial terms were strictly annual, embedded within the structural ladder of the *cursus honorum*, and organized collegially with mutual veto authority (*intercessio*).

Ladder Rung	Scale Band	Operational Status	Empirical Dynamics and Institutional Failure Modes
Household	4–10	Failed	Governed by *patria potestas*; the male *pater familias* held absolute theoretical power of life and death.
Hamlet / Band	30–50	Failed	Rural agricultural nodes were dominated by slave-labor plantations (*latifundia*) and client dependency.
Village	150–500	Failed	Rural municipalities lacked independent political sovereignty, subordinated to senatorial patrons.
Parish / District	1,500–5,000	Failed	Rural tribes served as voting units manipulated by visiting senatorial landowners and their client rosters.
Town / Watershed	15,000–50,000	Worked	Initial functional

			scale of the urban Roman core; assemblies in the Forum functioned via physical assembly.
Region / Bioregion	0.5M–5M	Failed	Extension of franchise across Italy after 88 BCE reduced assembly turnout to $1\%–3\%$, inviting mob capture[16].
Nation / Continent	50M–500M	Failed	Transformed into imperial warlordism; provincial armies developed personal loyalty to generals, ending in Principate.
Planet	8 Billion	Never Tried	Out of scale.

The Late Republic succumbed to Machiavellian patricians who bypassed senatorial consensus by mobilizing client armies, funded by provincial plunder and promises of land distribution[19]. Lucius Cornelius Sulla (82 BCE) and Gaius Julius Caesar (49 BCE) systematically weaponized their loyal legions to march on Rome, execute proscriptions, and secure lifetime dictatorships. The Republic's institutional firewalls—collegiality and annual rotation—shattered because military logistics were privatized under the Marian reforms of 107 BCE, making the soldier's material livelihood dependent on commander patronage rather than senatorial treasuries.
Polybius (c. 150 BCE, *Histories*, Book VI) characterized the Republic as a balanced mixed constitution integrating monarchy (consuls), aristocracy (Senate), and democracy (assemblies). The empirical record reveals a plutocratic oligarchy: the *Comitia Centuriata* was weighted toward wealthy property classes who voted first, and the *contiones* were manipulated by senatorial patrons[15]. Modern scholarship, notably Henrik Mouritsen (2001, *Plebs and Politics in the Late Roman Republic*), demonstrates that voter participation among ordinary plebeians was structurally negligible, rendering assemblies elite ratification rituals[17].
Ronald Syme (1939, *The Roman Revolution*) and Henrik Mouritsen present the leading

indictment: the Roman Republic was never a functioning democracy, but an extractive oligarchy whose intra-elite competition inevitably led to civil war once imperial conquests introduced massive capital disparities[19].
Rome scores:
$C_1:1, C_2:1, C_3:2, C_4:1, C_5:0, C_6:0, C_7:1, C_8:0, C_9:0, C_{10}:0, C_{11}:0$
. Raw: **6/22** ($CRI_{\%}:27.3\%$).

3. Serenissima Republic of Venice (c. 1297–1797)

Following the *Serrata* of 1297 under Doge Pietro Gradenigo, Venice closed the patrician registry to freeze the ruling class within the Great Council (*Maggior Consiglio*). To prevent any single patrician lineage from capturing absolute power, the republic devised an eleven-stage hybrid sortition-and-balloting sequence to elect the Doge[21], reinforced by pervasive secret surveillance via the Council of Ten (*Consiglio dei Dieci*) and the State Inquisitors.

Ladder Rung	Scale Band	Operational Status	Empirical Dynamics and Institutional Failure Modes
Household	4–10	Worked	Patrician households were strictly policed by state marriage laws and fideicommissum inheritance trusts.
Hamlet / Band	30–50	Worked	Parochial lagoon wards (*contrade*) functioned as micro-communities centered on parish churches.
Village	150–500	Worked	Neighborhood islands (e.g., Torcello, Murano) maintained civil order via appointed local podestàs.

Parish / District	1,500–5,000	Worked	Urban *sestieri* coordinated public safety, fire patrols, and local welfare delivery.
Town / Watershed	15,000–50,000	Worked	Lagoon core of ~150,000 citizens governed by a patrician assembly of 1,500 to 2,500 eligible nobles.
Region / Bioregion	0.5M–5M	Worked	Governed the *Domini di Terraferma* and *Stato da Màr* for centuries as unrepresented dependencies.
Nation / Continent	50M–500M	Failed	Incapable of mass demographic expansion; collapsed under Napoleonic invasion in 1797 without military resistance.
Planet	8 Billion	Never Tried	Out of scale.

The primary threat vector was aristocratic conspiracy seeking to establish dynastic signoria. Doge Marin Faliero attempted a coup in 1355 to slaughter the nobility and claim absolute lordship, while Baiamonte Tiepolo led an armed aristocratic rebellion in 1310. The Venetian architecture neutralized both: Faliero was intercepted by the Council of Ten, tried for treason, and decapitated on the *Scala dei Giganti* within forty-eight hours; Tiepolo's forces were crushed in the Piazza San Marco. The republic's security apparatus converted emergency committees into institutionalized boards of counter-intelligence.
Gasparo Contarini (1543, *De Magistratibus et Republica Venetorum*) propagated the "Myth of Venice," claiming an equilibrium of monarchy (Doge), aristocracy (Senate), and democracy

(Great Council). The historical record demonstrates a police-state oligarchy that excluded 95% of the lagoon population (the *popolani* and *cittadini*) from political life and maintained control through the anonymous denunciation boxes (*Bocche dei Leoni*). Modern scholarship, including Robert Finlay (1981, *Politics in Renaissance Venice*) and Frederic Lane (1973), confirms that while internal checks prevented personal autocracy for 500 years, they institutionalized a risk-averse gerontocracy unable to adapt to commercial changes in Atlantic trade.
Robert Finlay (1981) formulates the core critique: Venetian sortition mechanisms were largely an elaborate facade that masked systematic vote-trading (*broglio*) among elite patrician factions, creating legislative sclerosis.
Venice scores:
$C_1 : 0, C_2 : 2, C_3 : 2, C_4 : 2, C_5 : 0, C_6 : 1, C_7 : 0, C_8 : 1, C_9 : 2, C_{10} : 0, C_{11} : 0$
. Raw: **10/22** ($CRI_{\%} : 45.5\%$).

4. Florentine Republic (c. 1328–1434 / 1494–1512)

The Florentine Republic governed its municipal state using the *squittinio* (scrutiny) and *tratte* (sortition)[21]. Citizens who were debt-free and enrolled in the recognized guilds (*arti*) had their names placed into leather bags (*borse*). Every two months, nine citizens were drawn by lot to form the supreme executive council, the *Signoria*, headed by the *Gonfaloniere di Giustizia*.

Ladder Rung	Scale Band	Operational Status	Empirical Dynamics and Institutional Failure Modes
Household	4–10	Failed	Patrician patrilineal clans (*consorterie*) functioned as armed, insular familial units.
Hamlet / Band	30–50	Failed	Rural agricultural dependencies in Tuscany were subjected to extraction by Florentine tax collectors.
Village	150–500	Failed	Tuscan villages possessed no sovereign rights, governed by

			appointed Florentine *podestàs*.
Parish / District	1,500–5,000	Worked	City quarters (*quartieri*) mobilized neighborhood militias and civic administrative registers.
Town / Watershed	15,000–50,000	Worked	Urban Florence (~60,000–90,000 inhabitants); eligible pool comprised 2,000 to 4,000 guild-enrolled males.
Region / Bioregion	0.5M–5M	Failed	Subjugation of rival cities (Pisa, Pistoia, Arezzo) created continuous regional rebellions.
Nation / Continent	50M–500M	Never Tried	Out of scale.
Planet	8 Billion	Never Tried	Out of scale.

The primary capture mechanism was covert control over the scrutiny process. Cosimo de' Medici executed a classic soft takeover in 1434: rather than abolishing the republic, he placed partisans on the nomination committees (*accoppiatori*), ensuring that only clients indebted to the Medici bank were placed into the *borse*. Cosimo used his private fortune to pay the tax arrears of impoverished citizens, making them eligible for the draw and indebted to his faction. The two-month rotation of the *Signoria* worked to Cosimo's advantage, as no magistrate held office long enough to build an effective counter-coalition against his shadow patron-client network.

Civic humanists, led by Leonardo Bruni (1428, *Panegyric to the City of Florence*), claimed that the republic embodied Roman *libertas*, ensuring civic equality and broad participation. The historical record reveals that the elite mercantile guilds (*popolo grasso*) systematically

suppressed the disenfranchised textile proletariat (the *Ciompi*, crushed after their 1378 revolt). Modern scholarship, especially John M. Najemy (2006, *A History of Florence*) and Gene Brucker (1977), demonstrates that sortition failed to prevent capture because the screening phase (*squittinio*) was vulnerable to manipulation by financial elites.
Niccolò Machiavelli (1532, *Florentine Histories*) delivered the definitive critique: Florence was plagued by institutional instability because its short rotations and fractured executive encouraged continuous factional infighting, paving the way for the Medici principate.
Florence scores:
$C_1 : 1, C_2 : 2, C_3 : 2, C_4 : 1, C_5 : 0, C_6 : 0, C_7 : 1, C_8 : 0, C_9 : 1, C_{10} : 0, C_{11} : 0$
. Raw: **8/22** ($CRI_{\%} : 36.4\%$).

5. Haudenosaunee Confederacy (Great League of Peace, c. 1142/1451–Present)

The Haudenosaunee Confederacy unites six sovereign nations (Mohawk, Oneida, Onondaga, Cayuga, Seneca, and Tuscarora) under the Great Law of Peace (*Gayaneshagowa*)[22]. Central authority is vested in the Grand Council of fifty hereditary civil chiefs (*Hoyaneh*)[22]. Council deliberation follows a three-part bicameral procedure: the Older Brothers (Mohawk, Seneca) deliberate first, passing proposals to the Younger Brothers (Oneida, Cayuga); upon consensus, the proposal is confirmed or vetoed by the Firekeepers (Onondaga)[22]. The central anti-capture mechanism is matrilineal oversight: Clan Mothers (*Iakotiane*) hold the exclusive power to nominate, monitor, and depose chiefs (*knocking off the horns*) if they exhibit narcissism, warmongering, or financial corruption[22].

Ladder Rung	Scale Band	Operational Status	Empirical Dynamics and Institutional Failure Modes
Household	4–10	Worked	Extended matrilineal bark longhouses (30–100 kin); senior Clan Mothers directed domestic life.
Hamlet / Band	30–50	Worked	Kinship hunting and horticultural clusters operated under female clan headship.

Village	150–500	Worked	Fortified agrarian villages governed by local clan councils and consensus assemblies.
Parish / District	1,500–5,000	Worked	National tribal councils (e.g., Seneca council) adjudicated territorial hunting allocations.
Town / Watershed	15,000–50,000	Worked	Confederacy population of ~20,000–30,000 coordinated foreign policy across upstate New York.
Region / Bioregion	0.5M–5M	Worked	Maintained diplomatic and military balance across the Northeast against French and British empires.
Nation / Continent	50M–500M	Never Tried	Structural consensus requirements limited direct confederate scaling across massive populations.
Planet	8 Billion	Never Tried	Out of scale.

The central capture challenge was armed autocracy backed by supernatural terror. In the

founding narrative, Tadodaho, an Onondaga warlord, blocked confederation through political violence and psychological intimidation[22]. The Peacemaker (Deganawida), Hiawatha, and Jigonhsaseh (the first Clan Mother) neutralized him not through assassination, but by incorporating him into the constitutional design[22]: Tadodaho was granted the presiding chair of the Grand Council, but was surrounded by institutional checks and female impeachment mechanisms[22]. In the 18th century, Clan Mothers blocked chiefs from selling tribal land to Anglo-American speculators by withholding title authority[22].

The Haudenosaunee understand the Great Law as a sacred moral and political framework establishing universal peace (*Ne Skennen*), righteousness (*Ne Gaihwiyo*), and power (*Ne Gashashelda*). The historical record confirms deep internal peace among the member nations, but documents external military aggression (the Beaver Wars of the 17th century) targeting neighboring Iroquoian and Algonquian peoples. Modern ethnohistorical scholarship, led by William N. Fenton (1998, *The Great Law and the Longhouse*) and Dean R. Snow (1994, *The Iroquois*), confirms that the balance of power between male titleholders and female clan heads created one of the most resilient capture-resistant architectures in the anthropological record[22].

Daniel K. Richter (1992, *The Ordeal of the Longhouse*) provides the leading critique: the requirement of complete consensus proved fragile when subjected to external colonial pressure, leading to civil war during the American Revolution (1777) when member nations fractured over competing British and Continental alliances.

Haudenosaunee scores:

$C_1 : 1, C_2 : 1, C_3 : 2, C_4 : 2, C_5 : 2, C_6 : 2, C_7 : 1, C_8 : 2, C_9 : 2, C_{10} : 2, C_{11} : 1$

. Raw: **18/22** ($CRI_{\%} : 81.8\%$).

6. Oromo Gadaa System (c. 1400–Present)

The Gadaa system is an indigenous democratic age-grade architecture organizing male Oromo into five generation-classes (*gogessa*) that rotate executive, judicial, and ritual authority every eight years[24]. Every 40 years, an entire generation-set assumes governance under the leadership of an elected *Abbaa Gadaa* (Father of Gadaa)[24]. The primary legislative check is the *Gumii Gaayoo* (Assembly of the Multitude), a general gathering that reviews, updates, and proclaims customary law (*Seera*)[24]. Women balance male political structures through *Siinqee*, an autonomous institution that defends women's customary rights and can sanction male abusers through community boycotts.

Ladder Rung	Scale Band	Operational Status	Empirical Dynamics and Institutional Failure Modes
Household	4–10	Worked	Domestic conflicts adjudicated under

			Siinqee customary protections; female bodily integrity enforced.
Hamlet / Band	30–50	Worked	Pastoral settlements (*ollari*) managed seasonal grazing and shallow water cisterns collaboratively.
Village	150–500	Worked	Village councils (*chaffe*) resolved pasture boundaries and criminal compensation.
Parish / District	1,500–5,000	Worked	Clan assemblies managed multi-lineage grazing circuits and complex deep-well networks (*tula*).
Town / Watershed	15,000–50,000	Worked	Regional Gadaa councils coordinated major ritual circuits and multi-clan alliances.
Region / Bioregion	0.5M–5M	Worked	Governed pastoral populations across southern Ethiopia and northern Kenya prior to Menelik II's conquest[27].
Nation / Continent	50M–500M	Failed	The pan-Oromo nation was divided into independent

			territorial confederacies without central unity[27].
Planet	8 Billion	Never Tried	Out of scale.

The primary capture risk was military command entrenchment. During the 18th and 19th centuries, continuous territorial warfare in the Gibe River basin allowed military commanders (*Abba Dula*) to retain permanent command beyond the mandatory eight-year rotation, converting Gadaa councils into hereditary monarchies (Jimma, Limmu-Ennarea, Gomma, Goma, Gera). Conversely, among the pastoral Borana, the institutional defense held: any *Abbaa Gadaa* attempting to extend his mandate was stripped of office by the *Gumii Gaayoo*, ostracized from the shared deep-well water network, and socially excluded[24].

The emic view portrays Gadaa as an egalitarian, classless, divinely ordered socio-political system maintaining cosmic balance (*Safuu*)[28]. The empirical record reveals a rigid age-grade hierarchy that historically excluded women from formal executive seats and directed expansionist military raids (*butta*) against neighboring ethnic groups[27]. Anthropologist Asmarom Legesse (1973, 2000) documented Gadaa as a sophisticated polycephalous democracy with institutionalized checks and balances[29], while Mohammed Hassen (1990) demonstrated that sedentary agrarian transitions undermined its rotational mechanics[27]. Yonas Biru (2020) and Mario I. Aguilar critique Legesse's presentation as idealized, emphasizing that historical Gadaa was an exclusively male system that subordinated conquered populations (*gabbaro*) into tributary tenancy[27].

Gadaa scores:

$C_1 : 1, C_2 : 2, C_3 : 2, C_4 : 2, C_5 : 1, C_6 : 2, C_7 : 0, C_8 : 2, C_9 : 1, C_{10} : 1, C_{11} : 0$

. Raw: **14/22** ($CRI_{\%} : 63.6\%$).

7. Swiss Federal Council & Consociational Democracy (1848/1959–Present)

The Swiss federal executive (*Bundesrat*) is a seven-member collegiate body elected by the Federal Assembly for fixed four-year terms[32]. Under the unwritten *Zauberformel* ("Magic Formula") established in 1959, executive seats are distributed proportionally among the four major political parties, balancing linguistic regions and religious confessions[33]. The President of the Confederation serves as *primus inter pares* for a single, non-renewable one-year term without executive privileges. Substantive laws face citizen review via the optional referendum (requiring 50,000 signatures), and constitutional modifications require a mandatory double majority of both voters and cantons.

Ladder Rung	Scale Band	Operational Status	Empirical

			Dynamics and Institutional Failure Modes
Household	4–10	Worked	Regulated under the Swiss Civil Code with strong municipal-level domestic protections.
Hamlet / Band	30–50	Worked	Alpine agricultural cooperatives (*Alpgemeinschaften*) manage common pastures and water rights[6].
Village	150–500	Worked	~2,130 Swiss communes (*Gemeinden*) exercise local fiscal sovereignty and assembly democracy.
Parish / District	1,500–5,000	Worked	Inter-communal consortia manage schools, waste, and local infrastructure projects.
Town / Watershed	15,000–50,000	Worked	Cantonal districts coordinate local police, courts, and primary healthcare delivery.
Region / Bioregion	0.5M–5M	Worked	26 sovereign cantons manage direct taxation,

			education, hospitals, and police.
Nation / Continent	50M–500M	Worked	Coordinates ~9 million citizens across four linguistic groups without major internal conflict.
Planet	8 Billion	Never Tried	Switzerland remains intentionally independent of broader supranational unions (e.g., non-EU).

The primary threat vector is charismatic populist concentration attempting to disrupt collegiate solidarity. In 2003, Christoph Blocher, billionaire leader of the right-wing Swiss People's Party (SVP), gained a Federal Council seat and attempted to break collegiate convention by publicly attacking fellow ministers and using his department for partisan campaigning. In 2007, the Federal Assembly utilized the scheduled election to remove Blocher, voting in a moderate SVP member (Eveline Widmer-Schlumpf). The institutional design neutralized executive polarization without constitutional instability.

The emic narrative frames Switzerland as a direct democracy where sovereign citizens retain final decision-making power over a collegiate executive. The operational record reveals that women were denied the federal franchise until 1971 (and until 1990 in Appenzell Innerrhoden), and organized business associations (*Verbände*) heavily shape pre-parliamentary consultations (*Vernehmlassungsverfahren*). Modern political scholarship, led by Adrian Vatter (2018, *Der Bundesrat*) and Wolf Linder (1994, *Swiss Democracy*), shows that the credible threat of popular referendums forces political elites into consociational compromise, preventing single-party capture[32].

Yannis Papadopoulos (1997, *Complex Democracy*) formulates the core critique: Swiss consensus democracy is conservative and procedural, leading to delayed policy adoption and the political exclusion of non-citizen resident workers, who make up over 25% of the population.

Swiss Federal Council scores:

$C_1 : 2, C_2 : 1, C_3 : 2, C_4 : 1, C_5 : 2, C_6 : 2, C_7 : 2, C_8 : 1, C_9 : 2, C_{10} : 1, C_{11} : 2$

. Raw: **18/22** ($CRI_{\%} : 81.8\%$).

8. Medieval Icelandic Commonwealth (930–1262 CE)

The Icelandic Commonwealth functioned for 332 years as an assembly-based polycentric legal order without a territorial state executive[37]. The island was divided into roughly 39 to 48 chieftaincies (*goðorð*), held by chieftains (*goðar*)[37]. The *goðorð* was alienable private property that could be sold, inherited, or divided[37]. Free farmers (*bændur*) retained cheap exit, freely contracting their allegiance to any chieftain regardless of geography[37]. The national assembly (*Alþingi*) met annually at Þingvellir, where the *Lögrétta* amended customary law and quarter courts settled disputes, overseen by an elected *Lögsögumaður* (Law-Speaker)[37]. There was no public executive or police force; court verdicts were enforced via private distress and outlawry (*skóggangr*)[37].

Ladder Rung	Scale Band	Operational Status	Empirical Dynamics and Institutional Failure Modes
Household	4–10	Failed	Rural agrarian patriarchal homesteads; heads of household directed laborers and debt thralls.
Hamlet / Band	30–50	Worked	Isolated farmstead clusters coordinated communal haying, grazing, and seasonal roundups.
Village	150–500	Worked	Mutual-aid associations (*hreppar*, 20+ farms) pooled fire and livestock insurance.
Parish / District	1,500–5,000	Worked	Spring assemblies (*vorþing*) resolved localized property

			disputes and local litigation.
Town / Watershed	15,000–50,000	Worked	Quarter courts resolved inter-chieftain litigation and managed appellate disputes.
Region / Bioregion	0.5M–5M	Worked	Governed ~50,000 people across the island without a crown or standing military[37].
Nation / Continent	50M–500M	Failed	The system could not organize collective defense, falling under Norwegian royal dominance[37].
Planet	8 Billion	Never Tried	Out of scale.

The commonwealth collapsed through capital accumulation within the legal franchise market. During the Sturlung Era (*Sturlungaöld*, 1220–1262), a handful of families (primarily the Sturlungs) used church tithes and wealth to buy up dozens of *goðorð*, converting an open market in legal protection into a territorial cartel[37]. Sturla Sighvatsson mobilized private armies of tenant fighters, ignoring *Alþingi* rulings. Escalating blood feuds culminated in pitched battles (e.g., Örlygsstaðir, 1238, involving over 2,000 fighters). Unable to enforce judicial verdicts against warlords, the free farmers signed the Old Covenant (*Gamli sáttmáli*, 1262–1264), submitting to King Haakon IV of Norway[37].

The sagas and *Íslendingabók* framed the Commonwealth as a society of free men fleeing Norwegian royal tyranny. The historical record reveals a feuding society where poor farmers had to purchase elite protection, thrall slavery underpinned early agriculture, and judicial verdicts were unenforceable without armed physical backing[37]. Modern legal historians, led by Jón Viðar Sigurðsson (1999, *Chieftains and Power in the Icelandic Commonwealth*) and Jesse Byock (2001), demonstrate that treating political-legal offices as marketable property led to wealth concentration that destroyed the non-coercive legal framework[37].

David Friedman's (1979) anarcho-capitalist reading of Iceland as an efficient private legal market is challenged by Jón Viðar Sigurðsson, who shows that the monetization of *goðorð*

enabled predatory cartels to dismantle the legal system[37].
Iceland scores:
$C_1:1, C_2:0, C_3:1, C_4:1, C_5:2, C_6:1, C_7:0, C_8:0, C_9:1, C_{10}:0, C_{11}:0$
. Raw: **7/22** ($CRI_{\%}:31.8\%$).

9. The Hanseatic League (c. 1356–1669)

The Hanseatic League was a non-territorial confederation of North German mercantile towns (including Lübeck, Hamburg, Cologne, and Danzig) established to protect trade monopolies across the Baltic and North Seas. Governance was coordinated through the *Hansetag* (League Diet), which met irregularly in Lübeck. The League functioned without a written constitution, a common treasury, a standing navy, or a permanent executive. Compliance was enforced via commercial peer pressure and economic boycotts (*Verhansung*).

Ladder Rung	**Scale Band**	**Operational Status**	**Empirical Dynamics and Institutional Failure Modes**
Household	4–10	Worked	Patrician merchant family partnerships (*Handelsgesellschaften*) formed commercial nodes.
Hamlet / Band	30–50	Worked	Foreign trading posts (*kontore*, e.g., Bergen, London Steelyard) housed tight merchant guilds.
Village	150–500	Failed	Rural agricultural hinterlands were excluded from league politics, serving as food producers.
Parish / District	1,500–5,000	Worked	Merchant guild councils managed trade privileges and

			internal guild regulations.
Town / Watershed	15,000–50,000	Worked	Member cities governed themselves through patrician councils (*Rat*).
Region / Bioregion	0.5M–5M	Worked	Connected ~160 towns across northern Europe through maritime commercial networks.
Nation / Continent	50M–500M	Failed	Could not withstand centralized fiscal-military states (England, the Dutch Republic, Sweden).
Planet	8 Billion	Never Tried	Out of scale.

The primary internal capture vector was city-level hegemony, notably Lübeck attempting to dictate league foreign policy to preserve its trade monopolies. During the 15th century, Burgomaster Hinrich Castorp attempted to compel Prussian and Westphalian cities to boycott English shipping. The structural defense was non-violent non-compliance: member towns refused to attend the *Hansetag* (attendance often dropped below 20%), traded illicitly with prohibited nations, or formed regional sub-leagues (such as the Cologne Confederation of 1367). Lübeck had no institutional mechanism or armed force to enforce compliance. Hanseatic merchants presented the League as a community of German merchants (*stede van der dudeschen hense*) organized for mutual defense and free trade. The historical record reveals a commercial cartel that waged naval wars to suppress competition and excluded non-German merchants from Baltic trade. Modern scholarship, notably Philippe Dollinger (1970, *The German Hansa*) and Justyna Wubs-Mrozewicz (2013), demonstrates that while low institutionalization prevented internal dictatorial capture, it left the league vulnerable to free-riding and unable to finance permanent defense institutions.

Stephan Selzer (2010) argues that the League's informality was a structural flaw rather than a strength, leading to coordination failures whenever member cities' economic interests diverged.
Hanse scores:
$C_1 : 0, C_2 : 0, C_3 : 2, C_4 : 0, C_5 : 2, C_6 : 1, C_7 : 0, C_8 : 0, C_9 : 1, C_{10} : 0, C_{11} : 1$
. Raw: **7/22** ($CRI_{\%} : 31.8\%$).

10. Mondragon Corporation (1956–Present)

Founded in 1956 by Father José María Arizmendiarrieta in the Basque town of Mondragón, this federation includes approximately 95 autonomous worker cooperatives and 70,000 employees[42]. Ultimate sovereignty resides in the General Assembly (*Asamblea General*, one worker, one vote), which elects the Governing Council (*Consejo Rector*). An internal Social Council (*Consejo Social*) acts as a worker-advocacy body within each cooperative. Executive compensation is capped by structural ratios (originally 1:3, currently 1:6 to 1:9 across the federation, compared to over 1:300 in conventional corporations).

Ladder Rung	Scale Band	Operational Status	Empirical Dynamics and Institutional Failure Modes
Household	4–10	Worked	Worker-owners maintain standard family units supported by mutual cooperative insurance.
Hamlet / Band	30–50	Worked	Initial workshop size (e.g., Ulgor in 1956 with 24 workers) enabling face-to-face deliberation.
Village	150–500	Worked	Optimal scale for individual cooperative factories; high peer monitoring and assembly

			attendance.
Parish / District	1,500–5,000	Worked	Large industrial plants (e.g., Fagor) coordinating via departmental worker delegates.
Town / Watershed	15,000–50,000	Worked	Valley-level integration via common credit (*Caja Laboral*) and welfare (*LagunAro*) institutions.
Region / Bioregion	0.5M–5M	Worked	Significant industrial force in the Basque Country, generating over €11 billion in annual revenue.
Nation / Continent	50M–500M	Failed	Expanded globally by acquiring non-cooperative subsidiaries, creating a two-tier labor hierarchy[42].
Planet	8 Billion	Never Tried	Out of scale.

The primary capture risk was managerial technocracy pursuing debt-financed corporate expansion at the expense of cooperative principles. The collapse of Fagor Electrodomésticos (2013) highlights this dynamic[42]. Fagor executives took on heavy debt to acquire international subsidiaries (such as French Brandt) without transparent worker deliberation[43]. When Fagor faced bankruptcy with €1 billion in debt, the Mondragon General Council refused a €170 million bailout to protect the broader federation[43]. Mondragon's internal mutual aid system reallocated 1,800 affected worker-owners to other cooperatives within three years, maintaining systemic stability[44].

Mondragon presents itself as an industrial democracy realizing worker sovereignty and solidarity[42]. The operational record reveals a structural compromise: core Basque workers hold democratic ownership, while workers in international subsidiaries are often conventional wage

laborers without voting rights[42]. Modern sociological research, notably Sharryn Kasmir (1996, *The Myth of Mondragon*) and George Cheney (1999), shows that international competition has led to managerial professionalization, reducing the policy-setting influence of rank-and-file assemblies.
Sharryn Kasmir (1996) argues that Mondragon weakens militant trade union organizing, fostering a cooperative identity that can accommodate technocratic management while marginalizing non-member workers.
Mondragon scores:
$C_1 : 2, C_2 : 1, C_3 : 1, C_4 : 1, C_5 : 2, C_6 : 1, C_7 : 1, C_8 : 2, C_9 : 2, C_{10} : 1, C_{11} : 1$
. Raw: **15/22** ($CRI_{\%} : 68.2\%$).

11. Autonomous Administration of North and East Syria (Rojava / AANES, 2012–Present)

Operating under the doctrine of Democratic Confederalism (synthesizing Murray Bookchin and Abdullah Öcalan), Rojava organizes society via nested horizontal communes (*komîns*) at the street level, ascending through neighborhood, district, and cantonal councils. Every executive post is co-chaired (*hevserokatî*) by one male and one female representative, backed by autonomous women-only councils (*Kongra Star*) and courts that hold veto power over gender-related legislation. Military defense is divided between mixed territorial militias (SDF/YPG) and an autonomous female force (YPJ).

Ladder Rung	Scale Band	Operational Status	Empirical Dynamics and Institutional Failure Modes
Household	4–10	Worked	Domestic patriarchal traditions countered by legal bans on forced marriage and polygamy.
Hamlet / Band	30–50	Worked	Street communes (*komîns*) resolve local food supply, diesel distribution, and neighbor mediation.

Village	150–500	Worked	Village communes elect delegates to sub-districts and run local agricultural cooperatives.
Parish / District	1,500–5,000	Worked	Neighborhood councils (*Meclîsa Taxê*) manage urban centers (Qamishli, Kobane).
Town / Watershed	15,000–50,000	Worked	Cantonal bodies coordinate regional water, hospital access, and grain storage.
Region / Bioregion	0.5M–5M	Worked	Coordinates ~3 to 4 million people across northern Syria under active wartime conditions.
Nation / Continent	50M–500M	Never Tried	Explicitly rejects nation-state models in favor of cross-border democratic confederations.
Planet	8 Billion	Never Tried	Out of scale.

The primary capture threat is military-security dominance overriding civilian councils during armed conflict. The Democratic Union Party (PYD) and the security services (*Asayish*) have periodically bypassed commune decisions, conscripted youth, and suppressed rival political groups (such as the Kurdish National Council, ENKS). The defense against complete military consolidation lies in the dual-power structure: civilian communes manage bread and fuel logistics, while the autonomous women's assemblies (*Kongra Star*) can veto male-dominated

military and judicial decisions.
Rojava's public doctrine proclaims a stateless, feminist, ecology-focused direct democracy (*Jin, Jiyan, Azadî*). The historical record reveals a complex dynamic where local democratic communes operate alongside centralized military leadership and intelligence services. Modern political analyses, including Thomas Schmidinger (2018, *Rojava*) and Michael Knapp et al. (2016), emphasize that while gender parity and commune structures are genuine, ongoing geopolitical conflict concentrates executive authority in the defense command.
Fabrice Balanche and Human Rights Watch argue that the democratic framework is bounded by PYD-led political control, with security imperatives often taking precedence over local commune autonomy.
Rojava scores:
$C_1 : 2, C_2 : 2, C_3 : 2, C_4 : 1, C_5 : 1, C_6 : 1, C_7 : 1, C_8 : 2, C_9 : 1, C_{10} : 2, C_{11} : 0$
. Raw: **15/22** ($CRI_{\%} : 68.2\%$).

12. Zapatista Autonomous Municipalities / GALs (Chiapas, Mexico, 1994–Present)

Originating in the 1994 indigenous uprising in Chiapas, the Zapatistas developed self-governing territories outside the Mexican state apparatus[45]. Governance was historically organized into Rebel Zapatista Autonomous Municipalities (MAREZ) federated into regional *Caracoles* and directed by rotating Councils of Good Government (*Juntas de Buen Gobierno*, JBG)[45]. In late 2023, the movement restructured, replacing the MAREZ and JBG with Local Autonomous Governments (*Gobiernos Autónomos Locales*, GAL) at the community level to enhance resilience against drug cartel violence and regional military pressure[45]. Governance is anchored in the principle of *mandar obedeciendo* ("lead by obeying") through unpaid, short-term rotational service. The civil governance structures remain strictly separated from the guerrilla military command (EZLN).

Ladder Rung	Scale Band	Operational Status	Empirical Dynamics and Institutional Failure Modes
Household	4–10	Worked	Domestic relations guided by the Revolutionary Women's Law, protecting reproductive choices.

Hamlet / Band	30–50	Worked	Kin-based farming settlements manage communal corn plots and local dispute resolution.
Village	150–500	Worked	Core operating scale; community assemblies manage communal *ejido* lands and local schools[45].
Parish / District	1,500–5,000	Worked	GALs and regional assemblies coordinate collective healthcare clinics and dispute appeals[45].
Town / Watershed	15,000–50,000	Worked	*Caracoles* coordinate inter-municipal production, trade boycotts, and regional mutual aid[45].
Region / Bioregion	0.5M–5M	Worked	Coordinates ~300,000 indigenous Maya across Chiapas without formal state infrastructure[49].
Nation / Continent	50M–500M	Never Tried	Rejects capturing state power in Mexico City, focusing instead on horizontal

			networking[46].
Planet	8 Billion	Never Tried	Out of scale.

The central capture challenge was armed guerrilla command overstepping into civilian village administration. In 2003, the EZLN command structure, led by Subcomandante Marcos, explicitly removed combatants from civil administration, barring military commanders from sitting on the *Juntas de Buen Gobierno*[45]. When local delegates accepted state government cash subsidies (violating autonomy codes), local assemblies removed the delegates and revoked their community mandates. The 2023 restructuring into community-level GALs decentralized administrative authority further, ensuring that cartel violence could not disable regional governance nodes[45].

Zapatista discourse emphasizes radical horizontality, indigenous Maya consensus, and autonomous anti-capitalist resistance (*Un Mundo Donde Quepan Muchos Mundos*). The historical record confirms strong collective land stewardship, alongside strict community discipline, including complete prohibitions on alcohol and regulated interactions with external state institutions[45]. Modern anthropological studies, notably Shannon Speed (2007) and John Holloway (2002), demonstrate that the separation of military command from civilian rotation has maintained horizontal governance under sustained economic pressure[46].

George A. Collier (1994, *Basta! Land and the Zapatista Rebellion*) argues that regional isolation and the rejection of federal aid can perpetuate material poverty, making long-term retention of younger community members challenging.

Zapatistas score:

$C_1 : 2, C_2 : 2, C_3 : 2, C_4 : 2, C_5 : 2, C_6 : 2, C_7 : 1, C_8 : 2, C_9 : 2, C_{10} : 1, C_{11} : 0$

. Raw: **18/22** ($CRI_{\%} : 81.8\%$).

13. Ostbelgien Model (German-speaking Community of Belgium, 2019–Present)

Established by unanimous decree of the Parliament of the German-speaking Community of Belgium (PDG) in February 2019, this model created a permanent deliberative democratic architecture based on civic sortition[50]. Governance unites two bodies: the Citizens' Council (*Bürgerrat*), a standing 24-member group drawn by lot from former assembly participants (serving 18 months, reformed in 2024 to rotate across Citizens' Assemblies), and temporary Citizens' Assemblies (*Bürgerversammlungen*) convened to address topics selected by the Council[50]. Sortition is stratified by age, gender, education, and geography[50]. The PDG is legally required to debate citizen recommendations and publish detailed formal justifications for any recommendations it rejects[50].

Ladder Rung	**Scale Band**	**Operational Status**	**Empirical Dynamics and**

			Institutional Failure Modes
Household	4–10	Worked	Standard regional domestic life under Belgian civil law protections.
Hamlet / Band	30–50	Worked	Rural hamlets across the Eifel region engage via open topic-submission processes.
Village	150–500	Worked	Local communal dialogues feed policy ideas into the Eupen assembly infrastructure[50].
Parish / District	1,500–5,000	Worked	Municipal councils coordinate administrative implementation with regional authorities.
Town / Watershed	15,000–50,000	Worked	Core operating scale: regional capital Eupen and surrounding municipalities[50].
Region / Bioregion	0.5M–5M	Worked	Governs the ~78,000 German-speaking citizens of Belgium as an institutionalized process.

Nation / Continent	50M–500M	Never Tried	Integrated within the federal Belgian constitution; adopted elsewhere at municipal scales[51].
Planet	8 Billion	Never Tried	Out of scale.

The primary capture risk was bureaucratic steering by the Permanent Secretariat or established political parties during the expert selection and agenda-setting phases[55]. Research by Christoph Niessen and Min Reuchamps (2024, 2025) noted that ordinary citizens initially relied heavily on the permanent administrative staff for technical policy framing[52]. In response, the 2024 parliamentary reform introduced independent judicial oversight of lotteries, formalized sortition quotas, and mandated direct public dialogue between parliamentary committees and citizen deliberators to prevent administrative gatekeeping[50].

Advocates present the Ostbelgien model as an institutionalization of deliberative democracy that bypasses partisan bias and clientelist lobbying[50]. The operational record shows that the Citizens' Council remains consultative: final legislative authority rests with the 25-member elected parliament, which can reject citizen recommendations on budgetary or legal grounds[50]. Modern political scholarship, led by Min Reuchamps (2020) and Christoph Niessen (2024), confirms that sortition curtails traditional lobbying, though deliberative processes require sustained administrative support to remain functional[50].

Critics within Belgian public administration caution that non-binding mini-publics risk serving as deliberative window dressing, allowing elected officials to deflect contentious decisions without relinquishing final control[54].

Ostbelgien scores:

$C_1 : 2, C_2 : 2, C_3 : 2, C_4 : 1, C_5 : 2, C_6 : 2, C_7 : 2, C_8 : 2, C_9 : 2, C_{10} : 1, C_{11} : 2$

. Raw: **20/22** ($CRI_{\%} : 90.9\%$).

14. Wikipedia Peer Governance (2001–Present)

Wikipedia operates as an open, peer-produced information commons governed by behavioral consensus guidelines (Neutral Point of View, Verifiability, No Original Research)[57]. Structural roles include volunteer Editors, Administrators (sysops with access to deletion and user-blocking tools, appointed via the community Request for Adminship process), and an elected Arbitration Committee (ArbCom) that serves as an appellate body. Edits and administrative decisions are preserved in transparent, publicly auditable version histories.

Ladder Rung	**Scale Band**	**Operational Status**	**Empirical Dynamics and Institutional**

			Failure Modes
Household	4–10	Worked	Individual editors contribute from domestic residences without collective household coordination.
Hamlet / Band	30–50	Worked	Specialized WikiProjects (e.g., Military History) operate via localized editorial consensus.
Village	150–500	Worked	Core active administrator and policy-making cohort (~500 active administrators).
Parish / District	1,500–5,000	Worked	Core active editor base (~4,000 to 5,000 editors contributing > 100 edits per month).
Town / Watershed	15,000–50,000	Worked	Broader monthly active registered contributor community (~30,000 editors).
Region / Bioregion	0.5M–5M	Worked	Regional Wikimedia chapters coordinate volunteer events

			and linguistic development.
Nation / Continent	50M–500M	Worked	Cross-language coordination across national editor populations.
Planet	8 Billion	Worked	Global reference resource accessed by billions, maintained by a decentralized volunteer core.

The primary capture vector is coordinated ideological or commercial infiltration using sockpuppet networks to manipulate consensus and block opposing editors. A notable failure occurred on Croatian Wikipedia (2011–2020), where an organized far-right faction secured administrator positions, banned dissenting editors, and biased historical articles. The capture was reversed when the global community and the Wikimedia Foundation stepped in to conduct an external audit, revoking the offending administrators' permissions. On English Wikipedia, the use of CheckUser verification tools, ArbCom binding sanctions, and open diff histories provides resilience against sockpuppet rings.

Wikipedia describes itself as the encyclopedia that anyone can edit, governed by horizontal consensus and good-faith collaboration. The empirical reality reveals a structured bureaucracy with entrenched senior administrators, an increasingly demanding vetting process for new admins (*Request for Adminship*), and high attrition among novice contributors. Modern organizational scholarship, including Dariusz Jemielniak (2014, *Common Knowledge?*) and Piotr Konieczny (2009), shows that while Wikipedia manages a digital commons successfully[6], it exhibits tendencies toward procedural oligarchy, where experienced editors use procedural expertise to control debates.

Larry Sanger, co-founder of Wikipedia, argues that the platform has drifted from its neutral-point-of-view mandate, asserting that administrative structures permit coordinated interest groups to establish ideological orthodoxies on contentious topics.

Wikipedia scores:

$C_1 : 2, C_2 : 0, C_3 : 2, C_4 : 1, C_5 : 2, C_6 : 2, C_7 : 2, C_8 : 2, C_9 : 2, C_{10} : 0, C_{11} : 2$

. Raw: **17/22** ($CRI_{\%} : 77.3\%$).

15. Decentralized Autonomous Organizations: Steem vs. Hive (2020)

Decentralized Autonomous Organizations deploy smart contracts on distributed ledgers to

automate governance, with voting authority typically weighted by native token holdings (plutocratic 1-token-1-vote). Steem used a Delegated Proof-of-Stake (DPoS) model where 21 elected "witnesses" produced blocks and voted on protocol modifications[57].

Ladder Rung	Scale Band	Operational Status	Empirical Dynamics and Institutional Failure Modes
Household	4–10	Worked	Node runners and holders operate from private individual domestic setups.
Hamlet / Band	30–50	Worked	Core developer and witness teams coordinate software updates and witness nodes[57].
Village	150–500	Worked	Active community witnesses, major token delegators, and dApp founders[57].
Parish / District	1,500–5,000	Worked	Regular active content creators and social curators staking platform tokens[57].
Town / Watershed	15,000–50,000	Failed	The plutocratic token-voting model broke down under concentrated capital acquisition[57].
Region / Bioregion	0.5M–5M	Never Tried	Governance

			participation rates routinely remained below 5% of total wallet holders.
Nation / Continent	50M–500M	Never Tried	Capital concentration vectors prevent broader scaling without oligopoly formation[57].
Planet	8 Billion	Never Tried	Out of scale.

The primary threat vector was a hostile governance takeover via capital concentration. In February 2020, Justin Sun (founder of the Tron Foundation) acquired Steemit Inc., gaining control of an unvested reserve of roughly 20% of the total STEEM token supply[58]. When community witnesses deployed Soft Fork 22.2 to deactivate this stake from voting[59], Sun utilized customer deposits on centralized exchanges (Binance, Huobi, Poloniex) to vote in a slate of sockpuppet witnesses, displacing the elected community leaders[57]. The community responded via an off-chain coordinated exit: on March 20, 2020, they executed Hard Fork 23, creating the **Hive** blockchain[57]. The fork preserved the ledger state, air-dropped tokens to existing users, excluded Sun's acquired stake, and introduced a 30-day voting delay on newly staked tokens to protect against sudden capital buyouts[57].

DAO frameworks promote "Code is Law," promising decentralized, censorship-resistant governance automated by smart contracts[57]. The empirical record demonstrates that token-weighted voting regularly leads to plutocratic consolidation, with capital whales and exchanges exerting outsized influence. Modern legal and technological analyses, including Angela Walch (2019) and Primavera De Filippi et al. (2020), show that on-chain plutocratic mechanisms struggle with financial capture, making social coordination and hard forking (cheap exit) the primary backstops for network resilience[57].

Nicholas Weaver and David Rosenthal argue that token-weighted DAOs are structurally prone to financial exploitation, as the concentration of capital allows wealthy actors to acquire voting control and extract treasury reserves through legalistic loopholes.

Steem/Hive scores:

$C_1 : 2, C_2 : 0, C_3 : 0, C_4 : 0, C_5 : 2, C_6 : 1, C_7 : 2, C_8 : 0, C_9 : 2, C_{10} : 0, C_{11} : 0$

. Raw: **9/22** ($CRI_{\%} : 40.9\%$).

16. Old Order Amish Church Districts (c. 1693–Present)

Old Order Amish communities govern themselves through autonomous church districts (*Gemeinde*), capped at 25 to 40 households (roughly 150 to 250 individuals). When a district

exceeds this size, it divides into two. Governance is structured by the *Ordnung* (an unwritten code detailing permissible technologies and conduct), ratified twice yearly by unanimous consent of baptized members at the *Ordnungsgemeinde*. District leadership includes a Bishop (*Bischof*), two to three Ministers (*Diener zum Buch*), and a Deacon (*Armenpfleger*). Candidates are nominated by congregational vote, but the final selection is determined by sortition: Bibles containing a marked slip of paper are distributed among nominees, and whoever selects the marked text is ordained for life.

Ladder Rung	**Scale Band**	**Operational Status**	**Empirical Dynamics and Institutional Failure Modes**
Household	4–10	Worked	Agrarian, patriarchal households with strong communal support and mutual aid obligations.
Hamlet / Band	30–50	Worked	Mutual assistance groups coordinate barn-raisings, field harvesting, and medical crises.
Village / District	150–500	Worked	Core operating scale; districts divide when membership outgrows face-to-face oversight.
Parish / District	1,500–5,000	Worked	Regional Bishop conferences meet informally to discuss common standards, but hold no binding power.

Town / Watershed	15,000–50,000	Failed	Refuses formal integration into municipal town councils to preserve religious autonomy.
Region / Bioregion	0.5M–5M	Never Tried	Structure relies on decentralization; lacks standing regional executives.
Nation / Continent	50M–500M	Never Tried	Out of scale.
Planet	8 Billion	Never Tried	Out of scale.

The primary capture risk is an authoritarian bishop attempting to impose personal rules or alter community practice without consent. The Amish framework counters this through structural checks: sortition breaks political campaigning and personal ambition, as seeking office is viewed as sinful pride (*Hochmut*). Furthermore, the twice-yearly *Ordnungsgemeinde* requires unanimous congregational approval; if a bishop lacks support, communion cannot take place. Persistent authoritarianism results in family exit to neighboring districts or church fissioning, leaving the bishop without a congregation. Serious communal deviance is addressed through *Meidung* (shunning).

The Amish understand their governance as humble submission (*Gelassenheit*) to Christian discipleship and separation from worldly vanity. The empirical record highlights strong community resilience, accompanied by significant social conformity, the exclusion of women from ministerial ordination, and social pressure applied via shunning. Modern ethnographic studies, led by Donald B. Kraybill, Karen M. Johnson-Weiner, and Steven M. Nolt (2013, *The Amish*), indicate that capping district size at the Dunbar threshold (~150–250) and utilizing sortition prevents personal empire-building.

Steven M. Nolt and Thomas J. Meyers point out that capture resistance within the district is maintained via high cultural conformity and the threat of excommunication and family severance for non-conforming individuals.

Amish scores:

$C_1 : 1, C_2 : 0, C_3 : 2, C_4 : 1, C_5 : 2, C_6 : 2, C_7 : 0, C_8 : 2, C_9 : 2, C_{10} : 0, C_{11} : 1$

. Raw: **13/22** ($CRI_{\%} : 59.1\%$).

17. Twin Oaks Community (1967–Present)

Located in Louisa County, Virginia, Twin Oaks is an intentional, egalitarian community of

approximately 100 residents[63]. All land, capital, and commercial enterprises (hammock and tofu production) are held in common[63]. Governance follows a "Planner-Manager" system: a three-person Board of Planners establishes general policy, while Managers oversee day-to-day operations (agriculture, sales, vehicle maintenance)[63]. Planners serve staggered eighteen-month terms[63]. Planner decisions can be challenged and overturned through an open community review process, including public comment boards (the "O-Box") and direct referendums[63].

Ladder Rung	Scale Band	Operational Status	Empirical Dynamics and Institutional Failure Modes
Household	4–10	Worked	Communal living units (e.g., Tupelo, Ta Chai) house small groups without private real estate.
Hamlet / Band	30–50	Worked	Industrial production teams (tofu, hammocks) self-manage weekly labor allocations.
Village	150–500	Worked	Core scale; community population has intentionally hovered around ~100 for five decades[63].
Parish / District	1,500–5,000	Failed	Attempts to scale via federations (Federation of Egalitarian Communities) generated small

			sister sites.
Town / Watershed	15,000–50,000	Never Tried	Structural consensus and communal property models have not scaled to town levels.
Region / Bioregion	0.5M–5M	Never Tried	Out of scale.
Nation / Continent	50M–500M	Never Tried	Out of scale.
Planet	8 Billion	Never Tried	Out of scale.

The primary threat vector is managerial entrenchment or charismatic capture by long-tenured members[64]. Founder Kathleen Kinkade documented early attempts by ambitious members to consolidate administrative authority[64]. Twin Oaks countered this through structural mechanisms: (1) an equalized labor-credit system that awards the same credits for kitchen labor as for commercial management, preventing financial leverage[63]; (2) staggered, short planner terms with public input; and (3) an accessible exit process where members can leave freely without financial penalties[66].

Twin Oaks presents itself as an egalitarian, feminist, cooperative society realizing Skinnerian behavioral design without coercion[63]. The empirical record documents consistent communal stability, along with annual membership turnover of roughly 15%–25%, interpersonal burnout, and informal coordination among senior members[65]. Sociological studies by Benjamin Zablocki (1980) and Hilke Kuhlmann (2005) confirm that Twin Oaks avoided the autocratic breakdowns typical of many 1960s communes, though it experiences recurring administrative fatigue[66].

Hilke Kuhlmann (2005, *Living Walden Two*) argues that the Planner-Manager structure retains technocratic characteristics, which can promote political disengagement among members while leaving subtle agenda-setting power with persistent managers[63].

Twin Oaks scores:

$C_1 : 2, C_2 : 2, C_3 : 2, C_4 : 1, C_5 : 2, C_6 : 2, C_7 : 2, C_8 : 2, C_9 : 2, C_{10} : 2, C_{11} : 0$

. Raw: **19/22** ($CRI_{\%} : 86.4\%$).

18. Porto Alegre Participatory Budgeting (1989–2004)

Developed in 1989 by the Brazilian Workers' Party (PT) in Porto Alegre, Participatory Budgeting (*Orçamento Participativo*, OP) restructured municipal capital spending by devolving budgetary allocation to nested neighborhood assemblies. The municipality was organized into 16 regional and 5 thematic plenaries. Residents gathered in district meetings to debate investment

priorities (sanitation, housing, education) and elect delegates to the Municipal Council of the Budget (*Conselho do Orçamento Participativo*, COP), which reconciled demands with municipal engineers using an objective resource-allocation matrix.

Ladder Rung	**Scale Band**	**Operational Status**	**Empirical Dynamics and Institutional Failure Modes**
Household	4–10	Worked	Domestic units engaged directly through street-level assemblies.
Hamlet / Band	30–50	Worked	Street and block meetings selected neighborhood public works proposals.
Village	150–500	Worked	Neighborhood associations deliberated on local clinic and paving projects.
Parish / District	1,500–5,000	Worked	Regional assemblies engaged thousands of participants in infrastructure prioritization.
Town / Watershed	15,000–50,000	Worked	Thematic assemblies debated broader municipal transportation and development policies.
Region / Bioregion	0.5M–5M	Worked	Governed capital

			budget allocations across the city of 1.3 million residents for fifteen years.
Nation / Continent	50M–500M	Failed	Replicated across numerous Brazilian cities, but often diluted into consultative meetings.
Planet	8 Billion	Never Tried	Adopted internationally at municipal scales, but not as an integrated global framework.

The primary capture vector was clientelist co-optation by local councilors (*vereadores*) and patronage-based party brokers seeking to divert public investments to political allies. OP curtailed this by utilizing a standardized objective distribution formula: infrastructure funds were directed toward neighborhoods based on measured infrastructure deficits and population density, reducing councilors' discretionary leverage. However, the system had a key institutional vulnerability: it depended on executive support. When the Workers' Party lost the municipal election in 2004, the incoming administration delayed project funding, downgraded assembly authority, and redirected investment through traditional bureaucratic offices, which led to a marked drop in citizen engagement.

Advocates framed OP as a transformative democratic process transferring real power from political elites to organized community members. The historical record indicates that OP directed notable infrastructure investments toward lower-income neighborhoods, yet operated over a limited pool: it addressed only discretionary capital expenditures (roughly 5%–15% of the municipal budget), while baseline operating costs and personnel decisions remained under mayoral control. Modern scholarship, including Leonardo Avritzer (2002) and Gianpaolo Baiocchi (2005, *Militants and Citizens*), highlights measurable gains in sanitation and healthcare access, while noting the process's dependence on executive cooperation.

Rebecca Abers (2000, *Inventing Local Democracy*) observed that participatory budgeting was reliant on supportive municipal officials; without autonomous legal standing, the assemblies could be marginalized when executive leadership shifted.

Porto Alegre scores:

$C_1 : 2, C_2 : 2, C_3 : 1, C_4 : 1, C_5 : 1, C_6 : 1, C_7 : 2, C_8 : 2, C_9 : 2, C_{10} : 1, C_{11} : 1$

. Raw: **16/22** ($CRI_{\%} : 72.7\%$).

19. European Union (1957/1993–Present)

The European Union is a polycentric, supranational confederation of 27 member states encompassing approximately 450 million citizens. Institutional power is distributed among an appointed executive body (the European Commission, which holds the primary power of legislative proposal), an intergovernmental legislative council (the Council of the European Union, utilizing Qualified Majority Voting and unanimity), a directly elected parliament (the European Parliament, sharing legislative and budgetary approval), and a supreme judicial body (the Court of Justice of the European Union, CJEU).

Ladder Rung	**Scale Band**	**Operational Status**	**Empirical Dynamics and Institutional Failure Modes**
Household to Town	4–50,000	Worked	Handled by member states under the principle of subsidiarity.
Region / Bioregion	0.5M–5M	Worked	Regional authorities receive structural and cohesion funding directly from Brussels.
Nation / Continent	50M–500M	Worked	Primary operating scale: harmonizes internal trade, regulatory policy, and judicial standards across 27 nations.
Planet	8 Billion	Worked	Acts as a major regulatory actor shaping global technical and commercial

			standards.

The primary threat vector is national-level democratic backsliding by an illiberal government that captures domestic courts, channels EU cohesion funds to political clients, and uses Council vetoes to extract geopolitical concessions. This dynamic is visible in Hungary under Viktor Orbán. The EU's structural response was slow due to Council unanimity requirements (Article 7 procedures). However, the EU activated the "Rule of Law Conditionality Mechanism" in 2022, which was upheld by the CJEU, withholding billions of euros in cohesion and recovery funding to compel judicial adjustments.

The EU presents itself as a democratic union of sovereign nations committed to human rights, freedom of movement, and the rule of law. The operational record highlights a recurring democratic deficit: significant policy negotiations occur behind closed doors in the Council of Ministers (Coreper) and inter-institutional "trilogues," insulating key choices from direct electoral feedback. Modern political analyses, led by Giandomenico Majone (1996, *Regulating Europe*) and Fritz Scharpf (1999), observe that the EU operates primarily as a regulatory system designed to insulate market-integration policies from member-state political pressures. Wolfgang Streeck (2014, *Buying Time*) argues that the EU's economic and monetary framework restricts domestic democratic policy-making, limiting member-state voters' capacity to alter fiscal and macroeconomic policies.

European Union scores:

$C_1 : 1, C_2 : 1, C_3 : 2, C_4 : 1, C_5 : 2, C_6 : 1, C_7 : 0, C_8 : 1, C_9 : 2, C_{10} : 1, C_{11} : 2$

. Raw: **14/22** ($CRI_{\%} : 63.6\%$).

20. United Nations (1945–Present)

The United Nations is an intergovernmental body comprising 193 member states. Institutional security authority is concentrated in the Security Council (UNSC), dominated by five permanent members (P5: United States, Russia, China, France, United Kingdom), each possessing absolute individual veto power over substantive resolutions, binding sanctions, and peace enforcement operations. The General Assembly (UNGA) functions on a one-state-one-vote basis, but its resolutions are non-binding recommendations. The Secretariat is led by the Secretary-General, serving renewable five-year terms.

Ladder Rung	**Scale Band**	**Operational Status**	**Empirical Dynamics and Institutional Failure Modes**
Household to Region	4–5M	Failed	Barred from intervening in domestic

			jurisdictions under Article 2(7) of the UN Charter.
Nation / Continent	50M–500M	Worked	Facilitates multilateral diplomacy, refugee coordination, and global health operations.
Planet	8 Billion	Failed	The P5 veto structure regularly leads to gridlock during major geopolitical crises.

The primary capture vector is great-power paralysis: a permanent Security Council member can engage in unilateral military aggression or back client states in violations of international law, utilizing its veto to block collective action. Examples include the Soviet invasion of Afghanistan, the 2003 US invasion of Iraq, and the Russian invasion of Ukraine. In the latter, the Security Council was unable to adopt a resolution condemning the action because the presiding member was the state carrying out the intervention. While the General Assembly responded by invoking Resolution 377A ("Uniting for Peace"), its resulting votes carried no enforcement mechanism, demonstrating the structural limitations of the collective security framework when great powers clash.

The UN Charter frames the organization as an instrument to save succeeding generations from the scourge of war and uphold collective security. The empirical reality reveals an arrangement centered on great-power balance, where the P5 veto ensures that the organization cannot act against its permanent members or their core interests. Modern international relations scholarship, including Kenneth Waltz (1979) and John Mearsheimer (2001), emphasizes that the institution reflects the distribution of power among major states, leaving international law subordinate to strategic interests.

Realist scholars, starting with Hans Morgenthau (1948, *Politics Among Nations*), note that collective security designs tend to be ineffective when confronted with fundamental great-power rivalries, as the absence of a sovereign enforcement body allows states to pursue security independently.

UN scores:

$$C_1 : 0, C_2 : 1, C_3 : 0, C_4 : 0, C_5 : 2, C_6 : 0, C_7 : 1, C_8 : 0, C_9 : 0, C_{10} : 0, C_{11} : 0$$

. Raw: **4/22** ($CRI_{\%} : 18.2\%$).

Comparative Matrix and Empirical Validation

The master comparative table details the evaluated structural criteria across all twenty arrangements, sorted by composite capture-resistance index (CRI):

Arrangement	C1 (Elig)	C2 (Rot)	C3 (Col)	C4 (Aud)	C5 (Exit)	C6 (Emerg)	C7 (Rec)	C8 (Mon)	C9 (War)	C10 (Wom)	C11 (Nest)	Raw Sum (/22)	Normalized CRI %	Historical Capture Status
OstbelgienModell [cite: 50, 52]	2	2	2	1	2	2	2	2	2	1	2	**20**	**90.9%**	Active / Highly Resilient
TwinOaksC	2	2	2	1	2	2	2	2	2	2	0	**19**	**86.4%**	Active / Highly Re

ommunity [cite: 63, 64]														silient
Swiss Federal Council [cite: 32, 36]	2	1	2	1	2	2	2	1	2	1	2	**18**	**81.8%**	Active / Highly Resilient
Haudenosaunee [cite: 22]	1	1	2	2	2	2	1	2	2	2	1	**18**	**81.8%**	Active / Highly Resilient

ZapatistaGALs [cite:45]	2	2	2	2	2	2	1	2	2	1	0	**18**	**81.8%**	Active/Adapted
WikipediaGovernance [cite:6,57]	2	0	2	1	2	2	2	2	2	0	2	**17**	**77.3%**	Active/Bureaucratic Drift
PortoAlegreOP	2	2	1	1	1	1	2	2	2	1	1	**16**	**72.7%**	Abolished (2004)
Mondr	2	1	1	1	2	1	1	2	2	1	1	**15**	**68.2**	Active/

agon Co-op [cite: 42, 44]													**%**	Commercialized
Rojava (AANES)	2	2	2	1	1	1	1	2	1	2	0	**15**	**68.2%**	Active / Military Strain
Classical Athens [cite: 11, 12]	1	2	2	2	1	1	2	2	1	0	0	**14**	**63.6%**	Captured / Military Fall
Gadaa Sy	1	2	2	2	1	2	0	2	1	1	0	**14**	**63.6%**	Fragmen

stem (Oromo) [cite: 24, 26]														ted / Reviving
European Union	1	1	2	1	2	1	0	1	2	1	2	**14**	**63.6%**	Active / Bureaucratic Tension
Old Order Amish	1	0	2	1	2	2	0	2	2	0	1	**13**	**59.1%**	Active / Highly Resilient
Vene	0	2	2	2	0	1	0	1	2	0	0	**10**	**45.5**	Olig

tianRepublic													**%**	archic/Napoleonic Fall
Steem/HiveDAO [cite: 57, 59]	2	0	0	0	2	1	2	0	2	0	0	**9**	**40.9%**	Captured (2020)/Forked
FlorentineRepublic	1	2	2	1	0	0	1	0	1	0	0	**8**	**36.4%**	Captured (1434)/Medici

Icelandic Commonwealth [cite: 37, 38]	1	0	1	1	2	1	0	0	1	0	0	**7**	**31.8%**	Captured (1262) / Monarchic
Hanseatic League	0	0	2	0	2	1	0	0	1	0	1	**7**	**31.8%**	Fragmented / Dissolved
Roman Republic [cite:	1	1	2	1	0	0	1	0	0	0	0	**6**	**27.3%**	Captured (49 BCE)

17, 19]														/ Dictatorship
United Nations	0	1	0	0	2	0	1	0	0	0	0	**4**	**18.2%**	Captured / Permanent P5 Veto

Validation Against Historical Evidence

The scoring rubric matches empirical outcomes across several institutional models, while also revealing notable edge-case divergences. Systems scoring below 40% (Rome: 27.3%, Iceland: 31.8%, Florence: 36.4%, Steem: 40.9%) all experienced captured governance or institutional failure[19]. In Republican Rome, the absence of emergency term limits, lack of campaign finance bounds, and integration of military command with domestic politics allowed proconsular warlords to march on the capital[19]. In Iceland, treating legal jurisdiction as private property enabled five families to monopolize power, ending in the surrender of sovereignty to Norway[37]. Conversely, the highest-scoring systems (Ostbelgien: 90.9%, Twin Oaks: 86.4%, Switzerland: 81.8%) have maintained institutional continuity without succumbing to monocratic dictatorship[32]. The Swiss collegiate model demonstrates how consensus-driven executives can absorb political polarization and sustain stability over decades[32].

Predictive Discrepancies and Model Diagnostics

The framework encounters analytical limits when treated as an unweighted sum of formal procedures:

False Positives (High Score, Observed Capture)

Classical Athens (63.6%) possessed extensive anti-capture features—sortition, rotation, exit audits, wealth liturgies—yet experienced oligarchic coups in 411 and 404 BCE, and was susceptible to demagogic steering[8]. The unweighted index understates the vulnerability of sovereign face-to-face assemblies to rhetorical and emotional sway.

Similarly, Porto Alegre Participatory Budgeting (72.7%) scored well on transparency and rotation, yet was curtailed following a change in municipal leadership in 2004. The framework missed the system's structural dependence on host-state administrative support.

False Negatives (Low Score, Observed Resilience)

The Old Order Amish (59.1%) score modestly due to lifelong tenure for bishops, absence of written records, and lack of female ministerial inclusion. Yet Amish church districts have maintained stable, non-autocratic governance for over three centuries. The rubric underweights the stabilizing effect of population caps ($N \leq 250$) and sortition from among voted nominees.

The Republic of Venice (45.5%) also scores low due to its closed patrician caste and secret state intelligence. Yet its internal counter-intelligence institutions and collegiate design prevented personal dictatorships from taking root for five centuries.

Incorporating Key Structural Variables

The diagnostic analysis highlights four structural factors necessary to refine the raw scoring model:

1. **Scale-Decoupling Threshold (S)**: Face-to-face deliberative assemblies face cognitive and monitoring limits beyond roughly 500 individuals. Without representative or sortition structures, larger bodies tend toward informal oligarchization.
2. **Coercive Force Asymmetry (Φ)**: Institutional checks are compromised when military command is separated from civil oversight. Warlords who independently provision their troops can routinely bypass constitutional limits.
3. **Informal Debt and Patronage Networks (Ω)**: Concentrated financial leverage can subvert formal processes, as seen when the Medici bank used private debt to guide the Florentine lottery.
4. **Host Sovereignty Dependence (H)**: Experimental governance bodies operating within a higher state jurisdiction remain vulnerable to administrative termination if that state's policy priorities shift.

The Calibrated Model

The revised scoring framework integrates these structural factors as calibrating multipliers and adjustments:

$$CRI_{\text{cal}} = \left[\left(\sum_{i=1}^{11} w_i C_i \right) \times S(N) \times \Phi(A_f) \right] - \Omega - (1 - H)$$

Within this calibrated model:

- w_i assigns greater weight to foundational criteria: Limits on Wealth (C_8), Separation of War and Peace (C_9), and Tenure Rotation (C_2).
- $S(N)$ adjusts scores when assembly-based models operate beyond their effective demographic scale.
- $\Phi(A_f)$ accounts for asymmetries in armed coercion; if an executive commands independent armed forces, the institutional rating approaches zero.
- Ω penalizes designs vulnerable to unrecorded debt and patron-client obligations.
- H reflects jurisdictional autonomy, adjusting scores for programs dependent on higher-level government support.

Applying these adjustments accounts for notable discrepancies. Porto Alegre's score decreases due to its reliance on municipal host-state cooperation (H), whereas the Amish framework gains stability because community size is capped ($S(N) = 1$) and internal mutual aid limits external debt leverage ($\Omega = 0$).

Ten-Line Summary of Robust Findings

1. Sortition coupled with non-renewable short terms offers strong structural defense against dark-triad careerism[11].
2. Separating military command and defense logistics from civil legislative authority is essential to prevent armed takeovers[19].
3. Low-cost exit options, such as community fissioning or open-source software forks, constrain institutional capture[57].
4. Direct consensus assemblies encounter coordination challenges when group size exceeds roughly 500 individuals[6].
5. Unregulated private capital and informal credit obligations can hollow out formal democratic procedures[19].
6. Mandatory, publicly conducted exit audits help limit administrative impunity[11].
7. Transparent administrative records and accessible financial ledgers restrict backroom manipulation[3].
8. Institutional female vetoes help counter hyper-competitive status contests and reduce internal militarization[22].
9. Single-token-one-vote arrangements tend to reproduce wealth-weighted oligarchic dynamics[57].
10. Nested federations require independent local authority, as un-sovereign mini-publics are easily sidelined when political sponsorship wanes[6].

Contested and Open Questions

1. The Scale-Deliberation Paradox: Can sortition-based citizen councils scale to

multi-million bioregions without becoming dependent on permanent administrative secretariats[52]?

2. The Defensive Coercion Dilemma: How can non-hierarchical confederations maintain collective territorial defense against organized adversaries without generating an internal military caste?
3. Technical Competence under Collapse: In post-collapse environments, does random civic sortition reliably surface the technical skills required for complex infrastructure management (e.g., civil engineering, agronomy, epidemiology)?
4. Information Verification without Telecommunications: In the absence of digital networks, how can federated communities verify administrative audits conducted in distant settlements without relying on elite messengers?
5. Gendered Checks under Martial Strain: Do institutionalized female vetoes remain durable when continuous defensive mobilization prioritizes martial strength?

Foundational Sources for Extended Study

- **Hansen, Mogens Herman (1991). *The Athenian Democracy in the Age of Demosthenes: Structure, Principles, and Ideology*. Oxford: Blackwell.** An extensive empirical analysis of fourth-century BCE Athenian institutions, detailing sortition mechanics, quorums, legislative bodies, and the judicial rules that countered oligarchic resurgence[11].
- **Mouritsen, Henrik (2001). *Plebs and Politics in the Late Roman Republic*. Cambridge: Cambridge University Press.** An examination of Roman assembly mechanics, voter turnout, and clientelist practices, illustrating how wealth concentration transformed assemblies into instruments of senatorial competition[17].
- **Ostrom, Elinor (1990). *Governing the Commons: The Evolution of Institutions for Collective Action*. Cambridge: Cambridge University Press.** The foundational framework for common-pool resource governance, analyzing how monitoring, clear boundaries, graduated sanctions, and nested design protect shared resources from capture[5].
- **Fenton, William N. (1998). *The Great Law and the Longhouse: A Political History of the Iroquois Confederacy*. Norman: University of Oklahoma Press.** A detailed study of the Haudenosaunee constitutional order, examining bicameral national consensus, civil-war chief separations, and the appointment and veto powers of Clan Mothers[22].
- **Legesse, Asmarom (2000). *Oromo Democracy: An Indigenous African Political System*. Lawrenceville: Red Sea Press.** An ethnographic analysis of the Gadaa system, focusing on eight-year generational rotations, multi-branch councils, and scheduled legal revisions that prevent hereditary entrenchment[28].
- **Kraybill, Donald B., Karen M. Johnson-Weiner, and Steven M. Nolt (2013). *The Amish*. Baltimore: Johns Hopkins University Press.** A structural analysis of Old Order Amish communities, demonstrating how demographic limits ($N \leq 250$), ministerial sortition, and economic mutual aid maintain stable self-governance.
- **Vatter, Adrian (2018). *Der Bundesrat: Die Schweizerische Landesregierung*. Zürich:**

NZZ Libro. An empirical study of the Swiss Federal Council, evaluating how collegiate structures, proportional seat sharing, and direct democratic referendums limit power concentration[32].

Implementability after the Fall

The following operational designs outline minimum viable governance structures configured to operate without electrical grids, digital telecommunications, fossil fuels, or centralized state authority.

Administrative Tier	Population Scale	Primary Institutional Body	Selection Mechanism	Term Length & Rotation	Core Operational Mandate	Information Infrastructure	Primary Failure Vector	Architectural Counter-Mechanism
Household	4–10	Matrilineal Hearth Trust	Matrilineal kinship headship; co-equal adult oversight	Lifelong / Kin succession	Basic food security, child rearing, internal tool allocation	Physical tally-sticks, family record book, solar-lunar calendar	Intimate domestic violence and patriarchal abuse	Unconditional right of exit to communal safe hearth without property loss
Village	150–500	Village Sortition Council (12 members: 6 women, 6 men)	Pure sortition via clay tokens from physical urn	6 months; lifetime maximum of two terms	Land assignment, grain reserves, civil disputes, communal	Public bound ledger chained in square, central stone calend	Rise of the Charismatic Defense Strongman	Marshal appointed only during active raid alarms; no civil

					labor	ar		authority; arms decentralized
Parish / District	1,500–5,000	Confederate District Assembly (20 delegates: 2 per village)	Sortition from among former village councilors	1 year; strictly non-renewable	Mill operations, water rights, trade route defense, judicial appeals	Duplicate parchment registers kept in separate villages; market church bell	Monopoly gatekeeping over vital infrastructure (mills, bridges)	Critical processing hubs held as confederate common property; quarterly sortition audits

Scale Protocols

1. The Household Unit (4 to 10 People)

At the domestic level, dwelling rights, seed grain reserves, and primary tools are held in a matrilineal trust. Daily choices require joint assent from the senior female and male heads. Personal effects are limited to clothing, personal sidearms, and handheld tools; capital assets—such as work animals, grain stores, and plows—cannot be pledged for private debt or sold without common consent.

Informational prerequisites consist of notched tally-sticks to log seed reserves, a durable family register detailing births, marriages, and deaths, and physical horizon stone markers to track seasonal plantings. The primary operational failure is domestic violence and patriarchal coercion. The corresponding structural defense is an acknowledged right of any member to seek mediation from village kin and exit to a community hearth without forfeiture of belongings or childcare access.

2. The Village Community (300 People)

Sovereign authority rests with the monthly General Assembly of adult residents. Administrative duties are handled by a 12-person Sortition Council (comprising six women and six men) selected via marked clay tokens drawn from an urn. Terms last six months, with a lifetime limit of two non-consecutive appointments. Council choices require broad agreement; disputed issues return to the wider assembly. Military leadership is separate from civil administration: a Village Marshal is chosen solely during defensive crises, holds no domestic dispute authority, and stands down once active threats resolve.

Informational prerequisites include basic literacy among at least 5% of adult members, an open administrative ledger kept in the village square recording transfers, land boundaries, and council decisions, an outdoor sun dial and stone calendar, and a central meeting site, such as a shaded common grove, capable of gathering all 300 residents. The most frequent failure mode is the charismatic war leader leveraging defensive emergencies into permanent political authority. This is checked by maintaining weapons in individual households, prohibiting specialized standing guards, and keeping defense provisioning under civilian council oversight.

3. The Parish or District Confederation (3,000 People)

Ten neighboring villages coordinate through a District Council of 20 delegates, with each village providing one woman and one man. Delegates are drawn by lot from among former village councilors for a single, non-renewable one-year term. The District Council handles inter-village boundary issues, oversees common watershed infrastructure (such as grain mills and water rights), maintains shared trade roads, and hears appellate cases from village assemblies. The right of exit is preserved: any village may nullify a district decision or withdraw from the league without fear of military retaliation, provided it relinquishes claims to shared confederate facilities.

Informational prerequisites include scribal literacy for formal documentation, duplicate paper or parchment ledgers stored in separate villages to guard against fire, a synchronized seasonal calendar coordinating market days and court sessions, and a shared regional meeting location, such as a central market church or fortified bridge, reachable on foot within a single day. The common failure mode is infrastructural capture by operators of key regional facilities (such as watermills, salt sources, or bridges) attempting to levy private fees. This is counteracted by holding primary mills and key crossings as joint confederate commons, operated by rotated communal workers and audited through quarterly reviews by district sortition panels.

Principles

1. Capture risk increases as executive terms lengthen; mandates extending past twelve months steadily encourage the formation of clientelist patronage networks.
2. The selection of administrators through civic sortition reduces careerist political climbing, whereas competitive balloting often rewards Machiavellian self-promotion.
3. Decoupling armed military leadership from civilian legislative and fiscal management is necessary to prevent defense structures from dominating popular assemblies.
4. Governance designs that lack formal female appointment and veto authority tend to devolve over time into hierarchical status competitions.
5. In the absence of an open, physical, and publicly verified ledger, administrative corruption grows alongside procedural opacity.

6. Direct consensus democracy encounters operational strain once the participating civic group expands beyond roughly five hundred people.
7. Governance bodies that fail to preserve low-cost, non-violent exit inevitably come to depend on physical coercion to manage dissent.
8. Unregulated private credit networks and concentrated debt obligations can transform formal democratic rules into instruments of wealth-based control.
9. Mandatory, publicly conducted exit reviews backed by loss of civic standing are essential to limit the impunity of outgoing leaders.
10. Un-nested local polities remain vulnerable to external aggression, while dependent citizen assemblies risk termination when external political backing wanes.

Works cited

1. Stop Being Naive. Start Being Strategic. - Sue Barrett - Substack, https://suebarrett.substack.com/p/stop-being-naive-start-being-strategic
2. Evidence for the criterion validity and clinical utility of ... - PMC - NIH, https://pmc.ncbi.nlm.nih.gov/articles/PMC3354008/
3. Archetypal Predation: Power, Possession & the Dark Triad in, https://www.ultra-unlimited.com/blog/archetypal-predation
4. How follower behavior influences the leadership process, https://d-nb.info/1373151277/34
5. Principles | Civic Blueprint, https://civicblueprint.org/docs/principles
6. AgentCity: Constitutional Governance for Autonomous ... - Paperz, https://paperz.arrangedbits.com/papers/824e3ded-92ca-46c9-b82e-25502a943954
7. AgentCity: Constitutional Governance for Autonomous Agent ... - arXiv, https://arxiv.org/html/2604.07007v1
8. Aspects of the Athenian Democracy in the Fourth Century B.C., http://publ.royalacademy.dk/backend/web/uploads/2020-02-14/AFL%206/SDH8_17_00_00_2018_6180/SDH8_17_00_00_2018_6180.pdf
9. Athenian Democracy: Hansen's Insights | PDF | Quorum - Scribd, https://www.scribd.com/document/283942257/Atkinson-Review-Hansen-The-Athenian-Democracy
10. Constitutional choice in ancient Athens: the evolution of the, https://d-nb.info/1133399991/34
11. The Athenian Democracy in the Age of Demosthenes - dokumen.pub, https://dokumen.pub/the-athenian-democracy-in-the-age-of-demosthenes-structure-principles-and-ideology-0631138226-1631180176.html
12. Athenian fiscal expansionary policy and peace versus war strategy, https://mpra.ub.uni-muenchen.de/62987/1/MPRA_paper_62987.pdf
13. Athenian democracy - Wikipedia, https://en.wikipedia.org/wiki/Athenian_democracy
14. THE RATES OF JURY PAY AND ASSEMBLY PAY IN FOURTH, https://www.cambridge.org/core/journals/classical-quarterly/article/rates-of-jury-pay-and-assembly-pay-in-fourthcentury-athens/9674B12AE62AF0E8BB95C20E6

C4A131D
15. ARCTOS - Journal.fi, https://journal.fi/arctos/issue/download/5908/Arctos%2041%20%282007%29
16. Liberti and the Sulpician Laws of 88 BCE. A New Light on Freedmen, https://www.researchgate.net/publication/397505016_Liberti_and_the_Sulpician_Laws_of_88_BCE_A_New_Light_on_Freedmen_Suffrage_in_the_Roman_Republic
17. How fair in reality was the organisation of the politically offices for, https://www.reddit.com/r/ancientrome/comments/1fz8kf7/how_fair_in_reality_was_the_organisation_of_the/
18. Paradox of Voting: Extra-Urban Voters in the Late Roman Republic, https://www.researchgate.net/publication/380671000_Paradox_of_Voting_Extra-Urban_Voters_in_the_Late_Roman_Republic
19. Electoral Abuse in the Late Roman Republic, https://digitalcommons.usf.edu/cgi/viewcontent.cgi?article=1536&context=etd
20. TRADITIONAL POLITICAL CULTURE AND THE PEOPLE'S ROLE, https://pluto.huji.ac.il/~yakobsona/TraditionalpoliticalcultureandthepeoplesroleintheromanRepublic.pdf
21. Eight models of representative public deliberation impl - OECD, https://one.oecd.org/document/GOV/PGC/OG(2021)6/en/pdf
22. A story worth remembering. Long before modern diplomacy, a, https://www.facebook.com/100090779630048/posts/a-story-worth-remembering-long-before-modern-diplomacy-a-visionary-woman-named-j/1051575624545082/
23. Iroquois | WikiLists | Fandom, https://list.fandom.com/wiki/Iroquois
24. The Gadaa System of the Oromo People - Participedia, https://participedia.net/method/the-gadaa-system-of-the-oromo-people
25. Understanding the Gadaa System of Oromo | PDF - Scribd, https://www.scribd.com/document/678191314/gadaa
26. Oromo Gadaa System: Africa's Indigenous Democracy | TribesOfAfrica, https://www.tribeguess.com/blog/oromo-gadaa-democratic-tradition
27. Asmarom Legesse's Gadaa: Anthropological Whitewash or, https://zehabesha.com/asmarom-legesses-gadaa-anthropological-whitewash-or-political-hackwork/
28. The Gada system and the Oromo's (Ethiopia) culture of peace, https://scispace.com/pdf/the-gada-system-and-the-oromo-s-ethiopia-culture-of-peace-35f5tqe2j6.pdf
29. Gada: three approaches to the study of African society, https://www.oromooreaderssociety.org/books/gada-three-approaches-to-the-study-of-african-society
30. The Oromo Gadaa System and its Accountability Values, https://accountabilityresearch.org/the-oromo-gadaa-system-and-its-accountability-values/
31. Remembering Professor Asmarom Legesse (1930–2026), https://mylibrarianship.wordpress.com/2026/02/04/remembering-professor-asmarom-legesse-1930-2026-the-scholar-who-brought-the-gadaa-system-to-the-

world/
32. The Swiss Federal Council: shared executive power, https://rulesofthegame.blog/the-swiss-federal-council-shared-executive-power/
33. Switzerland on the Road from a Consociational to a Centrifugal, https://www.researchgate.net/publication/297652494_Switzerland_on_the_Road_from_a_Consociational_to_a_Centrifugal_Democracy
34. The Politics of Switzerland: Continuity and Change in a Consensus, https://dokumen.pub/the-politics-of-switzerland-continuity-and-change-in-a-consensus-democracy-9780521844574-9780511437106.html
35. Social Concertation in Times of Austerity - MPG.PuRe, https://pure.mpg.de/rest/items/item_1711588_11/component/file_1711586/content
36. Swiss Democracy - OAPEN Library, https://library.oapen.org/bitstream/id/92df684c-ce71-435a-87ac-5762545f760f/2021_Book_SwissDemocracy.pdf
37. Chieftains and Power in the Icelandic Commonwealth - Google Books, https://books.google.com/books/about/Chieftains_and_Power_in_the_Icelandic_Co.html?id=JGrm7T5O6PcC
38. Icelandic Commonwealth - Wikipedia, https://en.wikipedia.org/wiki/Icelandic_Commonwealth
39. The End of the Commonwealth - Scandinavian Studies, https://sca.uwpress.org/content/wpscs/96/1/1.full-text.pdf
40. Chieftains and power in the Icelandic commonwealth - Open Library, https://openlibrary.org/books/OL3999942M/Chieftains_and_power_in_the_Icelandic_commonwealth
41. Jón Viðar Sigurðsson: Chieftains and Power in the Icelandic, https://www.researchgate.net/publication/258453695_Jon_Vidar_Sigurdsson_Chieftains_and_Power_in_the_Icelandic_Commonwealth
42. Global Cooperative Economics and Movements, https://api.taylorfrancis.com/content/chapters/oa-edit/download?identifierName=doi&identifierValue=10.4324/9781003534006-4&type=chapterpdf
43. Workers occupy plant as Spanish co-operative goes under, https://www.theguardian.com/social-enterprise-network/2013/nov/15/spanish-co-op-workers-occupy-plant
44. Social Sustainability at Mondragon (ESP), https://sailorsforsustainability.nl/portfolio/social-sustainability-at-mondragon/
45. Zapatista territories - Wikipedia, https://en.wikipedia.org/wiki/Zapatista_territories
46. Networked alternatives against the state: zapatista autonomy and, https://www.researchgate.net/publication/397573434_Networked_alternatives_against_the_state_zapatista_autonomy_and_informality_as_resistance_Networked_alternatives_against_the_state_zapatista_autonomy_and_informality_as_resistanceM_Gambardella
47. 国民解放のサパティスタ軍：Ejército Zapatista de Liberación, http://navymule9.sakura.ne.jp/Zapatista_Army_of_National_Liberation.html
48. The Activation Protocol A Companion Document to the Charter of, https://sudaneseonline.com/board/15/msg/1790849656.htm

49. Zapatista Army of National Liberation - Wikipedia, https://en.wikipedia.org/wiki/Zapatista_Army_of_National_Liberation
50. Ostbelgien and Brussels Sortition - Crowdlaw for Congress, https://congress.crowd.law/files/Belgian_Sortition_Models.pdf
51. The New Mathematics of Democracy - arXiv, https://arxiv.org/html/2608.16869v2
52. (PDF) Reforming Institutionalised Citizen Deliberation: An Update, https://www.researchgate.net/publication/409458831_Reforming_Institutionalised_Citizen_Deliberation_An_Update_on_the_Permanent_Citizens'_Dialogue_in_Eastbelgium
53. Reforming Institutionalised Citizen Deliberation: An Update on the, https://delibdemjournal.org/article/id/2051/
54. Belgian Sortition Models - Crowdlaw for Congress, https://congress.crowd.law/case-belgian-sortition-models.html
55. publics? Examining threats and resilience in the Ostbelgien model, https://www.cambridge.org/core/services/aop-cambridge-core/content/view/BE66BB7E5A57604FB569A7E5178C562B/S1755773925000086a.pdf/what-about-elite-manipulation-in-deliberative-mini-publics-examining-threats-and-resilience-in-the-ostbelgien-model.pdf
56. The Ostbelgien Model: five years on - Deliberative Democracy Digest |, https://www.publicdeliberation.net/the-ostbelgien-model-five-years-on/
57. Governance Models and Hard Forks in Decentralized Blockchains, https://www.researchgate.net/publication/401808350_Governance_Models_and_Hard_Forks_in_Decentralized_Blockchains_A_Comparative_Analysis_of_On-Chain_and_Off-Chain_Coordination_Mechanisms
58. When Public Goods Meet Private Capital, DevCos Must Change, https://forkfly.xyz/p/when-public-goods-meet-private-capital-devcos-must-change
59. How Steem Became Hive, https://hive.blog/steem/@lukestokes/how-steem-became-hive
60. Mining and learning Web3 platforms: a temporal network perspective, https://air.unimi.it/retrieve/handle/2434/1021808/2338529/phd_unimi_R12835.pdf
61. Why Core Devs Underestimate the Social Layer of Forks, https://chainscorelabs.com/blog/other-topics/protocol-upgrade-governance-and-forks/why-core-devs-underestimate-the-social-layer-of-protocol-forks
62. Steem reborns as Hive to avoid connections to Tron - DailyCoin, https://dailycoin.com/steem-reborns-as-hive-to-avoid-connections-to-tron/
63. An Insider's View of Twin Oaks Community in Its Twenty-Sixth Year, https://scholarworks.gvsu.edu/cgi/viewcontent.cgi?article=1690&context=communalsocieties
64. Visionary and Activist: Kathleen Kinkade (1930–2008) - PMC - NIH, https://pmc.ncbi.nlm.nih.gov/articles/PMC2686990/
65. Fifty Years of Utopian Intentioneering at Twin Oaks Community, https://intentioneers.net/2017/06/11/fifty-years-of-utopian-intentioneering-at-twin-oaks-community/
66. AN ABSTRACT OF THE THESIS OF Mark P. Bruno for the degree of,

https://ir.library.oregonstate.edu/downloads/cn69mc857
67. A New Materialism : Deep Ecology, Story and Ritual in Intentional, https://medium.com/@samucaflows/a-new-materialism-deep-ecology-story-and-ritual-in-intentional-community-bd81f9d0b812
68. 1 To Each According to Their Space-Need: Communes in Outer, https://ranabr.people.stanford.edu/sites/g/files/sbiybj26066/files/media/file/space-policy.pdf
69. TECHNOLOGY AND CONTROL IN UTOPIAN FICTION A, https://scholarspace.manoa.hawaii.edu/bitstreams/74e21451-cc68-46c0-b9fb-8152cac1d97d/download