Chapter 16

Power, Justice, and Governance

Power, Justice, and Governance: Analytical Boundaries and Chapter Scope

Chapter 16 opens Part VI by developing the power, justice, and governance dimensions of Generative Relational Economics. Part V established a substantive architecture of economic relations, allocation, value processes, and generative spacetime. Chapter 15 closed that sequence by identifying asymmetries in temporal position, reach, delay capacity, exit capacity, and influence over future options. Those asymmetries can matter economically without already constituting power, injustice, or a governance problem. The present chapter therefore begins at the boundary left deliberately open there: it asks through which relations and mechanisms asymmetry acquires power-relevant force, how the resulting relations can be evaluated normatively, and how institutions and collective arrangements can organize, contest, revise, or protect the conditions under which economic generation occurs.

The chapter preserves a set of distinctions that organize the analysis. *Asymmetry* concerns differences among positions, capacities, resources, access conditions, temporal horizons, or relational locations. *Dependence* concerns the extent to which a position's feasible action, continuity, access, or future possibility relies on another position or on a relation it cannot readily substitute. *Control* concerns capacities to condition access, rules, pathways, resources, information, timing, or other consequential variables. *Constraint* concerns limits on feasible action or transformation, whether produced by material conditions, institutions, infrastructures, relations, or historically inherited structures. *Power* requires additional analysis of how such differences are converted through identifiable mechanisms into capacities that materially condition other positions or the relations through which their possibilities are formed. These terms can overlap in particular cases while remaining analytically non-identical. Section 16.1 develops their relation in detail while preserving their analytical non-equivalence. Sections 16.2 and 16.3 then add two distinctions developed more fully in the GR power formalism: a power-relevant asymmetry is not yet identical with relational power, and relational power is not identical with the manifestations, rankings, or comparison structures through which it becomes epistemically accessible. Relational power requires the power organization itself to acquire sufficient historical persistence together with causal and generative efficacy; mani-

festations and comparison norms can subsequently become performative and enter the later reproduction of power.

Power analysis in GRE consequently extends beyond ownership and direct command. Resource holdings can matter, yet power can also operate through capability differentials, epistemic position, relational centrality, institutional authority, infrastructure, symbolic classification, timing, and unequal capacities to exit. Some of these forms can reinforce one another; others can diverge. A position with substantial resources can remain dependent on an infrastructure it does not govern, while a position with limited direct ownership can occupy a gatekeeping or classificatory location with wide consequences. The chapter therefore treats economic power as relationally organized and historically formed. Sections 16.2–16.6 distinguish relational realization and manifestation from the principal forms of economic power, their reproduction and dissolution, and the production of vulnerability through dependence, controlled access, restricted exit, withholding, epistemic dependence, and institutional entrapment. Section 16.7 then reconnects these relations to distribution by asking how resources, capabilities, access, participation, relational opportunities, and future possibilities are distributed together.

Normative evaluation enters as a distinct analytical task. A finding of power does not by itself settle whether a relation is unjust, and an unequal relation can require evaluation of its origin, function, justification, consequences, alternatives, procedural conditions, and revisability. GRE therefore approaches justice through several connected lenses, with distributive analysis as one component of a wider evaluation. Relational justice concerns recognition, participation, reciprocity, non-domination, continuity, exit, and the terms under which unequal relations persist. Generative justice concerns the formation and distribution of capacities, opportunities, option spaces, participation in generative processes, and protection against avoidable foreclosure of future possibility. The justice of relation formation and variation asks how relations are formed, updated, imposed, exited, or dissolved. Historical justice introduces inherited advantage, inherited constraint, historical harm, repair, restitution, re-epistemization, and the future recognizability of past harm. Sections 16.8–16.11 develop these perspectives while keeping normative argument distinguishable from descriptive claims about how economic structures actually operate.

This plural treatment does not present relational or generative justice as replacements for established theories of justice. Their role within GRE is more limited and constructive. They identify questions that become visible when economic analysis tracks relations and future-generating capacities in addition to contemporaneous holdings or outcomes. A distributive correction can change resources while leaving dependence, exit barriers, damaged relations, lost time, or restricted future pathways substantially unchanged. Conversely, preserving a relation or future option can sometimes require material redistribution, institutional redesign, or collective provision. The analytical task is therefore to examine how distributive, relational, procedural, historical, and generative dimensions interact in a specified inquiry without assuming in advance that one dimension subsumes the others.

Governance occupies the third major movement of the chapter. Here *governance* refers broadly to rules, procedures, institutions, infrastructures, authorities, participatory arrangements, and collective practices that organize consequential relations

and generative processes. Its objects can include relation formation and dissolution, allocation, propagation, conversion, recirculation, accumulation, extraction, value transmission and transfer, constraint formation, capacity protection, and structural transformation. Governance can constrain conduct, create capabilities, maintain shared infrastructures, coordinate action, preserve contestability, and revise rules when conditions change. It can also reproduce asymmetry through timing, classification, boundary design, authorization, access conditions, or institutional persistence.

Several earlier GRE commitments remain active throughout this analysis. First, power and governance are historically situated. Path dependence, delayed effects, institutional reproduction, and changing accessibility can allow a relation to persist after the circumstances that initially formed it have changed. Second, analysis remains multiscale. Power can be situated in interpersonal, organizational, infrastructural, institutional, transnational, or intergenerational relations, and mechanisms at one scale can condition possibilities at another without reducing the scales to a single hierarchy. Third, historical re-epistemization remains relevant to normative inquiry. Later evidence, categories, records, or interpretive resources can change what can responsibly be reconstructed about earlier harm or institutional formation while leaving the underlying past trajectory unchanged. Fourth, intervention remains subject to uncertainty, feedback, side effects, and changing generative rules. Governance near criticality therefore gives particular attention to monitoring, reversibility, learning, and the limits of attempting to optimize a system whose transition structure is incompletely known.

The chapter also preserves disciplinary and ontological restraint. Power, justice, and governance connect GRE with political economy, political philosophy, law, sociology, institutional analysis, public administration, and neighboring fields, yet the present chapter does not claim to absorb those disciplines into GRE. Its economic focus lies in how resources, capacities, relations, value processes, access structures, institutions, and future possibilities are generated and organized under unequal conditions. Descriptive, causal, normative, historical, interpretive, empirical, and formal claims retain their different evidential burdens. Concepts such as field, constraint, trajectory, accessibility, and generative structure continue to function as scoped analytical representations under the book's standing commitment to ontological suspension.

The internal organization follows four connected analytical movements. Sections 16.1–16.7 develop power under asymmetric relations, distinguish power relevance from relational realization, analyze manifestation and comparison, differentiate forms of economic power, examine reproduction and vulnerability, and reconnect power to distribution and generativity. Sections 16.8–16.11 develop relational, generative, relational-formation, and historical dimensions of justice. Sections 16.12–16.20 turn to governance of relations, generative processes, constraints, capacities, criticality, institutions, law, participation, heterogeneous values, and adaptive institutional evolution. Section 16.21 closes the chapter by isolating epistemic dimensions of governance and economy, including knowledge, classification, evidential access, attention, and orientation. Those dimensions provide the bounded interface to Chapter 17, which develops knowledge and epistemic economy as its own substantive field of analysis.

The chapter's overall objective is to develop a relational-generative architecture for asking: who or what can condition another position's feasible action; through which mechanisms such capacity is produced and reproduced; how relations distribute present and future possibilities; which normative criteria bear on evaluation; and which governance arrangements preserve, revise, or contest the conditions under which those possibilities are generated. It offers no single metric of power or complete theory of justice or governance. Distinguishing these questions while tracing their interaction supplies the conceptual discipline for Part VI.

16.1 Power under Asymmetric Relations

Chapter 15 identified differences in temporal position, reach, delay capacity, exit capacity, and influence over future options as power-relevant features of generative spacetime. The present section develops the first substantive step of Chapter 16 by specifying when such differences, together with resource, capability, epistemic, institutional, and relational asymmetries already developed elsewhere in GRE, support a claim about economic power. Its objective is to preserve a disciplined sequence of inference from asymmetry through dependence, control, and constraint to power. The discussion proceeds analytically rather than through a single formal metric. It first distinguishes the relevant concepts, then develops the mechanisms through which asymmetry can acquire power-relevant force, and finally examines power that operates without ownership or direct command and the historical formation of power relations.

The section treats power as relational, domain-specific, and historically situated. A position can possess a power-relevant capacity in one relation while remaining dependent or weakly situated in another. Power can also be distributed across organizations, institutions, infrastructures, rules, and coordinated positions rather than concentrated in one identifiable actor. These features make aggregate labels such as "powerful" analytically incomplete unless the inquiry specifies the relation, object, mechanism, affected capacity, time horizon, and relevant alternatives. The section therefore develops a vocabulary for reconstructing power claims rather than a scalar index intended to rank heterogeneous forms of power on one dimension.

Several earlier distinctions remain active. Chapter 12 defined economic dependence relative to the capacity, time horizon, alternatives, and relational position under examination in Definition 12.114. Section 12.18 distinguished availability from effective access, while Section 12.22 showed that coordination can expand collective capacity while redistributing reliance and switching costs. Chapter 13 examined allocation under asymmetry in Section 13.9. Chapter 15 then added the temporal and historical architecture summarized in Definition 15.33 and Proposition 15.34. Section 16.1 integrates these elements without treating any one of them as a sufficient substitute for power analysis.

16.1.1 Asymmetry

Asymmetry is the broadest starting condition in the present analysis. Economic relations commonly connect positions that differ in resources, capabilities, information,

legal standing, organizational authority, network location, temporal flexibility, exposure to risk, access to infrastructure, symbolic recognition, or feasible alternatives. Such differences can affect coordination and exchange even where neither position has a stable capacity to condition the other. The first analytical task is therefore to describe the asymmetry before assigning it a power interpretation.

Definition 16.1 (Relational asymmetry)**.** For a specified economic relation and analytical domain, a *relational asymmetry* is a directional difference between positions in resources, capacities, access conditions, information, institutional standing, temporal flexibility, relational location, exposure, or other attributes that can affect their feasible action or the trajectories available to them. The definition is comparative and domain-specific. It does not by itself assign causal efficacy, power, injustice, or normative defect to the observed difference.

Definition 16.1 extends the narrower generative-spacetime asymmetry developed in Chapter 15. The extension is useful because power-relevant differences can be material, institutional, epistemic, symbolic, temporal, or relational. A lender and borrower can differ in liquidity and legal rights; a platform and participant can differ in rule-setting capacity and data visibility; a regulator and regulated organization can differ in authority and information; specialized workers and employers can differ in skills, outside options, and temporal exposure. The analytical significance of each difference depends on the process under examination.

Asymmetry is directional. Position A can be advantaged relative to B in one dimension while B is advantaged relative to A in another. A large firm can possess greater financial reserves while depending on a small supplier for a highly specialized component. A public agency can possess formal authority while depending on technical expertise located outside the agency. A worker can depend on an employer for income while the employer depends on the worker for scarce knowledge that cannot be replaced quickly. A relational analysis should therefore identify the direction and object of each asymmetry rather than collapse several dimensions into a single rank.

Asymmetry is also sensitive to time. A difference that is negligible over a long horizon can become consequential under an immediate deadline, while an apparent short-run advantage can disappear once substitution, learning, organizational adaptation, or institutional review becomes feasible. Chapter 15's treatment of heterogeneous presents and delay is particularly relevant here. Power analysis should specify the horizon within which the asymmetry can be converted into consequential action.

Some asymmetries are intentionally created for coordination. Specialized roles distribute authority and expertise unevenly; courts and regulators receive powers unavailable to ordinary participants; emergency systems prioritize selected decision makers; professional certification gives some positions authority to validate claims. These arrangements can support safety, accountability, or collective capacity. Their normative assessment requires attention to mandate, justification, scope, procedure, review, and contestability. Their existence still supplies an asymmetry that can become power-relevant when the differentiated position materially conditions others.

Other asymmetries emerge without deliberate design. Historical accumulation, geography, technological compatibility, network effects, demographic change, inherited institutions, accumulated knowledge, and path-dependent investment can pro-

duce differences that no current actor intentionally created. Such asymmetries can still shape later power relations when they become embedded in mechanisms of dependence, control, or constraint. Intent therefore belongs to the explanation of formation or exercise in particular cases, while the existence of asymmetry can be identified independently of intent.

The central discipline is to resist premature conversion of description into power attribution. A resource difference matters for power only insofar as it can be brought to bear on a specified relation. An information difference matters only insofar as it affects decisions, access, classification, coordination, or another consequential process. A temporal advantage matters only insofar as the timing changes feasible action. Section 16.1.5 develops this conversion explicitly.

16.1.2 Dependence

Dependence gives asymmetry relational exposure. Definition 12.114 treated economic dependence as a relation in which maintenance or exercise of a relevant capacity materially relies on resources, actions, knowledge, infrastructures, permissions, recognition, or complementary capacities located elsewhere. For power analysis, the central question is how the dependence is distributed across positions and what alternatives remain available within the relevant horizon.

Dependence can be reciprocal. Economic specialization often increases collective capacity precisely because participants rely on one another. Firms depend on workers, workers on income and organizational resources, households on infrastructures, infrastructures on maintenance systems, governments on expertise, and complex production systems on distributed suppliers. Reciprocal dependence can sustain cooperation, investment, trust, and institutional stability. Power becomes more plausible as an interpretation when reciprocal reliance is sufficiently asymmetric that one position can absorb interruption, substitution, delay, or exit substantially more easily than another.

The intensity of dependence is therefore partly a function of substitutability. Reliance on a unique or difficult-to-replace relation can be stronger than reliance on one provider among many feasible alternatives. Substitution itself requires specification. A nominal alternative can remain economically irrelevant when switching requires capital, time, documentation, mobility, technical compatibility, social recognition, retraining, or legal permission that the dependent position lacks. Effective alternatives are those that can be reached under the actual access conditions and horizon of the case.

Timing modifies dependence. A subject can possess a viable alternative in principle while lacking sufficient time to reach it before a deadline, interruption, or loss becomes consequential. Emergency credit, medical access, housing, migration status, specialized inputs, and time-sensitive employment can each create cases where a relation is substitutable over months yet highly constraining over days. The dependence relevant to power analysis should therefore reflect the interval within which action remains feasible.

Dependence also varies with the importance of the affected capacity. Reliance on one source for a low-stakes convenience differs from reliance on that source for

income continuity, safety, legal standing, essential infrastructure, or organizational survival. A small asymmetry can become consequential when it concerns a capacity with few substitutes and high interruption costs. Conversely, large differences in resources can have limited power relevance when neither position relies materially on the other for the process under study.

A further distinction concerns dependence on a position and dependence on a system. A household can depend on an electricity grid without depending on a single identifiable employee of the utility. A firm can depend on a legal or technical standard maintained through distributed institutional processes. A researcher can depend on an accreditation regime, data infrastructure, or platform whose rules are maintained collectively. Power analysis can therefore concern organized configurations and institutional mechanisms as well as dyadic relations between persons.

Dependence creates exposure, while exposure does not automatically identify which position can use or reproduce the dependence. A person can depend on rainfall, biological processes, or a fragile ecosystem without those conditions constituting an actor with power. A firm can be constrained by physical scarcity even when no counterparty controls the scarce resource. For a power claim, the analysis needs an additional account of how a person, organization, institution, or reproducible relational configuration can condition the dependent position through the relevant dependence.

This distinction also matters normatively. Dependence can be protective or chosen, as in trusted care, insurance, professional specialization, shared infrastructure, or durable cooperation. The evaluative questions concern the terms of dependence, available safeguards, distribution of risk, alternatives, voice, accountability, and the capacity to revise or exit the relation. Section 16.8 will develop those normative dimensions. The present subsection treats dependence as an explanatory component in the formation of power.

16.1.3 Control

Control concerns the capacity to condition variables that matter to another position's feasible action. In economic settings, those variables can include access to resources, timing, eligibility, information, standards, interfaces, prices, contractual terms, organizational roles, permissions, classifications, or procedures. Control can therefore be narrower than ownership and broader than direct command. Its relevance to power depends on what is controlled, how reliably the control can be exercised, and how strongly the affected position depends on the controlled variable.

Definition 16.2 (Control capacity)**.** For a specified relation, a *control capacity* is a position's practically effective ability to set, maintain, alter, withhold, authorize, sequence, or condition a variable that contributes materially to another position's feasible action or future trajectories. Control can be partial, shared, delegated, conditional, procedurally bounded, or distributed across several positions.

Definition 16.2 distinguishes practical control from formal entitlement. An organizational chart, property title, legal mandate, contractual clause, or technical permission can provide evidence of a control right while leaving the degree of enacted control uncertain. A manager may possess formal authority yet lack technical capacity to

implement a decision. A nominal owner may be constrained by lenders, regulators, standards, co-owners, or infrastructure providers. An employee or technical team can possess substantial practical control over an essential process while holding little formal authority. The relevant object is the effective mechanism through which consequential variables can be conditioned.

Control can operate at several levels. Object-level control concerns resources or outputs, such as the release of funds or access to a facility. Relational control concerns entry, continuation, modification, or exit from a relation. Procedural control concerns agenda, sequence, review, authorization, or the evidential requirements through which a decision is made. Infrastructural control concerns interfaces, technical standards, interoperability, routing, or capacity. Classification control concerns categories that affect eligibility, risk, status, visibility, or credibility. These distinctions anticipate the forms of power developed in Section 16.4; the present purpose is to identify control as one mechanism through which asymmetry can acquire relational force.

Control can be shared or counterbalanced. Corporate governance distributes control among boards, managers, owners, creditors, regulators, and employees in different domains. Public institutions divide authority among offices, courts, legislatures, administrative bodies, and professional actors. Cooperative institutions can distribute control through voting, deliberation, rotation, vetoes, or jointly administered rules. Distributed control can reduce unilateral discretion while increasing coordination burdens. Its analysis therefore requires a map of which variables each position can actually condition.

Control can also be conditional on cooperation. A platform may set rules while depending on participation; an employer may assign tasks while depending on specialized workers; a government may issue regulations while depending on compliance, administrative capacity, or judicial validation. Such cases show why control capacity should not be treated as absolute sovereignty. It is a relational capacity whose effectiveness depends on complementary conditions and can itself be constrained.

The distinction between control and influence should remain visible. Influence can alter beliefs, expectations, incentives, or choices without providing reliable capacity to set the relevant variable. Control implies a stronger relation to the variable being conditioned, although it can remain partial and probabilistic in its consequences. Influence becomes power-relevant when it reliably changes feasible action or future possibilities through a mechanism that can be attributed to a position or organized configuration. Section 16.1.7 returns to this issue in cases without direct command.

16.1.4 Constraint

Constraint describes the limits within which action, conversion, relation formation, or structural transformation remains feasible. Constraints can be material, financial, legal, institutional, infrastructural, ecological, temporal, epistemic, technological, symbolic, or relational. Earlier chapters used constraint language in this broad analytical sense. Power analysis adds an attribution problem: which constraints arise from conditions outside the relevant power relation, and which are produced, maintained, selectively relaxed, or strategically used through identifiable relations

and institutions?

A constraint can reduce the feasible set directly. Lack of legal permission can block entry; incompatible infrastructure can make a resource unusable; insufficient liquidity can prevent a transaction; a deadline can eliminate an option; missing information can prevent effective choice. A constraint can also operate through conversion. The same nominal resource can yield different capacities when positions face different documentation requirements, care burdens, technical interfaces, social recognition, or institutional treatment. Constraint analysis should therefore track both explicit prohibitions and the conditions under which nominal possibilities become practically inaccessible.

Some constraints are constitutive of valuable coordination. Safety standards exclude dangerous practices; accounting rules constrain reporting while enabling comparability; traffic rules limit movement while enabling coordinated mobility; professional procedures constrain discretion while supporting reliability; property and contract rules can restrict unilateral action while stabilizing expectations. The presence of constraint therefore carries no automatic negative evaluation. Its power relevance depends on who participates in creating, interpreting, applying, revising, and contesting the constraint and how its incidence is distributed.

Constraints can also be impersonal in immediate operation while remaining historically attributable to institutional processes. A technical standard can shape current possibilities after the original designers have left. A zoning rule can affect generations of residents after the legislative coalition that enacted it has disappeared. An accumulated debt structure can constrain organizations through contracts executed long before current decision makers arrived. Power analysis can therefore extend beyond contemporaneous intention when institutional or infrastructural mechanisms reproduce a capacity to condition action.

At the same time, structural constraint should not be assigned to a particular actor without evidence of a relevant mechanism. Ecological limits, physical scarcity, stochastic shocks, and technical infeasibility can narrow feasible action without constituting an exercise of economic power by another position. A power claim requires a relation between the constraint and a person, organization, institution, or organized configuration capable of producing, maintaining, allocating, interpreting, or selectively altering it. The relevant relation can be diffuse, but it still requires reconstruction.

Table 16.1 summarizes the distinctions developed so far and adds the categories required for the conversion analysis that follows. Its purpose is diagnostic. The categories can overlap in one empirical case while answering different analytical questions.

Table 16.1 also separates capacity from effect. A position can possess credible power without exercising it in every episode. Conversely, an observed disadvantage does not establish which power capacity produced it. Empirical reconstruction should therefore avoid inferring capacity solely from outcomes or inferring outcomes solely from formal authority.

Table 16.1: Analytical distinctions in the reconstruction of economic power

Concept	Principal analytical question	Role in power analysis
Asymmetry	In which relevant dimensions do positions differ, and in which direction?	Identifies positional differences that can supply power-relevant resources or vulnerabilities.
Dependence	Which capacity relies on another position, relation, institution, or infrastructure, with what alternatives and switching costs?	Identifies exposure and the importance of continuity, substitution, and exit.
Control	Which consequential variables can a position set, maintain, alter, withhold, authorize, or condition?	Identifies mechanisms through which dependence or access can be acted upon.
Constraint	Which conditions narrow feasible action or future trajectories, and how are those conditions produced or maintained?	Identifies the limits through which power can operate and separates attributable constraints from other limitations.
Power capacity	Which position or organized configuration has a mechanism-mediated capacity to condition another's feasible action or generative possibilities?	Identifies a relational capacity even when it is not currently exercised.
Power exercise	Which event or process activates a power capacity in the case under study?	Identifies the use or operation of power within a specified episode or sequence.
Power effect	Which feasible actions, access conditions, relations, capacities, or trajectories change as a consequence?	Identifies consequences that require empirical or historical support rather than inference from capacity alone.
Power relation	Through which recurrent or institutionally reproduced configuration does a power capacity persist?	Identifies durability, reproduction, contestability, and possible transformation of power over time.

16.1.5 Conversion into Power

Conversion into power occurs when a positional difference is connected through an identifiable mechanism to a capacity that materially conditions another position's feasible action or generative possibilities. The analytical emphasis on conversion is important because asymmetries become consequential through relations. Wealth can be converted into bargaining endurance, legal capacity, acquisition, political access, or the ability to absorb failure; expertise can be converted into gatekeeping or agenda-setting; institutional office can be converted into authorization or classification; infrastructural position can be converted into control of access or standards. The relevant mechanism differs by case.

Definition 16.3 (Power-relevant economic asymmetry)**.** Within GRE, a *power-relevant economic asymmetry* is a typed relational asymmetry whose organization is connected through an identifiable dependence, control, constraint, institutional, infrastructural, temporal, symbolic, or other economic mechanism to a directional deformation of another position's feasible action, access, capacities, relations, value processes, or future possibilities within a specified domain and horizon.

Definition 16.3 intentionally stops before the stronger claim that a relational power structure has formed. The distinction follows from the history-bearing GR account developed for this chapter. A consequential episode can be strongly power-relevant while remaining temporary, configuration-specific, or weakly retained. Section 16.2 therefore asks whether the power organization generated around the asymmetry itself becomes sufficiently persistent, causally efficacious, and generatively efficacious to qualify as relational power.

A disciplined power-relevance claim can be reconstructed through several questions. First, which history-bearing positions or configurations are related, and what typed asymmetry matters to the case? Second, which capacity or possibility of the affected position is exposed through the relation? Third, which variable can the conditioning position or configuration control, withhold, alter, authorize, sequence, or otherwise affect? Fourth, through which constraint, rule, infrastructure, classification, resource flow, or relational mechanism does the directional consequence arise? Fifth, what evidence indicates that the mechanism changes feasible action or future trajectories within the relevant horizon? Sixth, which countervailing capacities, alternatives, rights, or institutions limit the consequence? Seventh, does the resulting power organization persist and reorganize later relational conditions, or is the consequence episodic?

These questions preserve several levels that the earlier draft placed too closely together. A *power-relevant consequence* concerns a directional deformation associated with an antecedent asymmetry. A *power exercise* concerns an event or process in which an already available power relation is activated. A *power effect* concerns a resulting change in feasible action, access, capability, relation, value process, or trajectory. A *relational power structure* is stronger: it is a historically persistent and efficacious organization through which such conditioning remains part of relational reality. Section 16.2 formalizes that final transition.

Proposition 16.4 (Asymmetry–power-relevance conversion)**.** *Within the present framework, a relational asymmetry becomes power-relevant when an identifiable mechanism connects the asymmetry to a directional and substantively retained deformation of another economically relevant position's feasible action or generative possibilities. This conversion is necessary for the asymmetry-derived account developed here, while relational power additionally requires the persistence and efficacy conditions stated in Section 16.2.*

Proposition 16.4 gives Section 16.1 its central inference rule while avoiding premature identification of local consequence with relational power. Historical research can reconstruct formation of the mechanism; qualitative inquiry can identify lived dependence and informal control; network analysis can reveal brokerage or bottlenecks; institutional analysis can trace rules and authority; quantitative work can estimate exposure or substitution; formal models can represent perturbative conse-

quences under explicit assumptions. The adequacy of the method depends on the power claim being tested.

16.1.6 Power without Ownership

Ownership is one important source of economic power because ownership rights can support exclusion, use, transfer, income claims, collateralization, and control over assets. GRE nevertheless treats ownership as one possible mechanism among several. Power can arise where a position conditions access, operation, allocation, standards, timing, or institutional permission without owning the underlying resource.

The distinction between ownership and control is especially important in organizations. Shareholders, boards, executives, managers, technical teams, lenders, regulators, and workers can each hold different rights or practical capacities over the same productive configuration. Formal title to an asset does not determine which position can schedule its use, authorize access, change a process, allocate budgets, set technical parameters, or suspend operations. Conversely, delegated control can remain bounded by fiduciary duties, regulation, contractual limits, oversight, or revocation.

Infrastructure provides another case. A position that governs an interface, standard, routing system, payment rail, credentialing process, or technical bottleneck can influence access to resources it does not own. The power-relevant capacity lies in the control relation around the pathway rather than in title to every object passing through it. This distinction becomes increasingly important where economic activity depends on interoperable systems, digital platforms, shared infrastructures, and institutional permissions.

Financial relations similarly separate ownership from conditioning capacity. A creditor can influence investment, liquidity, or organizational choices through covenants, refinancing conditions, maturity structures, or access to future credit without owning the debtor's productive assets. A public agency can condition access through licensing or eligibility rules without owning the regulated organization. A certifying body can affect market participation through recognition without owning the goods being sold. These examples differ institutionally, yet each shows how power can be mediated through access and rule structures.

Non-ownership power can be temporary and task-specific. Emergency coordinators, trustees, administrators, auditors, editors, reviewers, or technical operators can receive bounded capacities to condition consequential processes. The existence of delegated authority should therefore be analyzed together with mandate, scope, accountability, review, and revocability. A temporary procedural role can be highly consequential while remaining institutionally constrained.

The converse relation also matters: ownership can coexist with weak power. An owner can be highly dependent on specialized labor, regulation, infrastructure, financing, standards, network access, or complementary assets. A household can own property while lacking liquidity or legal capacity to use it as intended. A small firm can own productive equipment while remaining dependent on a dominant buyer or technical platform. Ownership therefore contributes to power through its conversion into effective capacities rather than through title alone.

Separating ownership from power has two analytical benefits. First, it prevents property statistics from being treated as complete measures of power. Second, it reveals governance questions around positions that exercise consequential control without corresponding ownership. Section 16.4 develops these distinctions into forms of economic power, while later sections examine their reproduction, justice, and governance.

16.1.7 Power without Direct Command

Direct command is a visible form of power because one position issues an instruction and another faces consequences for noncompliance. Economic power can also operate through the organization of feasible alternatives. Prices, eligibility rules, standards, defaults, rankings, schedules, classifications, contractual architectures, infrastructure, information, and institutional procedures can condition behavior without an explicit order directed at a particular person.

A platform can alter participation by changing ranking rules or interface requirements. A lender can change feasible investment through credit conditions. An employer can reshape options through scheduling, promotion criteria, or access to training. A public institution can alter participation through documentation rules, deadlines, or eligibility thresholds. A technical standard can make some products interoperable and others costly to use. In each case, the relevant mechanism structures the field within which action occurs. Affected positions can retain choice while facing a changed set of practical alternatives.

This form of power should remain distinct from determinism. Conditioning a field of action does not imply that behavior follows uniquely from the condition. Participants can resist, coordinate, innovate, litigate, exit, reinterpret rules, develop substitutes, or absorb costs. Power analysis concerns the capacity to alter the feasible and consequential structure of action, while empirical inquiry remains necessary to establish how affected positions respond.

Indirect conditioning can also support legitimate coordination. Admission criteria can protect scarce public resources; standards can create compatibility; safety rules can exclude hazardous practices; scheduling systems can coordinate shared infrastructure; professional classifications can make complex decisions administrable. The power question concerns who can establish or revise the relevant conditions, whose action is materially affected, what safeguards and alternatives exist, and how the arrangement can be contested or reviewed. The justice question requires additional normative evaluation.

Anticipation is especially important where direct command is rare. Participants can adjust behavior because they understand that access, renewal, promotion, credit, recognition, ranking, or authorization depends on compliance with a rule or expectation. The absence of repeated visible intervention can therefore coexist with a stable power relation. Evidence can include formal rules, observed sanctions, credible capacities, decision records, patterned adaptation, or institutional procedures that make the consequences sufficiently predictable.

Power without command also clarifies the difference between persuasion and power. Persuasion can change another position's beliefs through reasons or com-

munication while leaving alternatives otherwise intact. Power becomes a stronger interpretation when the influencing position also controls consequential access, conditions, classifications, resources, or institutional pathways that materially structure the recipient's feasible response. Real cases can combine persuasion, authority, inducement, dependence, and control; analytical decomposition is preferable to assigning a single label prematurely.

The broader implication is that power can operate through the architecture of choice and relation. Chapter 15 developed future option structures as part of generative spacetime. Section 16.1 adds the relational condition under which influence over that architecture becomes a power claim: an identifiable position or organized configuration possesses a practically effective mechanism for conditioning another position's feasible action or generative possibilities. Sections 16.2 and 16.3 first distinguish relational realization from manifestation and comparison; Section 16.4 then differentiates the principal forms through which economic power is carried.

16.1.8 Historical Formation of Power

Power relations are historically formed because the asymmetries, dependencies, control capacities, constraints, and alternatives that sustain them develop through sequences of events and institutional change. Current power can reflect accumulated resources, prior allocations, inherited legal rights, network formation, technological standards, educational access, organizational routines, classification systems, infrastructural investment, or earlier exclusions. The historical explanation of a present relation therefore asks which trajectories produced the relevant conversion mechanisms and how those mechanisms became reproducible.

Path dependence can amplify modest initial differences. Early access to finance, land, education, infrastructure, standards, or institutional membership can generate later resources and relations that expand subsequent options. Complementary investments can make one pathway progressively easier to continue while alternatives become costly. Network position can attract further connections; technical adoption can create compatibility advantages; organizational routines can stabilize authority. These mechanisms do not make the realized path inevitable. They explain how historical sequences can change the relative accessibility of later trajectories.

Institutionalization can separate a power relation from its initiating actors. A rule adopted for one historical purpose can later be applied by officials who did not create it. A technical standard can become embedded in infrastructure and procurement. A classification can enter administrative records and resource allocation. A contractual template can become routine across an industry. Once reproduced through such mechanisms, power can persist through positions and procedures even as individual occupants change.

Historical formation can also alter dependence. Specialized investment can make participants increasingly reliant on a relation; migration or residential patterns can affect access to services and employment; accumulated debt can narrow future options; skill formation can reduce dependence by expanding alternatives; interoperability can lower switching costs; collective organization can create countervailing capacity. Power trajectories can therefore strengthen, weaken, relocate, or change

form over time.

The historical origin of a power relation and its present justification remain separate questions. A relation can have an exclusionary origin and later be reformed; a coordination arrangement can begin under legitimate conditions and later produce entrenched dependence; an inherited institution can provide valuable public capacity while distributing burdens unevenly. Historical explanation supplies evidence about formation, reproduction, and alternatives. Normative evaluation requires the additional criteria developed in Sections 16.8–16.11.

Historical re-epistemization also matters. Later archives, testimony, data, categories, or interpretive frameworks can change what can responsibly be reconstructed about the formation of a power relation. Such changes affect present knowledge of the past rather than retroactively altering the past trajectory. They can nevertheless change contemporary accountability, institutional interpretation, or the set of governance responses that can be justified on current evidence.

Power dissolution should be studied with the same historical care as power formation. Diversification can reduce dependency; new standards can lower switching costs; legal reform can alter control rights; public infrastructure can widen access; collective organization can rebalance bargaining; capability formation can expand exit; technological change can bypass a bottleneck; institutional review can narrow discretionary authority. A power relation can weaken even while some original asymmetry remains, because the mechanism that converted the asymmetry into conditioning capacity has changed.

Proposition 16.5 (Historical contingency of power conversion)**.** *The power relevance of an asymmetry is historically contingent on the mechanisms that connect positions, dependencies, control capacities, constraints, and alternatives. Changes in those mechanisms can strengthen, weaken, relocate, or dissolve a power relation even when some underlying resource or positional differences persist.*

Proposition 16.5 provides the bridge to the next sections. Section 16.2 distinguishes power relevance from relational realization, Section 16.3 develops manifestation and comparison, and Section 16.4 distinguishes forms of economic power according to the principal resources, capacities, relations, institutions, infrastructures, symbols, temporal positions, and exit conditions through which conditioning capacity is organized. Sections 16.5 and 16.6 then examine reproduction and manufactured vulnerability. The conceptual sequence established here remains the governing discipline: identify the asymmetry, reconstruct dependence and alternatives, specify control and constraint mechanisms, establish the conditioning capacity, distinguish capacity from exercise and effect, and locate the relation within its historical trajectory.

16.2 Relational Reality of Power

Section 16.1 established the first conversion problem: an asymmetry becomes relevant to power analysis only when a specified mechanism connects a relational difference to consequential deformation of another position's feasible action or future possibilities. The present section adds a second distinction that is required by the book's relational ontology. A power-relevant episode and a relationally real power

structure are different analytical objects. The section therefore separates *power relevance* from *relational power*, locates both in history-bearing economic configurations, and states the persistence and efficacy conditions under which a directional power organization can be treated as part of relational reality. The purpose is not to impose one universal mathematics of power. It is to make explicit the additional commitments required when GRE moves from a local effect to a historically operative power relation.

The basic relata remain history-bearing economic entities and configurations rather than point-like actors carrying intrinsic quantities of power. A household, firm, public agency, platform, professional community, infrastructure, or state can be represented at an effective scale while retaining internal history, organization, and relations. Power claims are therefore indexed to a coupled configuration in which several such entities participate. Scalar descriptors such as wealth, market share, rank, or formal authority can enter the analysis as manifestations or comparison inputs; they do not replace the history-bearing relata themselves.

16.2.1 Power Relevance

A relational asymmetry becomes *power-relevant* when its organization contributes systematically to a directional change in the possibility structure of another economic position or of a shared configuration. The relevant change can concern admissible actions, practical access, continuation paths, institutional standing, conversion opportunities, timing, expected costs, or the relative accessibility of future trajectories. The word *directional* matters because the same relation can affect A and B differently, and reciprocal consequence does not require symmetry of effect.

Definition 16.6 (Power-relevant relational asymmetry)**.** For a specified coupled economic configuration, a relational asymmetry from position A toward position B is *power-relevant* when the model or empirical reconstruction supplies (i) a typed asymmetry, (ii) an identifiable mechanism connecting that asymmetry to a directional change in B's feasible action, access, capacities, relations, or future possibilities, and (iii) evidence that the directional consequence is substantively retained by the inquiry rather than inferred from coexistence alone.

Definition 16.6 sharpens the earlier conversion rule. A large asymmetry can remain dynamically peripheral. A small positional difference can become highly consequential when it controls a bottleneck, deadline, authorization path, or irreplaceable interface. Power relevance is therefore a claim about generative consequence, not about the numerical size of a difference.

16.2.2 Generative Possibility Structure

The directional consequence of power is most clearly expressed through the future possibilities available to an affected position. For the economic analysis in this book, a minimal *generative possibility structure* can be represented by the pair

$$\mathrm{Poss}_B(C_H) := \big(\Gamma_B^+(C_H),\, \mathcal{O}_B^{\mathrm{adm}}(C_H)\big), \tag{16.1}$$

where C_H denotes a coupled configuration supported by historical domain H, $\Gamma_B^+(C_H)$ denotes a model-specified family of admissible historical continuations containing a continuation of B, and $\mathcal{O}_B^{\text{adm}}(C_H)$ denotes the operations presently available to B within that configuration. Equation 16.1 is deliberately minimal. It does not require a complete state space, a total ordering of futures, or a probability distribution over histories.

A power-relevant relation can change either component. It can remove operations, create privileged operations, alter access conditions, modify which continuations remain practically reachable, or change the relative accessibility of several retained futures. The representation is compatible with Chapter 15's generative-spacetime analysis while allowing the chapter to remain agnostic about a unique dynamical formalism.

16.2.3 Perturbative Identification

Because power can remain latent in ordinary observation, perturbation provides one epistemic route for investigating its consequences. A perturbation can be an intervention, institutional reform, naturally occurring change, counterfactual reconstruction, or computational variation that modifies the represented position or support structure of A while preserving enough of the comparison for B's possibility structure to remain interpretable. The question is whether a declared change in A produces a structured response in B.

The response should not be reduced automatically to one number. Breadth, depth, persistence, robustness, and generativity can describe different aspects of the change. Breadth concerns how widely continuations or operations are altered. Depth concerns whether the response remains at a manifestational level or reaches active relations, admissibility conditions, or historically retained structure. Persistence concerns retention across historical extensions. Robustness concerns stability of the result under a declared family of perturbations. Generativity concerns the formation of later relations, constraints, permissions, or asymmetries. The descriptors can remain heterogeneous until an application justifies a comparison or aggregation rule.

Proposition 16.7 (Power-relevance identification)**.** *A perturbative response supports a power-relevance claim only when the inquiry supplies a dependence account connecting the antecedent asymmetry to the retained response. A salient change following variation of A is insufficient when the same response can be generated by an omitted structure or by a change in the comparison frame itself.*

16.2.4 Power Candidates and Historical Persistence

A power-relevant episode can be brief. Temporary control of an indispensable resource, a one-off deadline, or a momentary institutional gap can strongly deform another position's possibilities without generating a durable power structure. GRE therefore treats the organization generated around a power-relevant asymmetry as a *power candidate* until its own historical persistence and efficacy have been established.

Persistence should be evaluated over the historical scale relevant to the inquiry.

A labor-market power relation can be persistent over an employment episode without being intergenerational. An infrastructural power relation can remain operative across organizational turnover. A legal authority can persist through changes in office holders. Persistence need not mean convergence to a fixed point. Metastable, branching, adaptive, and near-critical regimes can all remain historically persistent over a specified horizon.

The book therefore uses attractor-like, basin-like, or closure language only as optional representations. They can help describe retention, recurrence, or stabilization when an application supplies the required mathematical structure. None is treated as the ontology of power, and stabilization by itself does not establish relational reality.

16.2.5 Causal and Generative Efficacy

Persistence is insufficient. A stable pattern can remain inert. A relational power structure must also be efficacious. The present chapter distinguishes two connected forms of efficacy. *Causal efficacy* concerns whether a well-typed comparative intervention on the candidate changes a declared consequence under an explicit dependence account. *Generative efficacy* concerns whether the candidate contributes to the production, modification, stabilization, or removal of structures that condition later relational continuation.

Generative efficacy is especially important for GRE because power can reorganize the conditions of later economic generation. A platform rule can change which transactions are admissible; a credential can alter future standing; a financing relation can reshape later investment opportunities; an infrastructure standard can reconfigure future compatibility; a classification can alter which claims are legible. The consequence is not limited to an immediate behavioral response. Power can help generate the relational field in which later responses become possible.

Definition 16.8 (Economic power)**.** Within GRE, *economic power* is a relationally constituted, directionally organized, and historically situated structure through which the position of an actor, organization, institution, infrastructure, or organized configuration persistently and efficaciously conditions another economically relevant position's feasible action, access, capacities, relations, value processes, or future trajectories. Within the asymmetry-derived construction developed here, the power organization must arise through an identifiable dependence or conversion mechanism and must exhibit both causal and generative efficacy over the declared historical scope.

Definition 16.8 is stronger than the diagnostic notion of power relevance in Definition 16.6. It also remains broader than direct command. Conditioning can operate through access, timing, standards, classification, infrastructure, dependency, symbolic mediation, expectations, and future option structure. The definition does not imply domination, injustice, intentional exercise, self-reproduction, or scalar comparability.

16.2.6 Relational Realization

The transition from a power candidate to relational power can now be stated directly. The antecedent asymmetry has already acquired enough historical reality to partici-

pate in the coupled configuration. Power relevance adds directional dynamical consequence. Relational realization adds expected persistence and efficacy for the power organization itself.

Proposition 16.9 (Relational realization of economic power)**.** *Within the asymmetry-derived construction of this chapter, a power-relevant relational asymmetry supports a claim of relationally real economic power when the associated power organization (i) remains sufficiently persistent across the admissible historical extensions relevant to the inquiry, (ii) is causally efficacious under at least one well-typed comparative intervention and dependence account, and (iii) is generatively efficacious in shaping later relational conditions or possibilities.*

Proposition 16.9 makes the chapter's layered inference explicit:

$$\text{typed asymmetry} \rightsquigarrow \text{power relevance} \rightsquigarrow \text{relational power}. \tag{16.2}$$

The notation in Equation 16.2 represents an analytical sequence rather than a deterministic historical law. Some asymmetries never become power-relevant; some power-relevant episodes fail to stabilize; some relational power structures later dissolve.

16.2.7 Reciprocal and Distributed Power

The directional construction does not imply one-way dominance. If A conditionally deforms B's possibilities and B conditionally deforms A's, two directional components can coexist. Their coexistence does not require a total ranking of the participants. Reciprocal power can be symmetric under one selected representation, asymmetric under another, or incomparable across heterogeneous dimensions.

Power can also be distributed across configurations. A regulatory regime, platform architecture, professional field, payment infrastructure, or supply network can carry a power relation even when no single individual controls the complete mechanism. The empirical task is to identify which rules, positions, interfaces, routines, and historical supports carry the conditioning relation. Agency and intentionality can then be added where evidence supports them rather than inferred from the existence of directional consequence.

16.2.8 Scope of the Power Metaphysics

The formal vocabulary in this section remains representational. History-bearing entities can be modeled through event structures, graphs, 2-complexes, operator systems, or other languages when their assumptions perform analytical work. Attractor-like regimes can represent persistence; partial maps can represent restricted operations; categorical devices can organize typed relations; operators can represent deformation of an auxiliary possibility or history space. These representations are not identified with ultimate ontology.

The book also leaves other genealogies of power open. The present construction begins from a relationally real asymmetry and asks when that asymmetry becomes power-relevant and then relationally real as power. It does not establish that every

conceivable power relation must originate through one antecedent asymmetry. This bounded scope is sufficient for the economic analysis that follows because Chapter 16 is primarily concerned with the mechanisms through which unequal economic relations become consequential, durable, reproducible, and governable.

Section 16.3 turns from the relational reality of power to its epistemic and performative interfaces. Relational power can be difficult to observe directly, can remain latent, can be accessed through attempted transformation, and can be represented through rankings or comparison structures that later participate in reproducing the power landscape themselves.

16.3 Manifestation, Comparison, and Reflexive Power

Section 16.2 distinguished power relevance from relational power. The present section develops the corresponding epistemic and reflexive problem. A relational power structure is not identical with any title, command, ranking, observable outcome, or numerical indicator through which it becomes visible. Participants and analysts ordinarily encounter power through manifestations: access restrictions, permissions, classifications, deference, prices, schedules, credentials, legal standing, resource flows, failed actions, or institutional responses. Those manifestations can underdetermine the relational structure that generated them. They can also become performative and participate in reproducing or transforming the power relation itself. The section therefore separates manifestation, evidence, comparison, mediation, and reflexive feedback.

16.3.1 Manifestational Evidence

A manifestation is a context-dependent presentation through which a relational power structure becomes epistemically or practically accessible. The same power structure can produce different manifestations across settings, and similar manifestations can arise from different power structures. Formal authority can manifest through a title in one context, through permission structures in another, and through patterns of anticipated compliance in a third. A price differential can reflect market scarcity, institutional design, strategic discrimination, or several mechanisms at once.

Definition 16.10 (Power manifestation)**.** A *power manifestation* is a context-dependent symbolic, institutional, embodied, numerical, spatial, procedural, or behavioral presentation through which a relational power structure becomes partially observable, actionable, or interpretable. Manifestation provides evidence or an interface to power; it does not by itself establish identity, magnitude, uniqueness, or normative status of the underlying power relation.

The distinction is compatible with the chapter's existing emphasis on mechanism. A formal title can be visible while practically weak, whereas an infrastructural bottleneck can remain inconspicuous while strongly conditioning access. Analysis should therefore trace the relation from manifestation back to the historical mechanism rather than infer power from surface salience alone.

16.3.2 Latent Power

Relational power can remain efficacious when overt intervention is rare. Participants can adapt because they anticipate that authorization, credit, access, renewal, promotion, recognition, or infrastructural support depends on a relation whose consequences are already known. Institutionalized power can therefore become less visible precisely because its expected effects have been incorporated into ordinary conduct.

Definition 16.11 (Latent economic power)**.** A relational power structure is *latent* relative to a declared observational context when its persistence and efficacy remain operative while the selected context supplies no sufficiently informative overt manifestation for reconstructing the power relation directly.

Latency does not imply concealment by an intentional actor. It can arise through routines, background rules, infrastructural dependencies, habitual expectations, and operation domains that make repeated intervention unnecessary. The relevant evidence lies in the structured relation between observed silence and the counterfactual or attempted actions that would encounter the power-conditioned boundary.

16.3.3 Attempted Transformation

Attempted transformation supplies one route to latent power. A participant may attempt to enter a market, revise a record, transfer an asset, access a platform, change an employment relation, appeal a classification, exercise a right, or exit an institution. The definedness and practical cost of that operation can reveal a boundary that ordinary observation leaves obscure.

The evidential object is not failure or success alone. A failed operation can result from limited resources, physical constraints, ignorance, legal rules, social norms, technical incompatibility, or a particular power relation. The power claim becomes stronger when a well-specified comparison changes the relevant conditioning structure while preserving the identity and analytical scale required for comparison, and the operation's accessibility changes accordingly.

Proposition 16.12 (Transformation-access evidence)**.** *A blocked or enabled transformation supports attribution of relational power only when the inquiry identifies the conditioning mechanism connecting the power structure to the change in operation accessibility. Failure or success considered alone remains epistemically underdetermined.*

16.3.4 Historical Identification

Power attribution often requires evidence distributed across history. Present manifestations can be produced by institutions whose formative events are no longer visible in the active configuration. Similar present outcomes can emerge from different historical pathways. A weak present manifestation can coexist with a highly persistent power relation because earlier institutionalization has already reorganized expectations and alternatives.

Historical identification should therefore track the relation rather than only repeated surface indicators. The relevant record can include changes in operation

domains, institutional rules, resource access, classifications, bargaining alternatives, prior interventions, and successor structures. Continuity need not mean literal identity of every carrier. A power relation can persist while moving from one institutional or symbolic support to another.

This historical requirement also clarifies the inverse problem. Evidence can be rich while remaining compatible with several distinct relational structures. GRE should preserve that underdetermination rather than force a unique attribution from a coarse manifestation.

16.3.5 Power Comparison

Statements such as "A is more powerful than B" introduce an additional structure beyond the existence of directional power. The comparison must specify which relations, manifestations, response profiles, historical domains, and dimensions count. A resource comparison, a legal-authority comparison, and a comparison of capacity to reshape future options can rank the same participants differently.

Definition 16.13 (Power-comparison structure)**.** A *power-comparison structure* is a historically and contextually specified rule, representation, or operation that maps selected aspects of relational power or its manifestations into comparative judgments such as directional ordering, equivalence, incomparability, or indeterminacy. The comparison structure is analytically distinct from the power relations it compares.

A total order is therefore unnecessary. Mutual power can coexist with incomparability. Metrics and indices become special cases when an application justifies commensurability, aggregation, and interpretation. A scalar power score is not presumed by the chapter's ontology.

16.3.6 Manifested and Relationalized Comparison Norms

Comparison structures can themselves acquire social effects. Office hierarchies, credit ratings, rankings, prestige orders, capability indices, eligibility categories, and strategic classifications can begin as representations and later enter decisions. A manifested comparison can alter financing, recognition, allocation, bargaining expectations, alliance behavior, professional standing, or access to institutional procedures.

The book therefore distinguishes an analytic comparison from an operative comparison norm. An analytic ranking can remain a modeling device. A manifested ranking becomes socially legible. A comparison norm becomes relationally consequential when it persists and changes later relational organization. Its relational reality does not imply epistemic correctness. A contested or coarse ranking can still influence subsequent relations if institutions repeatedly act on it.

Proposition 16.14 (Comparison-performativity condition)**.** *A power-comparison structure becomes performatively relevant when its use conditions a later generative transformation that changes at least one retained relation, access condition, allocation, institutional standing, power manifestation, or future comparison input. The effect belongs to the operative comparison practice rather than to the abstract mathematical ordering considered apart from its use.*

16.3.7 Mediation of Power

Manifestation can be mediated through symbolic, institutional, embodied, spatial, technological, or other channels. Symbolic mediation includes titles, credentials, categories, narratives, and prestige markers. Institutional mediation includes rules, offices, jurisdictions, procedures, infrastructures, and recognized standing. Embodied mediation can include patterned deference, recurrent attention, spatial organization, or habitual yielding where the application establishes a relation to power.

One symbolic route is especially important for economic classification. Distinct relational structures can be treated as equivalent for a declared purpose, represented through a common class, and subsequently symbolized through a title, category, credential, or score. The equivalence relation, the mathematical quotient used to represent it, and the symbol presented to participants remain distinct objects. A classification can remain merely analytic, can become manifest through practice, and can later acquire relational reality when its persistence and efficacy are independently established.

This distinction protects the book against a common shortcut. The existence of a formal category does not by itself make the category socially real, while a socially operative category can remain relationally consequential even when its epistemic adequacy is disputed.

16.3.8 Reflexive Power Recognition

Power recognition becomes reflexive when representations of power participate in producing later power. A ranking can change access to capital; a prestige classification can alter applications and recruitment; an index can affect public investment; a designation of strategic importance can redirect resources; a professional credential can change which operations become available. The later configuration then supplies new inputs to subsequent comparison.

Definition 16.15 (Reflexive power-recognition loop)**.** A *reflexive power-recognition loop* occurs when (i) a comparison or manifestation of power is generated from a relational configuration, (ii) that representation enters an operative symbolic, institutional, or infrastructural practice, (iii) action conditioned by the representation changes the later relational configuration, and (iv) the changed configuration modifies at least one power relation, manifestation, or comparison input used by the same class of recognition process.

Reflexivity does not imply self-reinforcement. A comparison can strengthen an existing hierarchy, weaken it, redirect resources toward countervailing capacity, or generate contestation. The direction of feedback is an empirical and historical question.

16.3.9 Manifestation and Relationalization

A manifestation can participate in the formation of later relational reality without collapsing the distinction between manifestation and relational structure. Repeated classification, recognition, deference, exclusion, or authorization can change later access

and expectations. When those changes become historically persistent and causally and generatively efficacious, the manifestation history can belong to the generative support of a later relationally real structure.

The transition should be described as *relationalization* rather than identity. An earlier symbol and the later relation are not numerically the same object. The stronger claim is that the manifested practice enters the historical process through which the later relation is constituted and reproduced.

Section 16.4 now turns to the principal forms in which economic power is carried. The taxonomy should be read in light of Sections 16.2 and 16.3: resource, capability, epistemic, institutional, infrastructural, symbolic, temporal, and exit power are not merely observable attributes. Each form requires an identifiable directional mechanism, and its manifestations or rankings remain analytically distinct from the relational power structure itself.

16.4 Forms of Economic Power

Sections 16.1–16.3 established the chapter's layered power architecture: typed asymmetry, power relevance, relational realization, manifestation, and comparison remain distinct analytical objects. The present section develops the next analytical layer by distinguishing recurrent forms through which economic power can be organized. Its role is taxonomic and diagnostic. The objective is to identify the principal carrier or pathway through which a conditioning capacity becomes effective while preserving the relational definition in Definition 16.8. The discussion therefore does not create nine independent concepts of power. It specifies nine recurrent forms: resource, capability, epistemic, relational, institutional, infrastructural, symbolic, temporal, and exit power.

The taxonomy is provisional and extensible. The forms are neither mutually exclusive nor naturally ordered by strength. A single power relation can combine several of them, and the dominant form can change across stages of the same process. A creditor can possess resource power through liquidity, institutional power through enforceable covenants, epistemic power through superior information, and temporal power through an ability to wait. A professional body can combine institutional, epistemic, and symbolic power through accreditation. A platform can combine infrastructural, relational, symbolic, and epistemic power through interfaces, network position, rankings, and data. The taxonomic task is therefore to identify which mechanism carries the conditioning capacity in the case under study and how several mechanisms interact.

Definition 16.16 (Form of economic power)**.** A *form of economic power* is an analytically specified mode in which the economic power defined in Definition 16.8 is principally carried by a resource position, capability, epistemic position, relational location, institutional competence, infrastructure, symbolic recognition structure, temporal advantage, or exit capacity. Classification by form identifies the principal conditioning mechanism in a specified relation and does not by itself determine the magnitude, legitimacy, justice, or durability of the power relation.

Definition 16.16 preserves a common test across the taxonomy. An asymmetry

qualifies as a form of power only when an identifiable mechanism converts it into a practically effective capacity to condition another economically relevant position's feasible action or generative possibilities. A large resource stock can remain economically inert; expertise can remain unrecognized; central network location can lack gatekeeping force; formal institutional authority can be unenforceable; a prestigious symbol can cease to carry recognition; an exit option can be irrelevant to others. The form identifies the principal source or carrier of conditioning capacity after the conversion relation has been established.

Table 16.2 summarizes the nine forms. The final column states the boundary that prevents a descriptive difference from being interpreted prematurely as power.

The same economic object can support different forms depending on the mechanism through which it becomes consequential. A dataset can function as a resource when access to the data is selectively withheld, as an epistemic mechanism when it supports classification or prediction, as an infrastructural component when other services depend on its technical availability, and as a symbolic resource when association with the dataset or its producer carries recognized status. A credential can similarly combine epistemic, symbolic, and institutional effects. The taxonomy therefore classifies conditioning pathways, not objects by intrinsic type.

The taxonomy also distinguishes a power form from a power domain. Resource power can appear in labor, finance, housing, trade, public administration, education, care, or digital markets. Epistemic power can operate in credit scoring, professional certification, procurement, scientific advice, platform moderation, or organizational planning. Institutional power can be exercised by public bodies, firms, associations, cooperatives, courts, universities, standards organizations, or transnational arrangements. The form identifies how conditioning capacity is carried; the domain identifies the substantive field in which the relation operates.

The forms can also convert into one another. Resource power can finance capability formation, legal expertise, infrastructure, or symbolic recognition. Epistemic power can produce institutional authority when classifications become embedded in rules. Institutional power can create infrastructure and assign resource claims. Symbolic power can improve access to resources or relations. Temporal power can preserve resources long enough to outlast another position. Exit power can induce institutional revision. Such conversions are historically contingent and require separate evidence. Their possibility does not imply that the forms collapse into a common substance.

Proposition 16.17 (Compositionality of economic power forms)**.** *A power relation can be supported by several forms of economic power simultaneously, sequentially, or at different scales. Identifying one form does not exclude others, and observed effects should be attributed to the mechanisms that are empirically or historically supported in the case without presuming an additive index of power.*

Proposition 16.17 provides the methodological discipline for the subsections that follow. Each form is defined by its principal conditioning pathway and then examined in relation to dependence, alternatives, evidence, historical formation, and possible interaction with other forms. Normative evaluation remains deferred. A resource-based power relation can be democratically authorized or exploitative;

Table 16.2: Forms of economic power and their principal conditioning mechanisms

Form	Principal carrier	Characteristic conditioning mechanism	Analytical boundary
Resource	Control, command, or reliable access to consequential resources	Allocation, withholding, pricing, buffering, collateralization, or selective provision	Resource inequality alone does not establish power without dependence and a usable conditioning pathway
Capability	Scarce or differentially effective capacities	Performance, conversion, coordination, production, protection, or selective provision of needed abilities	Capability difference alone does not establish power where others do not materially depend on the capability
Epistemic	Knowledge, evidence, data, classification, measurement, or recognized interpretive authority	Visibility, validation, agenda formation, classification, prediction, evidential access, or control over admissible representations	Information difference alone does not establish power without consequential uptake or access effects
Relational	Position within a network, relation, or higher-order relational configuration	Brokerage, gatekeeping, connection, disconnection, matching, intermediation, or control over relation formation and continuation	Centrality or connectedness alone does not establish practical conditioning capacity
Institutional	Office, mandate, rule competence, procedure, recognized authority, or organizational role	Authorization, rule formation, interpretation, adjudication, enforcement, eligibility, or procedural sequencing	Formal authority alone does not establish effective power when implementation or compliance capacity is absent
Infrastructural	Control of, privileged access to, or governance of enabling systems and interfaces	Routing, interoperability, standards, capacity allocation, technical access, dependency on shared systems, or bottleneck control	Infrastructure use or ownership alone does not establish power without a consequential access or coordination mechanism
Symbolic	Socially recognized status, credential, reputation, category, ranking, label, or representational form	Recognition, legitimacy, valuation, credibility, visibility, status assignment, or access mediated through shared symbolic orders	Symbolic difference alone does not establish power unless recognition changes feasible action, access, or value realization
Temporal	Unequal ability to wait, accelerate, delay, sequence, synchronize, commit, or preserve options over time	Deadline control, waiting-cost allocation, sequencing, maturity, procedural timing, endurance, or option preservation	Mere temporal difference does not establish power unless timing materially conditions another position's feasible trajectories
Exit	Credible capacity to leave, withdraw, switch, relocate, or terminate participation	Bargaining leverage, threat of withdrawal, reallocation of resources or participation, and transfer of residual burdens	Exit capacity alone does not establish power unless continued participation matters to the relation or to other affected positions

institutional power can protect rights or entrench exclusion; symbolic power can support reliable coordination or preserve inherited status. Sections 16.8–16.11

provide the later justice analysis.

16.4.1 Resource Power

Resources become a form of economic power when control, command, or reliable preferential access can be converted into a capacity to condition another position's feasible action or future possibilities. The resource can be financial, material, informational, legal, organizational, ecological, technical, spatial, or another economically consequential stock or flow. Chapter 12 distinguished resources from capacities, and Proposition 12.82 established that availability of a resource does not itself determine what can be done with it. Resource power adds a second distinction: even a large resource advantage does not constitute power until a relation makes the advantage consequential to another position.

Definition 16.18 (Resource power)**.** *Resource power* is economic power whose principal conditioning mechanism arises from a position's practically effective control of, command over, or reliable preferential access to resources on which another economically relevant position materially depends within the specified domain and time horizon.

The mechanism can operate through allocation. A lender can condition investment by deciding whether liquidity is supplied. An employer can condition access to wages, equipment, or organizational resources. A landholder can condition use of a site. A government can allocate budgetary resources or emergency reserves. A household member controlling a shared account can condition consumption or mobility. In each case, the resource matters because access to it participates in the affected position's feasible action. The same resource can carry little power where substitutes are abundant, access is legally guaranteed, or the recipient possesses independent reserves.

Withholding is a particularly visible mechanism of resource power. Payment, credit, supplies, data, labor, maintenance, land access, or other necessary inputs can be delayed or withdrawn. The capacity to withhold can affect behavior before withholding occurs when the threat is credible and the dependent position lacks timely substitutes. This is consistent with Section 16.1's separation of power capacity from exercise. Evidence of resource power can therefore include contractual rights, control records, credible reserves, observed dependency, switching costs, and prior episodes of withholding or substitution.

Resource power can also operate through endurance. A position with greater financial reserves, inventory, storage, redundant suppliers, or access to emergency finance can absorb interruption for longer than another position. The immediate conditioning mechanism can therefore depend on time as well as quantity. A large resource stock can support bargaining because it allows one participant to continue while another incurs escalating costs. In such cases, resource power and temporal power are jointly present; decomposition clarifies whether the decisive mechanism is the stock itself, the time it purchases, or both.

Ownership is neither necessary nor sufficient for resource power. A manager, trustee, intermediary, custodian, platform, administrator, or public agency can control allocation without owning the underlying resource. Conversely, an owner can face legal, contractual, technical, or institutional restrictions that prevent unilateral

use. Definition 16.18 therefore refers to practical control, command, or reliable preferential access. Property relations remain important where they structure these capacities, yet title alone does not settle the power analysis.

Resource power can be reciprocal. A firm can control wages and equipment while workers collectively control the continued supply of scarce labor. A buyer can control demand while a supplier controls an indispensable component. A state can control market access while firms control investment, production capacity, or technical expertise. Reciprocal resource power does not imply equality. The relevant inquiry maps which resources matter, whose continuity depends on them, which substitutes exist, how quickly substitution can occur, and which position can absorb interruption.

Resource power can also support collective protection. Public stockpiles, social insurance funds, pooled purchasing, mutual aid, common infrastructure, and emergency budgets can reduce dependence on private gatekeepers and expand collective action. The existence of resource power therefore carries no fixed normative valence. Governance questions concern mandate, access conditions, accountability, distribution of burdens, and the relation between resource control and the capacities it enables or constrains.

A final distinction concerns resource value and resource power. A resource can possess high market value while generating little conditioning capacity in the relation under study. Conversely, a modest resource can become highly power-relevant when it occupies a bottleneck. A small quantity of a specialized input, a unique document, a scarce permission token, or short-term bridge finance can matter more than a larger stock of substitutable goods. Resource power is consequently relation-indexed and mechanism-indexed; resource quantity alone provides an incomplete proxy for the conditioning capacity at issue.

16.4.2 Capability Power

Capability power arises from differences in what subjects or configurations can effectively do. The section title follows the chapter taxonomy, while its analytical carrier is the broader concept of economic capacity established in Chapter 12. The term *capability power* therefore does not restrict the analysis to person-level capability theory. Definition 12.80 treated economic capacity as a historically situated ability to initiate, sustain, resist, coordinate, transform, or complete an economically consequential process under specified conditions. The distinction from resources is central. Two positions can possess similar material resources while differing substantially in technical competence, organizational coordination, legal ability, health, mobility, institutional access, collective capacity, or the ability to convert resources into effective action.

Definition 16.19 (Capability power)**.** *Capability power* is economic power whose principal conditioning mechanism arises from a position's scarce, difficult-to-substitute, or differentially effective capacity to perform, coordinate, convert, protect, produce, maintain, resist, or transform processes on which another economically relevant position materially depends.

Capability power is especially visible where a task cannot be replaced quickly. Spe-

cialized technical expertise, tacit organizational knowledge, legal competence, emergency response ability, logistical coordination, language capacity, caregiving skill, scientific instrumentation competence, or collective mobilization can become power-relevant when other positions depend on their exercise. The power mechanism lies in the effective ability, together with the dependence and substitution structure surrounding it. Possession of a credential can support the claim, yet the credential primarily evidences recognized status, while practical effectiveness requires separate support.

The distinction between capability power and resource power matters because capability is produced through conversion. Equipment can remain idle without knowledge; finance can remain unused without organizational competence; legal rights can remain ineffective without procedural ability; data can remain inert without interpretation; a workforce can remain uncoordinated without appropriate organization. A position can therefore possess limited resources while exercising substantial capability power if its scarce capacity is indispensable to a wider process. Conversely, a resource-rich position can be dependent on capabilities located elsewhere.

Capability power can reside in individuals, collectives, organizations, or distributed configurations. A surgical team possesses capacities that no member exercises alone. A supply network can coordinate production through distributed routines. A community can hold local knowledge and collective capacities unavailable to an external agency. A standards community can maintain interoperability through dispersed expertise. Attribution should therefore identify the configuration that actually carries the capacity and the mechanisms through which the capacity can be mobilized or withheld.

The capacity to generate capability in others creates a second pathway. Schools, training systems, mentorship networks, health systems, technical assistance organizations, financing institutions, and infrastructure providers can shape which capabilities become available later. Such influence can become capability power when access to capability formation is selectively controlled and materially conditions future options. The mechanism should be distinguished from symbolic power in credentials and institutional power in formal authorization, even though educational and professional systems often combine all three.

Capability power is historically dynamic. Learning, automation, organizational redesign, diffusion of knowledge, public investment, interoperability, migration, and collective action can reduce scarcity and dependence. Technical change can also make previously common capabilities scarce, devalue accumulated expertise, or increase dependence on new forms of competence. The strength of capability power therefore depends on the current conversion environment and available alternatives, not on a permanent hierarchy of abilities.

Capability differences should also be separated from judgments about human worth or political standing. GRE uses capability here as an economic and relational analytical category tied to specified processes. A position can possess high capability in one domain and low capability in another. Institutional arrangements can compensate for individual limitations through collective provision, accessibility, delegation, or technology. The power claim concerns how a specified capability enters a conditioning relation, not an overall ranking of persons.

Capability power can counterbalance other forms of power. Specialized workers can bargain against resource-rich employers; technical experts can constrain formal authorities; organized communities can resist infrastructural projects; public administrative capacity can reduce dependence on private providers. Such countervailing relations illustrate why power profiles should be reconstructed across forms. Resource holdings alone can misstate the practical distribution of conditioning capacity when capabilities are unevenly distributed.

16.4.3 Epistemic Power

Epistemic power concerns the organization of economically consequential knowledge, evidence, visibility, classification, measurement, and interpretation. Chapter 6 introduced research epistemic power as the relationally distributed capacity to shape the conditions under which research objects are named, classified, measured, made visible, excluded, evidenced, represented, contested, preserved, or carried into later inquiry and practice. The present subsection specializes the same analytical orientation to economic relations while retaining the more general mechanism-based definition of economic power established in Section 16.1.

Definition 16.20 (Economic epistemic power)**.** *Economic epistemic power* is economic power whose principal conditioning mechanism arises from a position's capacity to shape consequential economic knowledge conditions, including visibility, evidence production, data access, classification, measurement, validation, recognized expertise, interpretation, prediction, or the admissible representations through which economic decisions and access conditions are organized.

Information advantage becomes epistemic power only when it enters a mechanism that materially conditions another position. A trader can know something others do not without controlling their feasible action. Epistemic power becomes a stronger interpretation when data access determines eligibility, a classification governs credit, a professional judgment authorizes participation, a measurement determines payment, an audit changes access to finance, a platform ranking affects visibility, or recognized expertise determines which risks enter a decision. The relation between knowledge and consequence is therefore central.

Classification is one important mechanism. Economic institutions continually classify persons, organizations, goods, risks, occupations, jurisdictions, transactions, and claims. A category can determine whether an application is eligible, which interest rate applies, whether a product can enter a market, which tax treatment is used, how performance is evaluated, or whether a subject becomes visible to an institution. Classification power can be distributed across statistical systems, regulators, firms, professional bodies, software, rating organizations, and organizational routines. The relevant inquiry identifies who can create, apply, revise, contest, or escape the category and what consequences follow.

Measurement provides another mechanism. Indicators can organize investment, budgeting, promotion, procurement, credit, insurance, performance evaluation, and policy. Measurement becomes power-relevant when a metric materially structures access, rewards, sanctions, or organizational priorities. The mechanism can persist even when the metric is produced by a distributed technical process. Analysts should

distinguish the epistemic question of whether the measure is valid from the power question of how the measure conditions participants and from the justice question of whether the arrangement is acceptable.

Control over visibility can be equally consequential. A platform can determine which products or workers are shown; an organization can determine which performance records are preserved; a public statistical system can make some populations legible while leaving others weakly represented; a firm can possess proprietary data unavailable to regulators or researchers. Visibility can expand opportunity, expose participants to scrutiny, or reorganize bargaining positions. The power claim requires evidence that differential visibility or evidential access changes feasible action, recognition, allocation, or future trajectories.

Epistemic power can operate through recognized expertise as well as through private information. An expert opinion can carry institutional consequences because an organization, court, market, or profession recognizes a particular source as authoritative. The authority can be appropriate where expertise is relevant and accountable. It can also become fragile where review is weak, evidence is inaccessible, or alternative knowledge cannot enter the process. Epistemic power therefore interacts closely with institutional and symbolic power while remaining analytically distinct. Institutional power concerns formal competences and procedures; symbolic power concerns socially effective recognition and status; epistemic power concerns the organization of knowledge and evidential conditions.

Artificial systems intensify these questions because economic classification, prediction, ranking, and recommendation can be partially delegated to models whose inputs, objectives, training data, and error distributions are unevenly visible. The system itself can participate in an organized configuration of epistemic power when its outputs structure access or action through institutional uptake. Attribution should still identify the organizations, data infrastructures, rules, interfaces, and decision procedures that make the model consequential. Treating an algorithm as an autonomous bearer of power can obscure the relational configuration through which its outputs acquire practical force.

Epistemic power can support beneficial coordination. Reliable measurement, expert review, safety classification, accounting standards, audit, and shared data can reduce uncertainty and support collective capacity. The power analysis therefore remains descriptive until additional normative criteria are introduced. Later sections will ask about participation, contestability, evidential access, and epistemic asymmetry. Section 16.21 will provide the chapter's explicit interface to the knowledge and epistemic economy developed in Chapter 17.

16.4.4 Relational Power

Economic power in the present framework is relationally constituted, yet *relational power* names a more specific form. It applies where the principal conditioning capacity arises from position within a relation, network, field, or higher-order configuration of relations. The term therefore does not imply that resource, institutional, epistemic, or other forms are non-relational. It identifies cases in which brokerage, gatekeeping, connection, disconnection, matching, centrality, or control over relation

formation carries the power mechanism.

Definition 16.21 (Relational power)**.** *Relational power* is economic power whose principal conditioning mechanism arises from a position's location within, control over, or ability to reorganize economically consequential relations, including the formation, continuation, mediation, modification, or dissolution of connections on which other positions materially depend.

A broker can possess relational power by mediating access between otherwise disconnected parties. A platform can mediate relations between buyers and sellers. A distributor can connect producers to markets. A professional network can connect members to employment or information. A dominant buyer can coordinate a set of suppliers whose access to demand depends on the buyer's position. The conditioning capacity arises through the relational pathway. Resource ownership can reinforce it, yet the mechanism can persist where the intermediary owns little of what moves through the relation.

Gatekeeping is a particularly important relational mechanism. Entry to a market, profession, platform, funding network, distribution channel, research collaboration, or organizational process can depend on a position that controls connection. Gatekeeping can be formal, as in membership approval, or informal, as in brokerage through reputation and personal networks. The power claim requires evidence that the gatekeeping position materially affects access and that alternative pathways are limited or costly within the relevant horizon.

Relational power can also arise through the ability to disconnect. Termination of a contract, removal from a network, deactivation of an account, exclusion from a supply chain, severance of a correspondent relation, or withdrawal of recognition can change the affected position's access to resources and opportunities. The effect depends on how much of the wider relational field is reachable without the connection. This makes relational power closely connected to exit, yet the directions differ. Exit power concerns the leverage created by one's own credible departure; relational power can involve the capacity to alter whether another position remains connected.

Network position is evidence only when linked to mechanism. High degree centrality, betweenness, prominence, or visibility can indicate potentially important location while leaving practical conditioning capacity uncertain. A highly connected actor can face strong competition and little gatekeeping control. A low-degree node can control a unique bridge. A small institution can occupy a legally necessary interface. Relational power therefore requires analysis of which paths depend on the position, which substitutions exist, and which actions the position can practically undertake.

Higher-order relations can distribute relational power across configurations. A supply arrangement can depend jointly on finance, certification, logistics, and legal recognition. A worker's access to employment can depend on the relation among educational credentials, immigration status, professional licensing, and employer practices. A public programme can depend on coordination among multiple agencies. In such cases, no dyadic relation alone carries the complete conditioning mechanism. Relational power can be located in the architecture connecting several relations and the positions able to reorganize that architecture.

Relational power can expand collective capacity as well as constrain it. Intermediaries can reduce search costs, establish trust, translate among heterogeneous systems, coordinate standards, pool risk, and sustain cooperation. The same central position can become a bottleneck if alternatives disappear or rules become difficult to contest. The normative analysis therefore concerns governance and the terms of relation, while centrality alone remains descriptively incomplete.

Relational power can migrate without major changes in resource ownership. Technological interoperability can bypass an intermediary; regulation can create open access; a new platform can shift network concentration; collective organization can create alternative relations; vertical integration can internalize a formerly external dependency. These changes illustrate the historical contingency described in Proposition 16.5. The relevant power form changes when the relational architecture changes.

16.4.5 Institutional Power

Institutional power arises where rules, offices, mandates, procedures, recognized authorities, and organizational roles provide practical capacities to condition economic relations. Institutions can authorize, prohibit, classify, adjudicate, allocate, license, certify, tax, subsidize, procure, employ, regulate, insure, record, or enforce. These capacities can shape economic action even where the institution possesses limited direct ownership of resources.

Definition 16.22 (Institutional power)**.** *Institutional power* is economic power whose principal conditioning mechanism arises from institutionally constituted competences, roles, procedures, mandates, or rule-governed authorities that enable a position or organized configuration to authorize, prohibit, classify, allocate, interpret, adjudicate, enforce, review, or otherwise condition economically consequential action.

Formal authority is an important source of evidence, while practical efficacy remains necessary. A regulator can possess a statutory competence yet lack staff, information, jurisdictional reach, or enforcement capacity. A manager can possess formal authority that depends on technical teams for implementation. A court can issue judgments whose economic effect depends on enforcement and institutional compliance. A cooperative assembly can possess formal decision rights that are weakly exercised if participation is inaccessible. Institutional power therefore lies in the relation between constituted competence and the practical mechanisms through which that competence conditions action.

Rule formation is one pathway. Institutions can establish eligibility criteria, contract rules, reporting standards, licensing requirements, procurement conditions, property rights, labor rules, tax obligations, or administrative procedures. Rule interpretation is another pathway because general provisions often require application to particular cases. Institutional power can therefore be located both upstream, where rules are created, and downstream, where they are interpreted, implemented, and reviewed.

Procedural sequencing also matters. The office that determines when an application is heard, which evidence is admissible, whether an appeal suspends enforcement, who receives notice, or which issue enters an agenda can condition outcomes

without changing substantive rules. Such capacities overlap with temporal and epistemic power, yet their institutional basis is distinctive. The mechanism derives from a recognized procedural position that organizes access to decision and review.

Institutional power can be distributed through checks, delegation, and overlapping competences. Legislatures, executives, courts, regulators, professional bodies, audit institutions, local governments, organizations, and civil society arrangements can each condition different parts of an economic process. Distributed institutional power can reduce unilateral control, create review pathways, and increase accountability. It can also produce fragmentation, delay, jurisdictional conflict, or opaque responsibility. Mapping institutional power therefore requires attention to the specific competence and its relation to other offices.

Private institutions can carry institutional power as well. Firms, associations, universities, certification bodies, exchanges, standards organizations, cooperatives, and platforms can create rule-governed positions that shape access and participation. The economic significance depends on the reach of the institution and the availability of alternatives. A private rule can become widely consequential where network effects, market concentration, contractual dependence, professional recognition, or infrastructural integration make participation difficult to substitute.

Institutional power can remain legitimate and still warrant analysis as power. Democratic authorization, legal mandate, fiduciary duty, professional responsibility, or member consent can provide grounds for authority while leaving the conditioning capacity analytically present. Conflating legitimacy with absence of power would make it difficult to examine accountability, scope, safeguards, or unintended consequences. The normative task asks whether and how the power is justified; the descriptive task identifies how it operates.

Institutional power can also sediment historical arrangements. Rules and offices can persist after their original purposes change, and participants can organize their expectations around them. Reform therefore often changes more than a written rule. It can require administrative capacity, data systems, professional practices, infrastructure, budgets, and recognized procedures. Section 16.5 will examine this reproduction more directly, while Sections 16.16–16.20 later return to governance and institutional adaptation.

16.4.6 Infrastructural Power

Within this chapter, *infrastructural power* has a deliberately scoped GRE meaning: it concerns conditioning capacity carried through enabling economic systems and interfaces. Infrastructure enables economic processes by connecting positions to shared systems of transport, communication, payment, energy, data, logistics, identity, storage, compute, standards, or other forms of coordinated support. Infrastructural power emerges when control of, privileged access to, or governance of these enabling systems can materially condition the action and future possibilities of dependent positions. The relevant mechanism often concerns access to a pathway through which many other resources and relations become usable.

Definition 16.23 (Infrastructural power)**.** *Infrastructural power* is economic power whose principal conditioning mechanism arises from practical control over, privi-

leged access to, or governance of an enabling material, technical, informational, logistical, or organizational infrastructure on which other economically relevant positions depend for access, coordination, conversion, circulation, or continuity.

Infrastructure differs from an ordinary resource because its significance often lies in mediation. A payment system enables financial claims to be settled; a transport network enables goods and persons to move; an identity system enables participants to be recognized; a cloud or compute infrastructure enables digital services to operate; a technical standard enables components to interoperate. Control over the enabling interface can therefore condition a wide range of downstream activities even where the controller does not own the goods, firms, or data that depend on the system.

Routing and capacity allocation are important mechanisms. A port, network, data center, grid, payment rail, logistics hub, or platform can face finite capacity. Decisions about priority, queueing, congestion, maintenance, access tiers, or technical compatibility can redistribute delay and opportunity. The infrastructure can therefore carry temporal and resource power alongside infrastructural power. Decomposition remains useful because governance remedies differ depending on whether the problem lies in total scarcity, discriminatory allocation, technical incompatibility, or control over the interface.

Standards create another pathway. Technical and procedural standards can enable interoperability, reduce uncertainty, and expand collective capacity. They can also make participation dependent on compatibility with a particular architecture. A standard becomes power-relevant where one position or organized configuration can materially condition whether others can connect, comply, migrate, or interoperate. Open standards, portability, redundancy, and modularity can reduce dependence; proprietary or difficult-to-substitute interfaces can intensify it.

Infrastructural power can become inconspicuous because successful infrastructure recedes into the background of ordinary action. Participants can experience an interface as simply the way transactions, communication, identification, or logistics work. This routine character does not establish domination. It does mean that power analysis should examine the conditions under which infrastructure can be changed, who bears failure and maintenance costs, whether alternatives exist, and which positions can participate in rule formation or review.

The distinction between infrastructural and institutional power concerns the principal carrier. A payment network can be infrastructural because its technical and organizational architecture mediates transactions, while the central bank or regulator can exercise institutional power through legal competence. The two can be tightly coupled. A rule can be encoded into infrastructure; infrastructure can make institutional rules practically enforceable; an institutional mandate can require open access or interoperability. Cases should therefore identify the mechanism at the level at which conditioning occurs.

Public infrastructure illustrates why infrastructural power carries no fixed normative direction. Reliable transport, healthcare systems, energy grids, communication networks, payment systems, public records, and shared digital infrastructure can expand capabilities and reduce private dependence. Their operation still involves choices about access, priority, maintenance, pricing, standards, and resilience. An-

alyzing those choices as power does not prejudge their legitimacy. It makes their distributional and relational consequences available for later governance analysis.

Infrastructure is also temporally durable. Large fixed investments, technical standards, installed equipment, accumulated data, and organizational routines can make switching costly and can preserve power relations after ownership or leadership changes. This durability can create lock-in, yet it can also support reliable coordination and long-term investment. Section 16.5 will examine how such durable structures reproduce power, while Section 16.17 later considers law as one mechanism for protecting and governing generative fields.

16.4.7 Symbolic Power

Within this chapter, *symbolic power* denotes economic conditioning carried through recognized representations and status relations; the term is used as a scoped GRE category and does not attempt a comprehensive reconstruction of any single sociological theory of symbolic power. Economic relations depend extensively on symbols and shared systems of recognition. Credentials, titles, reputations, ratings, brands, rankings, categories, certificates, records, prices, organizational identities, and public narratives can affect which positions are trusted, admitted, financed, hired, heard, purchased from, or treated as legitimate. Symbolic power emerges where control over, possession of, or privileged influence within such recognized forms materially conditions economic access or value realization.

Definition 16.24 (Symbolic power)**.** *Symbolic power* is economic power whose principal conditioning mechanism arises from socially or institutionally recognized symbols, statuses, classifications, reputations, credentials, rankings, labels, or representational forms that materially shape another position's recognition, access, valuation, credibility, participation, or feasible economic trajectories.

Symbolic power depends on recognition. A title has little conditioning capacity where relevant audiences do not recognize it. A credential matters because institutions treat it as evidence of status or eligibility. A rating matters because investors, consumers, employers, or regulators respond to it. A brand matters because recognition affects demand or trust. A public classification matters because it organizes how a subject appears within an institutional environment. The power mechanism therefore lies in the relation among symbol, recognized interpretive order, and practical consequence.

This form should be distinguished from epistemic power. Epistemic power concerns the organization of knowledge, evidence, measurement, classification, and interpretive authority. Symbolic power concerns the practical efficacy of recognized representation and status. The forms often overlap. A credential can carry epistemic content about training while also functioning symbolically as a recognized marker of professional standing. A rating can summarize evidence while acquiring a reputation that influences action beyond the underlying information. A classification can be epistemically motivated and symbolically consequential.

Symbolic power should also be distinguished from institutional power. Institutional recognition can give a symbol formal force, as when a license or legal status determines eligibility. Symbolic power can also operate through dispersed social recog-

nition without a single formal authority. Reputation, prestige, occupational status, brand recognition, and community standing can affect economic relations through expectations distributed across many participants. The absence of centralized rule-making does not eliminate the conditioning mechanism when recognition is stable enough to affect access or valuation.

Symbolic power can shape conversion between capability and economic opportunity. Valuable knowledge or skill can generate limited opportunity when it lacks recognized credentials, language, reputation, institutional affiliation, or a legible record. Conversely, a recognized symbol can open access to networks, employment, finance, or decision arenas. Chapter 1 already emphasized that productive capacity and institutional recognition can diverge. The present taxonomy locates that divergence within a power analysis when recognized symbols condition whose capabilities can become economically consequential.

Symbolic systems can also alter value processes. Labels such as premium, safe, compliant, accredited, local, sustainable, risky, unreliable, innovative, or obsolete can influence demand, investment, procurement, and organizational treatment. Some labels are carefully evidenced; others emerge through reputation, strategic communication, social convention, or historical status. The epistemic adequacy of the label and its symbolic economic efficacy therefore require separate assessment. A false or weakly grounded representation can still have practical consequences, while a well-grounded representation can lack recognition.

Symbolic power can become unstable when symbol production becomes abundant or the relation between symbol and referent weakens. Verification, provenance, trusted intermediaries, institutional reputation, and historical records can become more important under such conditions. This instability can redistribute power toward positions able to authenticate, certify, rank, or maintain trusted symbolic relations. The mechanism can then combine symbolic, epistemic, institutional, and infrastructural forms.

The presence of symbolic power does not imply that shared symbols are dispensable. Economic coordination requires representations, categories, records, prices, credentials, and forms of recognition. The governance problem concerns how symbolic systems are produced, revised, contested, verified, and connected to affected positions. Later sections on participation, heterogeneous values, and epistemic dimensions will return to those conditions.

16.4.8 Temporal Power

Temporal power develops the asymmetries identified in Chapter 15. Economic positions differ in their ability to wait, accelerate, delay, sequence, commit, synchronize, absorb interruption, preserve options, and act before opportunities close. These differences become power when timing is connected through an identifiable mechanism to another position's feasible action or future trajectories. Time therefore enters economic power through organized conditions of dependence, exposure, and option preservation.

Definition 16.25 (Temporal power)**.** *Temporal power* is economic power whose principal conditioning mechanism arises from a position's practically effective capacity to

set, exploit, absorb, accelerate, delay, sequence, synchronize, or endure economically consequential timing in ways that materially condition another position's feasible action or future trajectories.

Waiting capacity is one pathway. A position with reserves, legal protection, organizational slack, secure housing, diversified income, or low carrying costs can continue through delay while another position faces escalating losses. Bargaining can therefore change even when nominal rights remain equal. The position able to wait can reject unfavorable terms for longer, preserve more alternatives, and allow time pressure to contract the other position's option set. Temporal power here is closely connected to resources, yet the immediate mechanism is asymmetric exposure to time.

Deadline control is another pathway. Employers, regulators, courts, platforms, lenders, buyers, funders, and administrative bodies can sometimes establish or interpret deadlines that determine when action must occur. A deadline can improve coordination and accountability while also allocating risk. Short response windows can disadvantage positions requiring translation, consultation, financing, travel, legal advice, or caregiving arrangements. Long procedures can favor positions able to finance waiting. Power analysis therefore examines who can set or change the temporal rule and whose alternatives contract as the interval changes.

Sequencing can also create conditioning capacity. The order in which decisions, disclosures, approvals, payments, consultations, or investments occur can affect later feasible action. An actor who moves first can establish standards, acquire scarce assets, or create commitments that later positions must take into account. An actor who controls agenda sequence can delay an issue until alternatives disappear. A lender can condition disbursement on prior actions. A regulator can phase compliance. Temporal power can therefore operate through partial order as well as clock time.

Acceleration can be power-relevant where speed changes competitive or institutional access. High-frequency execution, rapid procurement, fast legal response, immediate data processing, or the ability to mobilize capital quickly can allow one position to occupy opportunities before others can respond. The analytical claim should remain specific. Speed itself is a capability; it becomes temporal power when another position's opportunities or feasible responses are materially conditioned through the timing advantage.

Long horizons can matter as much as speed. Governments, endowments, large firms, pension funds, infrastructure operators, or durable institutions can sometimes make commitments over periods inaccessible to short-horizon participants. Long-term orientation can support valuable investment and stability. It can also allow a position to withstand temporary losses, influence standards, or shape trajectories whose costs or benefits appear after other participants have exited. Temporal power therefore includes horizon asymmetry and endurance as well as immediate delay.

Timing can be embedded in institutions and infrastructures. Settlement cycles, contract maturities, benefit waiting periods, visa deadlines, procurement schedules, court calendars, platform response windows, maintenance cycles, and debt repayment structures can allocate temporal burdens without continuous discretionary decisions. Attribution should identify the rule or configuration that carries the timing mechanism and the positions capable of revising it. Historical analysis can then ex-

amine how a temporal arrangement became stabilized and which alternatives were available.

Temporal power is especially relevant to governance near criticality. Delayed information, slow procedures, irreversible commitments, and unequal response speed can amplify consequences when systems are highly sensitive. Yet faster intervention is not uniformly preferable. Deliberation, verification, due process, and coordination require time. The governance question concerns the distribution of temporal capacity and the fit between decision speed, reversibility, uncertainty, and exposure. Section 16.15 develops those issues explicitly.

16.4.9 Exit Power

Exit power is grounded in the exit-capacity concept developed in Chapter 10: the practical ability to leave or substantially relocate from a relation or institutional arrangement under actual material, legal, informational, temporal, and relational conditions. Chapter 15 then showed that exit depends on whether an alternative trajectory is practically reachable within the relevant horizon. The present subsection identifies the additional relational condition under which exit capacity becomes a form of power.

Definition 16.26 (Exit power)**.** *Exit power* is economic power whose principal conditioning mechanism arises from a position's credible capacity to leave, withdraw, switch, relocate, terminate participation, or reallocate consequential resources or capabilities where other positions or the wider relation materially depend on continued participation.

The distinction between exit capacity and exit power is essential. A consumer can switch between two nearly identical products without affecting either provider materially. The person possesses exit capacity while exercising little power through it. Exit becomes power-relevant when continued participation matters to another position or to the configuration as a whole. A large customer can credibly withdraw demand; specialized workers can leave an organization; investors can reallocate capital; residents can leave a tax jurisdiction; members can exit an association; suppliers can cease delivery; users can migrate from a platform. The effect depends on scale, dependence, alternatives, coordination, and timing.

Credibility matters because threatened exit can condition behavior before departure occurs. A counterparty can offer better terms when it expects that withdrawal is feasible and costly to the relation. The power mechanism therefore depends on the actor's actual alternatives and the other side's belief that those alternatives can be used. Empty threats provide weak evidence of exit power. Portability, financial reserves, substitute relations, mobility, legal permission, transferable credentials, interoperable data, and social networks can each strengthen credible exit.

Exit power can be collective. Workers acting individually may have limited alternatives while coordinated withdrawal creates substantial leverage. Consumers can organize boycotts. Members can collectively leave an organization. Suppliers can coordinate refusal. Collective exit can transform many weak individual capacities into a significant conditioning mechanism. The legal and institutional environment can expand or restrict this possibility through labor law, competition law, association

rights, contractual rules, or platform design.

Exit power can also be highly asymmetric. Mobile capital can leave a locality more easily than workers tied by housing, family, language, legal status, or occupation. A platform can remove a participant while the participant cannot recreate the network elsewhere. An employer can close a facility while a community cannot relocate public infrastructure. A wealthy household can leave a deteriorating service environment while remaining residents inherit fixed costs. Such asymmetry can affect bargaining and governance even before exit occurs.

The residual burden of exit is therefore part of the power analysis. Departure can transfer costs, liabilities, maintenance obligations, risk, or reduced scale to those who remain. A firm closing a site can leave environmental or social burdens; a large contributor leaving a collective scheme can raise costs for remaining participants; skilled workers leaving a public system can reduce its capacity; affluent exit from shared institutions can weaken political support for common provision. Exit power can thus condition both direct counterparties and third parties embedded in the relation.

Exit can nevertheless provide an important protection against concentrated power. Portability, interoperability, mobility, alternative providers, independent income, legal rights, and transferable benefits can reduce dependence and make contestation more credible. Governance that protects exit can therefore redistribute power. At the same time, universal reliance on exit can weaken collective goods where durable participation is necessary. The normative evaluation requires attention to voice, participation, public obligations, residual burdens, and the nature of the relation.

Exit power also interacts with temporal power. A nominal alternative can fail to generate leverage if it becomes available only after the relevant loss occurs. A participant can possess long-run mobility while remaining dependent during a short-run crisis. Conversely, a position with reserves can preserve the option to exit until a favorable moment. The timing of departure, notice periods, lock-in, vesting, maturity, portability, and transition support can therefore determine whether formal exit becomes practically credible power.

The nine forms developed in Section 16.4 provide a multi-form characterization with no implied hierarchy among forms. Resource control, capability, knowledge, relational position, institutional competence, infrastructure, symbolic recognition, temporal flexibility, and exit can reinforce or counterbalance one another. Their empirical relevance depends on the relation, mechanism, scale, and horizon. The next section turns from classification to persistence. Section 16.5 examines how these forms can reproduce themselves through accumulation, dependency formation, gatekeeping, classification, institutional reproduction, and intergenerational transmission, as well as how power relations can weaken or dissolve when the mechanisms supporting them change.

16.5 Reproduction of Power

Sections 16.1 and 16.4 established a mechanism-based account of economic power and distinguished several forms through which conditioning capacity can be carried. The present section adds the temporal problem of reproduction. Its role is to explain

how a power relation can remain operative, become stronger, migrate across carriers, or weaken after the conditions that first produced it have changed. The objective is to distinguish reproduction of power from persistence of an underlying asymmetry, repeated exercise of authority, accumulation in general, and retrospective inference from similar outcomes. The discussion proceeds through self-reinforcement, accumulation, dependency formation, gatekeeping, classification, institutional reproduction, intergenerational reproduction, and power dissolution. The method is historical and mechanism-oriented: a reproduction claim should identify what power-supporting condition is carried forward, through which process, across which interval, and with what evidence that the later conditioning capacity is historically connected to the earlier one.

The temporal distinction matters because economic power can outlast the event through which it became visible. A bargaining advantage can be converted into a contractual rule; a contractual rule can be embedded in organizational routines; a routine can be encoded in technical infrastructure; an infrastructure can generate data that strengthen epistemic capacity; and the resulting epistemic capacity can support later rule setting. The carrier of power can therefore change while a recognizable conditioning relation persists. The reverse can also occur. A visible asymmetry in resources or status can persist after the mechanism that once converted it into power has weakened. Reproduction analysis follows the mechanism rather than assuming continuity from surface similarity.

The chapter's earlier distinctions remain active. Economic dependence is defined relative to the capacity, alternatives, time horizon, and relational position under examination in Definition 12.114. Institutional relational infrastructure can reproduce rules, classifications, recognized positions, and enforcement capacities across events in Definition 12.46. Chapter 15 treats path dependence as a mechanism-specific condition in which realized history alters later transition structure through identifiable transmission mechanisms in Definition 15.17. Section 16.5 brings these earlier objects into power analysis while preserving their distinct meanings.

Definition 16.27 (Power reproduction)**.** For a specified relation, domain, and time horizon, *power reproduction* is a historically situated process through which one or more conditions, mechanisms, positions, or supports that make an economic power relation operative are maintained, regenerated, enlarged, transferred, or functionally replaced such that a materially consequential capacity to condition another position's feasible action or future trajectories remains available across successive episodes. A reproduction claim should identify the historical connection between the earlier and later power-supporting configuration rather than infer continuity from similar outcomes alone.

Definition 16.27 permits continuity without identity. The same actor can retain power through the same mechanism, as when a durable legal entitlement continues to condition access. Power can also be reproduced through organizational succession, technical substitution, institutional layering, accumulated expertise, inherited networks, or migration from one form of power to another. What requires explanation is the pathway through which later conditioning capacity is connected to earlier power-supporting conditions.

Table 16.3 summarizes the mechanisms developed in this section. The rows are

Table 16.3: Selected mechanisms in the reproduction and dissolution of economic power.

Mechanism	**Power-supporting condition**	**Diagnostic focus**
Self-reinforcement	Effects of earlier exercise become inputs into later conditioning capacity	Which consequences of earlier power increase later reach, reserves, authority, knowledge, dependence, or option control?
Accumulation	Resources, capacities, relations, authority, information, recognition, temporal slack, or alternatives persist and combine	What accumulates, who can use it, how is it converted, and whether control becomes more concentrated?
Dependency formation	Reliance deepens while practical alternatives, substitutability, or switching capacity become weaker	Which relevant capacity becomes more dependent, through which mechanism, and within which horizon?
Gatekeeping	Control or mediation of entry, access, certification, connection, or sequence remains consequential	Which boundary is governed, who can revise access conditions, and which alternative pathways remain practically available?
Classification	Categories shape visibility, eligibility, valuation, risk, status, or access and become recurrently enacted	Which categories carry consequences, how are they produced and revised, and how does institutional uptake alter later evidence or opportunity?
Institutional reproduction	Rules, roles, routines, records, jurisdiction, enforcement, and expectations carry conditioning capacity across events	Which institutional components reproduce the relation, through which organizations or practices, and with what contestability?
Intergenerational reproduction	Power-supporting assets, capacities, relations, statuses, institutions, burdens, or option structures cross generational positions	What is transmitted, through which family, market, public, legal, cultural, or ecological pathways, and how far does attribution extend?
Dissolution	Supporting mechanisms lose efficacy, legitimacy, exclusivity, enforceability, dependence, or practical reach	Which power-supporting condition has weakened, what replaced or counteracted it, and which residual asymmetries remain?

analytically distinguishable and frequently overlap in practice. Self-reinforcement can generate accumulation; accumulation can deepen dependence; gatekeeping can be institutionalized; classification can become infrastructural; and intergenerational transmission can carry several mechanisms at once.

Proposition 16.28 (Reproduction–persistence distinction)**.** *Within the present framework, persistence of an asymmetry or recurrence of a similar outcome is insufficient to*

establish reproduction of power. A power-reproduction claim requires an identifiable pathway through which an earlier power-supporting condition contributes materially to the availability, renewal, enlargement, transfer, or functional replacement of later conditioning capacity.

Proposition 16.28 places the evidential burden on mechanism and historical connection. A wealth difference can persist while bargaining power shifts because regulation, collective organization, technological substitution, or public provision changes the conversion mechanism. Conversely, an ownership difference can shrink while infrastructural, epistemic, or institutional power remains stable through a different carrier. Reproduction analysis therefore follows both continuity and transformation.

Proposition 16.29 (Carrier substitution in reproduced power)**.** *A power relation can be reproduced across a change in its principal carrier when a historically connected mechanism transfers or reconstructs materially consequential conditioning capacity in another form. Continuity of the same resource, organization, rule, or actor is therefore unnecessary where the later power relation is supported by a traceable substitution pathway.*

Proposition 16.29 extends the compositionality developed in Proposition 16.17. A resource advantage can finance infrastructure; infrastructure can generate data; data can support epistemic classification; classification can become institutionalized; institutional authority can then preserve access conditions after the original resource advantage has become less important. The resulting history contains continuity of power-supporting capacity together with transformation of form. Such claims remain case-specific because similar sequences can also produce diffusion, competition, or loss of power.

16.5.1 Self-Reinforcement

Self-reinforcement provides a direct recursive mechanism of power reproduction. It occurs when the exercise, effect, or institutional recognition of a power relation changes later conditions in a direction that strengthens one or more mechanisms supporting that relation. The relevant feedback can operate through resources, capabilities, information, network position, authority, infrastructure, symbolic recognition, time, or exit alternatives. Self-reinforcement therefore concerns a historical relation between episodes rather than the mere fact that the same position remains advantaged.

Chapter 15's path-dependence architecture provides the appropriate temporal discipline. A self-reinforcement claim should identify an earlier event or configuration, the mechanism carrying its effect, and the later transition structure altered by that mechanism. Repeated success alone provides weak evidence because both the earlier and later outcomes can arise from a third condition. The analytical question is whether consequences generated through an earlier exercise of power become inputs into later conditioning capacity.

Resource power provides a familiar pattern. Access to finance, land, inventories, productive assets, or liquidity can permit a position to acquire further assets, survive adverse intervals, invest in complementary systems, or accept losses that competitors

and counterparties cannot sustain. These consequences can widen later bargaining ranges or strengthen credible exit. Yet the same resource expenditure can reduce reserves, generate debt, provoke competition, or create maintenance obligations. Resource use is therefore self-reinforcing only where the realized consequences materially strengthen later power-supporting conditions.

Capability power can reinforce itself through learning, practice, organizational memory, and access to more demanding tasks. A firm entrusted with complex projects can develop expertise that makes it more likely to receive later projects. A professional group recognized as authoritative can receive more opportunities to exercise judgment and thereby accumulate specialized experience. A public agency with established implementation capacity can be delegated additional functions. These processes can improve collective performance while also concentrating capabilities that later participants depend upon. The power implication follows from the distribution and convertibility of the accumulated capability rather than from competence itself.

Epistemic power can become recursive where earlier access to information creates better opportunities to generate, acquire, interpret, or validate later information. A platform with more users can observe more transactions; an organization with privileged reporting access can improve forecasts; a recognized evaluator can receive higher-quality submissions; an institution whose classifications are widely used can accumulate data formatted around those classifications. Such feedback can increase accuracy and coordination. It can also make alternative epistemic infrastructures comparatively costly, thereby deepening dependence on the established position. The empirical analysis should examine both epistemic performance and the changing distribution of access to evidence, interpretation, and revision.

Relational and infrastructural power can reinforce through connectivity. A bridge that attracts additional participants because many participants are already connected can become more consequential to coordination. Infrastructure adopted by complementary systems can become harder to replace as compatibility investments accumulate. A standard can generate a surrounding ecosystem of tools, training, contracts, and expectations. These mechanisms resemble the increasing-return and network-effect pathways already examined under path dependence, while power analysis adds a relational question: which positions gain conditioning capacity as the network or infrastructure expands, and which positions acquire stronger dependence on continued access?

Institutional and symbolic forms can also reinforce. Repeated recognition of an authority can strengthen expectations that its decisions will be followed. A credential can gain value as more organizations accept it. A legal interpretation can become a precedent for later decisions. A reputation for reliability can attract high-quality collaborators, which further supports the reputation. These mechanisms can provide valuable stability and coordination. Their power significance depends on who can confer, withdraw, reinterpret, or contest the recognized status and on the consequences of exclusion.

Self-reinforcement can involve countervailing feedback. Exercise perceived as excessive can stimulate organization, regulatory scrutiny, technological substitution, public provision, litigation, exit, or reputational loss. A gatekeeper can attract com-

petitors; a restrictive standard can motivate interoperability; concentrated expertise can produce training initiatives; a dominant infrastructure can induce redundancy planning. Power reproduction therefore operates within a field containing reinforcing and weakening mechanisms. Historical analysis should reconstruct their relative timing and strength rather than assume that initial advantage compounds indefinitely.

The recursive form of power is especially important because it alters the meaning of later asymmetry. An observed difference at time t_2 can partly reflect a feedback generated by power exercised at t_1. This does not make the later asymmetry normatively defective by definition. It does mean that distribution at t_2 can be historically endogenous to earlier relational conditions. Subsequent sections on justice can then ask whether the relevant reproduction process was procedurally acceptable, substantively harmful, exclusionary, reparable, or otherwise normatively significant.

16.5.2 Accumulation

Accumulation is a second mechanism through which power-supporting conditions can persist and combine. Chapter 14 distinguished value accumulation from value concentration: value-bearing conditions can accumulate without becoming more concentrated, and concentration can change without a corresponding increase in aggregate value. Power analysis retains this distinction. Accumulation relevant to power concerns the persistence, expansion, combination, or increasing usability of conditions that can later be converted into conditioning capacity; it does not imply that everything accumulated is power or that several forms can be added into a single scalar stock.

The accumulated object can be material or financial. Reserves, productive assets, collateral, property claims, inventory, legal entitlements, or access rights can improve a position's capacity to withstand delay, finance alternatives, influence terms, or survive failed negotiations. Yet the power consequence depends on the relation. A large asset can be illiquid, legally encumbered, technologically obsolete, geographically fixed, or irrelevant to the counterpart's dependence. Power-supporting accumulation therefore requires analysis of convertibility rather than measurement of quantity alone.

Capabilities can accumulate through education, training, practice, organizational learning, technical systems, routines, and retained expertise. Accumulated capability can expand autonomy and reduce dependence. It can also create power when other positions rely on capabilities that remain difficult to reproduce or substitute. The same capability can therefore reduce one relation of dependence while creating another. This bidirectional possibility is important in complex production and governance systems where specialization increases collective capacity and simultaneously creates bottlenecks.

Epistemic accumulation includes data, records, models, archives, measurement infrastructures, interpretive expertise, institutional memory, and validated procedures. These resources can support better decisions and cumulative learning. They become power-supporting where access to them, authority to interpret them, or capacity to convert them into consequential classifications is unevenly distributed. The distinc-

tion between accumulated knowledge and accumulated epistemic power should remain explicit. Widely accessible knowledge can increase collective capacity while reducing the exclusivity on which a previous power relation depended.

Relational accumulation occurs when repeated interaction generates networks, trust, brokerage position, audience, membership, or privileged interfaces that later facilitate coordination or access. Symbolic accumulation can occur through reputation, prestige, recognized expertise, certification, or legitimacy. Institutional accumulation can occur through jurisdiction, precedent, procedural competence, enforcement capacity, or durable standing. Temporal accumulation can appear as reserves that permit waiting, long-horizon commitments, or repeated early access to decisions. Exit alternatives can accumulate through portable credentials, savings, substitute relations, mobility, interoperability, and diversified income. The nine forms in Section 16.4 therefore admit distinct but interacting accumulation pathways.

Cross-form conversion can make accumulation particularly consequential. Financial resources can purchase technical capacity; technical capacity can produce information; information can support reputation; reputation can open institutional access; institutional access can improve information and resource acquisition. The sequence can also run in other directions. Such conversion does not imply perfect substitutability among forms. A legal mandate cannot always be purchased, trust cannot always be manufactured quickly, and technical expertise may remain useless without institutional recognition. Reproduction analysis should identify the actual conversion interface rather than assume frictionless transformation.

Accumulation can become detached from the actor that initiated it. A founder can leave while organizational routines persist. A public official can be replaced while a jurisdiction remains. A generation of engineers can retire while technical standards, documentation, and infrastructure preserve the architecture they built. A family can lose a particular asset while retaining networks, credentials, location, or educational advantages produced through earlier wealth. These cases illustrate carrier substitution in Proposition 16.29: power-supporting conditions can persist through institutional, relational, or technical memory even when personal continuity disappears.

Accumulation also requires maintenance. Assets depreciate, expertise becomes obsolete, relationships weaken, records decay, legitimacy can erode, institutional authority can be reallocated, and exit alternatives can disappear. Some positions must devote resources to maintaining the conditions that support their power. The cost and fragility of maintenance are analytically important because a seemingly durable power relation can depend on continuous investment, enforcement, or coordination. Where maintenance becomes too costly or countervailing institutions expand alternatives, accumulated power-supporting conditions can cease to reproduce the earlier relation.

16.5.3 Dependency Formation

Dependency formation concerns changes in the relational architecture through which one position's relevant capacity comes to rely more heavily on conditions supplied, controlled, mediated, or sustained elsewhere. The concept begins with economic dependence in Definition 12.114. The present subsection focuses on its

historical formation because dependence can itself become an outcome of earlier coordination, specialization, investment, rule design, or power exercise and can subsequently support reproduction of power.

Dependence often arises through productive cooperation. Specialized production systems rely on complementary skills and inputs; households rely on infrastructures; firms rely on payment systems and standards; researchers rely on data, instruments, and publication channels; governments rely on expertise and administrative capacity. Such dependence can expand collective capability and reduce costs. Power reproduction becomes analytically relevant where the dependence becomes sufficiently asymmetric, difficult to substitute, or unequally exposed that one position acquires renewed capacity to condition another position's action.

Specific investment is one pathway. A supplier can invest in equipment tailored to one buyer; workers can develop skills tied to one technical ecosystem; households can locate around one transport system; software developers can build around one platform interface; public agencies can organize records around one proprietary standard. These investments can create efficiency and coordination while increasing switching costs. If the position governing the complementary resource, standard, or interface can subsequently alter access conditions, the earlier investment can become a mechanism reproducing power.

Compatibility can create similar effects. The value of a device, credential, dataset, payment method, language, or technical standard often depends on surrounding systems that recognize it. Participants who adopt one system can accumulate complementary investments that make alternatives less reachable. The resulting dependence can arise without deliberate exclusion. A power-reproduction claim requires additional evidence that a position with control or privileged influence over the relevant interface can materially condition those whose alternatives have narrowed.

Financial relations can generate dependency through debt service, collateral requirements, liquidity cycles, payment timing, refinancing needs, or repeated emergency borrowing. Credit can expand capability by allowing investment and consumption smoothing. It can also create temporal exposure if one position can withstand delay while another faces default or loss of essential assets. The reproduction mechanism lies in the interaction among obligation, alternatives, timing, and control over consequential terms. Debt size alone does not reveal the direction or intensity of power.

Institutional status can create dependency when access to work, residence, benefits, markets, professional practice, or organizational participation depends on permissions whose renewal or interpretation is controlled elsewhere. The economic effect can be especially strong where the status is difficult to transfer across institutions or jurisdictions. Dependence can also arise through information. Participants who cannot independently observe quality, price formation, eligibility, risk, or rule changes may rely on an intermediary's classifications or explanations. These forms prepare the later analysis of manufactured vulnerability while remaining, at this stage, descriptive mechanisms of power reproduction.

Dependency formation can be recursive. Once switching becomes costly, the dependent position can invest less in alternatives because the expected return to diver-

sification falls. The dominant provider or institution can then receive more activity, data, revenue, legitimacy, or complementary investment, strengthening the mechanisms described under self-reinforcement and accumulation. A relation that began as convenient coordination can therefore become historically harder to exit even without a single intentional decision to create lock-in.

Countervailing mechanisms can reverse the process. Interoperability, portability, public options, diversification, mutualization, transferable benefits, retraining, redundancy, open standards, legal protection, collective bargaining, or infrastructure investment can expand effective alternatives. Dependency formation and dependency reduction should therefore be analyzed symmetrically as transformations of access and substitution conditions. The normative significance depends on the purpose of the relation, distribution of burdens and benefits, quality of alternatives, and procedures through which dependence is created or revised.

A final distinction concerns dependence from power and dependence produced by power. An actor can acquire power because another position is already dependent. The actor can then use or institutionalize that power in ways that deepen the dependence. Historical analysis should keep these stages distinguishable where evidence permits. Doing so prevents circular explanations in which dependence is simultaneously treated as unexplained cause and consequence of power.

16.5.4 Gatekeeping

Gatekeeping reproduces power by organizing consequential boundaries. Economic processes contain boundaries around markets, professions, organizations, networks, platforms, infrastructures, credit systems, public benefits, licenses, standards, supply chains, data environments, and decision arenas. A position that can admit, exclude, sequence, certify, connect, prioritize, or condition entry can become power-relevant where access to the bounded field matters and practical alternatives are limited.

Gatekeeping is a function before it is a power judgment. Many boundaries support safety, quality control, coordination, privacy, fiduciary responsibility, scarcity management, or lawful allocation. Professional licensing can protect users; infrastructure access rules can preserve reliability; financial screening can manage default risk; research review can protect participants; procurement qualification can reduce implementation failure. The power question concerns who can set, interpret, revise, or selectively apply the boundary conditions and what consequences follow for positions dependent on access.

A gate can concern initial entry. Hiring, admissions, licensing, credit approval, procurement qualification, investment screening, membership, certification, and platform onboarding each determine whether a position can enter a consequential relation. A gate can also concern continued participation. Renewal, recertification, ranking thresholds, account suspension, performance review, collateral maintenance, reporting compliance, or changing technical requirements can repeatedly condition access after entry. Recurrent gates can reproduce power more strongly than a one-time admission decision because continued participation remains contingent on an external decision process.

Gatekeeping can operate through sequence and priority. Queue placement, search

ranking, scheduling, settlement order, processing priority, agenda control, referral, and routing can alter which opportunities remain reachable even when formal access is open. Temporal power and gatekeeping therefore overlap. The boundary can also be relational: brokers, distributors, payment processors, professional networks, and intermediaries can connect otherwise separated regions of an economic topology. Chapter 12's analysis of bridging positions already showed that a bridge becomes power-relevant when alternative pathways are scarce and the bridge's function is consequential.

Technical and institutional gatekeeping can be distributed. An access condition can be encoded in software, standards, documentation requirements, contractual templates, risk models, or administrative routines. An exclusion decision can be produced through distributed technical or administrative processes without an identifiable individual decision-maker at each event. Attribution should therefore distinguish the immediate decision carrier from the positions able to design, authorize, audit, revise, or replace the gate. Distributed gatekeeping can be especially durable because participants may experience the condition as a property of the system rather than as a contestable decision.

Gatekeeping reproduces power when control over the boundary preserves or enlarges the gatekeeper's conditioning capacity. Selecting entrants can shape the future composition of a profession or network; controlling certification can reinforce symbolic authority; controlling interfaces can generate infrastructural dependence; controlling information disclosure can strengthen epistemic advantage; controlling investment access can generate resource dependence. These mechanisms can operate together, making gatekeeping an important conversion interface among the forms identified in Section 16.4.

The diagnostic burden remains demanding. Exclusion from one channel provides weak evidence of gatekeeping power when equivalent channels are readily accessible. Conversely, nominal openness provides weak evidence of weak gatekeeping when costs, documentation, timing, language, location, technical compatibility, or recognition make alternatives practically unreachable. Analysis should therefore compare formal eligibility with effective access and identify the horizon within which an alternative must become usable.

Gatekeeping is also vulnerable to countervailing design. Appeal, review, transparency, interoperable standards, multiple providers, public alternatives, due process, anti-discrimination rules, distributed certification, data portability, and user representation can reduce concentrated control over a boundary. These arrangements commonly retain access boundaries while replacing unilateral gates with more contestable or plural structures. Section 16.18 later examines participation and contestability directly, while the present subsection establishes why those governance features can alter power reproduction.

16.5.5 Classification

Classification reproduces power when categories become consequential interfaces between description and action. Economic institutions continually classify persons, organizations, occupations, assets, risks, transactions, regions, credentials, products,

claims, and events. These categories can make complex fields legible and support coordination. Their power relevance arises where classification affects eligibility, visibility, valuation, priority, surveillance, obligation, access, or recognized standing and where authority over the classificatory system is unevenly distributed.

The analysis should distinguish classification from mere labeling. A category becomes economically consequential when recognized procedures or actors use it to allocate opportunities, obligations, attention, resources, or credibility. Credit categories can affect borrowing terms; employment classifications can affect pay, benefits, and legal status; procurement categories can determine eligibility; risk groups can alter insurance or inspection; educational credentials can structure occupational access; platform categories can affect ranking and reach. The category acquires power-relevant force through institutional uptake and practical consequence.

Earlier methodological chapters established two useful boundaries. Practical recognition concerns whether subjects, relations, experiences, capabilities, or claims become legible in forms adequate for consequential praxis. Decision-system performativity concerns situations in which classifications, forecasts, recommendations, or rules contribute to changes in the field that later generates evidence. Section 16.5 uses these earlier ideas to examine a specific power-reproduction mechanism: recurrent classification can shape the opportunities and observations through which later classification is produced.

Feedback can occur through selective opportunity. A classification that opens access to training, credit, employment, visibility, or high-quality clients can contribute to later outcomes used as evidence that the classified group or position deserved the initial status. A restrictive category can reduce opportunities to generate the records or achievements required for reclassification. Such feedback need not make the original classification false. The analytical issue is whether institutional use of the category materially contributes to the later evidence on which its continued application rests.

Data production can also be classification-dependent. Measurement systems record what their categories are designed to observe. Administrative records can become richer for populations already within institutional visibility while remaining sparse for positions outside recognized categories. Platform data can overrepresent behavior encouraged by platform design. Risk models can be trained on outcomes partly shaped by prior screening. Reproduction analysis should therefore distinguish evidence generated independently of the classification from evidence generated within a field reorganized by its use.

Classification can reproduce gatekeeping. Eligibility rules often convert continuous or multidimensional conditions into categorical thresholds. Thresholds can improve consistency and administrative tractability, yet they also create boundary positions where small differences in measured attributes produce large differences in access. The power analysis should identify who defines the threshold, which information is admissible, how uncertainty is handled, whether affected positions can contest the classification, and what alternatives remain available after an adverse decision.

Classification can also reproduce symbolic and epistemic power. Categories can

stabilize which actors count as experts, legitimate organizations, investable entities, high-quality institutions, compliant participants, or credible claimants. Once widely recognized, these categories can coordinate expectations across many actors and thereby become self-reinforcing. Established positions can receive more attention and opportunities, generating further records that confirm their recognized standing. Countervailing processes can arise through new metrics, independent verification, plural classification systems, or institutional reform.

The normative status of classification remains open at this stage. Accurate and contestable categories can improve allocation, safety, coordination, and accountability. Poorly specified or historically inherited categories can produce distortion or exclusion. The power-reproduction question is narrower: does a consequential classificatory architecture help maintain or reconstruct an uneven capacity to condition others' feasible actions or future trajectories, and through which pathway? Later justice sections can evaluate the fairness, recognition, participation, and historical legitimacy of that architecture.

16.5.6 Institutional Reproduction

Institutional reproduction is a central mechanism through which power can outlast particular transactions, officeholders, and organizations. Chapter 12 defined institutional relational infrastructure as stabilized configurations of rules, norms, recognized positions, classifications, procedures, expectations, records, enforcement capacities, and interpretive practices. It also established that institutional persistence and organizational persistence are analytically separable. Power reproduction can therefore occur through institutions even where the actors who originally exercised power have departed.

The relevant process is recurrent enactment. Rules acquire practical continuity through interpretation, compliance, enforcement, teaching, record keeping, budgeting, technical implementation, professional practice, and expectation. A formal entitlement that is never recognized or enforced can have weak practical effect. An informal convention can become highly consequential when recurrently enacted across organizations. Institutional power reproduction therefore requires attention to the practices through which a rule or recognized position remains operative.

Authority can be reproduced through role succession. A licensing office, court, regulator, employer, professional body, platform administrator, or standard-setting organization can retain recognized competence even as personnel change. The power relation then attaches partly to the office or institutional position rather than to an individual's personal resources. Succession can increase predictability and accountability because authority becomes rule-governed. It can also make power more durable by separating it from the continued presence or intention of any original actor.

Records and precedents carry institutional memory. Decisions can be stored in legal doctrine, administrative files, databases, technical standards, organizational routines, contracts, and training materials. Later actors can rely on these traces without reconstructing the historical conditions under which they were produced. Such memory reduces coordination costs and supports continuity. It can also reproduce classifications, exclusions, or authority structures after their initial rationale

has weakened. Historical re-epistemization becomes relevant when new evidence or categories change how inherited records should be interpreted.

Institutional layering can reproduce power while altering its form. New rules can be added around older arrangements, exceptions can be introduced, enforcement can move to a different organization, and technical systems can encode previously discretionary practices. The visible rule can therefore change while a functional conditioning mechanism persists. Conversely, apparent continuity in legal language can conceal substantial change when enforcement, interpretation, resources, or practical alternatives shift. Reproduction analysis should follow enacted effects as well as formal text.

Institutional reproduction can distribute power across a system. One organization may set standards, another collect evidence, another enforce compliance, and another hear appeals. No single position controls the whole relation, yet the combined architecture can condition participants strongly. Distributed institutional power is therefore compatible with fragmented agency. Attribution can be made at several levels: to specific decisions, to organizational roles, to institutional rules, or to the higher-order configuration through which their effects compose.

Institutional reproduction can also reduce power concentration. Constitutional limits, separation of functions, independent review, collective bargaining, due process, transparency, public options, competition rules, and participatory procedures can preserve constraints on powerful positions across personnel changes. Institutions are therefore carriers of both power and counter-power. The analytical question concerns which capacities they stabilize, for whom, and with what possibilities for revision.

The distinction between institutional reproduction and institutional stasis is essential. Institutions can reproduce through adaptation. Rules may be revised to preserve a function under new conditions; jurisdictions can be reorganized; procedures can become digital; informal expectations can change while core authority relations remain. Alternatively, an institution can retain familiar symbols while losing practical efficacy. Power reproduction should therefore be diagnosed through the continuity of conditioning mechanisms, not through formal sameness alone.

16.5.7 Intergenerational Reproduction

Intergenerational reproduction extends the analysis across generational positions. Chapter 14 already treated intergenerational accumulation as transmission of value-bearing conditions, capabilities, relations, institutions, ecological states, rights, burdens, and option structures. Power analysis adds a more specific question: which inherited conditions affect later capacities to condition others, resist conditioning, access alternatives, participate in institutions, or shape the option structures available to subsequent positions?

Material and financial transmission is one pathway. Property, business ownership, savings, debt, housing, insurance, location, and access to credit can alter later reserves, bargaining positions, waiting capacity, and exit alternatives. Formal inheritance is only one moment in this process. Earlier expenditures on education, housing, health, migration, professional preparation, or risk absorption can influence later ca-

pacity before assets are legally transferred. The relevant unit of analysis can therefore include family, household, lineage, community, organization, or public institution depending on the mechanism.

Capabilities can be transmitted through nutrition, education, language, professional knowledge, health, caregiving, expectations, socialization, and opportunities for practice. Some of these processes occur within households, while others depend heavily on schools, neighborhoods, labor markets, public services, and cultural institutions. Capability transmission can expand later autonomy and reduce vulnerability. It can become power-reproductive where inherited capability differences are converted into durable authority, gatekeeping position, scarce expertise, or control over consequential resources and where access to comparable capability formation remains uneven.

Relational transmission can occur through networks, membership, reputation, community standing, professional ties, customer relationships, and trusted introductions. Later participants can inherit access to a relational architecture they did not personally build. Symbolic transmission can operate through family name, institutional pedigree, recognized status, cultural familiarity, or accumulated legitimacy. Such inheritance is rarely mechanical. Networks can decay, reputations can change, and new institutions can create alternative routes. The reproduction claim should identify the pathway through which inherited relations become practically consequential.

Institutional and legal transmission can be even more durable. Property regimes, citizenship rules, zoning, public debt, pension systems, licensing structures, educational institutions, infrastructure, taxation, and environmental regulation can distribute capacities and obligations across generations. Later cohorts inherit both enabling institutions and constraints generated by earlier decisions. Power can therefore be reproduced without a direct transfer between identifiable individuals where institutional architecture carries differentiated positions forward.

Public infrastructure is a particularly important case because intergenerational transmission need not be private or concentrative. Earlier investment in transport, sanitation, education, scientific institutions, public health, open standards, archives, and social insurance can broaden later capacities and reduce dependence on concentrated private providers. Intergenerational reproduction of power can therefore be countered by intergenerational reproduction of shared capacity. The relevant analysis concerns how inherited infrastructures distribute access, resilience, voice, and alternatives among later positions.

Burdens also transmit. Debt, environmental degradation, depleted resources, contaminated land, obsolete infrastructure, legal obligations, unresolved conflict, institutional distrust, and degraded public capacity can reduce later option spaces. These inherited burdens can strengthen power relations if they increase dependence on positions controlling scarce remedies, finance, knowledge, or mobility. Yet inherited burden should not be equated automatically with reproduced power. The claim requires a mechanism connecting the burden to a later capacity of some position to condition others.

Intergenerational attribution requires particular restraint. Long historical inter-

vals contain institutional reforms, migration, demographic change, technological substitution, collective action, market transformation, and many other intervening conditions. Similar present inequalities can emerge through different pathways. A responsible analysis should therefore specify the transmitted object, carrier, sequence, and evidential uncertainty. Historical justice in Section 16.11 will require this reconstruction before questions of repair or restitution can be evaluated.

Intergenerational analysis should specify the generational boundary relevant to the inquiry. Family inheritance commonly concerns succession across human generations, while public finance, infrastructure, environmental conditions, and institutional change can be studied across demographic or political cohorts. Organizational succession by itself belongs primarily to institutional reproduction in Subsection 16.5.6. The intergenerational category is most useful where later persons or cohorts enter an economic relation after important power-supporting conditions have already been generated and inherited through identifiable pathways.

Intergenerational reproduction can be interrupted. Progressive public provision, inheritance rules, educational expansion, new technologies, mobility, institutional reform, land redistribution, antidiscrimination measures, open infrastructure, or collective organization can alter the conversion of inherited conditions into later power. Conversely, policy change can strengthen private transmission or weaken shared capacities. Reproduction is therefore a historically contingent process whose mechanisms remain open to transformation.

16.5.8 Generative-Landscape Deformation

The new power formalism adds a more precise route by which reproduction can occur. A relational power structure can deform the landscape of admissible or comparatively weighted continuations in ways that make some relational regimes easier to enter or retain. The deformation can operate through changes in institutional permissions, financing conditions, technical compatibility, recognized standing, information architecture, contractual defaults, spatial organization, or other structures that affect later operations. The analytical point is broader than any one mechanism: power can change the conditions under which later power-supporting configurations become accessible.

This claim does not require a global phase space or a universal scalar potential. Let the history-bearing possibility structure developed in Equation 16.1 supply the minimal domain. A domain-specific model can enrich that structure with nonnegative history weights, reachability relations, transition costs, or another representation of relative accessibility. A power-conditioned transformation then deforms the retained structure. Where a linear auxiliary representation is justified, an operator can represent this action on a history-weight space; where it is not, a nonlinear or purely relational transformation is preferable. The operator is a representation of power's dynamical action rather than the ontology of power.

Definition 16.30 (Power-favored relational regime)**.** A relational regime is *power-favored* relative to a declared baseline and accessibility schema when the operation of a relational power structure increases the modeled accessibility, retention, or comparative weight of continuations belonging to that regime under the stated represen-

tation.

A favored regime need not support continuation of the same power structure. Power can inadvertently make accessible a configuration that later weakens it. Conversely, a regime can support power continuation without being made more accessible by the power relation itself. Reproduction requires the two directions to be connected rather than inferred from one another.

Definition 16.31 (Power-compatible relational regime)**.** A relational regime is *power-compatible* with a specified power structure over a declared historical scope when the configurations retained for the claim support at least one historically admissible continuation in which the relevant directional power organization remains relationally real or is replaced by a role-equivalent successor under the model's continuity criterion.

The distinction between power-favored and power-compatible regimes clarifies self-reinforcement. The first concerns deformation of the generative landscape. The second concerns continuation of the power structure. A self-supporting reproduction loop becomes plausible when power makes a compatible regime more accessible and that regime, in turn, helps preserve or reproduce the power relation.

Proposition 16.32 (Landscape-mediated reproduction)**.** *A relational power structure exhibits landscape-mediated reproduction when its operation systematically favors a power-compatible regime over a declared historical scope and the favored regime supplies identifiable relations, institutions, infrastructures, resources, classifications, or operation domains that support later continuation of the power structure.*

Proposition 16.32 remains conditional. Reproduction can occur through other mechanisms already developed in this section, and the represented deformation can be weak, reversible, or disrupted by counter-power. Its analytical value lies in showing how power can reproduce itself indirectly by reorganizing future accessibility rather than by repeating the same overt exercise.

16.5.9 Adaptive Persistence

Reproduced power need not retain the same institutional carrier, symbolic manifestation, or local mechanism. A corporate hierarchy can become a platform rule; an explicit gatekeeping practice can become an automated eligibility procedure; a personal authority can be converted into organizational routine; a resource advantage can be transformed into infrastructural dependence. A theory that requires literal identity of carriers would therefore miss an important form of historical persistence.

Definition 16.33 (Adaptive persistence of power)**.** A relational power structure exhibits *adaptive persistence* when historically connected successor structures preserve a declared directional dynamical role while one or more manifestations, mediators, institutional carriers, or supporting mechanisms change. The role-equivalence criterion must be specified by the inquiry and does not imply ontological identity or normative equivalence of the successive structures.

The retained role can concern which positions are directionally affected, which possibilities are deformed, which access structures are controlled, or which classes of operations remain consequential. The definition therefore requires an explicit ac-

count of what is preserved and what is permitted to change. Without that account, claims that "the same power" survived institutional transformation risk becoming retrospective labels rather than historical explanations.

Adaptive persistence also limits teleological interpretation. A power structure can reproduce through feedback without any actor intending the continuation of the abstract power relation. Intentional steering requires an additional account of agency, target representation, and action selection. Reproduction is a structural property of the historical configuration; purposive preservation is one possible mechanism within it.

16.5.10 Power Dissolution

Power reproduction has a complementary process: dissolution. A relation that once permitted one position to condition another can weaken when resources disperse, capabilities diffuse, dependencies decline, access expands, classifications lose authority, institutions change, infrastructures become interoperable, temporal exposure becomes less asymmetric, or credible exit improves. Dissolution is analytically important because a theory of reproduction that explains only persistence risks treating power as self-maintaining by assumption.

Definition 16.34 (Power dissolution)**.** For a specified relation, domain, and time horizon, *power dissolution* is a historically situated process through which one or more mechanisms supporting a previously operative economic power relation lose sufficient efficacy, exclusivity, enforceability, legitimacy, dependence, reach, or practical relevance that the earlier capacity to condition another position's feasible action or future trajectories materially weakens, fragments, or ceases. Dissolution can coexist with residual asymmetry and can be partial across different forms of power.

Definition 16.34 distinguishes dissolution from equalization. A powerful firm can lose control over a technical standard while remaining wealthier than competitors. A regulator can lose jurisdiction while retaining expertise. A professional group can lose exclusive licensing authority while preserving symbolic prestige. A landlord can lose bargaining power because housing supply expands even while property ownership remains unequal. The disappearance of one conversion mechanism can therefore reduce power without eliminating the underlying difference.

Substitution is one dissolution pathway. New suppliers, technologies, institutions, infrastructures, skills, or jurisdictions can provide alternatives that weaken dependence on a former gatekeeper. Interoperability can reduce infrastructural lock-in. Portability can weaken control over data or benefits. Public options can create fallback capacity. Training can diffuse scarce expertise. Competition can reduce a bottleneck. These processes alter the counterpart's practical alternatives and can reduce the credibility of threats based on exclusion, delay, or withdrawal.

Redistribution can weaken resource-based power by changing reserves, assets, bargaining capacity, or exposure to loss. Yet one-time redistribution can leave other forms intact. A participant receiving resources can remain dependent on proprietary infrastructure, excluded from institutional decision making, subject to a consequential classification, or unable to exit a legal relation. Dissolution analysis should therefore examine the portfolio of mechanisms supporting the relation rather than

infer broad transformation from movement in one dimension.

Institutional reform is another pathway. Authority can be limited, decentralized, reviewed, or subjected to procedural constraints. Appeals can reduce gatekeeping power; transparency can weaken informational asymmetry; due process can constrain discretionary exclusion; antitrust or interoperability rules can reduce infrastructural concentration; collective bargaining can change dependency structures; public investment can expand alternatives. These reforms can dissolve some power relations while creating new institutional powers needed to administer the reform. Governance therefore often redistributes and reconstitutes power rather than producing a power-free field.

Epistemic revision can dissolve classificatory and symbolic power. New evidence can undermine a category, metric, ranking, professional convention, or reputation that previously shaped access. Alternative measurement systems can make previously invisible positions legible. Independent verification can reduce reliance on a single authority. Historical re-epistemization can change the interpretation of institutional records or inherited claims. The practical effect depends on whether revised knowledge reaches the institutions and infrastructures through which consequential decisions are made.

Collective action can alter relational and exit power. Coordination among previously dependent positions can create bargaining capacity, pooled reserves, alternative infrastructures, shared knowledge, or credible collective exit. The resulting transformation may reduce one actor's power while creating a new collective center of power. Such reconfiguration illustrates why dissolution should not be equated with disappearance of power from the system as a whole. The relevant question is how conditioning capacities are redistributed and governed after the earlier relation weakens.

Power can also decay endogenously. Assets depreciate, technologies become obsolete, expertise loses relevance, reputations erode, institutional mandates expire, organizations fragment, networks disperse, and maintenance costs rise. A powerful position can overextend itself, create coordination burdens, or trigger responses that reduce its capacity. These processes matter because reproduction requires maintenance, and maintenance can fail even in the absence of deliberate counter-power.

Partial dissolution is common. Resource power can weaken while symbolic power persists; gatekeeping can become more contestable while institutional authority remains; exit options can improve over a long horizon while temporal power remains strong in emergencies. Analysts should therefore specify the form, relation, and horizon of dissolution. A statement that an actor has "lost power" is incomplete unless it identifies which conditioning mechanisms have weakened and which remain operative.

The evidential standard mirrors Proposition 16.28. A decline in unequal outcomes does not by itself establish dissolution, because the power relation can persist while producing different outcomes under new preferences or constraints. Likewise, continued unequal outcomes do not disprove dissolution if the earlier conditioning mechanism has disappeared and the remaining asymmetry arises through another process. Mechanism tracing is therefore as important for explaining weakening as for explain-

ing reproduction.

Section 16.5 has treated reproduction and dissolution as historical properties of power relations. The analysis shows how power can persist through recursive feedback, cumulative conditions, dependency formation, boundary control, classification, institutional enactment, and intergenerational transmission, while also remaining open to substitution, diffusion, reform, counter-power, and decay. This temporal architecture prepares a more specific question. Section 16.6 examines how power-relevant processes can generate or stabilize vulnerability through controlled access, restricted exit, resource withholding, epistemic dependence, and institutional entrapment. That analysis requires the distinction established here between a reproduced power relation and the vulnerable condition that may emerge within or around it.

16.6 Manufactured Vulnerability

Sections 16.1–16.5 developed economic power as a mechanism-mediated capacity to condition another position's feasible action or generative possibilities, distinguished recurrent forms of that capacity, and examined how power-supporting conditions can be reproduced or dissolved through time. The present section turns to a related but analytically distinct object: vulnerability. Its role is to examine how economic relations can generate, intensify, stabilize, or reproduce conditions under which a position becomes unusually exposed to consequential loss, interruption, exclusion, or foreclosure. The objective is to distinguish vulnerability from asymmetry, dependence, susceptibility, fragility, disadvantage, realized harm, and power while identifying mechanisms through which vulnerability can become relationally produced. The discussion proceeds through dependency, controlled access, restricted exit, resource withholding, epistemic dependence, institutional entrapment, and reproduction of vulnerability. The method is relational and prospective. A vulnerability claim should specify the position at risk, the adverse event or perturbation, the economically consequential object that may be lost or degraded, the supporting relation through which exposure arises, the practical alternatives and buffers available, the recovery horizon, and the historical mechanism through which the vulnerable condition was formed.

The term *manufactured* is used here in a limited analytical sense. It indicates that vulnerability is materially shaped by identifiable economic relations, institutional arrangements, infrastructures, allocations, classifications, or historically accumulated dependencies. The term does not by itself imply deliberate design, malicious intent, illegality, injustice, or a single responsible actor. A vulnerability can be produced unintentionally through specialization, coordination, technical standardization, cumulative investment, policy layering, or institutional routines. Intentional production is a stronger causal and normative claim that requires separate evidence.

This distinction is important because vulnerability is often treated as an attribute of a person, household, firm, community, or system. GRE asks how a vulnerable position is constituted within a relation. A household can become vulnerable to interruption of income because housing, debt, care, and transport obligations leave little temporal reserve. A firm can become vulnerable to one supplier because technical

compatibility and accumulated investment make substitution costly. A worker can become vulnerable to one employer where legal status, location, credentials, or care responsibilities restrict mobility. A community can become vulnerable to an infrastructure operator where essential services pass through a narrow gateway. These examples differ in mechanism, yet each directs analysis toward the relational conditions that connect an adverse event to consequential loss.

Definition 16.35 (Economic vulnerability)**.** For a specified position, relation, perturbation, and time horizon, *economic vulnerability* is a condition in which an adverse event or interruption can produce materially consequential loss of resources, capabilities, access, relational continuity, institutional standing, or future options because the affected position has limited practical alternatives, buffers, protective relations, or recovery capacity relative to the dependency involved.

Definition 16.35 treats vulnerability as prospective and relational. Realized harm is therefore unnecessary for a vulnerability claim, although observed harm can provide evidence about the relation. Exposure alone is also insufficient. Two households can face the same price shock while differing substantially in reserves, contractual flexibility, substitute goods, social support, or access to public provision. Two firms can depend on the same infrastructure while only one possesses redundant capacity or rapid substitution. The relevant question is how the perturbation interacts with the position's support architecture and recovery possibilities.

Definition 16.36 (Manufactured vulnerability)**.** *Manufactured vulnerability* is economic vulnerability whose magnitude, persistence, or distribution is materially generated, intensified, stabilized, or reproduced through identifiable economic relations, institutional arrangements, infrastructures, allocation processes, classifications, contractual structures, or historically accumulated dependencies. Attribution of manufacture concerns the mechanism producing the vulnerable condition and does not by itself establish intentional production or normative fault.

The definition permits several causal structures. A relation can create a new vulnerability where none previously existed, intensify an existing exposure, concentrate vulnerability in particular positions, or preserve a vulnerable condition after alternative arrangements have become technically possible. Manufactured vulnerability can therefore be episodic or durable. It can also be distributed across several institutions or actors so that no single position controls the whole mechanism.

Table 16.4 summarizes the mechanisms developed in this section. The rows overlap. Controlled access can deepen dependency; restricted exit can make resource withholding more consequential; epistemic dependence can increase institutional entrapment; and institutional arrangements can reproduce all of these mechanisms across time.

Several neighboring concepts should remain distinct. The earlier treatment of generative susceptibility concerns the magnitude of response to a perturbation and can apply to beneficial as well as harmful change. Generative fragility in Definition 12.171 concerns sensitivity of a specified generative capacity to disruption of its supporting conditions. Economic vulnerability places greater emphasis on the affected position, the prospect of consequential loss, and the availability of buffers, alternatives, protection, and recovery. Dependence can exist without severe vulnerability where the sup-

Table 16.4: Selected mechanisms through which economic vulnerability can be generated or reproduced.

Mechanism	**Vulnerability-producing relation**	**Diagnostic focus**
Dependency	Consequential capacity or continuity relies on a support that is difficult to substitute	What depends on what, with which alternatives, buffers, reliability, and recovery horizon?
Controlled access	Entry, continuation, certification, connection, or use depends on a gatekeeping position or rule	Who conditions access, how revisable is the decision, and what happens when access is delayed, suspended, or withdrawn?
Restricted exit	Leaving or switching is formally or practically difficult within the relevant horizon	Which legal, material, relational, informational, temporal, or portability constraints make exit costly or inaccessible?
Resource withholding	A consequential resource flow can be delayed, reduced, suspended, or conditioned	Which resource is necessary, who can affect its flow, and which substitutes or protective arrangements exist?
Epistemic dependence	Action or standing relies on another position's interpretation, certification, classification, or evidential infrastructure	Which judgments are difficult to independently verify, contest, replace, or appeal?
Institutional entrapment	Continued participation carries material burdens while exit, voice, review, or institutional substitution remain weak	Which rules, statuses, liabilities, accumulated investments, or external dependencies sustain continued participation?
Reproduction	Earlier vulnerability-producing conditions alter later alternatives, buffers, obligations, classifications, or support structures	Which historical mechanism connects the earlier vulnerable position to its later persistence or transformation?

porting relation is reliable, accountable, redundant, and rapidly substitutable. Power can exist without making every affected position vulnerable, and vulnerability can arise through distributed arrangements without a single powerful actor. The distinctions permit analysis of their interaction without reducing one concept to another.

Proposition 16.37 (Vulnerability specificity)**.** *A defensible economic-vulnerability claim is specific to an affected position, a consequential object or capacity, a perturbation class, a support relation, and a time horizon. Evidence of vulnerability in one dimension does not establish generalized vulnerability across other dimensions, perturbations, or horizons.*

Proposition 16.37 prevents broad labels from replacing mechanism analysis. A household can be vulnerable to housing-cost increases while resilient to temporary income interruption. A firm can be vulnerable to one technical standard while maintaining diversified financing. A worker can have weak short-run exit from an em-

ployer while possessing strong long-run occupational mobility. The analytical object is the specified relation between exposure, support, alternatives, and recovery.

16.6.1 Vulnerability as Relational Condition

Vulnerability becomes relational when the possibility of loss depends on how a position is connected to resources, institutions, infrastructures, organizations, other actors, and future pathways. The same disturbance can produce different consequences because positions occupy different support architectures. Vulnerability analysis therefore begins with a relation map and treats categorical labels attached to affected subjects as claims requiring relational specification.

A useful reconstruction distinguishes at least five elements. The first is the *valued or consequential object* at risk: income, housing, care, mobility, legal status, productive continuity, data access, market participation, institutional recognition, or another capacity. The second is the *perturbation*: interruption, withdrawal, delay, reclassification, price change, rule revision, infrastructure failure, dismissal, illness, conflict, or another event. The third is the *support relation* through which the position currently maintains the consequential object. The fourth is the set of *alternatives and buffers*: reserves, substitutes, redundancy, social support, insurance, portability, review, legal protection, or public provision. The fifth is the *recovery pathway*: the time, resources, institutional steps, and relational reconstruction required after disruption.

This architecture distinguishes vulnerability from current deprivation. A position can possess adequate present resources while remaining highly exposed to interruption because its buffers and alternatives are narrow. Another position can have modest resources yet low vulnerability to a specified shock because stable public provision, reciprocal support, diversified income, or strong portability protects continuity. Present holdings therefore provide only part of a vulnerability profile.

Vulnerability also differs from risk understood as a probability of adverse events. An event can be unlikely while its consequences would be severe because recovery is difficult. Another event can be frequent while manageable because losses are small and buffers are strong. When probabilistic evidence is available, it can contribute to vulnerability analysis, yet probability does not exhaust the concept. The relational architecture concerns consequence and recovery as well as event likelihood.

The prospective character of vulnerability requires epistemic humility. Analysts frequently reconstruct vulnerability before observing the perturbation of interest. Scenario analysis, historical analogies, stress tests, legal analysis, network structure, balance-sheet information, interviews, and institutional records can each provide partial evidence. The claim should state what is directly observed, what is inferred from mechanisms, and which future contingencies remain uncertain. A strong label such as “trapped” or “highly vulnerable” requires correspondingly strong evidence about alternatives, stakes, and recovery.

The concept is also position-relative within collective arrangements. An organization can be robust while particular members remain vulnerable; a platform can remain operational while sellers or users bear interruption risk; a household can maintain aggregate income while one member loses control over resources or exit

alternatives. Collective resilience need not distribute evenly across the positions that sustain it.

Manufacture adds a historical and institutional question to this relational profile. Once a vulnerability has been identified, inquiry asks how the support architecture acquired its present form. Some conditions may arise from geography, biology, ecology, or external events. Others can be intensified by contractual design, underprovision, concentrated infrastructure, portability rules, institutional classification, spatial segregation, accumulated debt, or prior allocation. The analysis can trace these mechanisms without requiring a binary separation between "natural" and "social" vulnerability. Economic arrangements often interact with pre-existing exposures and reshape their consequences.

Proposition 16.38 (Manufacture–intent distinction)**.** *Evidence that an economic relation or institutional arrangement materially generates, intensifies, stabilizes, or reproduces vulnerability supports a claim of manufactured vulnerability in the present analytical sense. A further claim that the vulnerability was deliberately produced requires additional evidence concerning intention, knowledge, agency, and the feasible alternatives available to the relevant decision-makers.*

This distinction is especially important for governance. Some vulnerabilities are intentionally created as leverage; others arise as side effects of arrangements oriented toward efficiency, specialization, fraud prevention, coordination, safety, or fiscal administration. Governance may still have reason to examine the resulting exposure even when malicious purpose is absent. Normative responsibility, legal liability, and institutional remedy require arguments developed beyond the causal attribution made here.

16.6.2 Dependency

Dependency is one major pathway through which vulnerability can be generated, yet dependence and vulnerability remain non-equivalent. Earlier chapters treat dependence as a relational condition whose economic significance depends on the capacity at stake, available alternatives, substitutability, time horizon, and position within the wider configuration. Section 16.5 then showed how dependency formation can reproduce power. The present subsection asks when dependence changes the consequences of interruption strongly enough to create a vulnerable position.

Dependence becomes vulnerability-producing when several conditions combine: the dependent capacity is economically consequential; the supporting relation is difficult to replace within the relevant horizon; interruption can impose material loss or foreclosure; and buffers or recovery pathways are insufficient relative to the potential loss. These conditions can vary independently. Heavy reliance on a highly reliable public water system can involve dependence while remaining comparatively protected by redundancy, legal duties, public accountability, emergency capacity, and universal-access norms. Modest reliance on a specialized proprietary service can generate substantial vulnerability where replacement is slow and interruption immediately disrupts production.

The object of dependence should be specified. A household can depend on wage income for housing continuity, on a care relation for labor-market participation, on

transport for access to work, and on documentation for eligibility. A firm can depend on a technical component, a distribution channel, a financing relation, a regulatory license, or a small number of skilled employees. These dependencies have different vulnerability profiles because the supporting mechanisms, substitutes, and recovery times differ.

Dependency can also be generated by prior success. Specialization allows participants to develop capabilities that would be inefficient to reproduce independently. Network effects can increase the value of joining a shared platform. Long-term contracting can support investment. Shared infrastructure can reduce duplication. Each process can increase dependence while also creating productive value. Vulnerability analysis therefore asks how the gains from coordination are coupled to interruption risk and whether protective conditions develop alongside specialization.

Temporal structure is central. Dependence that is manageable over a year can become acute over a week. A worker can retrain eventually while lacking income during transition. A firm can redesign a product but not before existing contracts fail. A household can relocate but not before an eviction deadline. The relevant alternatives are therefore those reachable within the horizon in which the consequential loss occurs. Chapter 15's accessibility framework is particularly important here because imagined substitutes provide little protection when they remain unreachable within the relevant horizon.

Dependency can be mutual and still produce unequal vulnerability. Two parties may depend on one another while differing in reserves, substitutes, legal protections, or timing. A supplier and buyer can each require the relation, yet one may survive a six-month interruption while the other faces severe failure within six weeks. Mutuality at the level of relation existence therefore does not imply symmetry in exposure or recovery.

A further distinction concerns dependence on a person or organization versus dependence on a system. A participant can be vulnerable to a technical standard, payment rail, legal category, or public infrastructure even when no single actor can unilaterally alter it. Distributed governance can reduce direct interpersonal power while leaving systemic dependency intact. Manufactured vulnerability can therefore arise from architectures as well as from bilateral relations.

16.6.3 Controlled Access

Controlled access concerns relations in which entry, continuation, connection, certification, authorization, or use of an economically consequential resource or pathway depends on a gatekeeping position, institutional procedure, technical interface, or rule. Gatekeeping was treated in Section 16.5 as a mechanism through which power can be reproduced. Its vulnerability consequence arises when interruption or denial of access would produce consequential loss and the affected position lacks timely alternatives or effective review.

Access can concern markets, infrastructure, employment, finance, benefits, housing, data, communication, professional status, platforms, distribution channels, public services, or institutional procedures. The same formal category can contain very different vulnerability profiles. Access to a recreational service and access to an es-

sential payment mechanism do not carry the same stakes. A credential that can be replaced within days differs from a legal status whose loss interrupts work, housing, or mobility. The analyst should therefore identify the capacity enabled by access and state why that access is economically consequential.

Controlled access can manufacture vulnerability through conditionality. A position that organizes access can make continuation dependent on compliance with contractual terms, data disclosure, exclusivity, performance metrics, identity verification, debt service, behavioral rules, or institutional classifications. Conditionality is common in economic coordination and can serve legitimate functions. Vulnerability increases when the conditions are difficult to contest, change unpredictably, extend beyond the original purpose, or attach severe consequences to interruption without adequate transition protection.

Procedural architecture affects the degree of exposure. Notice periods, reasons requirements, independent review, appeal, portability, grace periods, emergency continuity, transparent criteria, and proportional sanctions can reduce vulnerability even where access remains controlled. Conversely, opaque suspension, unilateral rule changes, incompatible data formats, irreversible loss of reputation, or long appeal delays can intensify exposure. Controlled access is therefore best analyzed through both substantive alternatives and procedural protections.

Gatekeeping can be distributed. An individual decision-maker may follow rules written elsewhere, an algorithm can implement a classification produced by another institution, and a downstream service can depend on upstream identity or payment infrastructure. Attribution should reconstruct the chain through which access is conditioned. The immediate gatekeeper may possess little discretion while the broader architecture still generates vulnerability.

Controlled access can also create anticipatory effects. Participants may change behavior to avoid suspension, denial, demotion, or loss of certification even when access is never actually withdrawn. Such effects become power-relevant under Section 16.1 when the control mechanism materially conditions feasible action. They become vulnerability-relevant here when the prospective consequence of losing access is sufficiently severe relative to the participant's alternatives and buffers. The two analyses overlap without becoming identical.

16.6.4 Restricted Exit

Exit is a central protection against some forms of dependence and controlled access because it creates an alternative trajectory. Chapter 15 treats effective exit as a spatiotemporal problem: formal permission matters, yet practical exit requires an alternative pathway that is reachable under actual material, legal, relational, informational, and temporal conditions. Section 16.4.9 then defines exit power as conditioning capacity arising from credible withdrawal where others depend on continued participation. The present subsection examines the complementary position of those whose exit is restricted.

Restricted exit can arise through direct prohibition, contractual penalty, debt, asset specificity, non-portable benefits, incompatible data, credential loss, geographic immobility, legal status, care obligations, accumulated reputation, network effects,

information deficits, or the time required to build alternatives. Several constraints can combine. A worker can legally resign yet depend on employer-linked housing or migration status. A user can close an account yet lose transaction history, social connections, or access to dependent services. A supplier can terminate a contract yet have equipment, standards, and financing designed around one buyer.

The severity of exit restriction depends on the destination as well as the departure rule. Leaving one relation without access to a viable alternative can produce nominal exit with practical foreclosure. Portability therefore matters. Transferable credentials, benefits, data, reputation, social insurance, savings, interoperable formats, and recognized prior experience can turn formal permission into effective mobility. Transition support can perform a similar function where portability is incomplete.

Timing again changes the analysis. A person can possess a credible long-run exit option while remaining vulnerable during a short-run emergency. Vesting periods, notice requirements, debt maturities, waiting lists, legal proceedings, care transitions, and training periods can create intervals during which leaving is disproportionately costly. Temporal power and restricted exit can therefore reinforce one another: the position that can wait can often preserve alternatives that the urgent position must surrender.

Exit restrictions can arise from collective goods as well as private arrangements. Leaving a pension system, insurance pool, local tax base, cooperative, or shared infrastructure can affect remaining participants. Governance can therefore impose exit conditions to protect continuity and prevent opportunistic burden shifting. Such restrictions require a different evaluation from lock-in designed primarily to preserve market power. The vulnerability analysis identifies how the restriction affects practical alternatives and exposure; the justice and governance sections later examine justification, reciprocity, residual burdens, and procedural legitimacy.

Restricted exit can also become self-reinforcing. The longer a participant remains, the more specialized assets, relationships, reputation, knowledge, benefits, or obligations can accumulate around the relation. These accumulated complementarities can raise the cost of leaving even if the formal contract remains unchanged. Historical analysis should therefore distinguish initial entry conditions from later exit conditions. Consent at entry provides limited information about vulnerability after the relation has transformed.

Proposition 16.39 (Exit restriction and vulnerability)**.** *Restricted exit contributes to economic vulnerability when the relation at issue is consequential, alternative trajectories are not practically reachable within the relevant horizon, and disruption or continued participation can impose material loss that the affected position lacks sufficient capacity to absorb or recover from. Formal permission to leave is therefore insufficient evidence of low vulnerability where transition conditions make viable exit inaccessible.*

16.6.5 Resource Withholding

Resource withholding concerns the reduction, delay, suspension, withdrawal, or conditioning of a resource flow on which another position materially depends. The resource can be financial, material, informational, infrastructural, temporal, spatial, relational, or institutional-access related. Withholding becomes vulnerability-

producing when the dependent position lacks substitutes or reserves capable of maintaining the relevant capacity during interruption.

Withholding and scarcity should remain analytically distinct. A resource can be scarce without any actor possessing meaningful control over its distribution. Withholding implies that the flow is mediated through a relation, rule, or institutional arrangement that can vary whether, when, or under which conditions the resource reaches a position. This variation can be deliberate, automated, procedural, contractual, or emergent from institutional design. The attribution should specify the mechanism and reserve claims of intentional threat for cases with supporting evidence.

The economic consequence depends on the resource's role. Withholding discretionary credit can delay investment; withholding wages can threaten subsistence and housing; withholding a specialized input can halt production; withholding data access can interrupt coordination; withholding institutional certification can block market entry; withholding care can prevent participation in employment or education. The same nominal amount can therefore produce different vulnerability according to complementarity, timing, and substitutability.

Reserves mediate exposure. Liquidity, inventories, redundancy, emergency credit, public provision, reciprocal networks, backup infrastructure, and insurance can allow a position to absorb temporary withholding without major loss. These buffers are themselves distributed and historically produced. One actor may survive months of interruption while another faces immediate foreclosure. Resource withholding can therefore interact with accumulation and temporal power even when both parties face the same formal rule.

Conditional provision requires careful interpretation. Many economic arrangements condition resources on reciprocal performance, eligibility, safety standards, or public-law requirements. Conditionality becomes vulnerability-relevant where the resource is consequential and loss of access has severe effects relative to available alternatives. A normative conclusion requires further analysis of justification, proportionality, due process, and the availability of less harmful arrangements. The present section identifies exposure before reaching those judgments.

Withholding can generate leverage without actual interruption. A credible possibility of withdrawal can alter bargaining where the dependent position anticipates severe consequences. This mechanism can constitute economic power under Definition 16.8. The vulnerability profile explains why the threat is consequential: narrow alternatives, low reserves, high switching costs, or slow recovery translate potential withdrawal into constrained action. Power analysis and vulnerability analysis thus describe different sides of the same relational mechanism.

16.6.6 Epistemic Dependence

Epistemic dependence arises where economically consequential action or institutional standing relies on another position's interpretation, certification, classification, model, evidence, or recognized judgment in a way that is difficult to verify, contest, or replace independently. Definition 12.114 and the subsequent treatment of epistemic dependence already distinguish epistemic asymmetry from reliance on another position's judgment: knowing less than another position is different from depending

on that position's interpretation, certification, or recognition. Section 16.4.3 then identifies epistemic power where epistemic position becomes a mechanism for conditioning feasible action or generative possibilities. The present concern is the vulnerability created when important capacities rely on such epistemic mediation.

Economic life contains many productive forms of epistemic dependence. Patients rely on medical expertise; firms rely on auditors and engineers; investors rely on accounting standards and data; courts rely on expert evidence; consumers rely on safety certification; public institutions rely on specialized analysis. Division of cognitive labor can expand collective capability because participants need not reproduce every body of knowledge independently. Epistemic dependence alone therefore provides insufficient evidence of vulnerability.

The vulnerability profile changes when verification, plurality, contestation, or substitution are weak. A borrower whose creditworthiness is represented through an opaque score can depend on a classification that affects housing or finance. A worker can depend on credentials whose recognition is controlled by a narrow set of institutions. A small firm can depend on platform analytics that remain practically unauditable to it. A public agency can become dependent on a proprietary model whose assumptions are inaccessible to its own staff. In each case, the issue is the relation between consequential reliance and the capacity to understand, challenge, replace, or appeal the epistemic output.

Classification can deepen vulnerability because categories often travel across institutions. A risk label, eligibility status, compliance category, or performance score can affect several downstream decisions after the original classification event. If the category is difficult to correct, the affected position can experience repeated consequences from one epistemic dependency. Section 16.5 treated classification as a mechanism of power reproduction; the vulnerability perspective asks who bears the costs of error, delay, opacity, or institutional uptake.

Epistemic dependence can also shape the perception of alternatives. A position can possess technically available options while lacking the knowledge needed to identify or evaluate them. Complex contracts, legal procedures, financial products, health systems, migration rules, and digital infrastructures can make exit or contestation formally available yet practically opaque. Information provision can reduce this vulnerability only when the recipient can interpret and act on the information under actual time and capacity constraints.

Institutional safeguards can reduce epistemic vulnerability through explainability, independent review, professional pluralism, data access, auditability, translation, representation, appeal, disclosure of uncertainty, and preservation of records. These safeguards do not eliminate the need for expertise. Their function is to reduce the extent to which a consequential position depends on one unreviewable epistemic pathway.

The boundary with Chapter 17 should remain clear. The present subsection does not develop a general theory of knowledge production, epistemic value, or attention. It isolates one power-and-vulnerability question: when dependence on economically consequential representations narrows a position's capacity to verify, contest, or redirect the decisions through which its options are formed.

16.6.7 Institutional Entrapment

Institutional entrapment is the strongest term used in this section and therefore requires a narrow definition. Institutions routinely create durable commitments, obligations, procedures, memberships, and expectations. Durability can support trust, investment, insurance, collective goods, professional standards, and long-term coordination. Entrapment concerns a more specific configuration in which continued participation carries material burdens or exposure while practical routes of exit, review, voice, revision, or institutional substitution are severely constrained relative to the stakes involved.

Definition 16.40 (Institutional entrapment)**.** For a specified institutional relation and horizon, *institutional entrapment* is a condition in which a position remains materially dependent on continued participation in an institutional arrangement that imposes consequential burdens or exposure while viable pathways of exit, substitution, review, contestation, or rule revision are insufficiently accessible to prevent or remedy the resulting vulnerable condition.

Definition 16.40 requires more than dissatisfaction, administrative burden, or durable membership. The institution must be consequential to the position, continued participation must carry a material burden or exposure, and practical alternatives or corrective channels must be severely constrained. The claim should therefore be supported by evidence concerning exit costs, alternative institutions, review mechanisms, legal rights, accumulated investments, timing, and the consequences of non-participation.

Entrapment can arise through status dependence. Employment, residence, insurance, licensing, education, welfare, professional recognition, identity documentation, or access to infrastructure can be institutionally bundled. A change in one relation can then threaten several capacities at once. Bundling can simplify administration or support risk pooling, yet it can also magnify vulnerability by making departure from one institutional relation consequential across multiple domains.

Accumulated investment can produce a second mechanism. Participants can acquire institution-specific credentials, benefits, seniority, reputation, data histories, client relations, pension rights, or technical compatibility. These assets can be valuable within the institution while losing value upon exit. The longer participation continues, the wider the gap can become between formal permission to leave and the practical cost of doing so. This mechanism connects institutional entrapment to path dependence without implying that every path-dependent institution is entrapping.

A third mechanism concerns external dependencies. Other institutions can recognize only a particular credential, identity, rating, data format, or legal status. The participant may then be unable to substitute the focal institution because surrounding organizations reproduce its recognition structure. Entrapment can consequently be a field property that extends beyond a single bilateral relation. Reform of the focal institution can have limited effect if downstream recognition remains unchanged.

Voice and review matter because vulnerability can persist even where exit is intrinsically difficult. For public institutions, essential infrastructures, pension systems, local governments, or professional regimes, simple substitution is often unavailable or incomplete. In such cases, accessible appeal, representation, transparency, review,

participation, and rule revision become especially important protective mechanisms. Weak exit need not imply entrapment where voice and institutional responsiveness provide effective correction.

Entrapment can also be temporary. Emergency measures, insolvency procedures, quarantine, receivership, or crisis coordination can intentionally restrict options for a bounded period. Analysis should therefore examine duration, necessity, review, reversibility, and transition conditions before characterizing the arrangement. A time-limited constraint with credible oversight differs structurally from an open-ended relation whose burdens accumulate while corrective channels remain inaccessible.

The concept should remain separate from domination or injustice. Institutional entrapment identifies a vulnerable relational condition. Whether the condition is justified, avoidable, compensable, legally permissible, or normatively objectionable depends on the purposes of the institution, the distribution of burdens and benefits, affected rights, available alternatives, and the legitimacy of the procedures sustaining it. Sections 16.8–16.11 develop those evaluative questions.

16.6.8 Reproduction of Vulnerability

Vulnerability can persist because the conditions that create exposure are reproduced across time. Section 16.5 developed reproduction of power as continuity in power-supporting capacity through identifiable historical mechanisms. Reproduction of vulnerability concerns a different object: continuity or regeneration of the affected position's exposure, limited alternatives, weak buffers, restricted recovery, or dependence on consequential supports. The two processes often interact, yet neither logically entails the other.

A power relation can be reproduced while vulnerability declines. Regulation, insurance, portability, collective organization, reserves, redundancy, or independent review can reduce exposure even when an organization retains substantial control. Vulnerability can also reproduce without a stable powerful actor. Housing scarcity, fragmented care systems, incompatible standards, accumulated debt, environmental degradation, or administrative complexity can preserve vulnerable positions through distributed mechanisms even where no single position consistently benefits or commands the process.

Definition 16.41 (Reproduction of vulnerability)**.** *Reproduction of vulnerability* is a historically connected process through which conditions that expose a specified position to consequential loss, interruption, exclusion, or foreclosure are maintained, regenerated, transferred, or functionally replaced across successive episodes, such that practical alternatives, buffers, protective relations, or recovery capacity remain materially insufficient relative to the dependency or perturbation involved.

The definition places the evidential burden on the historical pathway. Similar vulnerability at two dates is insufficient where the mechanisms differ and no continuity can be established. Conversely, vulnerability can be reproduced through carrier substitution. Employer-linked benefits can become platform-linked access; a direct gatekeeper can be replaced by an automated classification; a material dependency can become an informational or institutional dependency. The surface relation can change while the affected position remains exposed through a traceable transforma-

tion.

Several mechanisms can reproduce vulnerability. Resource depletion can reduce buffers and make later shocks harder to absorb. Restricted exit can generate relation-specific investments that further increase switching costs. Controlled access can make participants accumulate reputation or data that are non-portable. Epistemic dependence can weaken internal capacity to evaluate alternatives. Institutional classification can be inherited by downstream systems. Spatial segregation can limit access to new relations. Care burdens can constrain education or employment, which in turn narrows later income and exit possibilities. These mechanisms can combine recursively.

Intergenerational transmission is one possible form. Debt, wealth, education, health, housing, environmental exposure, social networks, legal status, and institutional recognition can alter the buffers and alternatives available to later cohorts. Attribution should remain mechanism-specific. Similar outcomes across generations can arise through different processes, and inherited vulnerability need not imply intentional transfer by any one actor. Historical analysis should identify which conditions were transmitted and which institutions converted them into later exposure.

Vulnerability can also dissolve. Diversification, public provision, interoperability, portable benefits, legal protection, collective bargaining, independent income, accessible review, redundancy, open standards, repair of infrastructure, debt relief, social insurance, training, institutional reform, and new relational alternatives can each change the support architecture. The relevant evidence is not simply improvement in outcomes. Dissolution requires showing that the conditions connecting a specified perturbation to severe loss have weakened, or that buffers and recovery capacity have materially increased.

The possibility of dissolution also prevents the category of vulnerability from becoming an identity assigned permanently to groups. Positions can become more or less vulnerable as relations, institutions, resources, technologies, and histories change. A group described as vulnerable in one period may acquire stronger rights, alternatives, collective capacity, or public protection later. Another group can become newly vulnerable when infrastructure, labor markets, ecological conditions, or administrative rules change. Analysis should therefore attribute vulnerability to relational conditions and mechanisms and avoid essentializing it as a stable personal characteristic.

Proposition 16.42 (Power–vulnerability non-equivalence)**.** *Power reproduction and vulnerability reproduction are analytically distinct historical processes. Reproduced power can coexist with declining vulnerability where protective capacities and alternatives expand, while vulnerability can persist or intensify through distributed or structural mechanisms without continuity of a single power holder. Claims about one process should therefore identify the mechanism connecting it to the other and avoid inferring that connection from co-occurrence.*

Proposition 16.42 supplies the boundary needed for the remainder of the chapter. Vulnerability analysis identifies where economic arrangements place positions at risk of consequential loss and how that exposure is produced or reproduced. It does not

by itself determine whether the resulting distribution is unjust, whether asymmetry should be equalized, or which governance response is appropriate. Those questions require information about benefits, burdens, rights, alternatives, responsibility, legitimacy, participation, and feasible institutional change.

Section 16.6 has therefore developed vulnerability as a position-relative and historically produced relational condition. Dependency, controlled access, restricted exit, resource withholding, epistemic dependence, and institutional entrapment can each contribute to vulnerability when consequential capacities rely on narrow supports and protective alternatives are inadequate. The category of manufactured vulnerability identifies the economic mechanisms through which such exposure is generated or stabilized while keeping causal attribution distinct from claims of intent or fault. Section 16.7 turns next to distribution and generativity. It asks how resources, capabilities, access, relational opportunities, participation, and future possibilities are distributed across positions, and how those distributions alter the generative consequences of economic arrangements.

16.7 Distribution and Generativity

Distribution enters the power analysis of this chapter because economic positions differ along several dimensions whose consequences can accumulate over time. Resources can be distributed unevenly while capacities remain comparatively similar; nominally similar resources can support sharply different capacities; formal access can be widely distributed while usable or continuable access remains concentrated; participation can be broad while influence is narrow; and current holdings can appear relatively balanced while future possibilities diverge through differences in infrastructure, recognition, network position, time, or institutional standing. The role of this section is to reconstruct these distributions without reducing them to one common metric. Its objective is to distinguish resource distribution, capability distribution, access distribution, relational opportunity, participation, and future possibility, and then to examine how their interaction conditions later generative processes. The method is relational, historical, and mechanism-sensitive. The section remains descriptively prior to the justice analysis developed in Sections 16.8–16.11: a distributional pattern can be identified before its justification, legitimacy, or fairness is assessed.

Chapter 12 established resources, capacities, access, and participation as analytically distinct objects, while Chapter 13 showed how allocation can alter generative opportunity through capacity formation, participation, access, relational pathways, and future options. Chapter 15 added a spatiotemporal account of reachability, path dependence, and unequal influence over future possibility. The present section brings those strands together around a different question: how are economically consequential conditions distributed across positions, and through which mechanisms do those distributions affect what can be generated later? The object is therefore wider than the allocation of divisible goods. Distribution can concern command over time, access to institutions, practical capacity, network position, procedural influence, protection against interruption, or the ability to preserve and create future pathways.

Definition 16.43 (Economic distributional profile)**.** For a specified economic inquiry, an *economic distributional profile* is a historically situated representation of how one or more economically consequential objects, capacities, access conditions, relational positions, participation roles, burdens, protections, or future possibilities are arranged across specified positions, scales, and time horizons. A distributional profile should identify the distributed object, the relevant positions or units, the mechanism through which the object becomes practically consequential, and the temporal and institutional conditions under which the comparison is made.

Definition 16.43 prevents the word *distribution* from silently referring only to income, wealth, commodities, or other measurable stocks. Those objects remain important, and many inquiries can appropriately focus on them. GRE additionally permits distributional analysis of conditions whose economic significance is relational or processual. Examples include eligibility for public provision, access to a payment rail, ability to wait through a legal process, authority to revise a standard, participation in a professional network, continuity of care, availability of credible exit, or the practical reachability of several future pathways.

The definition also makes the unit of analysis explicit. Distribution can be represented across persons, households, organizations, communities, regions, sectors, jurisdictions, generations, or relational positions. These units are not interchangeable. A relatively equal distribution across regions can coexist with severe inequality within regions; organizational capacity can increase while internal participation becomes more concentrated; household resources can appear adequate while control over their use remains uneven. Multiscale distributions therefore require care when moving between aggregate and internal descriptions.

Table 16.5 summarizes the dimensions developed in this section. The rows are analytically distinct and empirically interdependent. A resource can support capacity through access and conversion; capacity can create new relational opportunity; participation can generate recognition and knowledge; access can widen future possibilities; and future possibilities can affect later resource and capability distributions. The table therefore decomposes a coupled distributional architecture while preserving the empirical interdependence among its dimensions.

Proposition 16.44 (Distributional non-equivalence)**.** *Within a specified domain and horizon, similarity or equality in one distributional dimension does not by itself establish similarity or equality in another. Resource distributions, capability distributions, access distributions, relational opportunities, participation positions, and future possibilities should therefore be connected through identified conversion or propagation mechanisms, with each dimension retaining its own analytical meaning.*

Proposition 16.44 is especially important for interpreting apparently equal arrangements. Equal monetary transfers can generate different capacities when recipients face different housing costs, care obligations, accessibility conditions, documentation burdens, health conditions, infrastructure, or institutional recognition. Uniform formal eligibility can produce different practical access where some participants face longer travel, weaker connectivity, language barriers, or higher opportunity costs. Equal voting rights can coexist with unequal ability to obtain information, attend deliberation, or influence agenda formation. Distributional analysis therefore requires the object being compared to remain stable throughout

Table 16.5: Distributional dimensions and their generative relevance in GRE.

Dimension	Primary distributed object	Mechanisms requiring reconstruction	Generative relevance
Resource distribution	Material, financial, temporal, informational, infrastructural, institutional, and relational resources	Possession, command, liquidity, portability, access, convertibility, complementarity, maintenance	Conditions available for conversion into later capacity or support
Capability distribution	Effective abilities of persons or configurations to initiate, sustain, resist, coordinate, transform, or complete consequential processes	Conversion conditions, health and embodiment where relevant, knowledge, organization, recognition, support, constraint	Distribution of practical ability to act, learn, coordinate, adapt, and generate later capacity
Access distribution	Reachable, usable, timely, reliable, and continuable access to consequential resources, institutions, infrastructures, knowledge, networks, and decisions	Eligibility, price, location, interoperability, mediation, timing, gatekeeping, procedural standing	Distribution of pathways through which latent resources and capacities become practically consequential
Relational opportunity	Possibility of entering, sustaining, diversifying, revising, or exiting consequential economic relations	Recognition, compatibility, reputation, network position, mediation, institutional interfaces, switching conditions	Distribution of relation-forming pathways through which later resources, information, trust, and opportunities can emerge
Participation	Roles through which positions enter, contribute to, influence, contest, or review economic processes	Time, information, representation, voice, authority, burden, protection, agenda access, review	Distribution of opportunities to learn, contribute, acquire standing, and influence conditions of later generation
Future possibility	Practically reachable actions, relations, revisions, exits, and historical continuations within a specified horizon	Capacity accumulation, path dependence, infrastructure, reversibility, commitments, institutional change, environmental conditions	Distribution of preserved, created, narrowed, or foreclosed pathways for later action and generation

the inference.

The reverse problem also occurs. Unequal inputs can support more similar practical capacities where the conversion conditions differ. Additional mobility assistance

can make a common institution accessible to participants who face physical barriers; differentiated public funding can compensate for higher provision costs in remote regions; translation or childcare can reduce participation burdens that are unevenly distributed before the intervention. Descriptive inequality in one input dimension can therefore coexist with convergence in another. Whether such differentiation is justified is a normative question that requires additional argument.

16.7.1 Resource Distribution

Resource distribution concerns how economically relevant resource conditions are arranged across specified positions. Chapter 12 defined an economic resource as a condition that can potentially be mobilized in forming, sustaining, transforming, or exercising an economically relevant capacity. This relational definition already implies that distribution should distinguish resource existence from effective command. A resource can be present within a household, organization, region, or public system while control over its use, timing, conversion, or return remains concentrated elsewhere.

The distributed resource should therefore be specified with enough precision for the research question. Financial distribution can concern income flows, liquid balances, wealth, credit capacity, collateral, insurance, or payment access. Temporal distribution can concern discretionary time, scheduling flexibility, waiting capacity, or synchronization with institutional calendars. Informational distribution can concern data, records, timely notification, model access, or interpretive resources. Infrastructural distribution can concern geographic coverage, service quality, interoperability, redundancy, or maintenance. Relational resources can concern trust, reputation, brokerage, obligations, or recognized membership. Combining these into one aggregate measure can be useful for some purposes, yet the aggregation rule should not erase the mechanism through which each resource matters.

Possession and control can also diverge. Shared household income can be recorded at the household level while decision authority over expenditure remains unequal. A community can possess land while development rights, financing, infrastructure, or legal standing are controlled by other institutions. An organization can own equipment while access to proprietary software, maintenance, certification, or energy supply remains external. Resource distribution is therefore partly a distribution of command over conversion conditions.

Resource quality, location, duration, and reliability matter alongside quantity. Two positions can receive resources of similar nominal value while one receives a stable, interoperable, and maintainable resource and another receives a temporary or highly specific resource whose usefulness depends on one provider. A public transport route, broadband connection, or health facility can exist in several regions with sharply different frequency, reliability, congestion, or service scope. Distributional description should therefore identify which qualities materially alter the resource's contribution to practical capacity.

The temporal incidence of resources is equally important. A resource delivered after a deadline can have little effect on the process for which it was intended. A recurrent flow can support organizational continuity that a larger one-time transfer can-

not. Temporary liquidity can prevent an irreversible loss even if lifetime resources remain unchanged. Resource distribution at one date can therefore be an incomplete representation where timing, continuity, or sequence materially affects conversion.

Resource distributions can also generate relational consequences. Concentrated control over a bottleneck resource can increase dependence, gatekeeping capacity, or bargaining leverage. Broad distribution of a resource can reduce dependence on a single intermediary while creating coordination problems, maintenance burdens, or uneven quality. Shared infrastructure can create collective capacity precisely because it is not distributed as separate individual holdings. The relevant comparison is therefore mechanism-specific and should state explicitly how wider dispersion or greater concentration enters the economic process under study.

This last point separates descriptive distribution from a theory of optimal distribution. Some resources exhibit scale economies, network effects, indivisibilities, ecological limits, safety requirements, or collective-action properties that make one-for-one dispersion impractical or counterproductive. Other resources become economically valuable through broad interoperability or decentralized access. GRE does not infer an allocation rule from the fact of distribution alone. It asks how the observed distribution conditions capacities, dependencies, vulnerabilities, coordination, and later generation.

16.7.2 Capability Distribution

Capability distribution concerns how effective economic capacities are arranged across positions. Chapter 12 defined economic capacity broadly as the historically situated ability of a subject or relational configuration to initiate, sustain, resist, coordinate, transform, or complete an economically consequential process under specified conditions. This wider category includes person-level capabilities while also permitting organizational, collective, institutional, epistemic, and relational capacities where those are the relevant economic objects.

Capability distribution therefore requires separate reconstruction from resource distribution. Similar financial resources can support different mobility, learning, care, production, bargaining, or organizational capacities because conversion conditions differ. Knowledge can remain unusable without time or institutional standing; infrastructure can remain inaccessible without technical compatibility; formal rights can remain weakly actionable without procedures or representation. Conversely, organization, trust, shared knowledge, public infrastructure, or complementary relations can allow modest resource stocks to support substantial practical capacity.

Capability distribution is domain-specific. A person can possess strong professional capacity and weak capacity to absorb financial shocks. An organization can possess advanced technical capacity and weak administrative capacity. A local government can possess formal authority but limited fiscal or epistemic capacity to implement it. A community can possess strong collective coordination capacity while lacking external institutional recognition. Distributional analysis should therefore specify the class of actions or transformations under study and preserve the multidimensional character of capability.

Portability and dependence also matter. A capacity tied to one proprietary system,

one employer, one jurisdiction, or one institutional classification can be highly effective within that relation while offering little flexibility elsewhere. A credential recognized across many institutions can support a different distribution of mobility than an equally demanding credential recognized by only one organization. Capability distribution is therefore partly a distribution of where capacities remain exercisable and under which dependencies.

The capacity to maintain capacity is a further layer. Training can produce a skill whose later use requires recurrent practice, tools, professional recognition, or continuing education. Organizational capacity can depend on stable funding, documentation, staff retention, and institutional memory. Public capacity can depend on administrative continuity, data, legitimacy, and fiscal support. A cross-sectional comparison can therefore overstate durable capacity where the conditions of reproduction are weak.

Collective capacity creates another distributional problem because some group capacities arise from complementarity and coordination and are not fully represented by a sum of individual capacities. A research team, cooperative, public agency, care network, or emergency system can perform functions that depend on complementarity, role differentiation, common infrastructure, shared memory, or coordinated timing. The distributional question can then concern both which collectives possess such capacities and how the benefits, burdens, authority, and learning generated within the collective are distributed among participants.

Capability distribution can also become recursively generative. Positions with greater capacity to learn, experiment, organize, document, or coordinate can convert later opportunities more effectively and can sometimes create new opportunities for themselves or others. This mechanism can produce cumulative divergence even where initial resource differences are modest. It can also support convergence when public infrastructure, collective learning, interoperable standards, or institutional reform lower the conversion costs faced by previously constrained positions.

Proposition 16.45 (Conversion-sensitive distribution)**.** *When the economic consequence under study depends on conversion of resources or rights into practical capacity, distributional analysis should identify the relevant conversion conditions. Similarity in nominal holdings or formal entitlements is insufficient evidence of similarity in effective capacity where those conditions materially differ across positions.*

Proposition 16.45 applies proportionally to the inquiry. Where conversion differences are plausibly small relative to the research question, a resource measure can remain adequate. Where conversion differences are central, treating resources as a proxy for capacity can obscure the mechanism that generates the observed distribution.

16.7.3 Access Distribution

Access distribution concerns how practical reachability and usability are arranged across positions. Chapter 12 distinguished access from existence, ownership, entitlement, capacity, and realized use. Chapter 13 further separated formal, reachable, usable, and continuable access. The present subsection applies those distinctions distributionally: two positions can appear equally eligible while differing in whether

they can reach, use, sustain, contest, or renew the relevant access relation.

Formal access concerns recognized permission or eligibility. Reachable access concerns whether the position can physically, digitally, organizationally, or procedurally reach the resource or institution. Usable access concerns whether complementary knowledge, time, language, devices, documentation, finance, or support make practical use possible. Continuable access concerns reliability and duration. These layers can produce substantially different distributional profiles. A programme can achieve broad formal coverage while practical use remains concentrated among positions with greater time, administrative capacity, or proximity.

Access can also be distributed across different objects. Access to generated outputs concerns services, information, products, benefits, or completed knowledge. Access to generative capacity concerns tools, finance, infrastructure, training, compute, organizational support, or other conditions through which new outputs can be produced. Access to governance concerns participation in the rules, standards, classifications, and investment choices that organize those generative conditions. Broad output access can therefore coexist with concentrated access to generative capacity or rule formation.

The distribution of intermediated access deserves separate attention. Some positions can reach an institution directly while others depend on brokers, employers, platforms, professional representatives, family members, translators, or local authorities. Mediation can expand access and reduce complexity. It can also create new dependencies, discretion, fees, informational asymmetries, or risks of interruption. An access distribution should therefore record the pathway, not merely the endpoint.

Timing can make formally similar access unequal in practice. Early access to information, credit, standards, procurement opportunities, treatment, or regulatory guidance can allow one position to act before another. Delayed access can leave the formal entitlement intact while foreclosing the practical opportunity to use it. Chapter 15's analysis of temporal position and delay therefore belongs inside access distribution where deadlines, sequencing, or waiting costs materially affect participation.

Reliability and redress matter as well. A service that is available most of the time can support very different capacities from one whose interruption is unpredictable and difficult to contest. Access to an institution can remain fragile when records cannot be corrected, decisions cannot be appealed, or interfaces change without notice. The distribution of access should therefore include continuity and repair where failure would produce consequential loss.

Access expansion also has generative consequences beyond immediate inclusion. Reaching education can generate credentials and networks; reaching finance can support investment and credit history; reaching infrastructure can attract complementary activity; reaching decision processes can generate institutional knowledge and recognized standing. Conversely, repeated access failure can consume resources, weaken trust, and reduce later willingness or ability to participate. Distribution of access is therefore one pathway through which present differences can enter future distributional dynamics.

16.7.4 Relational Opportunity

Relational opportunity concerns the practical possibility of entering, forming, sustaining, diversifying, revising, or exiting economically consequential relations. Chapter 13 developed the concept as a component of generative opportunity. Its distribution becomes relevant here because many economic possibilities are relational by constitution. Employment requires a relation with an employer, client, cooperative, or productive network; credit requires financing relations; trade requires counterparties and institutional interfaces; scientific activity can depend on collaboration, mentorship, peer recognition, and shared infrastructure; care depends on relations of provision and support.

A distribution of relational opportunity is therefore different from a count of existing relations. Some positions can have many relations that are weak, costly, dependent, or difficult to revise. Others can have fewer relations that provide strong portability, trust, recognition, and access to diverse future pathways. Network density, number of contacts, or organizational membership can be useful measures, yet their interpretation depends on the terms and functions of the relations represented.

Entry opportunity is one dimension. Requirements for prior experience, recognized credentials, referrals, deposits, location, identity verification, or institutional sponsorship can make first entry easier for some positions than others. Entry barriers can be explicit or emerge from accumulated histories. A requirement that is formally uniform can have different incidence where previous opportunities to acquire the required credential or reputation were distributed unevenly.

Continuity opportunity concerns whether an economically useful relation can be sustained. Employment, credit, care, tenancy, research collaboration, supplier relations, and institutional membership often generate their greatest value through duration. Interruptions can destroy relation-specific investments, records, trust, or complementary routines. Positions with greater buffers or institutional protection can therefore derive more generative benefit from the same nominal relation because they can remain in it through temporary shocks.

Diversification opportunity concerns whether a position can form several meaningful relations and reduce reliance on any single gatekeeper. Diversification can reduce vulnerability, improve information, and support bargaining, although maintaining many relations also consumes time and coordination capacity. The relevant objects are practical substitutability and the breadth of viable relational pathways. Maximal network size is a separate measure.

Transformation opportunity concerns whether participants can revise the terms of an existing relation. Contract renegotiation, workplace voice, platform governance, professional review, cooperative rule change, or public participation can alter a relation without requiring exit. Where transformation channels are distributed unevenly, participants in the same formal relation can possess different capacities to shape how it evolves.

Exit-linked opportunity connects this analysis to Section 16.6. Exit is economically meaningful when leaving one relation preserves or opens pathways into others. A formal right to resign, terminate, switch, migrate, or withdraw can offer weak relational opportunity if credentials are non-portable, data cannot be transferred, housing is

tied to employment, alternatives are geographically inaccessible, or reputational systems do not travel. The distribution of relational opportunity therefore includes the architecture connecting one relation to possible successors.

Relational opportunity can become cumulative. Early entry into a professional or institutional network can produce references, information, trust, and visible experience that facilitate later entry elsewhere. Exclusion can also cumulate when opportunities circulate through existing networks and first-entry requirements depend on histories that outsiders have had little chance to build. Such processes are contingent, yet they make relational distribution a plausible mechanism of later resource and capability distribution.

16.7.5 Participation

Participation distribution concerns how opportunities and burdens of entering, contributing to, influencing, contesting, and reviewing economic processes are arranged across positions. Chapter 12 defined economic participation broadly enough to include labor, governance, consumption, ownership, care, knowledge production, institutional membership, platform activity, and other economically consequential relations. Chapter 13 then showed that participation can itself generate later capacity, information, reputation, and relational opportunity. The present subsection focuses on the distribution of roles within those processes.

Participation should be decomposed by function. Presence concerns whether a position is admitted or represented. Contribution concerns whether it can supply labor, knowledge, resources, testimony, care, or other inputs. Deliberative participation concerns the practical ability to present reasons, interpret information, and respond to others. Agenda participation concerns influence over which questions enter the process. Decision participation concerns authority or practical influence over choices. Implementation participation concerns roles in carrying decisions into effect. Review participation concerns access to correction, appeal, monitoring, or institutional revision. These functions can be distributed very differently inside one nominally participatory arrangement.

Participation burdens also form part of the distribution. Time, travel, documentation, legal representation, translation, technical expertise, emotional labor, disclosure risk, caregiving arrangements, and opportunity cost can determine who can participate repeatedly. A public consultation can be formally open while sustained participation is concentrated among organizations with paid staff. A workplace forum can invite all employees while shift schedules or retaliation risk reduce practical participation for some groups. Burden distribution therefore affects which voices become persistent enough to shape institutional memory.

Participation can generate resources and capacity for participants. Repeated involvement can produce knowledge of procedures, relationships with decision makers, professional reputation, credentials, organizational routines, and confidence in navigating institutions. Early participation can therefore alter later capability and access. This recursive effect can widen distribution when institutions deliberately rotate roles, share information, compensate burdens, or build participant capacity. It can narrow distribution when experienced insiders accumulate procedural advan-

tage and entry costs rise for newcomers.

Participation can also generate value for an institution while leaving participant-side capacity weak. Consultation can provide local knowledge, legitimacy, data, or unpaid labor without transferring meaningful influence or durable access. Such cases should be described through their actual incidence. Presence and contribution should not be used as proxies for influence, benefit, or later opportunity.

The appropriate distribution of participation depends on the institutional object. Some tasks require specialized expertise, fiduciary responsibility, confidentiality, speed, or clearly assigned authority. Other processes can benefit from broader knowledge, contestation, or affected-party participation. The descriptive question in this section is how roles, burdens, and influence are distributed and what generative consequences follow. Section 16.8 examines the normative significance of participation within relational justice, while Section 16.18 later addresses participation and contestability as governance design problems.

16.7.6 Future Possibility

Future-possibility distribution concerns how practically reachable future actions, relations, revisions, exits, and historical continuations are arranged across positions. Chapter 15 represented future possibility through accessibility, transition structure, path dependence, and admissible histories. The distributional question asks whose future pathways remain reachable, whose become costly or fragile, and whose present actions can preserve, create, narrow, or foreclose possibilities for others.

Future-possibility measurement should focus on plausible pathways connecting the present configuration to later actions or states under the constraints of the inquiry. Counts of imagined alternatives provide insufficient evidence on their own. Financial resources, legal standing, health, education, infrastructure, location, institutional recognition, environmental conditions, network position, and available time can all affect that reachability. A position can therefore have many nominal choices and few practically reachable ones.

The horizon of analysis matters. A short-horizon distribution can look favorable while long-horizon possibilities deteriorate through debt, resource depletion, skill decay, environmental change, or institutional lock-in. A position can accept a short-term relation that expands immediate consumption while reducing later exit. Conversely, a temporary restriction can preserve or build longer-run capacity, as in training commitments, infrastructure construction, or some forms of coordinated investment. Future-possibility distribution should therefore state the horizon and the mechanism linking present conditions to later reachability.

Reversibility is one dimension of distributed future possibility. Positions with savings, portable credentials, diversified relations, flexible contracts, or access to several infrastructures can revise course at lower cost. Positions whose resources are highly relation-specific or whose legal and technical environments constrain switching can face narrower revision paths. Reversibility need not be maximized in every arrangement, since credible commitment can support cooperation and investment. Its distribution nevertheless matters when some positions bear irreversible commitments while others retain substantial flexibility.

Intergenerational distributions require similar care. Infrastructure, debt, ecological conditions, institutions, knowledge, standards, and legal arrangements can alter the starting possibilities inherited by later cohorts. A present distribution can therefore have incidence beyond current participants. Later cohorts can inherit valuable collective assets together with maintenance obligations, or inherit liabilities together with institutions capable of managing them. The distributional object should specify both the inherited condition and the mechanisms through which it affects later capacity.

Future possibility can also be jointly produced. Public health, ecological stability, peace, shared standards, scientific knowledge, and common infrastructure can expand possibilities that cannot be assigned cleanly to one participant. Conversely, congestion, systemic fragility, environmental depletion, or incompatible standards can narrow possibilities collectively. Distributional analysis should therefore permit common option structures alongside position-specific access to them.

Proposition 16.46 (Temporal extension of distribution)**.** *Where present distributions materially alter the capacities, relations, constraints, or transition pathways through which later options become reachable, an adequate distributional account may need to include the resulting distribution of future possibility in addition to contemporaneous holdings or outcomes. The required horizon should remain proportional to the mechanism and decision problem under study.*

Historical tracing remains necessary before distant consequences are attributed to a present distribution. Proposition 16.46 prevents the temporal boundary of a measurement period from becoming the assumed boundary of distributional incidence when mechanisms of path dependence, accumulation, depletion, institutional persistence, or capability formation are already identified.

16.7.7 Generative Consequences of Distribution

The preceding dimensions become specifically generative when their arrangement affects the capacity of an economic configuration to produce, sustain, transform, or regenerate later resources, capacities, relations, institutions, knowledge, value-bearing conditions, and future options. The relevant question is therefore neither distribution alone nor aggregate production alone. It is how a distributional configuration enters the mechanisms through which later economic possibilities are generated and how the resulting gains, burdens, and capacities are subsequently distributed.

Several pathways are possible. Resource dispersion can broaden experimentation by allowing more positions to attempt different approaches. Resource concentration can sometimes support activities with high fixed costs, coordination demands, or scale requirements. Broad capability distribution can increase the number of positions able to diagnose problems, adapt, maintain infrastructure, or initiate projects. Specialized capability concentration can support advanced tasks while creating key-person or institutional dependence. Wide access to common infrastructure can generate network benefits and complementary innovation, while unmanaged congestion or weak maintenance can reduce reliability. Diverse relational opportunity can increase recombination and information flow, while stable long-term relations can support trust and relation-specific investment. The sign and magnitude of these effects

are therefore mechanism-dependent.

Distribution can also affect resilience. A configuration in which knowledge, productive capacity, liquidity, or institutional competence is excessively dependent on one position can be vulnerable to interruption. Redundancy and distributed capacity can preserve function under localized failure. Yet redundancy carries costs, and some highly specialized systems can remain robust through backup arrangements, inventories, interoperability, or rapid substitution. Resilience claims should therefore identify the failure mode, recovery mechanism, and relevant scale; dispersion alone provides insufficient evidence of robustness.

Innovation provides another example. Concentrated research infrastructure can make expensive experiments feasible, while broad education and access can increase the number of participants capable of generating questions, methods, applications, or complementary discoveries. Open standards can widen participation while highly integrated proprietary architectures can sometimes coordinate rapid development. Distributional analysis can clarify who possesses which generative capacities and how they interact without presuming one universal institutional form for innovation.

The relation between distribution and demand can also be generative. Income and wealth distributions influence consumption patterns, savings, credit, housing demand, public revenue, and the viability of different markets and services. Distribution of time affects care, learning, civic participation, and household reproduction. Distribution of infrastructure affects where firms and households can locate. Distribution of institutional recognition affects which organizations can contract, borrow, or receive public resources. These effects can feed back into later distributions through employment, asset prices, taxation, investment, migration, and political or institutional response.

Distribution can alter the maintenance of generative conditions. Where benefits are broadly dispersed while maintenance burdens fall narrowly on under-resourced positions, shared infrastructure can deteriorate despite high aggregate value. Where a small position captures most returns from a relation while another bears depletion of health, time, ecological capacity, or organizational knowledge, current production can coexist with weakening conditions of future generation. Conversely, stable return pathways can finance maintenance and renewal. Chapter 14's analysis of recirculation and generative depletion is therefore distributionally relevant because the location of returns and burdens affects whether generative conditions are reproduced.

Power enters this dynamic when some positions can shape the distributions that later support their own conditioning capacity. Control over standards can direct participation toward one infrastructure; control over credit can shape which firms acquire productive assets; institutional authority can determine eligibility for resources and recognition; epistemic authority can influence which needs are measured; symbolic power can affect which claims appear credible. Distribution can therefore be both an effect of power and a condition through which power is reproduced. The causal direction should be reconstructed explicitly. Some distributions arise from ecological, technological, demographic, or coordination conditions without a power mechanism of the kind defined in Section 16.1.

The interaction with vulnerability is similarly non-equivalent. A highly unequal resource distribution can coexist with low vulnerability for some positions if robust public provision, insurance, rights, alternatives, and infrastructure protect basic continuity. A relatively compressed resource distribution can coexist with substantial vulnerability where access is unreliable, exit is restricted, or institutions are fragile. Section 16.6 therefore supplies a relational exposure analysis that distributional measures alone cannot replace.

Proposition 16.47 (Distribution–generativity non-monotonicity)**.** *GRE does not presume a general monotonic relation between greater equality or greater concentration in a distributional dimension and greater economic generativity. Claims about generative consequences should identify the distributed object, the relevant positions and scale, the conversion and coordination mechanisms, the time horizon, the generated conditions under evaluation, and material external or relational effects.*

Proposition 16.47 protects the analysis from two symmetric shortcuts. One shortcut treats dispersion or equalization as automatically generative; another treats concentration as automatically efficient or productive. Either relation can occur under specified mechanisms. A common infrastructure can require centralized coordination while supporting widely distributed downstream capacity. A concentrated asset position can create productive scale while also producing gatekeeping dependence. Broad resource access can stimulate experimentation while creating maintenance or congestion challenges. The analytical task is to trace the mechanism and incidence of the distributional shape before assigning a generative interpretation.

The proposition also keeps *generativity* descriptive at this stage. A configuration can become highly capable of generating outputs, institutions, technologies, or future pathways whose normative value is contested. Increased capacity to generate does not establish justice, welfare improvement, sustainability, or legitimacy. Evaluation requires specifying what is generated, for whom, through which burdens, with what effects on other positions, and under which normative criteria.

A distributional profile can consequently contain several tensions at once. Resource access can broaden while rule-setting authority concentrates. Aggregate capability can grow while exit options narrow. Participation can increase while burdens fall unevenly. Infrastructure can create collective capacity while locking users into one standard. Future possibilities can expand for current participants while ecological depletion narrows possibilities for later cohorts. GRE treats these combinations as multidimensional objects for reconstruction, preserving tensions that a single score can obscure.

Proposition 16.48 (Recursive distributional generation)**.** *When a distribution of resources, capacities, access, relational opportunity, participation, or future possibility changes the mechanisms through which later economic conditions are generated, and those later conditions in turn alter subsequent distributions, the resulting process can be analyzed as a recursive distributional trajectory. Claims of such recursion should identify the connecting mechanisms and avoid inferring self-reinforcement from persistence alone.*

Proposition 16.48 connects this section to the chapter's earlier account of power reproduction without treating every cumulative distribution as a power process.

Education can change capability distribution, which changes employment access, which changes income and time available for later learning. Infrastructure can change spatial access, which changes investment and settlement, which changes the tax base available for future infrastructure. Network participation can change relational opportunity, which changes information and reputation, which affects later entry. These processes can be self-reinforcing, self-correcting, or interrupted by external change, collective action, institutional reform, technological substitution, or new allocation.

Distribution and generativity therefore provide a descriptive bridge into justice. Resource distribution alone offers an incomplete representation when practical capacity, access, relation formation, participation, and future possibility diverge. At the same time, a multidimensional distributional account still does not decide what distribution ought to be chosen. Normative appraisal requires questions about recognition, reciprocity, domination, legitimate differentiation, responsibility, historical formation, rights, burdens, needs, contribution, sustainability, and the distribution of future-generating capacity. Section 16.8 begins that transition by examining relational justice, while Section 16.9 later asks more specifically how generation of capacities, opportunities, and future options enters a theory of generative justice.

16.8 Relational Justice

Chapter 10 introduced relational justice at the general level of application-dominant praxis as the justice-relevant assessment of relations of dependence, authority, reciprocity, recognition, care, coordination, contestability, and practical agency. The role of the present section is to specialize that architecture for substantive economic analysis after the preceding sections have identified economic power, manufactured vulnerability, and multidimensional distribution. Its objective is to specify which properties of economic relations become normatively salient when resources, capacities, access, value processes, institutional positions, and future possibilities are generated through relations that can be unequal, durable, and historically reproduced. The discussion proceeds through recognition, participation, reciprocity, non-domination, relational continuity, relational exit, justice under unequal relations, the limits of reciprocity, and justice of value transmission and transfer. The method is explicitly normative and relational, while remaining theory-plural: the section identifies evaluative objects and conditional criteria without claiming that GRE supplies a complete moral theory or one universal ordering of justice claims.

This specialization begins from two restraints. First, relational justice does not convert every descriptive asymmetry into injustice. Sections 16.1–16.7 showed that asymmetry, dependence, power, vulnerability, and distribution are distinct objects. Normative appraisal requires additional attention to justification, standing, burden, agency, alternatives, contestability, historical formation, and the effects of continuation or exit. Second, relational justice does not replace distributive analysis. Distribution can be unjust even where interpersonal relations appear respectful, while formally equal distributions can coexist with relations that create domination, exclusion, dependency, or weak practical agency. Relational and distributive analysis therefore constrain and inform one another without becoming interchangeable. This

Table 16.6: Relational-justice dimensions in substantive GRE analysis.

Dimension	Relational object	Characteristic justice concern	Diagnostic focus
Recognition	Standing, legibility, category, contribution	Omission, distortion, stigmatization, unrecognized generation or burden	Whose position and contribution can enter authoritative economic description?
Participation	Voice, influence, contestability, rule formation	Formal inclusion without consequential influence or usable review	Which affected positions can shape the terms and revision of the relation?
Reciprocity	Return, mutual contribution, obligation, maintenance	One-way extraction, coercive obligation, hidden maintenance burden	Which forms of contribution and return are expected, recognized, and revisable?
Non-domination	Conditioning capacity, discretion, dependence	Durable exposure to weakly constrained or weakly contestable conditioning	Which position can alter another's consequential options, under what checks?
Continuity	Maintenance, trust, care, infrastructure, shared capacity	Depletion of valuable relations or forced preservation of harmful ones	Which relations deserve maintenance, transformation, or discontinuation?
Exit	Refusal, withdrawal, substitution, portability, recovery	Nominal exit with prohibitive loss, or exit that externalizes severe burdens	Is withdrawal practically usable, and how are its costs distributed?
Transmission and transfer	Provenance, channel control, incidence, return	Unrecognized generation, capture, burden transfer, dependency, depleted source conditions	How are value-bearing conditions generated, moved, transformed, governed, and returned?

position is compatible with established arguments that justice concerns social relations and institutional structures in addition to distributions of goods (Young 1990; E. S. Anderson 1999).

Definition 16.49 (Economic relational justice)**.** *Economic relational justice* is the normative assessment of the terms on which economically consequential relations are formed, maintained, revised, and dissolved, including how those relations organize recognition, participation, reciprocity, dependence, authority, contestability, continuity, exit, value transmission, and practical agency across affected positions.

Definition 16.49 specializes, rather than replaces, the earlier definition of relational justice in Chapter 10. Its distinctive object is the economic relation as developed in Part V: a historically situated relation through which resources, capacities, constraints, access, obligations, value processes, institutional standing, or future possibilities can be organized. The definition leaves the substantive standard of justice partly open because different normative traditions can weight equality, rights, need, desert, freedom, reciprocity, care, sustainability, or procedural legitimacy differently. GRE's contribution is to make the relational object sufficiently explicit that those normative disagreements can be applied to the same reconstructed configuration.

Table 16.6 provides a diagnostic architecture rather than a checklist whose satisfaction establishes justice. The dimensions can point in different directions. Strong continuity can support care and institutional reliability while weakening exit. Ex-

tensive participation can increase legitimacy while imposing heavy time burdens on already constrained positions. Reciprocal exchange can sustain cooperation while excluding those unable to contribute symmetrically. Effective exit can protect agency while weakening a shared institution when advantaged positions can depart and leave maintenance costs to others. Relational justice therefore requires a configuration-specific judgment of how the dimensions interact.

Proposition 16.50 (Relational–distributive non-reducibility)**.** *For economic relations that materially organize dependence, authority, recognition, participation, contestability, continuity, or exit, a distributive description alone is insufficient to establish the justice profile of the relation. Conversely, a relational description alone is insufficient where the relation materially distributes resources, burdens, risks, capacities, or future possibilities.*

Proposition 16.50 does not claim that every inquiry requires equal attention to every dimension. A narrowly bounded transfer may be adequately assessed through a distributive rule when relational effects are negligible. A governance relation may require intensive analysis of authority and contestability even where material distributions are secondary. The proposition requires only that the analyst avoid substituting one type of object for another when the omitted dimension is materially relevant.

16.8.1 Recognition

Recognition entered Chapter 10 as practical legibility with appropriate standing, participation, and response. In substantive economic analysis, the concept acquires additional objects: contribution to value generation, maintenance work, exposure to burden, dependency, institutional status, control over conversion interfaces, and the capacity to articulate how a relation is experienced from a particular position. Recognition therefore concerns more than whether a subject is visible to an economic institution. It concerns how subjects, relations, contributions, and burdens are represented within the categories through which economic claims become actionable.

Recognition theory provides one important precedent for treating social standing and misrecognition as morally consequential rather than as mere errors of description (Honneth 1995; Honneth 2001). GRE uses this precedent in a bounded way. It does not assume that every economic category should mirror self-description, nor that institutional classification is avoidable. Tax systems, welfare programmes, labor law, accounting systems, and statistical infrastructures require categories. The justice question concerns whether those categories erase materially relevant positions, impose degrading or systematically distorting representations, deny standing without adequate reason, or make contribution and burden visible in systematically asymmetric ways.

A distinction from Chapter 14 is important. *Recognition of value* concerns whether an object, process, capability, relation, or condition is represented as carrying economic significance. *Relational recognition* concerns the standing of the positions and relations through which that significance is generated, experienced, maintained, or contested. The two can interact without becoming identical. A care activity can be recognized as economically valuable while the caregiver remains weakly recognized as a participant in rule formation. Community knowledge can be valued commer-

cially while the community's authorship, governance claims, or continuing relation to the knowledge remains unrecognized. Conversely, a position can possess strong institutional recognition even when the value of its contribution is disputed.

Recognition is therefore connected to provenance. Where value or capability is co-generated through distributed relations, exclusive recognition of the final intermediary can distort both causal reconstruction and normative standing. Recognition of provenance need not imply an entitlement to every downstream return. It does require that claims about contribution, maintenance, risk-bearing, and inherited enabling conditions remain available for evaluation rather than disappearing behind the legal identity of the final transaction.

Recognition also bears on vulnerability. Section 16.6 treated epistemic dependence as a condition in which a position relies on another for information, interpretation, certification, or classification necessary to act. A recognition failure can deepen such vulnerability when the dependent position cannot make its own evidence or experience institutionally legible. Yet recognition can itself create exposure. Increased visibility can invite surveillance, stigmatization, extractive targeting, or administrative burden. Justice therefore concerns the terms, consequences, and revisability of recognition, not maximal visibility.

Proposition 16.51 (Recognition and relational standing)**.** *Where economic categories materially affect standing, access, contribution attribution, burden recognition, or contestability, relational-justice analysis should assess the adequacy and revisability of those categories together with the practical agency of affected positions in challenging or refining them.*

The proposition preserves room for expertise and institutional specialization. A category need not be jointly authored by every affected actor. The relevant question is whether consequential categories remain sufficiently accountable to evidence, reasons, affected experience, and correction when their economic effects are material.

16.8.2 Participation

Participation concerns the distribution of standing and influence within the formation, maintenance, and revision of economic relations. Chapter 10 already distinguished participation across practical stages and warned against equating presence with influence. Section 16.7 further treated participation as one dimension of distribution. The present subsection adds the relational question: when an economic relation materially shapes a position's resources, capacities, burdens, dependence, or future possibilities, what forms of participation in the terms of that relation are justice-relevant?

The answer depends on the object and scale. Bilateral exchange, employment, household care, platform governance, public infrastructure, financial regulation, cooperative production, and transnational supply chains present different feasible forms of participation. Direct joint decision is neither possible nor desirable for every routine choice. Specialized institutions can legitimately delegate authority. Relational justice therefore does not imply a universal requirement of direct participation in every decision. It asks whether affected positions possess appropriate standing, representation, information, voice, review, contestation, or appeal relative

to the magnitude and persistence of the relation's consequences.

Participation is especially salient when rules are endogenous to the relation. A platform that can unilaterally alter access conditions, a workplace that changes scheduling rules, a creditor that modifies covenants, or a public agency that revises eligibility criteria does more than allocate an existing object. It changes the terms under which future interaction occurs. Where those terms have large consequences and exit is weak, the justice relevance of participatory safeguards increases.

Participation also has conversion conditions. Formal consultation can be practically inaccessible because of language, time, expertise, disability, digital infrastructure, fear of retaliation, immigration status, or dependence on the institution conducting the consultation. These barriers can reproduce the distributional inequalities described in Section 16.7. Support for participation can therefore include information access, translation, compensation, technical assistance, protected time, confidentiality, representation, and independent review.

The burden of participation should remain visible. Requiring continuously affected communities to educate institutions, disclose harm, attend repeated consultations, or monitor technical systems can transfer governance labor onto positions already bearing the consequences of the arrangement. Participation becomes relationally weak when institutions solicit information while retaining unrestricted discretion over whether that information changes the relation.

Proposition 16.52 (Participation proportionality)**.** *The justice relevance of participatory standing generally increases with the material consequence, persistence, rule-setting discretion, dependency, and difficulty of exit associated with an economic relation, while the appropriate institutional form of participation remains context-dependent.*

Proposition 16.52 is deliberately conditional. It does not infer a single procedural design from relational significance. It identifies conditions under which the absence of voice, review, representation, or contestability requires stronger justification.

16.8.3 Reciprocity

Reciprocity concerns patterns of contribution, return, obligation, acknowledgment, and mutual maintenance within continuing relations. It is relevant to economic life because many relations extend beyond spot exchange. Households, workplaces, communities, cooperatives, research systems, public institutions, supply networks, and infrastructures are sustained by contributions whose return may be delayed, indirect, collective, or realized in another value form. Chapter 14 therefore treated reciprocity as one possible structure of value recirculation while warning that the existence of return does not establish justice.

Relational justice should preserve that warning. Reciprocal structure can support trust, mutual recognition, shared maintenance, and resistance to one-way extraction. It can also become coercive when participation is compulsory, contribution expectations are opaque, or those with limited capacity are treated as deficient because they cannot return an equivalent amount. The relevant object is consequently the governing relation of contribution and return rather than a mechanical equality of bilateral

exchange.

Three distinctions are useful. First, *reciprocity* differs from equivalence. A relation can be reciprocal even where contributions differ in form, timing, quantity, or recipient. Second, reciprocity differs from market exchange. Return can occur through care, knowledge, public provision, maintenance, institutional support, or future stewardship rather than through an immediate price. Third, reciprocity differs from desert. The fact that a subject contributed to a process can be relevant to claims of return without establishing that contribution is the only legitimate basis of distribution.

Temporal and multilateral reciprocity are especially important. A generation can maintain infrastructure built by predecessors while building capacities for successors. Members of a risk pool can contribute at different times and receive benefits under different contingencies. Public institutions can collect resources from one set of positions and provide services to another because the relation is organized through citizenship, need, public purpose, or intertemporal solidarity rather than bilateral equivalence. Such structures can still be evaluated for reciprocity at the institutional level even when no pairwise balance exists.

Generative-justice work provides an important economic example by emphasizing circular value flows and return toward the people, communities, and conditions involved in value generation (Eglash 2016; Eglash et al. 2024). GRE retains this concern while adding a caution: return to generators can be one justice-relevant relation among several. Recipients, maintainers, risk bearers, affected non-generators, and future positions can also possess claims under other normative principles. A relation can therefore be insufficiently reciprocal without the remedy being a simple proportional return to measured contribution.

Definition 16.53 (Reciprocity profile)**.** A *reciprocity profile* records the relevant forms of contribution, return, maintenance, obligation, timing, affected positions, governing expectations, voluntariness, and revision conditions within a continuing economic relation.

A reciprocity profile makes visible relations that ordinary transaction records can miss. Unpaid maintenance can support a productive system whose formal accounts register only final sales. A community can contribute data, legitimacy, ecological stewardship, or local knowledge while financial returns accrue elsewhere. Conversely, a firm or public institution can supply infrastructure whose benefit is distributed broadly and only partially returned through direct payments. The profile does not decide the fair return; it identifies the relational structure to which a normative principle can be applied.

16.8.4 Non-Domination

Non-domination concerns the conditions under which one position is protected against durable, consequential conditioning by another position that is weakly constrained by reasons, rules, accountability, contestability, or countervailing capacity. The concept is especially relevant after Sections 16.1–16.6, because a relation can deliver material benefits while leaving one side exposed to another's discretion over access, timing, classification, renewal, termination, or future options. Relational

justice therefore asks about the structure within which power is exercised, including power that remains unused.

The present use is narrower than a complete republican theory of freedom. GRE treats non-domination as one relational-justice dimension alongside recognition, participation, reciprocity, continuity, and exit. This is consistent with broader relational-equality and oppression-oriented approaches that direct attention toward hierarchy, domination, and social standing rather than distribution alone (Young 1990; E. S. Anderson 1999). The concept should therefore be operationalized through the specific economic mechanism rather than invoked as a general label for inequality.

Domination-relevant conditions can include unilateral rule variation, opaque discretionary classification, control over essential infrastructure, inability to obtain reasons, absence of appeal, retaliation risk, non-portable assets, dependency combined with weak alternatives, or the capacity to impose delay that another position cannot survive. None of these conditions alone proves domination. Their significance depends on scope, material consequence, justification, institutional constraints, available alternatives, and how consistently governing rules bind the stronger position.

A relation can contain authority without domination. A regulator may possess legitimate authority within a bounded mandate subject to law, review, reason-giving, procedural rights, and public accountability. An employer can coordinate work through differentiated roles while employees retain legal protections, representation, information, and credible exit. A care relation can involve severe asymmetry in capability while being organized around support, fiduciary responsibility, and protection of the dependent person's interests. Relational justice therefore asks how asymmetric authority is constituted and constrained rather than treating symmetry as the baseline for every relation.

Definition 16.54 (Economic non-domination)**.** An *economic non-domination condition* is a relational condition in which materially consequential capacities to condition another position's access, obligations, opportunities, or continuity are sufficiently bounded by applicable reasons, rules, accountability, contestability, rights, countervailing capacities, or effective alternatives to prevent weakly constrained discretionary control from becoming a durable feature of the relation.

The definition is intentionally plural about institutional means. Non-domination can be supported by enforceable rights, competition, interoperability, collective bargaining, public provision, independent review, fiduciary duties, transparency, portability, democratic governance, or credible exit. Different mechanisms can substitute or complement one another. Their adequacy depends on the relation being governed.

Proposition 16.55 (Power and relational justice)**.** *A finding of economic power becomes a relational-justice concern when the power materially structures another position's standing, participation, dependency, burdens, continuity, exit, or future possibilities; the normative conclusion depends further on justification, constraints on exercise, accountability, contestability, alternatives, and consequences.*

This proposition blocks two shortcuts. Power is not identical to injustice, and absence of overt coercion is not sufficient to establish relational justice. The structure of latent conditioning capacity and the institutions that govern it remain relevant even when the stronger position rarely needs to issue direct commands.

16.8.5 Relational Continuity

Economic relations often create value through duration. Trust, professional knowledge, care, infrastructure, standards, ecological stewardship, organizational learning, insurance pools, credit histories, and cooperative routines can require continuity. The justice of a relation therefore cannot be evaluated solely through freedom to sever it. Some relations are valuable precisely because participants can rely on their persistence.

Relational continuity has at least three justice-relevant forms. *Support continuity* concerns dependable access to care, income, infrastructure, insurance, information, or other conditions on which a position reasonably relies. *Cooperative continuity* concerns the maintenance of relationships whose value is jointly generated through repeated interaction. *Institutional continuity* concerns stable rules, records, expectations, and capacities that allow actors to plan and contest decisions over time. Abrupt disruption can impose severe burdens even where each isolated transaction appears voluntary.

Continuity can also preserve unjust arrangements. A durable employment relation can sustain skills and security while entrenching discrimination. A long-standing supply network can support local capacity while maintaining one-sided dependency. A family or care relation can provide essential support while concentrating unpaid burden or restricting agency. Longevity, tradition, and social embeddedness therefore provide evidence of relational importance, not proof of justice.

This distinction connects continuity to maintenance. Chapter 14 showed that generative conditions can be depleted when returns fail to sustain the relations from which value is produced. Relational justice asks who bears maintenance work, whose contribution is recognized, who can influence maintenance standards, and whether continuity depends on burdens that some positions cannot reasonably refuse or redistribute. A relation sustained through hidden depletion of one side is analytically different from a relation whose maintenance capacities are reproduced across participants and supporting institutions.

Definition 16.56 (Relational continuity condition)**.** A *relational continuity condition* is the set of material, institutional, epistemic, and participatory arrangements through which an economically consequential relation can persist with sufficiently reliable support, maintenance, and revision while preserving the relevant standing and agency of affected positions.

The definition includes revision because justice-sensitive continuity is not mere preservation. A relationship that cannot revise obsolete rules can become a source of entrapment. Conversely, continuous renegotiation can undermine trust and planning. The relevant balance between stability and transformability depends on the relation's purpose, temporal horizon, vulnerability structure, and distribution of revision costs.

16.8.6 Relational Exit

Exit is a central protection in many economic relations because it allows a position to refuse continuing terms, seek alternatives, or withdraw from an arrangement that

has become harmful or unacceptable. Earlier chapters distinguished formal permission to exit from effective exit capacity and from exit power. Relational justice adds a different question: under what conditions is the organization of exit itself fair to the exiting position, those who remain, and positions that depend on continuity?

A formal right to leave can be practically weak where exit requires loss of housing, health coverage, accumulated reputation, data, credentials, community membership, legal status, specialized investments, or essential infrastructure. Waiting periods, non-portability, technical incompatibility, debt, geographic immobility, or retaliation can similarly make nominal exit inaccessible. Relational justice therefore evaluates the full exit pathway, including transition costs, recovery time, substitutability, retained rights, and the treatment of assets or records generated during participation.

Exit can also create external burdens. A highly mobile firm can leave environmental remediation, pension obligations, unemployed workers, or stranded infrastructure to a locality. Advantaged households can exit a public system and reduce the fiscal or political support available to those who remain. Skilled participants can leave a cooperative after receiving training funded collectively. These examples do not establish that exit should be prohibited. They show that the justice of exit includes incidence on connected positions and can justify rules concerning notice, portability, compensation, repair, or continuing obligations.

Some relations cannot be made just primarily through exit. A citizen cannot realistically solve every governance problem by leaving a jurisdiction. A child or dependent person may lack meaningful exit from care. Future generations cannot exit present decisions before inheriting their effects. Public goods and ecological systems can impose consequences on persons who never voluntarily entered a bilateral relation. Voice, rights, representation, fiduciary responsibility, public accountability, and substantive protection therefore remain necessary where exit is structurally limited or normatively insufficient.

Definition 16.57 (Relationally effective exit)**.** *Relationally effective exit* is the practically usable capacity to terminate or substantially reduce participation in an economic relation within a relevant horizon while retaining protections, information, portability, recovery capacity, and alternatives sufficient for the formal possibility of withdrawal to have meaningful practical force.

This definition is deliberately more demanding than formal exit permission while remaining distinct from a claim that costless exit is required. Many valuable relations involve relationship-specific investment and legitimate obligations. The justice question concerns whether exit costs are proportionate, foreseeable, governed, contestable, and compatible with the affected position's basic agency, while also accounting for legitimate obligations to others.

Proposition 16.58 (Voice–exit complementarity)**.** *Where an economic relation is consequential and durable, participation, contestability, and exit can function as complementary protections. Weakness in one mechanism can increase the justice relevance of the others, although no fixed substitution ratio among them is presumed.*

The proposition prevents exit from becoming a universal answer to domination. A relation can require stronger internal voice precisely because leaving is costly; credible exit can also strengthen voice by reducing retaliation risk. In other cases, collec-

tive continuity can justify limits on unilateral exit while requiring correspondingly stronger accountability and participation.

16.8.7 Justice under Unequal Relations

Economic relations are frequently unequal in resources, expertise, authority, responsibility, risk-bearing capacity, temporal horizon, or dependence. Relational justice cannot therefore take symmetry as a universal baseline. The central problem is to distinguish inequality that is functionally, institutionally, or normatively justified from inequality that converts into unaccountable control, exclusion, avoidable vulnerability, or durable subordination.

Several sources of unequal relation can be legitimate in principle. Specialized competence can justify differentiated decision authority within a bounded domain. Fiduciary roles can authorize one position to act for another under duties of loyalty and care. Public institutions can exercise coercive authority under law and accountability. Cooperative organizations can delegate operational decisions while retaining member control over constitutional rules. Care relations can involve asymmetrical capacities while centering the interests and agency of the dependent person. Unequal roles therefore require analysis of purpose, scope, mandate, competence, accountability, and revision rather than a presumption of injustice.

The same formal inequality can acquire a different justice profile when combined with dependency and weak safeguards. Expert authority can become gatekeeping power when alternatives disappear. Delegation can become domination when reasons, review, and removal mechanisms are absent. A contractual difference can become exploitative when one side faces urgent need and the other controls an essential condition. Protective paternalism can become exclusionary when it systematically suppresses the voice of the person ostensibly protected. Relational justice consequently evaluates the mechanism through which inequality is translated into practical consequences.

A useful distinction is between *role asymmetry* and *status subordination*. Role asymmetry concerns differentiated functions, competences, or responsibilities within a relation. Status subordination concerns an arrangement in which one position is institutionally or socially treated as having persistently lesser standing, voice, credibility, or claim to justification across a domain wider than the functional difference requires. Relational justice is compatible with many role asymmetries while providing grounds to scrutinize their expansion into status hierarchy. Anderson's account of democratic equality and Young's analysis of domination and oppression provide important precedents for this relational orientation (E. S. Anderson 1999; Young 1990).

Proposition 16.59 (Asymmetry–justice non-equivalence)**.** *Relational asymmetry neither establishes injustice nor removes the need for justice analysis. The normative assessment of an unequal economic relation should examine the relation's purpose, scope, origin, necessity where relevant, affected interests, distribution of burdens and benefits, accountability, recognition, participation, contestability, exit conditions, historical formation, and revisability.*

The proposition does not imply that every listed dimension must be satisfied in-

dependently. It identifies the information needed to avoid evaluating asymmetry through a single feature. A relation can be highly unequal yet tightly bounded and accountable; another can appear formally equal while one side's dependency, urgency, or informational disadvantage makes the practical relation strongly one-sided.

16.8.8 Limits of Reciprocity

Reciprocity is important because one-way extraction and unacknowledged contribution can be central forms of relational injustice. Yet reciprocity cannot serve as a universal metric for all economic relations. Human life includes infancy, illness, disability, aging, crisis, dependency, and unequal capacities for contribution. Care ethics and dependency theory have therefore emphasized that dependence is a normal feature of social life and that justice must attend both to dependents and to those who perform dependency work (Kittay 1999; Tronto 1993). These cases expose the limits of requiring equivalent return from every recipient.

The same limitation appears in collective and intergenerational settings. Future persons cannot reciprocate present stewardship to the same actors who bear its current costs. Public-health protections can benefit people who never make equivalent contributions. Basic infrastructure can be maintained through taxation according to ability, use, benefit, citizenship, or other institutional principles rather than bilateral reciprocity. Ecological relations can involve duties of restraint or restoration even where a non-human system cannot reciprocate in the moral sense used for interpersonal exchange. The relevant normative framework may therefore rely on need, rights, responsibility, care, stewardship, solidarity, sustainability, or protection against domination in addition to reciprocity.

Reciprocity can also reproduce inequality when contribution capacity is itself unequally generated. A rule that allocates benefits strictly in proportion to measured contribution can disadvantage those whose care burdens, disability, discrimination, historical exclusion, or lack of access have constrained their ability to contribute in the recognized form. Conversely, a norm of unconditional return can burden positions that have already provided disproportionate maintenance. A justice-sensitive reciprocity analysis therefore examines how contribution capacity and recognized contribution were produced.

Reciprocity can be indirect. A person can receive care in one life stage and provide care in another. A research community can use accumulated knowledge while contributing new methods or infrastructure for unknown future users. A public institution can provide benefits to one group under a system maintained by a much wider tax base. Such arrangements can contain reciprocal structures at a collective or temporal level without pairwise accounting. Whether that broader reciprocity is normatively adequate depends on the governing institution and the alternative principles that apply.

Proposition 16.60 (Reciprocity scope condition)**.** *Reciprocity is an informative relational-justice criterion where contribution, return, mutual maintenance, or continuing obligation are normatively relevant to the relation, but it should not be treated as a universal requirement of equivalent bilateral exchange. Its scope must be assessed alongside need, dependency, rights, care, responsibility, public purpose, historical*

conditions, and the capacities through which contribution becomes possible.

This scope condition also protects generative-justice analysis from a narrow producerism. Recognizing value generators is important, especially where their contribution has been appropriated or erased, but a just economy can also owe support to persons who do not currently generate measurable economic value. Section 16.9 will therefore examine generative justice through capacity, opportunity, participation, and protection from foreclosure without making productive contribution a condition of moral standing.

16.8.9 Justice of Value Transmission and Transfer

Chapter 14 developed a descriptive architecture of value transmission and transfer that preserves provenance, value form, channel structure, transformation, temporal incidence, distributed consequence, and control. Its justice subsection identified recurrent questions concerning generators, channel control, maintenance work, burdens, contestability, return, and future generative opportunity. The present subsection integrates that architecture into relational justice. The focal question is how the relation through which value is transmitted is organized, including who can define the terms of movement, whose contribution is recognized, which burdens are transferred, who can contest or refuse the channel, and how transmission affects the capacities and continuity of source and recipient positions.

A transfer can be distributively favorable while relationally problematic. A recipient can receive a valuable resource under conditions of surveillance, dependency, intrusive control, or loss of exit. A donor can support a community while retaining unilateral authority over goals and reporting categories. A platform can subsidize access while acquiring data and locking participants into a proprietary standard. Conversely, a transfer that appears unequal in immediate material incidence can support a legitimate shared institution, compensate historical burden, or maintain capabilities required for later participation. The relational structure therefore cannot be inferred from the direction or amount of the focal transfer.

Provenance is one justice-relevant object. Value can depend on labor, care, knowledge, ecological conditions, infrastructure, public investment, community legitimacy, or accumulated institutional capacity that is absent from the formal transaction record. Recognizing provenance does not settle entitlement because contributors can be numerous, heterogeneous, historically distant, or unable to claim a common metric. It does prevent the final intermediary from being treated automatically as the sole generator of the transmitted value.

Channel governance is a second object. Positions that control standards, payment rails, certification, intellectual-property interfaces, logistics, data access, or legal permissions can influence whether transmission occurs and on which terms. Such control can perform valuable coordination. It can also produce power when dependency, scarcity, or weak alternatives make access to the channel consequential. Relational justice asks whether channel governance is appropriately bounded, accountable, contestable, and open to revision relative to its effects.

Maintenance and burden incidence are a third object. Successful transmission can depend on translators, caregivers, moderators, administrators, maintainers, data pro-

ducers, ecological stewards, or infrastructure operators whose contribution is poorly represented in the focal transfer. The source side can also be depleted even when the recipient benefits. Justice analysis should therefore trace whether the relation reproduces the conditions required for continued generation or externalizes maintenance costs onto weakly recognized positions.

Return is a fourth object. Generative-justice scholarship places particular emphasis on circular value flows and on returning value and productive control toward the human and non-human communities involved in generation (Eglash 2016; Eglash et al. 2024). GRE retains this as an important criterion while resisting a universal formula of proportional return. Return can take monetary, infrastructural, capability, ecological, epistemic, institutional, or participatory forms. The relevant form depends on the value process, the affected positions, and the normative principles governing the relation.

Agency and substantive opportunity remain relevant throughout transmission. Capability-oriented analysis emphasizes effective freedom rather than nominal possession alone (Sen 1999). A transfer can therefore expand formal holdings while reducing practical agency if its conditions narrow refusal, conversion, mobility, or future alternatives. Conversely, institutional support can increase substantive freedom even where it introduces legitimate obligations. Relational justice evaluates the package of benefit, condition, dependency, and future option structure rather than treating receipt as sufficient evidence of improvement.

Definition 16.61 (Relational-justice profile of value transmission)**.** A *relational-justice profile of value transmission* records the justice-relevant source and recipient positions, generative provenance, channel governance, recognition of contribution, conditions of participation, burdens and maintenance requirements, dependency and exit effects, contestability, forms of return, downstream incidence, and consequences for the continuity and future agency of materially affected positions.

This profile can be applied to same-form transfers and heterogeneous value transmission. A wage payment, data exchange, technology license, grant, care relation, knowledge transfer, infrastructure subsidy, ecological extraction, or public service can each have a relational-justice profile even though the relevant value forms and normative principles differ. The profile is deliberately non-scalar so that incompatible or unresolved justice claims remain visible.

Proposition 16.62 (Relational incidence of transmission)**.** *Where value transmission materially changes recognition, participation, dependence, channel control, maintenance burden, exit, relational continuity, or future agency, justice assessment should include those relational effects in addition to the formal sender–recipient transfer and its immediate distributive incidence.*

The proposition closes the section by reconnecting relational justice to generativity. Relations are not only channels through which present benefits and burdens are distributed; they can also determine who can generate, maintain, revise, or access future possibilities. Relational justice asks whether the terms of those relations respect standing, agency, accountability, and justified interdependence. The next section narrows the focus to the future-generating side of this problem. Section 16.9 develops *generative justice* through capacity generation, opportunity generation, option-space

expansion, participation in generation, protection from generative foreclosure, distribution of future possibility, and intergenerational generativity. Keeping the two perspectives distinct allows GRE to examine a relation that is generatively productive yet relationally objectionable, or relationally respectful yet weak in its capacity to sustain future possibility.

16.9 Generative Justice

Section 16.8 evaluated the justice of economically consequential relations through recognition, participation, reciprocity, non-domination, continuity, exit, and value transmission. The present section turns to a different normative object: the conditions through which capacities, opportunities, option spaces, relations, and future possibilities are generated, maintained, distributed, and foreclosed. Its role is to develop a GRE-specific generative-justice analysis while preserving the established generative-justice lineage reviewed in Chapter 2. Its objective is to specify how capacity generation, opportunity generation, option-space expansion, participation in generation, protection from generative foreclosure, distribution of future possibility, and intergenerational generativity become justice-relevant once the descriptive architecture of Parts V and VI is available. The discussion is normative, historical, and relational. It treats generative effects as objects requiring evaluation rather than as self-validating goods.

The terminological boundary is important. *Generative justice* already names an established theoretical and practical tradition reconstructed in Chapter 2. That lineage connects bottom-up organization and sustainability with later work on value generation, alienation, control over productive conditions, and circular return toward the human and non-human communities involved in generation (Eglash 2016; Eglash et al. 2024). GRE inherits this lineage and extends the inquiry toward a wider set of economic objects developed in earlier chapters, including capability formation, generative opportunity, relation generation, constraint formation, option-space transformation, path dependence, and future possibility. The extension requires explicit argument because these objects are not automatically contained in the predecessor framework.

Three restraints govern the section. First, generativity remains descriptively separable from justice. Economic arrangements can generate knowledge, productive capacity, institutions, coordination, or future pathways while also generating domination, exclusion, ecological depletion, vulnerability, or harmful lock-in. Second, future-generating benefit does not by itself settle the justice of present burdens. A project that promises later capacity can still require evaluation of current rights, needs, recognition, participation, exposure, and alternatives. Third, productive or generative contribution is not a condition of moral standing. Children, persons with severe disabilities, people engaged in care, those temporarily unable to contribute, and future persons can possess justice-relevant claims that are not reducible to measurable contribution to economic generation (Kittay 1999; Tronto 1993). These restraints preserve the plural normative architecture established in Chapter 2 and Section 16.8.

Definition 16.63 (GRE generative-justice profile)**.** A *GRE generative-justice profile* is a structured normative account of how an economic arrangement affects the generation, maintenance, distribution, control, and possible foreclosure of capacities, generative opportunities, practical option spaces, participation in generative processes, and future possibilities across materially affected positions and temporal horizons, together with the burdens, dependencies, external effects, and historical conditions through which those effects arise.

Definition 16.63 deliberately defines an analytical profile rather than a universal scalar of generative justice. Different normative traditions can assign different weights to equality, sufficiency, rights, need, contribution, care, autonomy, sustainability, historical repair, democratic participation, or protection of future persons. The profile identifies the economic objects over which those disagreements can operate. It also preserves the distinction between *how much* generative capacity exists and *how* the conditions of generation are distributed, governed, sustained, and made revisable.

Table 16.7 is compositional. A single institution can score differently across its dimensions. A vocational system can generate strong occupational capability while channeling participants into a narrow option space. A public infrastructure can expand collective opportunity while imposing localized ecological burdens. A digital platform can enable widespread participation in production while retaining concentrated control over standards, data, and exit conditions. Generative-justice analysis therefore preserves these tensions instead of aggregating them prematurely.

Proposition 16.64 (Generativity–justice non-equivalence)**.** *Evidence that an economic arrangement generates capacities, value, participation, institutions, or future options is insufficient by itself to establish that the arrangement is just. A generative-justice claim requires additional normative evaluation of the generated object, affected positions, burdens, control, participation, distribution, external effects, historical formation, and relevant alternatives.*

Proposition 16.64 carries forward a distinction already established in Chapters 2, 8, 12, 13, and 14. Generativity identifies a temporal and relational property of an arrangement. Justice evaluates that property together with the terms under which it arises and the effects it has on persons, communities, institutions, ecological systems, and later positions. Keeping those operations separate allows GRE to analyze highly generative but objectionable arrangements as well as modestly generative arrangements that may nevertheless satisfy important justice claims.

16.9.1 Capacity Generation

Chapter 12 developed capability generation as one dimension of the generative potential of economic architecture. Effective capacities can be generated through combinations of resources, access, knowledge, coordination, institutional recognition, infrastructure, time, complementary relations, and opportunities for practice. The justice question concerns how those capacity-generating conditions are organized and distributed. The object is broader than the final possession of a skill or asset because capacity formation can depend on long histories of care, education, public provision, organizational learning, ecological support, and relational participation.

Table 16.7: Generative-justice dimensions in substantive GRE analysis.

Dimension	Primary object	Characteristic justice concern	Diagnostic focus
Capacity generation	Formation and maintenance of effective individual, collective, organizational, and infrastructural capacities	Unequal or extractive production of effective agency; capacity built under burdens that undermine standing or continuity	Who gains which capacity, through whose resources and labor, under which conversion and control conditions?
Opportunity generation	Conditions through which additional practical possibilities can later be produced or reached	Cumulative advantage, blocked first entry, weak portability, and unequal access to opportunity-generating relations	Who can enter, sustain, and convert present relations into later opportunity?
Option-space architecture	Reachability, diversity, reversibility, independence, and temporal durability of practical pathways	Nominal abundance with weak usability; lock-in; expansion for one position coupled to foreclosure for another	Which pathways become genuinely usable, revisable, and compatible with the claims of affected positions?
Participation in generation	Contribution to and governance of generative processes	Value generators excluded from control or return; affected non-generators excluded from consequential decisions	Who can contribute, shape conditions, contest rules, and share in relevant benefits without making contribution a condition of standing?
Generative foreclosure	Loss or degradation of support structures required for later capacity, opportunity, or practical pathways	Avoidable, weakly justified, or asymmetrically imposed closure of future-generating conditions	Which generative pathways are closed, by what mechanism, for whom, for how long, and with what recovery possibilities?
Future possibility distribution	Cross-position distribution of practically reachable later capacities, relations, and options	Present arrangements that systematically widen some future fields while narrowing others	How are later possibility, adaptability, and revisability distributed across positions and scales?
Intergenerational generativity	Conditions transmitted across cohorts and generations that affect later agency and generation	Depletion, rigid lock-in, burden transfer, or inheritance of weak repair capacity	What capacities, constraints, infrastructures, ecological conditions, institutions, and revision possibilities are passed forward?

Capability-oriented analysis provides an important foundation by directing attention from nominal resources toward substantive freedom and effective opportunity (Sen 1999). GRE adds a historical-generative layer: current institutions can alter who becomes capable of acting later, which collective capacities can be sustained, and which conversion conditions remain available. The additional layer should remain compatible with the capability tradition rather than absorbing it. A capability can be valuable as a present freedom even when it produces no measurable economic return, while a generative-justice analysis asks additionally how the conditions sup-

porting that capability are formed, reproduced, and distributed through time.

Capacity generation can occur at several loci. Education and health can support personal capacities. Care relations can maintain bodily, cognitive, and emotional conditions required for later action. Organizational routines can generate collective capacity that is not reducible to the sum of individual skills. Public institutions can create administrative capacity, legal protection, or coordination ability. Infrastructures can make existing capabilities operational across distance or scale. Ecological systems can supply regenerative conditions on which human and organizational capacities depend. A justice analysis that records only individually held human capital can therefore miss important generators and maintenance conditions.

The location of generated capacity also matters. Training funded by one organization can create portable skill that remains with workers, relation-specific competence that is usable only within the organization, or organizational knowledge retained primarily through proprietary systems. Publicly funded research can create knowledge that remains broadly accessible, knowledge enclosed through licensing, or infrastructure controlled by a narrow institutional position. Similar gross investment can therefore produce different distributions of later agency depending on ownership, portability, standards, recognition, and exit conditions.

The burdens of capacity generation require separate attention. Capacity can be produced through unpaid care, uncompensated training time, hazardous work, ecological depletion, emotional labor, debt-financed education, data extraction, or participation requirements that are feasible only for actors with substantial prior resources. A favorable later capability outcome can coexist with an objectionable burden structure. Conversely, differentiated support can be justified where positions face different conversion conditions or where equal nominal input would reproduce unequal effective capacity. Generative justice consequently asks both what capacities emerge and how the costs and conditions of their emergence are distributed.

Capacity maintenance is part of the same object. Skills decay without practice, infrastructures deteriorate without repair, institutional competence can disappear through turnover, and relational capacities can erode when trust or reciprocity is repeatedly depleted. A system that creates capacity once while externalizing the costs of maintenance can appear generative under a short horizon and depletive under a longer one. The relevant horizon should therefore reflect the expected duration and maintenance requirements of the capacity being evaluated.

Capacity generation also interacts with dependence. Specialized training can increase productive ability while making employment options more relation-specific. A health system can create clinical capability while depending on a narrow supply chain. An organization can improve output through specialized software while losing internal ability to operate without the provider. These configurations can be reasonable and mutually beneficial, yet they illustrate why justice cannot be inferred from capacity expansion alone. The distribution of dependency, substitutes, portability, control, and recovery capacity remains relevant.

Proposition 16.65 (Capacity-generation non-sufficiency)**.** *A claim that an arrangement is justified because it generates valuable capacity requires normative argument concerning the burdens, standing, rights, dependencies, control conditions, alternatives,*

and temporal incidence associated with that capacity. Future capability gain alone is insufficient to settle the justice of present treatment or present deprivation.

This proposition protects the framework from developmental paternalism. Education, health intervention, institutional reform, and infrastructure can expand later capacities, yet the promise of later benefit does not erase present agency or legitimate disagreement about means. It also protects against the opposite reduction. Present consumption or immediate relief can be urgently justified while still leaving open a separate question about whether the conditions for later capacity are being maintained. A mature generative-justice analysis can therefore recognize present claims and future-forming conditions simultaneously.

16.9.2 Opportunity Generation

Chapter 13 defined *generative opportunity* as a historically situated possibility for a subject or collective to acquire, combine, mobilize, sustain, or transform capacities and relations in ways that make additional economically consequential actions, relations, or option pathways practically reachable later. Section 16.7 then showed that current opportunity and future possibility can be distributed differently across positions. The justice question is therefore not exhausted by whether a present option is formally open. It also concerns who occupies conditions from which further options can be produced.

Opportunity generation commonly depends on first entry. Participation in a profession can generate credentials, references, tacit knowledge, reputation, contacts, and information about later openings. Access to research infrastructure can generate new questions, collaborators, and project capacity. Membership in a cooperative can generate governance experience and trusted relations. Entry to stable housing can support educational continuity, health, employment search, and community participation. A position excluded from the first relation may therefore lose a sequence of later opportunities even when later stages contain formally open procedures.

First-entry effects should be distinguished from deterministic cumulative advantage. Some early advantages dissipate; some later institutions compensate for missed entry; technological or institutional changes can open alternative routes; and early specialization can create lock-in. Generative-justice analysis should identify the mechanism that links one opportunity to another rather than assuming that earlier access necessarily compounds. The strength of the justice concern depends partly on how consequential, substitutable, reversible, and institutionally governed the opportunity-generating pathway is.

Opportunity generation also depends on conversion conditions. A grant opportunity can be nominally open while applications require unpaid preparation, specialized language, matching funds, institutional sponsorship, or prior reputation. A professional network can be technically accessible while participation requires time, travel, social familiarity, or cultural codes unevenly distributed among potential entrants. Digital training can be available at low monetary cost while reliable connectivity, quiet space, assistive technology, or prior literacy remain scarce. Equal formal access can therefore coexist with unequal ability to convert access into generative opportunity.

Differentiated support can sometimes reduce this inequality. Translation, childcare, accessibility accommodations, preparatory training, seed funding, portable credentials, mentoring, public infrastructure, or lower-risk entry pathways can change the conversion conditions through which later opportunities become reachable. Such differentiation requires its own normative justification, but it illustrates why generative justice cannot be reduced to identical treatment at the point of entry. The relevant object is the architecture through which practical opportunity is generated.

Control over opportunity-generating interfaces can also become power. Eligibility rules, standards, rankings, credentialing systems, recommendation networks, platform visibility, procurement procedures, and access to scarce infrastructure can shape whose participation becomes generative. Sections 16.1–16.5 provide the power analysis needed to examine these mechanisms. Generative justice adds the normative question of whether the resulting opportunity structure is appropriately justified, contestable, accessible, and open to revision.

Proposition 16.66 (Current–generative opportunity distinction)**.** *Similarity in currently available opportunities does not establish similarity in generative opportunity. A generative-justice assessment should examine whether positions differ materially in the capacities, access conditions, relations, institutional standing, time, infrastructure, or conversion pathways through which additional later opportunities can be produced or reached.*

The converse also matters. Different current opportunities do not automatically establish generative injustice. Age, role, expertise, safety, ecological constraint, scarce capacity, public purpose, and institutional responsibility can justify differentiated access in some settings. The generative question concerns whether the differentiation is justified relative to the relevant normative principles and whether it creates avoidable or weakly accountable cumulative exclusion. The descriptive reconstruction of opportunity generation remains necessary before the normative conclusion is drawn.

16.9.3 Option-Space Expansion

Generative opportunity concerns conditions from which later possibilities can emerge. Option-space analysis examines the structure of those possibilities once they become practically relevant. Earlier chapters distinguished practical options from merely imaginable alternatives and emphasized reachability, conversion costs, timing, support conditions, and path dependence. Generative justice therefore evaluates more than the numerical size of an option set. It asks what kinds of pathways become available, to whom, under which dependencies, with what reversibility, and with which effects on the options of others.

Option-space expansion can support agency when it adds practically reachable pathways that differ meaningfully in function, relation, location, timing, or institutional dependence. Portable credentials can allow movement across employers or sectors. Interoperable standards can create additional technical pathways. Public transport can widen spatial access. Savings can create time for search, retraining, care, or entrepreneurship. Legal recognition can make previously inaccessible institutional relations available. These expansions can matter even when no immediate resource transfer occurs.

The quality of an expanded option space depends on several properties. *Reachability* concerns whether a pathway can actually be entered. *durability* concerns whether the option remains usable over a relevant horizon. *reversibility* concerns whether a commitment can be revised without disproportionate loss. *diversity* concerns whether options differ substantively rather than representing superficial variants of one dependency. *portability* concerns whether generated capacities, records, rights, or reputation can travel across relations. *independence* concerns whether several nominal options depend on the same controlling bottleneck. *compatibility* concerns whether exercising one option destroys other valued capacities or imposes severe costs on affected positions.

These dimensions can conflict. Long-term commitment can reduce reversibility while enabling relation-specific investment. Professional specialization can narrow occupational diversity while creating deep capability. Common standards can restrict design choice while expanding interoperability. Environmental regulation can close profitable pathways while protecting ecological capacities on which many future options depend. A larger option set therefore carries no automatic normative priority over a smaller one.

Option abundance can also be misleading. Multiple lenders can rely on the same credit-scoring infrastructure; many digital services can depend on one identity provider; several job offers can require the same location or working pattern; nominal educational choices can share the same unaffordable financing condition. Where several alternatives depend on one bottleneck, the apparent option count can overstate practical independence. Generative-justice analysis should therefore trace common dependencies and control points.

The distribution of option quality matters as well. One position can receive flexible, reversible pathways while another receives options requiring irreversible commitment or high switching costs. A firm with substantial reserves can experiment across several technologies while a smaller supplier must specialize early. A household with savings can wait for a better job while another must accept the first available offer. Temporal power and waiting capacity, developed in Sections 16.1 and 16.4, therefore enter the justice of option-space expansion.

Proposition 16.67 (Option-space cardinality non-sufficiency)**.** *An increase in the number of nominally available options is insufficient to establish a generative-justice improvement. Assessment should consider practical reachability, diversity, durability, reversibility, portability, common dependencies, distribution across positions, and material effects on the capacities and options of others.*

The proposition also clarifies why some option foreclosure can be normatively justified. Safety rules can remove hazardous pathways; ecological protection can restrict extraction; fiduciary standards can prohibit certain transactions; anti-discrimination rules can constrain contractual discretion. The justice question concerns the justification and incidence of closure together with the capacities and protections generated by the restriction. Generative justice therefore evaluates option-space transformation rather than treating expansion as an unconditional goal.

16.9.4 Participation in Generation

Participation enters generative justice in at least three distinct ways: participation in producing value or capacity, participation in governing the conditions of generation, and participation in the benefits or returns generated by the process. The generative-justice lineage gives particular importance to the relation between value generators and control over productive conditions, together with circular return toward communities involved in generation (Eglash 2016; Eglash et al. 2024). GRE retains this insight while broadening the range of generative objects and affected positions under consideration.

Participation in production or generation concerns contribution. Workers, caregivers, maintainers, data contributors, communities, ecological stewards, researchers, users, public institutions, and infrastructures can all enter the causal history of a value process. Their contributions can differ in visibility, replaceability, formal recognition, and measurability. Section 16.8 already cautioned against identifying the visible point of completion with the sole generator. Generative justice asks whether relevant contributors are recognized and whether the conditions of generation allow them appropriate agency, protection, and return under the governing normative principles.

Participation in governance concerns authority over the rules, interfaces, classifications, standards, investment choices, maintenance priorities, and revision procedures through which generation occurs. Contribution does not automatically confer complete control, and control need not be distributed identically among contributors. Specialized expertise, fiduciary roles, public accountability, property arrangements, safety obligations, or collective decision procedures can justify differentiated authority. The justice question concerns the legitimacy, scope, accountability, and contestability of that authority, especially where generated value or capacity depends materially on actors with weak influence over the conditions of generation.

Participation in benefit or return concerns incidence after generation. Monetary return is one form. Others include access to infrastructure, generated knowledge, strengthened capabilities, ecological restoration, institutional recognition, improved working conditions, governance rights, community resources, or future opportunities. Heterogeneous return complicates comparison because these forms are only partially commensurable. A claim that participants received an adequate return therefore requires a normative account of which forms are relevant and why.

The three forms of participation can diverge sharply. A worker can contribute heavily while holding little governance authority. A public institution can govern a process without being the primary value generator. A community can bear maintenance or ecological burdens while receiving limited direct return. Users can generate data that improve a platform while lacking access to the resulting knowledge or control over downstream use. These divergences are central objects of generative-justice analysis because the architecture of contribution, authority, and return can reproduce power even when aggregate output rises.

Participation can also be burdensome. Consultation, co-design, community governance, and participatory budgeting require time, knowledge, emotional labor, translation, care arrangements, and sometimes exposure to conflict or retaliation. A pro-

cess can therefore be formally participatory while distributing participation costs in ways that exclude those with fewer resources. Generative justice should treat participation capacity and burden as part of the institutional design rather than assuming that more participation is universally better.

A further boundary concerns persons whose standing is independent of productive contribution. Some justice claims arise from need, rights, dependency, care, citizenship, ecological responsibility, or exposure to risk rather than from contribution to a generative process. An economy that linked protection or recognition exclusively to measurable production would exclude many positions whose claims remain normatively significant. Generative participation therefore supplements, rather than replaces, broader principles of justice.

Proposition 16.68 (Contribution–standing separation)**.** *Participation in value or capacity generation can create justice-relevant claims concerning recognition, control, return, and protection, yet the absence of measurable generative contribution does not by itself reduce a person's or affected position's standing within justice analysis.*

This proposition is especially important for care, disability, childhood, aging, public provision, future generations, and ecological stewardship. A generative framework gains normative depth when it can recognize the sources and conditions of generation without turning economic productivity into a universal measure of worth.

16.9.5 Protection from Generative Foreclosure

Generative justice includes a protective dimension because economic arrangements can narrow the conditions from which later capacities and opportunities could emerge. Earlier chapters developed option foreclosure, relational foreclosure, capacity depletion, lock-in, and negative generativity as descriptive objects. The present subsection asks when such processes become justice-relevant and what kind of protection the generative perspective can justify.

Definition 16.69 (Generative foreclosure)**.** Within a specified position, domain, and horizon, *generative foreclosure* is a materially consequential reduction in the practical support structure through which relevant later capacities, generative opportunities, relations, or option pathways could otherwise be formed, sustained, recovered, or made reachable, where the reduction can be traced to an identifiable economic process or configuration.

The definition is narrower than ordinary non-realization. A person who does not pursue one career has not thereby suffered generative foreclosure. A firm whose speculative project fails has not necessarily lost a justice-relevant future pathway. A strong foreclosure claim requires some basis for identifying the prior, emerging, or reasonably supportable generative pathway and the mechanism through which its support structure was materially reduced. Evidence can concern lost skills, closed institutions, depleted ecosystems, inaccessible credentials, destroyed relational infrastructure, incompatible standards, irreversible debt, or other conditions that change practical reachability.

Foreclosure can operate before an option becomes visible. A community can lose ecological conditions required for future livelihood diversification. A school system

can narrow curricula in ways that reduce later intellectual or occupational pathways before students know which paths they might value. A technical ecosystem can become dependent on one proprietary standard before switching costs are fully apparent. A household can accumulate debt obligations that later limit geographic or occupational mobility. Generative justice is therefore partly concerned with losses in the conditions of future authorship, not only with the cancellation of already formed plans.

Protection from foreclosure should nevertheless avoid a blanket preservation principle. Economic transformation necessarily closes some paths. Obsolete technologies disappear; unsafe practices are prohibited; ecological limits can require cessation of extraction; institutional reform can dissolve roles built around unjust arrangements. Preserving every existing generative pathway would itself freeze historical structure and protect harmful forms of power. The normative object is therefore *avoidable, weakly justified, asymmetrically imposed, or inadequately repaired foreclosure* relative to specified claims and alternatives.

Distribution matters. A transition can expand aggregate future possibility while concentrating foreclosure on one region, occupation, community, or generation. Decarbonization can generate new industries while closing carbon-intensive livelihoods. Urban redevelopment can improve infrastructure while displacing local networks. Automation can increase productive capacity while eroding occupational pathways for particular workers. A generative-justice analysis asks how transition burdens are distributed, which capacities can be transferred, which support structures require rebuilding, and whether affected positions participate in shaping the transition.

Recovery capacity is also relevant. Some foreclosure is shallow and reversible; some requires years of rebuilding; some becomes practically irreversible within a person's life horizon or an ecosystem's recovery horizon. Compensation can reduce immediate burden without restoring generative capacity. Conversely, retraining, portable benefits, institutional guarantees, ecological restoration, community investment, or interoperable infrastructure can create alternative generative pathways even when the original path is not preserved. Repair should therefore be analyzed in terms of future-generating conditions as well as monetary transfer.

Proposition 16.70 (Foreclosure–injustice non-equivalence)**.** *Generative foreclosure establishes a future-shaping loss or restriction, while a conclusion of injustice requires additional normative assessment of justification, avoidability, distribution, responsibility, participation, compensation or repair, protected competing interests, and the availability of alternative generative pathways.*

This proposition parallels the chapter's earlier asymmetry–power and power–justice distinctions. It allows GRE to diagnose foreclosure precisely before deciding whether the process is unjust. It also makes governance more tractable: an institution may need to preserve a pathway, build substitutes, redistribute transition costs, strengthen recovery capacity, or justify why closure protects other claims. The appropriate response depends on the mechanism and normative context.

16.9.6 Distribution of Future Possibility

Section 16.7 treated future possibility as one dimension of an economic distributional profile. Generative justice turns that descriptive distribution into a normative object. The question concerns how present relations and institutions distribute the capacity to reach, create, revise, and recover future possibilities across positions. This temporal extension matters because similar present holdings can conceal sharply different futures, while different current holdings can sometimes support convergence where they compensate for unequal conversion conditions.

Future possibility is multidimensional. It includes the ability to learn, move, form relations, change occupation, access institutions, experiment, refuse harmful terms, recover from failure, participate in collective action, preserve ecological or social conditions, and revise commitments as knowledge changes. These possibilities depend on resources, capacities, time, care, legal standing, infrastructure, public services, social recognition, network position, and exposure to risk. A single monetary indicator is therefore unlikely to represent their distribution adequately.

The temporal horizon affects what becomes visible. Short horizons can favor positions with immediate liquidity or established capacity while overlooking educational, ecological, or institutional investments whose effects appear later. Long horizons can reveal cumulative consequences while increasing uncertainty about technologies, preferences, institutions, and future conditions. Generative-justice analysis should therefore state the horizon and distinguish relatively robust future-shaping mechanisms from speculative predictions.

Uncertainty creates a particular challenge. Justice toward future possibility need not depend on precise prediction of which options persons will later choose. Requiring such precision would be infeasible and could encourage paternalistic planning. A more modest object is the preservation or creation of sufficiently diverse, usable, and revisable conditions under which later positions can form and pursue their own projects. This places value on adaptability and revision capacity without requiring present institutions to know the content of future preferences.

Risk-bearing positions deserve separate attention. Some actors can accept failure because they possess reserves, insurance, supportive relations, or alternative pathways. Others face catastrophic loss from the same experiment. An innovation regime can therefore appear open while practical experimentation is concentrated among those able to absorb failure. Public insurance, bankruptcy rules, social protection, research funding, income support, or shared infrastructure can change the distribution of experimentation capacity without prescribing which experiments should succeed.

Power can shape future possibility both directly and indirectly. Standards can determine compatibility; credit can determine investment; classifications can determine eligibility; ownership can determine access to productive conditions; institutional authority can determine which pathways receive recognition. These effects connect generative justice to Sections 16.1–16.5. The normative issue is not simply whether power exists, but whether the power over future-generating conditions is adequately justified, bounded, accountable, and revisable relative to affected positions.

A future-possibility perspective also resists one-directional maximization. Maxi-

mizing the aggregate number of future options can conflict with rights, ecological limits, stability, care obligations, or the maintenance of shared institutions. A society may justifiably restrict some activities to preserve public health or ecological capacity. An organization may require commitments that narrow individual flexibility while sustaining collective capability. The justice question concerns the quality, incidence, justification, and revisability of the resulting possibility structure.

Proposition 16.71 (Future-possibility distribution condition)**.** *Where an economic arrangement materially and foreseeably changes the distribution of capacities to generate, access, revise, or recover future practical possibilities, a generative-justice assessment should include that temporal incidence while preserving uncertainty about which particular future pathways will ultimately be chosen or realized.*

The proposition requires neither deterministic forecasting nor a single metric of future freedom. It establishes a scope condition: future-shaping effects become relevant when the mechanism and affected positions can be reconstructed with sufficient confidence for the inquiry. This allows long-horizon justice concerns to enter economic analysis without converting uncertain possibility into falsely precise prediction.

16.9.7 Intergenerational Generativity

Intergenerational generativity extends the temporal analysis beyond the future options of currently participating actors. Economic arrangements transmit ecological conditions, infrastructures, public institutions, knowledge, debt, legal structures, technologies, cultural resources, organizational capabilities, risks, and path-dependent constraints across cohorts and generations. The inherited object is therefore a configuration of capacities and constraints rather than a fixed stock alone.

The sustainable-development tradition provides an important normative precedent by linking present development to the ability of future generations to meet their needs and by treating technology, environmental limits, and social organization as interconnected conditions of that relation (World Commission on Environment and Development 1987). GRE's generative vocabulary adds analytical resolution by asking which specific capacities, relations, infrastructures, ecological conditions, and option pathways are being maintained, expanded, depleted, or foreclosed. This does not replace sustainability theory; it supplies a relational and mechanism-oriented description of how intergenerational effects can occur.

Intergenerational inheritance can be enabling. Public knowledge, maintained ecosystems, durable infrastructure, competent institutions, fiscal capacity, health systems, education, open standards, cultural resources, and peaceful political arrangements can enlarge later possibilities. Inheritance can also constrain. Debt, ecological degradation, incompatible infrastructure, concentrated ownership, rigid legal structures, technological lock-in, long-lived pollution, and unresolved institutional conflict can narrow the feasible field available to later positions. Many arrangements contain both effects.

The identity of future persons creates a representational difficulty. Later persons cannot usually participate directly in current decision procedures, and their partic-

ular preferences are unknown. Institutions therefore rely on proxies such as constitutional constraints, environmental standards, long-term budgeting, public trusts, scientific assessment, fiduciary duties, scenario analysis, or representation of future interests. These mechanisms can reduce short-horizon bias, yet each also raises questions of authority, epistemic uncertainty, and democratic legitimacy. Generative justice does not supply one universal institutional solution.

Preserving future generativity should also be distinguished from preserving present institutional form. Future agency can require transformation. An obsolete infrastructure may need replacement; a harmful industry may need phase-out; governance rules may need redesign; ecological restoration can require abandoning current production practices. A preservation rule that froze existing arrangements could transfer current power structures forward and constrain future revision. Intergenerational justice therefore concerns the inheritance of usable capacities and revisable institutions as much as the persistence of existing assets.

Repair capacity is part of this inheritance. Future generations will face disturbances and problems that current actors cannot anticipate. Robust institutions, scientific capability, fiscal room, ecological resilience, interoperable infrastructure, records, educational systems, and legitimate procedures can provide capacities for diagnosis and adaptation. An arrangement that maximizes present output while exhausting repair capacity can leave a materially weaker generative inheritance even if some asset stock remains high.

The distribution of inheritance also matters within generations. Environmental protection in one jurisdiction can coincide with burden displacement elsewhere. Infrastructure financed through public debt can benefit future users while imposing costs on future taxpayers. Intellectual property can encourage present investment while shaping later access to knowledge. Housing appreciation can increase household wealth for owners while raising entry barriers for later cohorts. An intergenerational analysis should therefore avoid treating each generation as internally homogeneous.

Relations between generations also interact with historical justice. Later cohorts can inherit benefits from earlier injustice, obligations created by past institutions, or degraded conditions whose causal history becomes clearer only through later evidence. Section 16.11 will examine inherited advantage, inherited constraint, repair, restitution, and historical re-epistemization directly. The present subsection is narrower: it identifies the generative conditions transmitted through time and asks how current arrangements shape the capacity of later positions to act, revise, maintain, and repair.

Definition 16.72 (Intergenerational generative inheritance)**.** An *intergenerational generative inheritance* is the configuration of capacities, constraints, ecological conditions, infrastructures, knowledge, institutions, obligations, relational structures, and revision possibilities transmitted across cohorts or generations that materially conditions what later positions can generate, sustain, change, or recover.

The definition is intentionally heterogeneous. Monetary wealth, public infrastructure, ecological stability, institutional competence, legal rights, technical standards, trust, debt, knowledge, and unresolved harm should not be collapsed into one com-

mon unit merely because they are all inherited. Their convertibility and comparability require separate analysis.

Proposition 16.73 (Generativity–preservation distinction)**.** *Protecting intergenerational generativity does not generally require preservation of present economic forms. Where transformation can maintain or expand later capacities, repair ability, ecological conditions, and institutional revisability, generative continuity can be compatible with substantial change in the structures through which those capacities are presently organized.*

This proposition gives the section a final boundary. Generative justice is concerned with the conditions under which future agency and value-generating capacity remain possible, yet it does not authorize present actors to dictate the substantive projects of later persons. A just generative inheritance can therefore include resources for revision, institutional openness, knowledge preservation, ecological resilience, and the capacity to discontinue inherited arrangements whose purposes no longer warrant continuation.

Taken together, the seven dimensions extend relational justice temporally by examining how economic arrangements generate and distribute agency, opportunity, reachable pathways, participation in generation, protection from foreclosure, and intergenerational capacity. This architecture evaluates future-forming consequences while preserving the section's central restraint: generativity remains one object of justice rather than a single master value.

Section 16.10 turns next to the justice of relation formation and variation. It examines entry, consent, imposition, revision, asymmetrical modification, exit, and dissolution as temporally structured normative objects whose justice can change as capacities, knowledge, alternatives, and institutional purposes evolve.

16.10 Justice of Relation Formation and Variation

Sections 16.8 and 16.9 developed two complementary normative perspectives. Relational justice evaluates the terms on which economically consequential relations organize standing, participation, reciprocity, dependence, authority, continuity, and exit. Generative justice evaluates how economic arrangements shape capacities, opportunities, option spaces, participation in generation, future possibility, and intergenerational inheritance. The present section joins these perspectives around a more specific object: the justice of *relational change*. Its role is to examine how justice-relevant properties can arise when economic relations are formed, revised, removed, accepted, exited, imposed, historically transformed, or made available to later positions. Its objective is to identify the normative questions attached to these different moments without treating initial agreement, present continuation, or future possibility as interchangeable evidence. The discussion proceeds through relation formation, updating, removal, consent, exit, imposed relations, historical trajectories, and future relation possibilities. The method is normative and historical, while remaining plural with respect to substantive theories of justice.

This focus follows directly from the generative-relational architecture of Parts II–V. Economic relations are not fixed containers within which allocation occurs.

Contracts, memberships, standards, organizational roles, infrastructures, credit relations, care relations, platform participation, public institutions, and property arrangements can be formed, modified, dissolved, inherited, or replaced. Each variation can alter resources, capacities, obligations, recognition, dependence, vulnerability, value transmission, and future accessibility. A justice analysis centered only on the current relational state can therefore miss the terms through which that state came into existence and the mechanisms through which it remains revisable.

The temporal distinction is especially important. A relation can be acceptable at formation and become problematic after dependence deepens, information changes, or one position acquires unilateral revision capacity. A relation formed under constrained circumstances can later become mutually sustaining and well governed. A justified relation can become unjust through exclusionary updating. A burdensome relation can require continuity for a period because abrupt removal would externalize severe costs onto dependent positions. Normative evaluation therefore attaches to a trajectory of relational conditions rather than to one frozen moment.

Definition 16.74 (Relation-variation justice profile)**.** A *relation-variation justice profile* is a structured normative account of how an economically consequential relation is formed, maintained, revised, restricted, dissolved, exited, or imposed across time, including the standing of affected positions, the distribution of authority over variation, the practical alternatives available to them, the burdens and dependencies created by the relation, and the effects of relational change on later capacities and possibilities.

Definition 16.74 does not supply one universal criterion of relational change. It identifies the objects over which different theories of rights, freedom, equality, care, need, democratic legitimacy, desert, reciprocity, responsibility, or historical repair can disagree. It also separates the justice of a relation's *content* from the justice of the *processes through which that content changes*. A substantively defensible rule can still be introduced through a procedurally objectionable unilateral modification; conversely, a highly participatory process can produce terms whose distributive or relational consequences remain objectionable.

Table 16.8 is temporal and compositional. The moments can overlap in practice. A platform's terms-of-service revision can simultaneously update an existing relation, narrow exit, impose new data conditions, and reshape future possibilities. A merger can remove some relations while forming new ones. A public institution can impose membership in one respect while enabling meaningful participation and review in another. The analytical task is to separate these mechanisms sufficiently to identify where a justice concern enters.

Proposition 16.75 (Formation–continuation non-equivalence)**.** *The justice-relevant conditions that supported formation of an economic relation do not by themselves establish the justice of its later continuation or variation. Material changes in information, dependence, authority, alternatives, burdens, capacities, or purpose can require renewed evaluation of the relation's terms.*

Proposition 16.75 supplies the organizing boundary for the section. Formation matters historically, yet later justice cannot be inferred mechanically from the quality of initial formation. The same boundary applies in the other direction: an initially

Table 16.8: Justice-relevant moments in relation formation and variation.

Moment	Primary object	Characteristic justice concern	Diagnostic focus
Formation	Creation of an economically consequential relation	Entry terms, standing, alternatives, initial burdens, third-party incidence, creation of dependence	Who participates in formation, under which conditions, and what capacities or dependencies are created?
Updating	Revision of rules, roles, obligations, boundaries, standards, or authority	Unilateral change, unequal information, accumulated dependency, scope of prior authorization	Who can vary which terms, through what procedure, with what notice, review, compensation, or contestability?
Removal	Dissolution, termination, exclusion, or withdrawal of a relation	Stranded investments, continuity interests, displaced burdens, loss of recognition or access	Who bears the costs of removal, which obligations survive, and what transition conditions remain?
Consent	Authorization by a position capable of giving relevant agreement	Information, voluntariness, scope, temporal reach, capacity, revocation, representation	What exactly was authorized, by whom, under which alternatives, and for which period or range of variation?
Exit	Withdrawal by a participating position	Formal permission versus practical usability, portability, retaliation, continuity of basic protection	Can a position leave without prohibitive loss, and which relational effects remain after departure?
Imposition	Relation created or maintained without the relevant position's affirmative authorization	Justification, authority, necessity, proportionality, representation, appeal, review	What grounds the imposition, how is its scope bounded, and which forms of voice, review, or relief remain available?
Historical trajectory	Sequence through which the relation and its governing terms evolve	Accumulated dependence, inherited commitments, shifting purpose, changing legitimacy, path dependence	How has the justice profile changed as capacities, knowledge, alternatives, and power relations changed?
Future possibility	Relational configurations that current arrangements make easier, harder, or unavailable later	Foreclosure, lock-in, option concentration, weak reversibility, inheritance of rigid relations	Which future relations remain practically formable, revisable, or dissolvable, and for whom?

constrained relation can be transformed through later recognition, redistribution of authority, effective exit, repair, or institutional redesign. Justice follows the evolving relation rather than remaining permanently fixed at its origin.

16.10.1 Formation of Relations

Relation formation is the moment at which previously separate or differently connected positions enter a configuration with economically consequential rights, obligations, expectations, dependencies, access conditions, or capacities. Formation can occur through contract, employment, membership, public law, kinship and care, prop-

erty arrangements, credit, technical standards, organizational admission, platform enrollment, collective agreement, or repeated interaction that stabilizes into an institutionally recognized relation. These routes differ greatly in voluntariness and governance. The common analytical feature is the creation of a relation that changes what participating or affected positions can subsequently do.

The justice of formation therefore concerns more than whether a formal agreement exists. A formation process can distribute information unevenly, place transaction costs on one side, require acceptance under severe time pressure, or depend on background institutions that leave one party with few feasible alternatives. It can also create beneficial dependencies: long-term employment can support skill formation and income stability; credit can enable investment; care relations can sustain capability; infrastructure membership can create access to common services. The presence of dependency at formation is therefore a diagnostic fact whose normative significance depends on organization, justification, protection, and the later possibility of revision.

Standing during formation is one important dimension. Positions that will bear persistent burdens can have justice-relevant claims to information, representation, consultation, negotiation, or review even when they are not formal signatories. A supply contract can affect workers and communities outside the contracting firms. A technical standard can restructure market entry for firms not represented in the standard-setting body. A public infrastructure project can create mobility for one region while imposing environmental or displacement burdens elsewhere. Formation analysis should therefore distinguish the *formal parties* to a relation from the wider set of positions materially affected by its creation.

Alternatives also shape the meaning of entry. A choice among several practically usable arrangements differs from a nominal choice in which refusal entails loss of housing, health care, legal status, essential connectivity, or a livelihood with no realistic substitute. Section 16.6 treated such conditions through vulnerability and restricted exit. At formation, the parallel question concerns the quality of the pre-entry option field. The existence of a signed agreement does not settle how constrained the formation process was.

The temporal consequences of formation matter because relations can create their own future conditions. Relation-specific investment can increase the value of continuity. Shared infrastructure can lower future coordination costs. Organizational learning can create dependence on proprietary systems. Trust can make later cooperation feasible. Debt can narrow later options. A relation can therefore change the option space against which its own future continuation will be judged. Justice at formation should take these foreseeable generative consequences into account where they are material, while preserving uncertainty about effects that could not reasonably have been anticipated.

Proposition 16.76 (Relational formation incidence)**.** *Where formation of an economic relation foreseeably creates durable obligations, dependence, exclusion, third-party burdens, or substantial changes in future practical possibility, its justice profile extends beyond the immediate distribution of benefits at entry to the incidence of those generated relational conditions.*

The proposition prevents a favorable initial transfer from exhausting the analysis. A relation can provide immediate income, credit, access, or infrastructure while generating later lock-in, environmental burden, or concentrated authority. The reverse can also occur: an arrangement with substantial initial cost can generate portable capacity, durable protection, or broadly shared infrastructure. Formation justice consequently requires attention to both entry conditions and the relational trajectory that entry makes possible.

16.10.2 Updating Relations

Relations rarely remain fixed after formation. Prices change, responsibilities are reassigned, standards are revised, memberships expand or contract, platform rules are updated, employment roles evolve, credit conditions are renegotiated, and public institutions change eligibility or procedural requirements. Some variation is essential to adaptation. A relation incapable of updating can become brittle when environments, technologies, needs, or knowledge change. The justice problem therefore concerns the distribution and governance of variation authority rather than the existence of variation itself.

A useful distinction concerns the *object* of updating. Some updates alter peripheral parameters while preserving the relation's basic purpose and burden structure. Others alter access, liability, data use, compensation, governance rights, exit costs, ownership, decision authority, or the relation's effective purpose. The second class can change the justice profile substantially even when the formal institutional identity remains continuous.

Definition 16.77 (Consequential relational variation)**.** A *consequential relational variation* is a change in the rules, roles, boundaries, obligations, authority, access conditions, or recognized purposes of an existing economic relation that materially alters the resources, capacities, burdens, dependencies, standing, exit conditions, or future possibilities of one or more affected positions.

The definition supplies a threshold for focused justice analysis. Routine administrative changes need not trigger the same evaluative burden as alterations that change substantive exposure or agency. The relevant threshold is relational consequence, not formal legal category. A technically minor interface update can become consequential if it removes accessibility for a dependent group; a large nominal price adjustment can be relatively less consequential where alternatives are abundant and adjustment costs low.

Authority over updating can be symmetric, delegated, distributed, or concentrated. Jointly governed relations can require mutual agreement. Firms often retain managerial discretion over some workplace decisions. Public regulators possess delegated authority to revise rules within statutory mandates. Platforms can reserve extensive contractual discretion. Care relations frequently adapt informally through practice. Each arrangement can be justified under some conditions. The justice concern arises when the scope of variation authority, the dependence created by the relation, and the protections available to affected positions become misaligned.

Notice, reasons, transition time, appeal, compensation, grandfathering, portability, representation, and review are among the mechanisms that can moderate asymmet-

rical variation. Their importance increases where a relation has induced substantial reliance. A participant who has invested years in a specialized credential, proprietary toolchain, location-specific infrastructure, or care arrangement can face losses that were absent at formation. Reliance therefore changes the relational context in which later unilateral discretion is exercised.

Proposition 16.78 (Variation-authority condition)**.** *As an economic relation generates greater durable dependence, relation-specific investment, or difficulty of substitution, unilateral authority to alter consequential terms acquires greater justice relevance and ordinarily requires stronger justification, notice, accountability, review, transition protection, or other safeguards appropriate to the relation.*

This proposition is deliberately conditional. High dependence does not eliminate every legitimate unilateral decision. Emergency action, fiduciary obligation, safety regulation, technical security, and delegated management can require asymmetric authority. The proposition identifies a reason for heightened scrutiny: the same formal revision power can have very different practical significance before and after a relation has generated costly dependence.

16.10.3 Removal of Relations

Relation removal includes termination, dissolution, exclusion, withdrawal of recognition, closure of access, and institutional abolition. Removal can protect agency by ending exploitative or obsolete relations. It can also produce severe losses when livelihoods, care, identity, infrastructure, legal standing, or accumulated investment depend on continuity. The justice of removal therefore concerns both the reasons for ending a relation and the incidence of its termination.

Several objects should be distinguished. *Mutual dissolution* ends a relation through an agreed process. *Unilateral termination* allows one participating position to end it under specified authority. *Exclusion* removes one position while preserving the relation or institution for others. *Institutional abolition* removes the relational framework itself. *Withdrawal* can involve a participant leaving while the wider relation continues. These forms can have different implications for standing, responsibility, transition, and future access.

Removal often reveals investments that were difficult to observe during operation. Workers can possess firm-specific skills; communities can depend on a local employer or infrastructure; users can accumulate data, reputation, or social ties within a platform; families can organize care around public services; suppliers can configure production around a dominant buyer. Abrupt termination can strand these investments. A justice assessment should identify which losses were voluntarily assumed, which were induced by the relation, which were foreseeable, and which positions had authority over the decision to terminate.

Continuity interests do not create an unconditional claim to preservation. Harmful, unlawful, ecologically destructive, financially insolvent, or obsolete arrangements can require dissolution. Section 16.9 already established that intergenerational generativity can be compatible with substantial institutional change. The question is how transformation or removal allocates transition burdens and preserves relevant rights, capacities, records, remedies, or alternatives where feasible.

Proposition 16.79 (Relational removal incidence)**.** *Where an economic relation has materially generated reliance, specialized investment, care obligations, recognized standing, or access to essential conditions, evaluation of its removal should include the distribution of transition costs, surviving obligations, portability, remedy, and replacement possibilities in addition to the justification for termination itself.*

The proposition does not require that every participant be held harmless. Some transitions necessarily impose loss, and preserving an objectionable relation can impose greater harm. It requires that termination be analyzed as an allocative and relational event whose costs can be distributed asymmetrically. This prepares a later governance question: institutions often require procedures for winding down relations, not only rules for creating them.

16.10.4 Consent

Consent is one important form of authorization in economic relations, especially where positions can understand and meaningfully choose among available arrangements. Its normative role nevertheless varies with the type of relation. Bilateral contracts, research participation, medical decisions, platform agreements, employment, public regulation, family relations, and collective infrastructures involve different objects of consent, different capacities for refusal, and different third-party effects. A general GRE account should therefore treat consent as a temporally and relationally situated authorization rather than as a universal substitute for justice analysis.

For present purposes, relevant consent has several dimensions. The consenting position requires sufficient information about the object of authorization; sufficient decision capacity for the relevant choice; practical alternatives adequate to make refusal meaningful in the context; and a reasonably bounded object, scope, duration, and variation range. Representation can sometimes be necessary where affected persons cannot provide direct authorization, as in childhood, severe incapacity, collective governance, or future-person contexts. Representation then raises its own questions of mandate, fiduciary responsibility, review, and changing capacity.

Consent also has temporal scope. Agreement to join a relation at one time does not automatically authorize every later variation. Some future changes can fall within a reasonably understood range of delegated discretion. Others transform the relation sufficiently that renewed authorization, enhanced participation, or an alternative legitimacy basis becomes relevant. The distinction depends on the significance and foreseeability of the change, the relation's governance structure, and the practical ability to contest or exit.

Proposition 16.80 (Temporal scope of consent)**.** *Consent to formation of an economic relation provides normative evidence concerning the terms and reasonably specified variation range authorized at that time. Its force for later consequential variations depends on the scope of the original authorization, subsequent changes in information and capacity, the development of dependence, the availability of contestation or exit, and any additional legitimacy basis governing the relation.*

This proposition avoids two opposite simplifications. Treating initial consent as permanent authorization ignores relational evolution. Treating every change as re-

quiring fresh individual consent can make collective institutions and adaptive relations unworkable. The appropriate authorization structure can include delegated authority, representative governance, notice-and-review procedures, periodic renewal, collective bargaining, fiduciary duties, statutory safeguards, or direct re-consent depending on the object and scale.

The absence of consent also requires careful interpretation. Many economically consequential relations are partly constituted by public law, collective decisions, inheritance, geography, kinship, infrastructure, or ecological interdependence. Their legitimacy cannot be reconstructed through individual consent alone. Where direct consent is structurally unavailable, justice analysis shifts toward justification, standing, representation, rights, proportionality, accountability, contestability, protection of vulnerable positions, and opportunities for revision.

16.10.5 Exit

Section 16.8 defined *relationally effective exit* through the practical ability to leave a relation with usable alternatives, proportionate transition costs, relevant portability, retained protections where appropriate, sufficient information, and a practicable temporal horizon. The present subsection places that concept within relation variation. Exit is one mechanism through which a position can initiate relational change, yet its justice relevance depends on what departure actually changes and on which relations remain unavoidable after exit.

Formal termination rights can coexist with severe practical barriers. Loss of housing, health coverage, immigration permission, accumulated reputation, data, professional recognition, care support, geographic access, or relation-specific investment can make departure extraordinarily costly. Such costs are sometimes inherent to the activity and sometimes generated by institutional design. Distinguishing those mechanisms matters because design-created exit costs can become objects of reform through portability, interoperability, notice, severance, data transfer, credential recognition, social insurance, or alternative provision.

Exit can also generate external effects. The departure of a dominant funder, highly skilled worker, infrastructure provider, caregiver, or major member can shift burdens to remaining positions. Wealthier users can exit a shared public institution and weaken its resource base. A firm's relocation can affect workers and communities who lack reciprocal mobility. A party's right to leave therefore need not eliminate questions of notice, surviving obligation, compensation, transition, or fiduciary responsibility.

Collective exit differs from individual exit. Workers can organize a strike, communities can withdraw cooperation, users can migrate together to another platform, or jurisdictions can terminate participation in a shared arrangement. Collective withdrawal can rebalance power by changing the consequences of departure, but it can also impose costs on non-participants. GRE therefore treats exit as a relational intervention whose incidence should be reconstructed rather than as a universally self-sufficient solution to objectionable relations.

Proposition 16.81 (Exit–removal distinction)**.** *The justice of a position's exit from an economic relation is analytically distinct from the justice of removing the relation itself.*

Exit can protect the departing position while leaving burdens, dependencies, or power structures intact for others, whereas dissolution can transform the wider relational field and redistribute transition costs across a broader set of positions.

The proposition clarifies why exit and voice remain complementary. Effective exit can discipline some relations, yet relations tied to public goods, monopoly infrastructure, citizenship-like membership, care, ecological systems, or deeply embedded institutions can require internal contestability because departure is incomplete, socially costly, or structurally unavailable. Justice of variation therefore evaluates who can exit, what exit accomplishes, and which responsibilities survive it.

16.10.6 Imposed Relations

Some economic relations arise without the affirmative authorization of every affected position. Tax obligations, regulatory duties, compulsory contributions to shared systems, court-ordered obligations, emergency restrictions, territorial infrastructures, inherited legal statuses, and some care relations can have this feature. Market structures can also generate de facto relations that are difficult to avoid even without a single actor formally imposing them. The term *imposed relation* should therefore be used carefully enough to distinguish absence of affirmative authorization from coercion, domination, or injustice.

Definition 16.82 (Imposed economic relation)**.** An *imposed economic relation* is an economically consequential relation whose formation or continuation does not depend on the affirmative authorization of at least one materially governed position and whose terms nevertheless organize that position's obligations, access, resources, capacities, or practical possibilities through an identifiable institutional, legal, organizational, infrastructural, or relational mechanism.

The definition is descriptive. It does not classify every imposed relation as unjust. Collective life frequently depends on institutions whose rules cannot be conditioned on unanimous authorization. Public taxation, safety regulation, compulsory education within defined legal limits, fiduciary obligations, and emergency coordination illustrate contexts in which legitimate authority can structure relations without individual agreement to every term. Justice analysis therefore asks about the source and scope of authority, the purpose served, the burdens imposed, the representation of affected positions, proportionality, review, appeal, temporal limits, and availability of less burdensome alternatives.

Imposition becomes particularly salient where asymmetry and vulnerability interact. A rule that is modest for positions with abundant alternatives can be severe for those dependent on one infrastructure, employer, creditor, landlord, or administrative category. The same formal obligation can therefore have heterogeneous incidence. Recognition of this variation does not by itself determine the appropriate rule, but it expands the evidence needed for justification.

Imposed relations can also be generative. Public infrastructure rules can create reliable coordination; taxation can finance shared capacities; compulsory standards can enable interoperability; environmental regulation can preserve common conditions; care obligations can sustain dependent persons. Generative benefit, however, remains subject to the restraint established in Section 16.9: beneficial generation does

not settle the justice of present burdens or the legitimacy of the authority through which they are imposed.

Proposition 16.83 (Imposition–justice non-equivalence)**.** *The absence of affirmative authorization is insufficient by itself to establish the injustice of an imposed economic relation. Its justice profile depends additionally on the legitimacy and scope of authority, the purpose and necessity of the relation, burden incidence, recognition and representation, available safeguards, contestability, review, alternatives, and the temporal conditions under which imposition continues.*

The proposition also runs in the opposite direction. Institutional authorization alone does not establish justice. Formally valid authority can still be exercised disproportionately, discriminatorily, opaquely, or beyond its defensible purpose. A relational-justice analysis therefore keeps legality, legitimacy, effectiveness, and justice conceptually distinct even when they support one another in well-functioning institutions.

16.10.7 Historical Trajectories of Relation

The justice of a relation can change through its history even when its formal name remains stable. Employment relations can become more dependent as firm-specific skills accumulate. Long-term tenants can become increasingly embedded in a location. A platform can shift from optional service to infrastructural intermediary. Public programmes can acquire new functions. Care relations can change as capacities and needs evolve. Credit arrangements can move from enabling investment to constraining future choice. These trajectories make historical reconstruction part of normative analysis.

A relation's history contains at least four kinds of justice-relevant change. First, the capacities and vulnerabilities of participating positions can change. Second, the purpose or social function of the relation can evolve. Third, authority and bargaining positions can shift as alternatives expand or disappear. Fourth, past actions can generate reliance, expectations, obligations, or unresolved harms that alter what later variation would require. The current state therefore carries traces of earlier relational events even when those events are absent from present formal documentation.

Definition 16.84 (Relational justice trajectory)**.** A *relational justice trajectory* is the temporally ordered or partially ordered sequence through which the justice-relevant properties of an economic relation change, including standing, authority, dependence, vulnerability, participation, reciprocity, exit, burden incidence, purpose, and future-generating effects.

This definition links the normative analysis of Chapter 16 to the trajectory architecture of Chapter 15. A relational justice trajectory need not be reducible to a single improving or worsening score. Recognition can improve while exit deteriorates; material benefits can rise while unilateral variation authority expands; formal equality can increase while historical burdens remain unresolved. The trajectory should therefore preserve multidimensional change unless a specific normative framework supplies and justifies an aggregation rule.

Historical evaluation also requires sensitivity to changing knowledge. Later evi-

dence can reveal harms, dependencies, exclusions, or contributions that were poorly understood earlier. Section 16.11 develops historical justice and re-epistemization directly. The present point is narrower: new knowledge can change the warranted justice assessment of an ongoing relation and can thereby alter the obligations attached to its continuation or reform.

Proposition 16.85 (Temporal reassessment of relations)**.** *Where the capacities, vulnerabilities, purposes, alternatives, authority structure, or evidential understanding relevant to an economic relation change materially, the justice of continued reliance on earlier formation conditions or authorizations can require reassessment even when the relation remains formally continuous.*

This proposition gives normative significance to relational learning. Institutions can preserve legitimacy through review and adaptation when circumstances change. They can also lose legitimacy when inherited terms persist after the justificatory conditions supporting them have disappeared. The proposition therefore prepares the governance architecture of Sections 16.12–16.20, where revision, contestability, learning, and institutional evolution become design problems.

16.10.8 Future Relation Possibilities

Current relations shape which relations can be formed later. Education can expand the range of organizations a person can join. Proprietary standards can narrow interoperability. Public infrastructure can make new forms of association feasible. Exclusive contracts can foreclose competing relations. Debt can restrict later mobility. Trust and reputation can lower future coordination costs. Ecological degradation can remove entire classes of livelihood relation. Justice of relation formation and variation therefore extends to the architecture of future relational possibility.

Future relation possibilities differ from abstract freedom of association. The relevant object is the set of relations that positions can plausibly form, revise, or leave given their resources, capacities, institutional recognition, legal permissions, infrastructures, temporal constraints, and the willingness or availability of relevant counterparties. This object connects Section 16.7's future-possibility distribution to Section 16.9's generative-justice analysis. A position can possess nominal legal freedom while facing a very narrow practical relational field.

Preserving future relational possibility does not require maximizing the number of possible relations. Some relations should be prohibited or constrained because they violate rights, create severe harm, undermine ecological conditions, or depend on exploitation. Stable commitments can also be valuable precisely because they reduce short-term exit or variation in order to support trust, care, investment, or collective projects. The normative object is therefore the quality, diversity, revisability, and justified accessibility of the future relational field rather than its raw cardinality.

Relation-specific investments create a recurrent tension. They can deepen cooperation and enable forms of value that require continuity, yet they can also narrow outside options and increase exposure to unilateral variation. Governance can sometimes address the tension through portability, shared standards, vesting, compensation, interoperable infrastructure, recognition of accumulated contributions, or rights that survive organizational exit. These mechanisms preserve some benefits

of commitment while reducing dependence on one specific relation.

Future relational possibility also has collective and intergenerational dimensions. A community can inherit institutions that make cooperation easier or harder. Later firms can inherit standards and infrastructures that determine who can enter a market. Future workers can inherit credential systems, labor institutions, and technological architectures that structure mobility. Later generations can inherit ecological and legal conditions that shape which livelihoods and forms of association remain feasible. The relational inheritance described here therefore forms part of the intergenerational generative inheritance defined in Section 16.9.

Proposition 16.86 (Relational possibility preservation)**.** *Where a current economic relation materially shapes the future ability of affected positions to form, revise, diversify, or leave later relations, justice assessment should include the incidence, justification, and reversibility of that effect while preserving legitimate scope for durable commitment and collectively governed restriction.*

The proposition completes the synthesis of relational and generative justice. It neither requires perpetual reversibility nor treats commitment as presumptively suspect. It asks whether present relational structures preserve an appropriate capacity for future reconfiguration relative to their purposes, burdens, dependencies, and affected positions.

Taken together, the eight dimensions show that justice attaches to the *history of relational organization*: entry, variation, continuity, exit, imposition, dissolution, and the future field of relation formation. Initial consent, current benefit, formal legality, and practical exit each provide relevant evidence, yet none alone determines the justice of a changing relation. The resulting analysis is dynamic enough to accommodate commitment, dependence, learning, authority, care, adaptation, and institutional transformation without collapsing them into one criterion.

Section 16.11 turns from the justice of changing relations to *historical justice*. It examines how past harm, inherited advantage, inherited constraint, repair, restitution, and later re-epistemization alter justice claims across time, including cases in which the positions presently benefiting from or burdened by a history differ from those who originally generated it.

16.11 Historical Justice

Sections 16.8–16.10 established that justice in GRE can concern the organization of economic relations, the generation and distribution of future capacities and possibilities, and the terms through which relations are formed, varied, maintained, or dissolved. The present section adds a specifically historical dimension. Its role is to examine how earlier harms, advantages, constraints, institutions, transfers, classifications, and relational trajectories can remain justice-relevant when the positions presently benefiting from or burdened by those histories differ from the positions that originally generated them. Its objective is to provide a disciplined architecture for historical justice without treating causal inheritance, present inequality, historical wrongdoing, present responsibility, and appropriate remedy as interchangeable claims. The discussion proceeds through historical harm, path dependence, inherited

advantage, inherited constraint, repair, restitution, re-epistemization of past harm, and future recognizability. The method is normative, historical, and mechanism-sensitive: a historical-justice claim should identify what occurred, how its consequences were transmitted, which present or future positions are affected, what normative principle connects the history to a current claim, and what uncertainty remains in the reconstruction.

Historical justice is therefore neither a backward-looking search for an absolute origin nor a presumption that the present can be evaluated independently of its formation. Economic positions are frequently inherited through institutions, infrastructures, property arrangements, debts, ecological changes, skills, standards, classifications, legal statuses, organizational routines, and accumulated relations. These inheritances can preserve benefits and burdens long after the initiating decision, actor, or institution has disappeared. At the same time, the passage of time can alter evidence, identity, responsibility, remedy feasibility, and the incidence of intervention. Historical analysis therefore needs to track both continuity and transformation.

A useful starting distinction is among four questions. The first is *historical reconstruction*: what happened, under which conditions, and through which mechanisms? The second is *present incidence*: which benefits, burdens, dependencies, constraints, or option-space effects remain materially connected to that history? The third is *normative connection*: why should the identified history matter to present claims of justice under the relevant theory or institutional framework? The fourth is *remedial design*: which response, if any, is justified given present positions, current capacities, feasibility, third-party effects, and future consequences? Conflating these questions can make a causal finding appear to settle a normative conclusion or can allow normative disagreement to obscure an otherwise well-supported historical mechanism.

Definition 16.87 (Historical-justice profile)**.** A *historical-justice profile* is a structured normative account of an economic history that specifies: (i) the relevant past events, relations, institutions, or conditions; (ii) the mechanisms through which justice-relevant consequences are transmitted, transformed, or dissolved; (iii) the present and future incidence of inherited advantage, burden, constraint, vulnerability, or opportunity; (iv) the normative grounds on which the history bears on current claims, responsibilities, or remedies; and (v) the evidential provenance and uncertainty of the historical reconstruction.

Definition 16.87 makes historical justice a layered inquiry. It permits strong causal evidence with unresolved normative disagreement, and it permits a compelling normative principle whose application remains uncertain because the historical transmission mechanism is weakly evidenced. It also preserves the possibility that several remedial principles apply simultaneously: restoration of a specific claim, compensation for loss, institutional reform, recognition, capability restoration, return of control, public provision, or preservation of future options can address different aspects of the same history.

Table 16.9 is analytical rather than sequential. Repair can begin before the historical record is complete; restitution can be one component of a wider repair process; re-epistemization can reopen a previously settled institutional judgment; and future recognizability can be part of present remedial design. The dimensions nevertheless should remain distinct because each supports different evidential and normative

Table 16.9: Analytical dimensions of historical justice in GRE.

Dimension	Primary object	Justice-relevant question	Diagnostic focus
Historical harm	Earlier loss, injury, deprivation, exclusion, extraction, or degradation	Which harmful effects occurred, to whom, and under which normative description?	Event reconstruction, affected positions, contemporaneous knowledge, present persistence
Path dependence	Mechanisms carrying earlier differences into later transition structures	How does realized history continue to shape present or future possibilities?	Reinforcement, lock-in, hysteresis, institutional embedding, path breaking
Inherited advantage	Present benefit or expanded capacity materially supported by earlier configurations	Which current advantages depend on inherited resources, institutions, relations, or statuses?	Transmission mechanism, counterfactual sensitivity, persistence, conversion into later capacity
Inherited constraint	Present narrowing of feasible action materially connected to earlier configurations	Which current burdens or foreclosures remain historically transmitted?	Debt, exclusion, ecological loss, infrastructure, legal status, capability erosion
Repair	Reduction of unresolved harmful consequences and restoration of justifiable relations or capacities	Which dimensions of the inherited condition should be changed, rebuilt, recognized, or protected?	Capacity restoration, institutional redesign, return, recognition, prevention of reproduction
Restitution	Return or reconstitution of an identifiable object, claim, status, or control relation	What can appropriately be restored, to whom, and under which changed present conditions?	Identifiability, continuity of claim, transformed objects, third-party reliance, feasibility
Re-epistemization	Later revision of warranted knowledge or appraisal of past harm	What becomes responsibly knowable or judgeable later, and why?	New evidence, categories, testimony, models, standards, provenance, temporal knowledge limits
Future recognizability	Conditions under which present histories remain reconstructable later	Which records, testimonies, classifications, versions, and uncertainties should remain legible to future inquiry?	Preservation, provenance, privacy, stewardship, access, archival loss

claims.

Proposition 16.88 (Historical incidence–responsibility non-equivalence)**.** *The present inheritance of benefit, burden, dependence, or constraint from an earlier economic history does not by itself determine present moral or institutional responsibility, liability, entitlement, or remedy. A historical-justice claim requires an additional normative account connecting the transmitted condition to the responsibilities or claims of present positions.*

Proposition 16.88 is the principal restraint of this section. It prevents two opposite errors. Historical causation should not be ignored merely because the original actors are absent; current institutions can reproduce an earlier structure through continuing rules, holdings, infrastructures, or classifications. Yet causal continuity should not

automatically be converted into inherited guilt. Present actors can occupy positions shaped by history without having chosen or known the originating events. Justice analysis should therefore specify the relevant institutional, relational, beneficiary, corrective, reparative, fiduciary, democratic, or other normative basis for assigning present obligations.

16.11.1 Historical Harm

Historical harm concerns harmful economic conditions or events whose occurrence lies earlier in the trajectory under evaluation but whose normative significance may remain active. The category can include dispossession, exclusion, forced transfer, uncompensated extraction, discriminatory classification, destruction of capability, ecological degradation, institutional neglect, denial of participation, or other processes that impose consequential loss under the normative framework being used. Harm should be distinguished from both wrongdoing and injustice. Some harmful outcomes can arise without wrongful intent; some actions judged wrongful can produce harms whose magnitude becomes visible only later; and the classification of an event as unjust depends on a normative standard in addition to evidence that loss occurred.

Historical analysis therefore needs an explicit object of harm. A loss of income, land, health, recognized status, institutional membership, ecological condition, skill, relational continuity, cultural resource, or future option can each have different temporal structures. Some harms are episodic. Others are cumulative, such as prolonged exclusion from education or credit. Still others are generative: an earlier deprivation alters later capacity formation, which changes subsequent access, earnings, bargaining position, or intergenerational possibility. The same initiating event can therefore generate several layers of consequence that should not be merged into one undifferentiated historical loss.

The timing of knowledge also matters. A hazardous practice can create harm before the causal mechanism is well understood. A discriminatory effect can exist before administrative categories make it measurable. An institution can impose burdens whose long-horizon consequences were difficult to anticipate at formation. Later evidence can strengthen the claim that harm occurred while leaving a separate question about what earlier actors could reasonably have known. Section 16.11.7 develops this distinction directly.

Definition 16.89 (Historically transmitted harm)**.** A *historically transmitted harm* is a justice-relevant loss, deprivation, vulnerability, constraint, or degradation generated in an earlier economic configuration whose effects remain materially connected to present or future positions through one or more identifiable transmission mechanisms.

The definition requires more than temporal succession. If a present disadvantage resembles an earlier one but the relevant transmission mechanism has dissolved, the historical similarity can remain interpretively important without establishing transmitted harm in the stronger sense used here. Conversely, transmission can persist after the visible institutional form changes. A discriminatory property regime can alter settlement patterns; those patterns can shape infrastructure; infrastructure can affect school access, transport, environmental exposure, and asset values; later bur-

dens can therefore remain historically connected even after the originating rule has been formally repealed.

Historical harm also raises problems of affected-position identity. Present positions need not be numerically identical to past victims for a historical consequence to persist. Institutions, communities, households, ecological systems, and intergenerational relations can transmit burdens through membership, location, property, legal status, infrastructure, or capability. The normative significance of such transmission depends on the framework applied; the empirical task is first to make the pathway explicit rather than assuming identity or discontinuity from labels alone.

16.11.2 Path Dependence

Section 15.8 defined path dependence as a mechanism-specific condition in which later configurations or transition structures depend materially on earlier realized sequences. Historical justice uses that concept selectively. Path dependence becomes normatively relevant when the mechanisms preserving or amplifying an earlier difference also preserve or transform a justice-relevant benefit, burden, authority relation, vulnerability, capability difference, or option-space effect.

This distinction prevents the language of history from doing too much normative work. Technical standards can be path dependent without being unjust. A long-lived infrastructure can reflect historical contingency while supporting broadly shared capacities. An inherited institution can persist because of coordination value rather than because it reproduces domination. Justice analysis begins only after specifying which path-dependent feature affects standing, burden, access, capacity, power, participation, recognition, or another normative object.

The mechanisms described in Chapter 15 remain useful here: increasing returns, learning, complementarity, expectations, sunk investment, institutional rules, network effects, accumulated capability, ecological change, and relational stabilization can transmit early differences. Historical justice adds a second question: who bears or benefits from the transmitted effect, and under what justificatory conditions? A path that raises aggregate productivity while concentrating irreversible ecological burdens on one community, for example, has a different justice profile from a path whose complementary investments generate broad access without severe exclusion.

Path breaking also acquires normative importance. Reform can weaken the mechanism transmitting an inherited injustice even when it cannot restore an earlier state. Interoperability can reduce standard-based lock-in; debt restructuring can release inherited constraint; public investment can rebuild capabilities; institutional redesign can redistribute review authority; ecological restoration can reopen lost livelihood possibilities. The historical goal is therefore not necessarily to reverse time. It can be to alter the mechanism through which past conditions continue to structure the future.

Proposition 16.90 (Path-dependence justice condition)**.** *Path dependence becomes a distinct object of historical-justice analysis where an identifiable historical mechanism materially transmits or transforms a justice-relevant advantage, burden, power relation, vulnerability, capacity difference, or future-option effect across time. Historical persistence alone is insufficient to establish that condition.*

The proposition also clarifies why remedy can be prospective while remaining historically grounded. If the injustice-relevant continuity lies in a current reproduction mechanism, changing that mechanism can be part of historical repair even where literal restoration of the earlier configuration is impossible or undesirable.

16.11.3 Inherited Advantage

Inherited advantage concerns current benefits whose availability or magnitude depends materially on conditions generated before the present position acquired or exercised them. Such advantage can be transmitted through wealth, property, education, infrastructure, institutional membership, legal status, reputation, organizational position, network access, accumulated public investment, ecological location, intellectual assets, standards, or other relational and material structures. The concept is broader than legal inheritance at death. It concerns historical support for present capacity, access, bargaining position, or future possibility.

Advantage should be analyzed through a mechanism rather than inferred from present success. Current positions can combine inherited support with later effort, skill, risk, innovation, care, or collective contribution. Historical advantage is therefore compatible with substantial present contribution. The analytical question is which part of the current opportunity structure depends on inherited conditions and how those conditions were produced and transmitted.

Definition 16.91 (Inherited economic advantage)**.** An *inherited economic advantage* is a present expansion of resources, capacities, access, bargaining position, recognized standing, relational opportunity, or future possibility that is materially supported by an earlier economic configuration through a traceable transmission mechanism and is not wholly generated within the present analytical period by the position that currently holds the advantage.

This definition is intentionally descriptive. Inherited advantage can arise from entirely legitimate public investment, caring relations, education, accumulated knowledge, infrastructure, or intergenerational stewardship. A just economic order can deliberately create valuable inheritances. The existence of inheritance therefore does not establish that the advantage is wrongful or that it should be removed.

Historical justice becomes sharper when inherited advantage is connected to an earlier harm, exclusion, uncompensated extraction, or institutional arrangement whose present benefits remain asymmetrically distributed. Even then, the appropriate normative conclusion requires further argument. A current beneficiary may have had no role in the originating event. The institution holding the benefit may have changed purpose and membership. Redistribution may affect third parties who also relied on the inherited structure. Some benefits can be indivisible public infrastructures rather than privately held assets. The remedy question must therefore be separated from the descriptive finding that advantage is historically transmitted.

Proposition 16.92 (Inherited advantage–responsibility distinction)**.** *Evidence that a present position benefits from inherited economic advantage can establish historical incidence without by itself establishing personal culpability. Any further claim concerning contribution, taxation, restitution, institutional duty, reparative obligation, or other remedy requires a stated normative basis and attention to the mechanism and form*

through which the advantage is presently held.

The proposition leaves open multiple normative approaches. Some theories emphasize corrective relations between wrongdoer and victim; others focus on unjust institutional structures, current beneficiary relations, equal standing, capability, democratic legitimacy, or the repair of value flows. Young's analysis of structural injustice is relevant to this broader relational orientation because responsibility can concern participation in ongoing structures rather than only direct causal authorship of an originating wrong (Young 1990). GRE does not select one universal theory here; the normative bridge should be stated explicitly.

16.11.4 Inherited Constraint

Inherited constraint is the complementary historical object. Earlier configurations can narrow the feasible actions, capacities, affiliations, locations, livelihoods, or institutional routes available to present positions. Constraint can be transmitted through debt, degraded ecosystems, missing infrastructure, segregated spatial patterns, incompatible standards, exclusionary credentials, institutional stigma, capability loss, care burdens, administrative classifications, property rules, or the disappearance of alternative relations.

The concept should remain distinct from inherited disadvantage measured only by current holdings. Two positions with similar income can face different inherited constraints if one carries high debt, weak legal status, poor transport access, ecological exposure, or limited credential portability. Conversely, a position with modest resources can possess strong public infrastructure, social insurance, recognized qualifications, or relational support that reduces historical constraint. This reinforces Section 16.7's distributional non-equivalence: inherited constraint can operate through access, capability, relation, participation, and future possibility in addition to resources.

Definition 16.93 (Inherited economic constraint)**.** An *inherited economic constraint* is a present restriction of practically feasible action, capacity, access, relational formation, participation, or future possibility that is materially generated or sustained by an earlier economic configuration through a traceable historical mechanism.

Not every inherited constraint is unjust. Ecological limits can justifiably constrain extraction; safety institutions can restrict dangerous activity; constitutional arrangements can constrain unilateral authority; long-term commitments can create legitimate obligations. Historical justice asks whether the inherited constraint is justified in its present form, whether its original grounds remain relevant, how burdens are distributed, and whether the mechanism preserves a past harm or exclusion beyond a defensible purpose.

Inherited constraint can also interact with manufactured vulnerability from Section 16.6. A historically produced housing shortage can make current households vulnerable to rent shocks. A legacy infrastructure can create dependence on one transport route or utility provider. Historical exclusion from credential systems can reduce present outside options. In these cases, current vulnerability can be manufactured by a process whose key causal events lie in an earlier period. Repair may therefore need to alter both the present vulnerability mechanism and the historical

structure that reproduces it.

The distinction between inherited constraint and present responsibility remains important. A current institution can inherit an exclusionary rule and continue enforcing it, thereby acquiring present responsibility through its current action. Another institution can inherit the downstream burden of a historical process it did not create, such as maintaining degraded infrastructure. These situations differ normatively even when both are historically connected. The historical-justice profile should therefore distinguish inherited condition, present control, present capacity to alter the mechanism, and present participation in reproduction.

16.11.5 Repair

Repair concerns the transformation of unresolved historical consequences. It is broader than payment for a quantified past loss and broader than restoration of one identifiable object. A historical harm can damage capacities, relations, institutions, recognition, ecological conditions, trust, participation, and future options simultaneously. A repair process can therefore combine material transfer, institutional reform, public investment, restoration of control, recognition, archival work, capability rebuilding, ecological remediation, return of value, or changes to the mechanism reproducing the inherited condition.

This breadth should not make repair indeterminate. A historical-justice profile can specify the dimension being repaired and the relation between the proposed intervention and the diagnosed mechanism. If past exclusion weakened educational capacity, a transfer unrelated to education can provide compensation while leaving the generative mechanism intact. If extraction diverted value from a community, circular return and restoration of control over generative conditions can address a different aspect of the history. Generative-justice work on reparative and circular value flows provides one relevant precedent for connecting historical redress with the rebuilding of present generative capacity (Eglash et al. 2024).

Definition 16.94 (Historical repair)**.** *Historical repair* is a normatively justified process directed toward reducing, reversing, compensating, acknowledging, or preventing the reproduction of justice-relevant consequences that are materially connected to an earlier economic history, including where appropriate the restoration or rebuilding of capacities, relations, institutions, ecological conditions, recognition, control, or future possibility.

Repair can be backward-linked and future-oriented at the same time. Its historical justification can arise from an earlier wrong or transmitted burden, while its practical form can focus on the capacities and relations required for present and future justice. This orientation avoids treating history as a demand to reconstruct a past configuration exactly. In many cases the earlier condition cannot be restored, was itself unjust, or no longer fits present needs.

Repair also has an incidence problem. An intervention intended to address inherited injustice can impose new burdens on positions that did not create the original harm, including vulnerable third parties. This does not automatically defeat the repair, yet the new incidence should be included in the justice analysis. Transition support, temporal staging, burden sharing, institutional financing, or differentiated

obligations can sometimes reduce conflict between historical redress and present protection.

Proposition 16.95 (Repair-mechanism alignment)**.** *Where a proposed historical repair is justified partly by the persistence of a historical mechanism, the adequacy of the repair should be assessed in relation to its capacity to alter, compensate for, or prevent reproduction of the diagnosed consequence rather than solely by the nominal value of the remedial transfer.*

The proposition does not imply that every repair must eliminate the historical mechanism completely. Some mechanisms cannot be reversed; others support legitimate functions alongside inherited harms. The requirement is narrower: the proposed remedy should state how it addresses the historically grounded object for which it is offered.

16.11.6 Restitution

Restitution is a more specific remedial form. It seeks the return or reconstitution of an identifiable object, claim, status, authority, or control relation associated with an earlier deprivation. Examples can include returning property, restoring legal status, re-establishing access, correcting a wrongfully transferred entitlement, returning control over data or cultural resources, or reinstating an institutional claim. Restitution therefore has a stronger continuity requirement than the broader category of repair.

The object of restitution can change through time. Land can be developed, ecological conditions can change, organizations can dissolve, data can be copied, institutional roles can disappear, and third parties can acquire reliance interests. These transformations do not automatically extinguish the historical claim, yet they complicate the meaning of return. A historical-justice analysis should distinguish the original object, the transformations it underwent, the present holder or controlling institution, the continuity of the claimant relation, and the effects of restitution on other positions.

Definition 16.96 (Historical restitution)**.** *Historical restitution* is a remedial process that seeks to return, restore, or reconstitute an identifiable economic object, status, claim, access condition, authority, or control relation whose earlier deprivation is normatively relevant to a present historical-justice claim.

Restitution can be appropriate without exhausting repair. Returning an asset may not restore capabilities lost during decades of exclusion. Reinstating formal status may leave discriminatory infrastructure intact. Restoring access can fail to repair accumulated debt or ecological degradation. Conversely, broad repair can sometimes be justified where literal restitution is infeasible, indeterminate, or would generate disproportionate new harms.

Proposition 16.97 (Restitution–repair non-equivalence)**.** *Historical restitution and historical repair are analytically distinct. Restitution addresses the return or reconstitution of an identifiable object, status, claim, access condition, authority, or control relation; repair can additionally address transmitted harms, degraded capacities, institutional reproduction, recognition, ecological loss, and future-generative conditions*

that remain after restitution or where literal return is unavailable.

This distinction also disciplines compensation. Monetary compensation can sometimes proxy for an irrecoverable loss, yet it should not be treated as conceptually equivalent to restitution or complete repair. Different remedies address different dimensions of the historical-justice profile. Their combination and priority depend on the underlying normative theory, evidential confidence, feasibility, claimant structure, and present incidence.

16.11.7 Re-Epistemization of Past Harm

Historical justice depends on knowledge that can change. Section 15.15 defined historical re-epistemization as revision in the evidential, classificatory, model-based, interpretive, or evaluative conditions under which an earlier trajectory can be responsibly represented and assessed. The present subsection specializes that architecture to past harm and historical justice. Its central question is how later evidence or concepts can alter present understanding and present obligations without projecting later knowledge backward onto earlier actors.

Later inquiry can reveal that a harm began earlier than previously believed, affected positions that were omitted from the original record, propagated through a different mechanism, or had long-horizon consequences that contemporary observers could not measure. New testimony can challenge an official archive. Revised classifications can make unpaid care, disability exclusion, environmental exposure, or informal labor more visible. New causal models can connect previously separate records. Revised normative standards can also change evaluation even where the empirical reconstruction remains stable.

These changes require separate treatment. Later evidential discovery can strengthen the claim that a past harm occurred. A later conceptual change can revise how the harm is classified. A later normative judgment can condemn an action under a current standard even where contemporaneous institutions did not. Each claim has different implications for historical responsibility. The later discovery of harm can create present duties of investigation, disclosure, protection, or repair while leaving open whether earlier actors violated an epistemic duty given what was reasonably knowable at the time.

Proposition 16.98 (Re-epistemization and temporal responsibility)**.** *Later re-epistemization can alter the warranted present assessment of a past economic harm and can generate or revise present institutional duties, while the responsibility of earlier actors should remain sensitive to the evidence, concepts, authority, and reasonable epistemic possibilities available within their historical situation.*

The proposition protects both revision and restraint. It avoids freezing historical judgment at the categories of the past, which can reproduce earlier invisibility. It also avoids assuming that contemporary knowledge was fully available to historical actors. The two temporal questions can yield different answers: a harm can be real and presently remediable even where culpability for failing to anticipate it is weak; an earlier institution can also be culpable where credible evidence was available but suppressed, ignored, or excluded from authoritative consideration.

Historical re-epistemization additionally changes claimant and beneficiary identification. Better records can reveal who bore costs, whose labor generated value, which communities were displaced, or which institutions accumulated benefit. Such reconstruction can materially alter a repair or restitution design. Provenance is therefore essential: later synthesis should preserve which claims rest on contemporaneous records, later testimony, inference, model reconstruction, or normative reinterpretation.

16.11.8 Future Recognizability

Historical justice also has a forward-looking epistemic condition. Present economic processes become the histories available to future inquiry only if relevant traces survive and remain interpretable. Records can be destroyed, classifications can erase affected positions, proprietary systems can become inaccessible, model versions can disappear, oral testimony can be lost, and institutional memory can dissolve. A future society can therefore inherit not only unresolved harm but also an impaired capacity to recognize how that harm was generated.

Future recognizability is not equivalent to maximal retention. Preservation can conflict with privacy, security, dignity, data minimization, legal restrictions, resource limits, or the right to move beyond a harmful classification. The relevant question is which traces are necessary for accountable reconstruction and under what stewardship, access, retention, and deletion conditions. Section 15.15 made the same point for historical trace generally; historical justice adds attention to the asymmetry of archival survival. Institutions with greater power often possess stronger record-making capacity, while informal labor, displaced communities, care work, marginalized groups, and ecological losses can leave weaker documentary traces.

Definition 16.99 (Future recognizability of historical claims)**.** *Future recognizability of historical claims* is the practical capacity of later inquiry to reconstruct and evaluate justice-relevant economic histories from sufficiently preserved and interpretable evidence, provenance, classifications, testimony, institutional records, model versions, and uncertainty documentation, subject to justified limits on preservation and access.

The definition turns preservation into a justice-relevant institutional design question without presuming unlimited archival accumulation. Versioned rules, decision rationales, impact records, provenance metadata, testimony repositories, data dictionaries, model documentation, and records of dissent can sometimes preserve future reconstructability. Other materials can require anonymization, restricted access, distributed stewardship, time-limited retention, or deliberate deletion. The appropriate architecture depends on the harm, the affected positions, the risks of retention, and the expected value of future reassessment.

Future recognizability also bears on AI-mediated and automated institutions. If decisions depend on changing models, datasets, prompts, classifications, or scoring rules, later reconstruction can become severely limited or impossible when only the final output is retained. Historical justice can therefore require preservation of sufficient process provenance to distinguish what was decided, under which model or rule, using which information, and with which opportunities for challenge. This re-

quirement does not imply that every intermediate computation or personal datum should be preserved indefinitely; it requires a governed reconstruction strategy proportionate to the stakes.

Proposition 16.100 (Historical trace condition)**.** *Where an economic institution can generate durable justice-relevant consequences whose evaluation may depend on later evidence or revised standards, governance should consider preserving sufficient historical trace for future reconstruction while explicitly governing privacy, security, access, stewardship, retention, and the risks created by preservation itself.*

Proposition 16.100 completes the section by joining historical justice to governance. The past cannot be made fully recoverable, and archives are themselves selective institutions. Yet deliberate preservation of reconstructable traces can expand the future capacity to detect hidden harm, revise mistaken judgments, assign responsibility more accurately, and design better repair.

Taken together, the eight dimensions establish historical justice as a problem of temporally extended relations rather than a simple transfer of blame or entitlement across generations. Past events matter when their consequences, claims, institutions, or evidential traces remain connected to present and future positions through identifiable mechanisms. Present inheritance matters without automatically determining culpability. Repair can be historically grounded while future-oriented. Restitution can address identifiable claims without exhausting broader repair. Re-epistemization can revise present judgment while preserving the epistemic situation of earlier actors. Future recognizability, finally, makes the preservation and governance of historical trace part of the conditions under which later justice can remain possible.

Section 16.12 turns from historical justice to *governance of relations*. The shift is institutional rather than thematic: the analyses of power, vulnerability, distribution, relational justice, generative justice, relation variation, and historical justice now provide the objects that governance may need to form, maintain, revise, dissolve, bound, and render contestable across time.

16.12 Governance of Relations

Sections 16.8–16.11 developed normative criteria for relational justice, generative justice, relation formation and variation, and historical justice. The present section changes analytical level. Its role is to examine the institutional and practical arrangements through which economically consequential relations are formed, maintained, transformed, dissolved, bounded, populated, exited, and connected to higher-order structures. Its objective is to specify the principal objects of relational governance while preserving a distinction between governance mechanisms and the normative criteria by which those mechanisms are evaluated. The discussion proceeds through relation formation, relation maintenance, relation transformation, relation dissolution, boundary governance, membership governance, exit governance, and higher-order relations. The method is relational, institutional, and lifecycle-sensitive: governance is reconstructed through the allocation of authority, information, procedure, responsibility, review, transition capacity, and historical trace across the relation be-

ing governed.

Governance in this section refers to organized arrangements that condition how relations operate and change. These arrangements can be legal, contractual, organizational, technical, customary, professional, communal, administrative, or hybrid. They can be centralized or distributed, formal or partly informal, and they can operate through direct decision, standards, interfaces, eligibility conditions, monitoring, review, sanctions, incentives, representation, or the architecture of available alternatives. Governance therefore extends beyond the presence of a specialized governing institution. A supply relation can be governed through contract and technical standards; a commons relation through shared rules and monitoring; a platform relation through code, terms, ranking, and appeals; an employment relation through organizational authority, labor law, collective bargaining, professional norms, and workplace practice at the same time.

The distinction between governance and justice is essential. A governance arrangement can be operationally effective while performing poorly under one or more justice criteria. A normatively attractive rule can also fail when authority is unclear, information is unavailable, maintenance is unfunded, or implementation depends on capacities that are absent. Conversely, a governance mechanism can reduce transaction costs, preserve continuity, or coordinate action without thereby establishing its legitimacy. The sections that follow therefore treat governance as an object of design and explanation whose normative evaluation remains informed by the justice architecture already developed.

Definition 16.101 (Relational governance architecture)**.** A *relational governance architecture* is the organized configuration of authorities, rules, procedures, information channels, responsibilities, safeguards, interfaces, review mechanisms, and transition arrangements through which an economic relation or relational configuration is formed, maintained, varied, dissolved, bounded, populated, or connected to other relations over time.

Definition 16.101 is deliberately broad enough to cover relations that lack a single governing center. The relevant architecture can be distributed among counterparties, public authorities, professional bodies, standards organizations, infrastructure operators, courts, communities, technical systems, and affected participants. What matters analytically is which component can alter which relational property, under which conditions, with which information, and subject to which forms of review or countervailing capacity.

A relational governance architecture can be represented through several recurrent functions. Formation governance determines how a relation becomes recognized or operative. Maintenance governance supports the conditions required for continued performance. Transformation governance allocates authority over consequential variation. Dissolution governance organizes termination and residual obligations. Boundary and membership governance determine scope and belonging. Exit governance structures departure from a continuing relation. Higher-order governance conditions relations through other relations. These functions can be performed by the same institution, yet their analytical separation is useful because authority and accountability can be distributed differently across them.

Table 16.10: Relational governance functions in substantive GRE analysis.

Function	**Primary object**	**Selected governance mechanisms**	**Selected diagnostic questions**
Formation	Entry into an operative relation	Eligibility, matching, negotiation, authorization, information, registration, safeguards	Who can form the relation, through which procedure, and with which initial rights and obligations?
Maintenance	Continued viability and performance	Monitoring, contribution, infrastructure, renewal, repair, records, coordination	Which conditions sustain the relation, and who bears maintenance responsibilities and costs?
Transformation	Consequential change in terms or structure	Amendment rules, triggers, delegated authority, representation, review, transition support	Who can alter the relation, within which scope, and how are affected positions incorporated?
Dissolution	Termination or reconstitution of relational coordination	Termination rules, winding down, settlement, residual duties, archival transfer, remediation	Which obligations survive dissolution and how are transition burdens allocated?
Boundary	Scope and permeability of a configuration	Jurisdiction, classification, interface rules, interoperability, attribution, cross-boundary coordination	Which relations and consequences are treated as internal, external, or boundary-crossing?
Membership	Relation of belonging to a configuration	Admission, status, rights, duties, representation, suspension, expulsion, succession	Which dimensions of membership attach to which positions, and how can they change?
Exit	Departure from a relation that can continue	Notice, portability, settlement, transition, protection, residual duties, switching interfaces	Can departure occur practically, and which effects remain for departing and continuing positions?
Higher-order relations	Relations that condition other relations	Meta-rules, standards, mediation, adjudication, collective choice, platform or regulatory interfaces	Which governing relation changes the feasible terms of lower-order relations, and who governs the governing relation?

Table 16.10 summarizes functions rather than mutually exclusive institutional categories. A single rule can affect several functions. A portability requirement, for example, can shape formation by lowering anticipated lock-in, maintenance by disciplining service quality, transformation by preserving alternatives, and exit by making switching feasible. Relational governance therefore requires attention to cross-function effects as well as local rule performance.

Proposition 16.102 (Governance–justice distinction)**.** *The existence or effectiveness of a relational governance mechanism does not by itself establish the justice of the governed relation, while a justice-relevant objective does not by itself specify a workable governance architecture. Analysis should therefore distinguish normative criteria*

from the authorities, procedures, information, capacities, and transition mechanisms through which those criteria are pursued in practice.

Proposition 16.102 provides the organizing restraint for Sections 16.12–16.20. Governance questions ask how relational change is organized, observed, authorized, implemented, reviewed, and revised. Justice questions ask how the resulting relations and processes should be evaluated. The two inquiries interact continuously, yet neither can substitute for the other.

16.12.1 Relation Formation

Relation formation governance concerns the procedures and conditions through which a prospective relation becomes practically operative, institutionally recognized, or economically consequential. Section 16.10.1 examined the justice of relation formation; the present subsection asks how formation is actually organized. Formation can occur through bilateral agreement, collective decision, public authorization, technical matching, organizational appointment, legal status, admission procedure, customary recognition, automated allocation, or combinations of these mechanisms.

Formation governance has at least six recurrent objects. The first is *eligibility*: which positions are permitted or recognized as candidates for participation. The second is *information*: which terms, risks, rights, obligations, and relevant uncertainties are made available before formation. The third is *matching or selection*: how counterparties, roles, or participants are connected. The fourth is *authorization*: which actor, office, rule, or procedure can make the relation operative. The fifth is *initial specification*: which rights, duties, contribution rules, review pathways, and exit conditions attach at formation. The sixth is *recording*: which elements of the formation history are preserved for later interpretation, contestation, or revision.

These objects can diverge. A platform may automate matching while retaining unilateral authority over eligibility. An employment relation may be formed through private agreement under public legal constraints. A cooperative may combine member admission with collective authorization. A public programme can create a relation through statutory entitlement, administrative determination, or discretionary approval. Formation governance should therefore be reconstructed as a configuration of mechanisms rather than inferred from the formal label of the relation.

Formation governance also affects later relational trajectories. Entry conditions can create sunk investments, role-specific skills, data histories, social expectations, collateral commitments, or infrastructure dependence. A relation that appears easily reversible at entry can become difficult to leave after these investments accumulate. Conversely, formation rules can preserve future flexibility through portability, vesting, interoperable standards, review rights, limited duration, or staged commitment. Governance of formation therefore partly governs the future option structure of the relation.

Proposition 16.103 (Formation-governance incidence)**.** *Where the conditions of relation formation materially shape later dependence, capability, exposure, exit, or future relational possibility, analysis of formation governance should include these downstream effects in addition to the immediate terms of entry.*

The proposition links formation governance to Chapters 13–15. An entry rule is an intervention into a relational field; its consequences can propagate through time and across connected relations. This observation does not require formation governance to predict every future state. It requires governance design and later evaluation to preserve awareness that entry conditions can generate durable trajectories.

16.12.2 Relation Maintenance

Relations that persist require maintenance. Maintenance can involve repeated performance, monitoring, communication, payment, care, infrastructure, conflict resolution, renewal, memory, record keeping, technical compatibility, and repair. These activities are often economically significant even when the relation's formal terms remain unchanged. A contractual relation can fail through missing maintenance despite a complete agreement; an infrastructure relation can deteriorate through deferred upkeep; a cooperative relation can weaken when contribution and monitoring collapse; a long-term care relation can become unsustainable when the burden of maintenance is concentrated on one position.

Relation maintenance governance specifies who observes the relation, who supplies recurring inputs, who detects failure, how maintenance burdens are allocated, which service levels or relational conditions are expected, and how deviations are handled. Maintenance therefore includes both material and institutional work. Maintaining a payment system requires technical infrastructure and settlement capacity; maintaining a labor relation can require payroll, safety, scheduling, grievance procedures, supervision, and skill renewal; maintaining a commons can require monitoring, contribution, communication, and conflict-resolution rules. Ostrom's work on long-enduring commons illustrates the importance of monitoring, rule adaptation, and locally organized institutional arrangements in sustaining some collective-resource relations (Ostrom 1990; Ostrom 2005). GRE treats these cases as evidence of governance diversity rather than as a universal template.

Maintenance should also be distinguished from preservation of existing terms. Some relations remain viable only through periodic adaptation. Wages can require adjustment to changing conditions; technical interfaces require updates; professional obligations change with knowledge; ecological governance can require revised extraction limits; benefit systems can require updating as needs and costs change. A governance architecture that preserves text while allowing the underlying relation to deteriorate can maintain formal continuity and lose practical continuity at the same time.

Definition 16.104 (Relational maintenance governance)**.** *Relational maintenance governance* is the organized allocation of observation, contribution, upkeep, coordination, repair, renewal, and record-keeping responsibilities required to sustain the practically relevant functions and obligations of an economic relation through time.

Definition 16.104 makes maintenance a positive governance object. It also clarifies why maintenance work can be distributed unequally and remain weakly visible. Care, administrative coordination, data stewardship, software maintenance, institutional memory, and conflict mediation can be essential to relational continuity even when conventional accounting treats them as secondary to the visible exchange.

Proposition 16.105 (Maintenance–fixity distinction)**.** *Sustaining the function, obligations, or justified purpose of a durable economic relation can require governed change in its terms, interfaces, or supporting capacities. Formal fixity and practical maintenance should therefore be analyzed separately.*

This distinction prepares the transition to relation transformation. Maintenance can include routine adjustments within an already authorized range. Transformation concerns changes whose scale or incidence materially alters the relation's structure, authority, obligations, or future trajectory.

16.12.3 Relation Transformation

Relation transformation governance concerns consequential variation of an existing relation. Section 16.10.2 defined the justice problem created by updating relations. Governance adds a procedural and institutional question: who can initiate change, which events trigger reconsideration, who interprets those events, which modifications are permissible, which participants must be consulted or represented, how transition burdens are handled, and how the transformed relation is recorded.

Transformation can occur through renegotiation, amendment, rule revision, technological redesign, organizational restructuring, regulatory change, reinterpretation, collective bargaining, judicial or administrative decision, automated policy update, or accumulated practice. A relation can also transform gradually without a single formal amendment. Repeated exceptions can become routine; technical interfaces can shift actual authority; new intermediaries can become indispensable; information asymmetries can deepen; and exit alternatives can disappear. Governance therefore requires mechanisms for recognizing substantive transformation even where formal documentation changes slowly.

A useful reconstruction distinguishes *initiation authority*, *interpretive authority*, *decision authority*, *implementation authority*, and *review authority*. These functions can be concentrated in one position or separated. A regulator can initiate review while an elected body changes the rule; a platform operator can implement a technical change subject to contractual and legal review; members of an association can propose amendments that require collective approval; management can alter operational procedures within a mandate while more consequential changes require board, worker, member, or public authorization.

Definition 16.106 (Relational transformation governance)**.** *Relational transformation governance* is the organized specification of triggers, authorities, procedures, permissible scope, participation, review, implementation, transition obligations, and historical recording through which a consequential variation of an existing economic relation is recognized and carried into practice.

The definition emphasizes transition because a new rule rarely begins from an empty state. Participants have relied on earlier terms, made investments, developed capabilities, assumed obligations, created data, accumulated expectations, and entered connected relations. Transformation governance therefore includes the treatment of these inherited positions. Grandfathering, compensation, phased implementation, portability, conversion of status, retraining, debt restructuring, data migration, or transitional public provision can mediate the shift between relational config-

urations.

Proposition 16.107 (Transformation-authority visibility)**.** *Where consequential relational variation is possible, a governance architecture is more analytically reconstructable when the authority to initiate, interpret, decide, implement, and review change is made explicit together with the scope and transition obligations attached to those functions.*

The proposition is epistemic and institutional. Hidden transformation authority makes both accountability and empirical explanation difficult. Formal rules can assign one authority while technical or practical control lies elsewhere. GRE therefore tracks enacted transformation capacity in addition to written jurisdiction.

16.12.4 Relation Dissolution

Relation dissolution concerns the termination, winding down, or fundamental reconstitution of relational coordination. It differs from the exit of one participant because a relation can continue after one position leaves. It also differs from transformation when the prior relation ceases to provide the organizing structure for future interaction. Dissolution can occur through completion, expiration, mutual termination, organizational closure, legal decision, insolvency, technological obsolescence, collective decision, withdrawal of authorization, or collapse of the capacities required for continuation.

Dissolution governance has three temporal layers. Before termination, rules determine who can initiate dissolution, which thresholds apply, which information must be disclosed, and which protective steps precede closure. During dissolution, governance allocates control over assets, records, claims, liabilities, data, infrastructure, responsibilities, and communication. After dissolution, residual relations can remain through debt, warranties, pensions, environmental remediation, confidentiality, data stewardship, care responsibilities, intellectual-property claims, or unresolved historical harms. Chapter 12 already showed that collective obligations can outlive the coordinating structure that generated them.

Definition 16.108 (Relational dissolution governance)**.** *Relational dissolution governance* is the organized handling of authorization, sequencing, settlement, residual obligations, asset and record disposition, remediation, transition support, and successor responsibilities associated with terminating or fundamentally reconstituting an economic relation or relational configuration.

Dissolution can redistribute power and vulnerability. The disappearance of a dominant intermediary can open alternatives, while abrupt closure of an essential service can expose dependent positions. Termination of a harmful relation can reduce domination and simultaneously destroy capabilities that had become tied to the relation. Governance therefore needs to represent both release and loss. This point is especially important where the same relation supplies employment, income, identity, infrastructure, social connection, data continuity, or legal status.

Proposition 16.109 (Dissolution–residual relation distinction)**.** *Termination of a relation's primary coordinating structure does not by itself extinguish obligations, dependencies, claims, records, harms, or maintenance responsibilities generated during*

its history. Dissolution governance should identify which residual relations continue, transfer, or require discharge after termination.

The proposition links dissolution governance to historical justice. A relational history can continue to matter after the relation disappears as an operative institution. Winding down therefore includes the governance of memory and responsibility as well as the cessation of ongoing coordination.

16.12.5 Boundary Governance

Chapter 12 defined an economic boundary as a historically situated distinction organizing the attribution of subjects, entities, relations, resources, rules, capacities, obligations, or consequences to an economic configuration. Boundary governance concerns how such distinctions are created, interpreted, maintained, crossed, revised, and connected to neighboring configurations. Its object is therefore both *scope* and *permeability*.

Boundaries can be governed through law, jurisdiction, organizational design, accounting rules, eligibility classifications, technical interfaces, standards, geographic zones, professional categories, data schemas, platform architectures, or customary practice. These mechanisms determine which rules apply, who has standing, which obligations are attributed internally, which effects are treated as external, and which relations can cross the boundary. Boundary governance can consequently redistribute visibility as well as authority. A worker classified outside an employment boundary can lose protections; an outsourced activity can disappear from an organization's internal accounting while remaining functionally essential; an environmental consequence can fall outside a jurisdiction while remaining causally connected to production within it.

Definition 16.110 (Boundary governance)**.** *Boundary governance* is the organized formation, interpretation, maintenance, revision, and interconnection of distinctions that determine the scope, permeability, attribution, and interface conditions of an economic configuration.

Boundary governance has an outward-facing function because effects frequently cross the boundary used for internal coordination. Interfaces can translate rules, data, standards, obligations, and claims across configurations. Interoperability can allow records or capabilities to move across organizations. Mutual recognition can allow credentials or decisions to travel. Cross-jurisdictional agreements can coordinate obligations. Conversely, incompatible standards, legal gaps, proprietary interfaces, or categorical exclusions can make a boundary practically impermeable even where formal movement remains permitted.

Proposition 16.111 (Boundary–effect divergence)**.** *Where economically consequential effects, dependencies, obligations, or capacities cross a governed boundary, the formal scope of the governing arrangement can diverge from the relational field in which its consequences occur. Boundary governance should therefore make cross-boundary interfaces and incidence analytically visible when they are material to the governed process.*

This proposition does not imply indefinite expansion of jurisdiction. Governance

can require a bounded scope for accountability and tractability. The relevant task is to recognize material cross-boundary relations and specify the mechanism used to coordinate, translate, delegate, compensate, or deliberately leave them outside the governing arrangement.

16.12.6 Membership Governance

Chapter 12 defined economic membership as a specified relation of belonging, participation, recognition, entitlement, obligation, representation, or attachment to an economic configuration. Membership governance determines how these dimensions are assigned and changed. It includes admission, recognition, status differentiation, rights, contributions, benefits, representation, suspension, expulsion, succession, and the treatment of positions whose exposure or contribution exceeds their formal membership.

Membership frequently takes the form of a bundle. A member can possess voting rights without equal information; an employee can have organizational membership without ownership; a platform user can have access without rule-changing authority; a cooperative member can hold governance rights and contribution duties; a citizen can possess formal standing while practical participation remains constrained. Changes to one membership dimension therefore need not change the others.

Definition 16.112 (Membership governance profile)**.** A *membership governance profile* specifies the rules and procedures through which an economic configuration assigns, differentiates, reviews, suspends, transfers, or terminates membership dimensions including status, participation, access, entitlement, obligation, representation, control, exposure, and exit.

This profile makes stratified membership analytically visible. Organizations and institutions often contain full members, provisional members, affiliates, beneficiaries, contractors, observers, dependents, representatives, legacy members, and external positions carrying substantial exposure. A binary member/non-member representation can obscure these differentiated relations. Membership governance also needs to address multiple membership. A person can simultaneously occupy worker, shareholder, resident, citizen, patient, family, professional, and platform-participant roles, each governed through a different configuration.

Membership rules can themselves create capacities and vulnerabilities. Admission to a professional body can enable practice; recognition as an employee can activate protections; membership in an insurance pool can distribute risk; exclusion from a payment or identity system can close access to connected relations. Suspension or expulsion can therefore have effects far beyond the immediate organization when membership functions as an infrastructural gateway.

Proposition 16.113 (Membership-bundle non-equivalence)**.** *Change in one dimension of economic membership does not by itself establish corresponding change in participation, entitlement, obligation, representation, control, exposure, or effective exit. Membership governance should specify the dimensions being changed and the relations through which their effects propagate.*

The proposition provides a bridge to Sections 16.17 and 16.18, where legal protec-

tions, participation, and contestability receive separate treatment. Membership can organize access to these mechanisms without exhausting their substantive content.

16.12.7 Exit Governance

Exit governance organizes departure from a relation or configuration that can continue after the departing position leaves. Section 16.10.5 developed the justice of exit and distinguished exit from relation removal. Earlier sections also showed that exit capacity and exit power differ: practical ability to leave is one object, while the capacity to condition others through credible withdrawal is another. Governance of exit should preserve these distinctions.

An exit pathway can include notice, disclosure, settlement, portability, transfer of records, conversion or vesting of accrued claims, continuity of essential services, payment of outstanding obligations, protection against retaliation, treatment of shared assets, data deletion or transfer, and support for switching or transition. Exit can also require coordination with counterparties or successors. Leaving an employment relation can affect pensions, insurance, credentials, references, or immigration status. Leaving a digital service can require data portability and compatible alternatives. Leaving a cooperative can require valuation and redemption of a membership claim. Leaving a care relation can require a successor arrangement because unilateral departure can expose a dependent position.

Definition 16.114 (Governed exit pathway)**.** A *governed exit pathway* is the organized sequence of notice, authorization where relevant, settlement, portability, transition, residual obligation, protection, and record-transfer arrangements through which a position can leave an economic relation or configuration while the relation, configuration, or its successor structure may continue.

Exit governance also concerns the positions that remain. Departure can remove capital, knowledge, labor, legitimacy, care capacity, network connectivity, or maintenance effort. Repeated exit can redistribute costs toward less mobile participants. Powerful positions can use the threat of exit strategically, while vulnerable positions can possess formal exit rights with little practical ability to exercise them. Governance can respond through notice periods, portability rules, contribution requirements, transition funds, collective bargaining, service continuity requirements, or duties attached to dominant or essential positions.

Proposition 16.115 (Exit incidence)**.** *Where departure materially redistributes capacities, obligations, risks, or future possibilities among departing, remaining, or successor positions, exit governance should represent both the feasibility of departure and the incidence of its residual effects.*

The proposition keeps exit from becoming a purely individual variable. Relational systems can be strengthened by credible exit, weakened by abrupt withdrawal, or distorted when exit capacity is distributed asymmetrically. The appropriate governance problem depends on the relation's purpose, dependence structure, substitutability, and the obligations generated during participation.

16.12.8 Higher-Order Relations

Chapter 12 defined a higher-order economic relation as a relational configuration whose relevant capacities, constraints, obligations, expectations, or transformations cannot be represented adequately, for the inquiry at hand, as independent pairwise connections. Governance frequently has this higher-order structure. A regulator–firm relation changes the feasible terms of firm–worker or firm–consumer relations. A platform–participant relation conditions buyer–seller interactions. A standards body influences relations among producers, infrastructures, and users. A collective-bargaining institution changes the terms under which many individual employment relations are formed and varied. Governance is therefore often a relation among relations.

Higher-order governance can operate through meta-rules. A lower-order relation contains substantive terms; a higher-order governance relation can specify who may establish those terms, how they may change, which evidence is relevant, which procedures apply, and where appeals are heard. Collective-choice analysis provides one institutional vocabulary for this distinction between operational activity and rule-changing processes (Ostrom 2005). GRE extends the point by tracing how higher-order relations themselves acquire history, power, dependence, maintenance requirements, and generative consequences.

Definition 16.116 (Higher-order relational governance)**.** *Higher-order relational governance* is a governance configuration in which one or more relations materially condition the formation, maintenance, variation, dissolution, boundaries, membership, or exit properties of other relations, and where adequate explanation therefore requires representing the governing relation together with the relations it conditions.

This definition covers both institutionalized and less formal cases. A professional norm can govern practitioner–client relations without a single centralized controller. A technical protocol can govern interaction among many services through compatibility requirements. Community expectations can condition contribution and sanction. An algorithmic ranking relation can shape transactions between parties that never interact with the ranking system as an independent counterparty. The governing relation can therefore be legal, technical, epistemic, symbolic, organizational, or social.

Higher-order governance creates a recursion problem. If a relation governs another relation, the governing relation can itself become an object of governance. Regulators are governed through mandates and review; standards bodies through membership and procedural rules; platforms through law, market relations, technical dependencies, and internal governance; courts through jurisdiction, procedure, appeal, and constitutional arrangements. This recursion does not require an infinite hierarchy. Practical systems stabilize governance at several nested or overlapping levels whose authority, interfaces, and review pathways can be reconstructed empirically.

Proposition 16.117 (Governance recursion)**.** *A relation that governs other relations can itself become a governed relation. Relational analysis should therefore identify the higher-order authorities, dependencies, review pathways, and interfaces that condition the governing relation when these materially affect its operation or legitimacy.*

Governance recursion also clarifies the boundary between this section and Section 16.16. The present section classifies relations as governance objects and traces

the relational architecture through which governance operates. Section 16.16 later examines institutions as comparatively stabilized governance arrangements involving mandates, rules, authority, accountability, learning, adaptation, evolution, and institutional exit. A relation can therefore be governed institutionally without every governance mechanism being reducible to an institution.

Taken together, the eight dimensions establish governance of relations as lifecycle governance. Formation rules shape the initial relational field; maintenance allocates the work required for continuity; transformation governs consequential variation; dissolution governs termination and residual relations; boundaries define scope and interfaces; membership structures differentiated belonging; exit organizes departure and its incidence; and higher-order relations govern the relations through which economic activity is coordinated. The architecture is inherently historical because each governance decision can alter later capacities, dependencies, option spaces, records, and authorities.

This lifecycle view also prevents governance from being reduced to control. Governance can constrain conduct, yet it can also create relations, enable coordination, preserve interoperability, organize care, support participation, maintain infrastructures, distribute responsibility, protect transition capacity, and make future revision possible. Its evaluation therefore requires both the descriptive analysis of how relations are governed and the normative analysis developed in Sections 16.8–16.11.

Section 16.13 shifts the object from relations to *generative processes*. Allocation, propagation, conversion, recirculation, accumulation, extraction, dissipation, structural transformation, and value transmission can each be governed through relational architectures, yet their process dynamics require additional attention to flow, transformation, incidence, return, and capture across time.

16.13 Governance of Generative Processes

Section 16.12 treated economic relations as governance objects across formation, maintenance, transformation, dissolution, boundary, membership, exit, and higher-order coordination. The present section shifts the analytical object from the relation itself to the *processes through which economic conditions are allocated, propagated, converted, recirculated, accumulated, extracted, dissipated, structurally transformed, transmitted, returned, and captured*. Its role is to identify how governance enters the internal dynamics of generative processes rather than only the institutional relations surrounding them. The objective is to develop a process-sensitive governance architecture that reuses the distinctions established in Chapters 13–15, preserves provenance and incidence, and prepares the later governance of constraints, capacities, critical transitions, and institutions. The method is conceptual and mechanism-oriented. Existing process definitions remain authoritative; this section asks how their initiation, direction, rate, pathway, transformation, recurrence, termination, and downstream incidence can become objects of governance.

A process can be governed at several points without being centrally controlled. Allocation criteria can condition what enters a process. Interface rules can shape conversion. Standards and interoperability can affect propagation. Return obligations

can influence recirculation. Accounting, taxation, maintenance duties, or ownership rules can alter accumulation, extraction, and capture. Review procedures can condition structural transformation. Data, audit, and provenance requirements can make downstream incidence more visible. The relevant governance architecture can therefore be distributed across public authorities, firms, communities, infrastructures, professional bodies, courts, technical systems, counterparties, and affected participants.

Process governance also differs from outcome selection. A governance arrangement can establish conditions under which a process operates while leaving many outcomes open. A research-funding regime can specify eligibility, review, reporting, and renewal without choosing the discoveries that result. An interoperability rule can structure propagation without determining which application becomes dominant. A fiduciary or stewardship rule can constrain extraction while leaving many feasible uses of an asset. The analytical object is therefore the architecture that conditions a process and its consequences, including how that architecture can itself change through learning, contestation, or structural transformation.

Definition 16.118 (Generative-process governance architecture)**.** A *generative-process governance architecture* is the organized configuration of authorities, rules, procedures, information conditions, interfaces, safeguards, responsibilities, review mechanisms, and transition arrangements through which the initiation, direction, rate, pathway, transformation, recurrence, termination, or incidence of a specified economic process is conditioned over a stated analytical boundary and temporal horizon. The specification retains the process type, relevant provenance, affected positions, and materially consequential downstream effects at the resolution required by the inquiry.

Definition 16.118 is intentionally process-specific. It does not presume that one governance mechanism governs an entire generative configuration. A licensing rule can govern access to a conversion interface while leaving downstream propagation largely decentralized. A tax can affect accumulation while leaving the underlying relation of production intact. A maintenance requirement can reduce dissipation without altering who captures the resulting return. A governance analysis should therefore identify the process actually conditioned by each mechanism and the neighboring processes through which effects can migrate.

Table 16.11 summarizes the ten process families developed below. The rows overlap in empirical settings because one episode can contain allocation, transmission, conversion, return, accumulation, extraction, and structural change at different stages.

Proposition 16.119 (Process-governance specificity)**.** *A governance mechanism that materially conditions one generative process need not condition neighboring processes in the same direction or to the same degree. Adequate process governance analysis therefore identifies the focal process, the mechanism through which governance enters it, the affected positions and horizon, and the pathways through which effects can migrate into other processes.*

Proposition 16.119 provides the section's organizing restraint. It also limits overgeneralization. A successful allocation rule can coexist with weak maintenance. Strong protections against extraction can coexist with severe dissipation. Broad

Table 16.11: Governance objects across selected generative economic processes.

Process	Primary governance object	Selected mechanisms	Selected diagnostic questions
Allocation	Assignment of resources, rights, burdens, access, and enabling conditions	Eligibility, criteria, priority, timing, budgeting, review, reallocation	Who allocates what, to which position or relation, for how long, and with which downstream incidence?
Propagation	Reach and reproduction of effects across positions and scales	Access rules, standards, interoperability, thresholds, routing, moderation, containment	Which pathways amplify, attenuate, block, or redirect propagation, and who can revise them?
Conversion	Transformation across value forms, capacities, statuses, or domains	Recognition rules, rates, classifications, interfaces, certification, translation, appeal	Who defines the conversion interface, what remainder is produced, and whose position changes through conversion?
Recirculation	Re-entry of prior outputs or returns into later generative conditions	Return rules, reinvestment, maintenance funds, commons arrangements, feedback, stewardship	Which conditions return, where do they re-enter, and who governs their later use?
Accumulation	Historical buildup of resources, capacities, control, claims, or value-bearing conditions	Retention, compounding, depreciation, thresholds, taxation, access, succession	What accumulates, through which mechanism, under whose control, and with what relation to concentration?
Extraction	Appropriation under asymmetric relations and control over generative conditions or returns	Rights, pricing, royalties, labor and data rules, stewardship, audit, return obligations	Which value-bearing conditions are appropriated, through which asymmetry, and what happens to source conditions?
Dissipation	Loss of usable organization or generative capacity within a stated boundary	Maintenance, redundancy, repair, replenishment, loss tolerance, monitoring, recovery	Which losses are avoidable, accepted, displaced, or regenerated, and who bears their incidence?
Structural transformation	Change in relations, constraints, capacities, boundaries, degrees of freedom, or generative rules	Amendment, experimentation, transition rules, sunset and review, interoperability, transition support	Which structural component changes, who can authorize or contest the change, and which futures become newly accessible or foreclosed?
Transmission and transfer	Movement, provision, or mediated passage of value-bearing conditions	Channel access, routing, standards, documentation, timing, intermediary duties, portability	What moves, through which channel and intermediaries, in what form, and with which provenance and transformation?
Incidence, return, and capture	Distribution of downstream benefits, burdens, control, maintenance, and return	Audit, attribution, sharing rules, feedback, return pathways, transparency, contestation	Who ultimately benefits, bears cost, receives return, or captures control beyond the formal transfer boundary?

transmission can coexist with concentrated capture. Rapid structural transformation can coexist with limited participation. The quality of one governance function cannot stand as a proxy for the governance of the entire generative trajectory.

16.13.1 Allocation

Chapter 13 treated allocation as a relational intervention whose object can include resources, rights, burdens, access, time, spatial position, enabling conditions, and higher-order relations. Governance of allocation concerns the architecture through which these assignment processes are authorized, specified, implemented, observed, revised, and terminated. Its object therefore extends beyond the identity of an administrative recipient. An allocation can alter internal household relations, organizational authority, relational continuity, generative opportunity, future commitments, and the conditions under which later allocations become possible.

Five governance dimensions are recurrent. First, *allocation authority* concerns which actor, office, market rule, collective procedure, algorithm, or institutional arrangement can assign or withhold the relevant object. Second, *allocation criteria* concern the reasons, priorities, classifications, eligibility rules, and evidential standards through which competing claims are ordered. Third, *allocation timing* concerns duration, sequencing, renewal, commitment, and temporal lock-in. Fourth, *allocation incidence* concerns the positions and relations materially affected beyond the formal recipient. Fifth, *revisability* concerns monitoring, feedback, reallocation, appeal, and the capacity to respond when assumptions or conditions change.

The appropriate governance architecture depends partly on the allocation object. Scarce emergency resources can require rapid triage under explicit review. Long-horizon research funding can require tolerance for uncertainty and delayed return. Infrastructure allocation can create durable spatial and relational dependencies. Care resources can be difficult to evaluate through standardized output metrics. Access rights can be formally assigned while remaining unusable because complementary capacities are absent. Governance should therefore preserve the type of the allocated object and the conversion conditions through which the allocation becomes practically consequential.

Allocation governance also has a recursive dimension. An allocation can change later allocation capacity. Funding an institution can increase its ability to generate applications, evidence, political support, or matching resources. Allocating infrastructure can create a region's later eligibility for investment. Concentrated allocation of expertise can deepen future dependence on the same expert position. Conversely, capacity-building allocations can widen the set of later allocators and recipients. This recursive structure is analytically distinct from the immediate distributive pattern.

Proposition 16.120 (Recursive allocation governance)**.** *Where an allocation materially changes the capacities, relations, information, eligibility, or institutional position through which later allocations are made or received, governance of the initial allocation should include the resulting change in future allocation architecture at the horizon relevant to the inquiry.*

Proposition 16.120 does not require every allocation decision to forecast distant consequences. It requires temporal expansion when the allocation is itself history-generating. Review intervals, staged commitment, sunset provisions, learning mechanisms, portability, or diversification can be governance responses where recursive effects are material and uncertain.

16.13.2 Propagation

Propagation concerns the extension or reproduction of economically consequential effects across positions, relations, or scales. Chapter 14 analyzed value propagation, while Chapter 15 developed spatial propagation and heterogeneous accessibility. Governance of propagation concerns the pathways, thresholds, interfaces, standards, routing rules, and containment mechanisms that condition how an effect reaches beyond its initial position.

The governance objective cannot be specified simply as maximizing reach. Some processes gain value through wider diffusion, as with knowledge, public-health infor-

mation, interoperable standards, or beneficial technical practices. Other processes require containment because propagation can transmit financial instability, ecological harm, misinformation, security risk, dependency, or incompatible technical lock-in. A governance architecture therefore needs a process-specific account of what is propagating, which positions can be affected, the speed and scale of spread, and the consequences of amplification or attenuation.

Propagation can be shaped through access rules, network topology, compatibility requirements, licensing, language and translation, data portability, platform ranking, physical infrastructure, jurisdiction, technical protocols, and institutional recognition. These mechanisms can govern reach without directly governing generation at the source. A research result can be generated under one institutional arrangement and propagated through another. A financial shock can originate outside the authority that later contains it. A standard can propagate through adoption incentives rather than central command. The analyst should therefore identify the pathway by which governance enters the propagation process.

Provenance matters because broad propagation can obscure source, transformation, and responsibility. A rule, model, dataset, or practice can be copied across sites while the assumptions under which it was produced disappear. Governance can preserve provenance through documentation, versioning, attribution, traceability, and contextual metadata. These mechanisms do not guarantee appropriate downstream use, yet they can preserve the information needed for later evaluation and revision.

Proposition 16.121 (Propagation-governance proportionality)**.** *The governance intensity appropriate to a propagation process should be assessed in relation to the scale, speed, reversibility, uncertainty, affected positions, and potential amplification of the propagated effect, together with the costs and risks created by attenuation or containment.*

The proposition is deliberately two-sided. Strong containment can itself produce exclusion, monopoly, information scarcity, or delayed beneficial diffusion. Weak governance can permit harmful amplification. Process governance therefore concerns calibrated pathway conditions rather than a general preference for either openness or restriction.

16.13.3 Conversion

Conversion occurs when a value-bearing condition, capacity, status, claim, representation, or resource changes form or becomes effective through an interface that relates heterogeneous domains. Chapter 14 defined the conversion interface and emphasized provenance, remainder, and incomplete commensurability. Governance of conversion concerns who can constitute, operate, alter, audit, and contest such interfaces.

Conversion interfaces are economically consequential because they determine which properties become legible and actionable across domains. Credentials convert some aspects of learning into recognized status. Exchange rates connect monetary domains. Legal classifications convert facts into rights, duties, or eligibility. Measurement systems translate heterogeneous conditions into indicators. Technical standards convert outputs into interoperable forms. Insurance rules translate

events into compensable claims. None of these operations is neutral with respect to incidence because each interface selects, compresses, weights, or excludes features of the source condition.

Governance can therefore address at least six objects: the authority to define the conversion rule; the information and evidence admitted into conversion; the transformation or rate applied; the treatment of remainder and uncertainty; the rights of affected positions to explanation, correction, or appeal; and the conditions under which the interface is revised. Where conversion is automated, model governance, data provenance, error correction, and human review can become part of the interface architecture. Where values are heterogeneous or partly incommensurable, governance should preserve limits of translation rather than forcing a single scalar representation for administrative convenience.

Definition 16.122 (Conversion-governance interface)**.** A *conversion-governance interface* is the governance arrangement through which a specified conversion rule or practice is authorized, applied, monitored, contested, and revised, including the treatment of provenance, uncertainty, remainder, and affected positions where these are material to the conversion's economic consequences.

Definition 16.122 separates the governance of an interface from the conversion operation itself. An exchange rate can be generated by a market while still being governed through disclosure, settlement, competition, prudential, and anti-manipulation rules. A credential rule can be institutionally determined while appeal and recognition are governed elsewhere. Distributed conversion does not remove governance; it changes where governance mechanisms are located.

Conversion governance also interacts with power. Positions that control a conversion interface can influence which forms of value become recognizable, exchangeable, compensable, or institutionally actionable. Section 16.4.3 treated epistemic power, and Section 16.4.5 treated institutional power. The present analysis adds a process criterion: control over conversion becomes economically consequential when it changes practical realization across forms or domains. Such control still requires separate normative evaluation; conversion authority can support coordination, comparability, safety, and rights as well as exclusion or capture.

16.13.4 Recirculation

Recirculation, as developed in Chapter 14, occurs when an earlier value-bearing condition, transformed output, benefit, burden, capability, right, relation, representation, or ecological condition re-enters the same or a related generative configuration as a condition of later maintenance, regeneration, coordination, conversion, or generation. Governance of recirculation concerns the rules and capacities through which that re-entry is enabled, directed, attributed, protected, or interrupted.

Return rules are one mechanism, but recirculation is broader than formal return. Revenue can be reinvested into productive capacity; tax receipts can finance public infrastructure; user-generated knowledge can return through community tools; organizational learning can re-enter revised routines; ecological restoration can replenish the conditions of later production. Governance can specify shares, destinations, timing, stewardship, collective control, maintenance obligations, or conditions of reuse.

It can also create feedback channels through which downstream experience changes later allocation or design.

The distinction between *return* and *successful recirculation* is important. A contractual return can reach an intended account without becoming a materially relevant condition of later generation. Conversely, recirculation can occur through transformed return that does not reproduce the original value form. Governance therefore needs both pathway and re-entry analysis. It should ask who controls the return, which configuration receives it, which conversion conditions determine its usability, and whether maintenance burdens accompany the return.

Recirculatory arrangements can become self-reinforcing. This can sustain maintenance and learning, yet it can also reproduce dependency, institutional lock-in, or concentrated control. Governance can incorporate periodic review, alternative return channels, portability, shared control, reserve rules, or exit conditions where recursive structures become difficult to revise. The objective is not to interrupt recurrence as such. It is to keep the recurrent pathway inspectable and governable at the scale where its consequences matter.

Proposition 16.123 (Recirculation-governance traceability)**.** *Where a governance arrangement relies on recurrent return or reinvestment to reproduce generative conditions, adequate analysis should preserve the source of the returned condition, the return pathway, the re-entry configuration, materially relevant conversion and maintenance requirements, and the authority governing subsequent use.*

This traceability condition is especially important where cross-scale recirculation occurs. Local generation, national collection, organizational intermediation, and later local re-entry can be part of one cycle while authority is distributed across several institutions. Without traceability, a recurrent flow can appear self-sustaining even when important enabling conditions are externalized to another scale.

16.13.5 Accumulation

Accumulation concerns historical buildup across repeated episodes. Chapter 14 distinguished accumulation from concentration: value-bearing conditions can accumulate without becoming concentrated in one position, and concentration can change even when the aggregate stock changes little. Governance of accumulation therefore requires an explicit object. Financial assets, productive capacity, knowledge, data, institutional authority, relational trust, environmental liabilities, maintenance backlogs, rights, and infrastructural control accumulate through different mechanisms and should not be governed as if they were one homogeneous stock.

The principal governance questions concern retention, compounding, depreciation, inheritance or succession, access, control, thresholds, and the conversion of accumulated conditions into later capacities or power. Accounting rules can determine what remains visible as a stock. Tax and transfer systems can affect financial accumulation. Intellectual-property and data rules can shape knowledge and information accumulation. Maintenance institutions can preserve infrastructural capacity. Organizational routines can accumulate tacit knowledge while creating dependence on specific personnel. Ecological burdens can accumulate through delayed effects even when no actor intentionally stores them.

Accumulation governance also needs provenance. A present stock can contain contributions from public investment, unpaid care, ecological support, prior generations, community knowledge, private risk-bearing, contractual exchange, inherited rights, or captured returns. The appropriate analytical resolution depends on the research question; complete historical attribution is rarely possible. Yet where provenance materially affects authority, responsibility, return, or justice, governance systems can preserve records sufficient for later reconstruction.

Thresholds matter because accumulation can alter the process that generates further accumulation. Scale can reduce costs, improve learning, strengthen resilience, or finance innovation. The same buildup can create gatekeeping, market power, path dependence, or systemic fragility. Governance can therefore include threshold-based review, interoperability, diversification, capital or reserve requirements, access obligations, competition rules, succession arrangements, or mechanisms for redistributing control. These tools govern different consequences of accumulation and should not be treated as interchangeable.

Proposition 16.124 (Accumulation-governance separability)**.** *Governance of accumulation should distinguish the growth or persistence of the accumulated condition from its distribution, concentration, control, accessibility, conversion into power, and downstream generative effects. A change in one dimension does not by itself establish a corresponding change in the others.*

This proposition extends the accumulation–concentration distinction into governance. A policy can reduce concentration of ownership while leaving infrastructural control concentrated. A public institution can accumulate large resources while distributing access broadly. A decentralized network can accumulate systemic risk without a single controlling center. The governance object should therefore be specified before an evaluative conclusion is drawn.

16.13.6 Extraction

Chapter 14 used extraction for appropriation under asymmetry, distinct from dissipation and leakage. Governance of extraction concerns the rights, constraints, prices, duties, monitoring arrangements, return pathways, and source-condition protections through which appropriation from a generative process is organized. The object can be material, financial, ecological, relational, epistemic, attentional, temporal, or institutional.

Extraction governance requires care because appropriation is not analytically identical to illegitimate taking. Wages, taxes, rents, royalties, platform fees, interest, licensing payments, and resource use all redirect value-bearing conditions from one position to another. Their classification depends on the process boundary, the relevant asymmetry, contribution, rights, governance arrangement, and effects on source conditions. The descriptive concept of extraction can identify an asymmetric appropriation mechanism while normative analysis asks whether and under what terms it is justified.

A governance architecture can operate at several points. It can define rights to access or appropriate a resource. It can set prices, royalties, taxes, contribution rules, labor standards, data-use conditions, or ecological limits. It can require attribution,

consent, benefit sharing, community participation, restoration, or maintenance. It can establish audit and provenance rules that reveal where appropriation occurs. It can also provide contestation and exit mechanisms where source positions would otherwise lack practical alternatives.

The condition of the source is central. Extraction that preserves or regenerates source capacity differs from extraction that depletes the process on which later generation depends. Yet source preservation is not a complete justice criterion. A process can remain productive while burdens, authority, or returns are distributed objectionably. Conversely, temporary depletion can be compatible with justified emergency use or deliberate transition. Governance should therefore distinguish source sustainability, incidence, authorization, return, and justice.

Proposition 16.125 (Extraction-governance source condition)**.** *Where an extractive process depends on continuing material, ecological, relational, epistemic, or human source conditions, governance analysis should include the effects of appropriation on the reproduction, depletion, substitution, and practical agency of those source conditions, together with the incidence and return structure of the process.*

The proposition connects extraction to the next subsection without collapsing the concepts. Extraction can produce dissipation, but value can also dissipate without being appropriated by another position. Their governance mechanisms therefore overlap while remaining analytically distinct.

16.13.7 Dissipation

Dissipation concerns loss of usable organization, recoverable capacity, or economically relevant value-bearing condition within a stated boundary. Its governance includes prevention, maintenance, repair, redundancy, replenishment, recovery, loss acceptance, and the allocation of residual burdens. The first task is to state the boundary because what appears as dissipation in one process can become an input elsewhere. Waste heat, by-products, lost organizational knowledge, unused time, degraded infrastructure, ecological depletion, and administrative friction all require different representations.

Governance should also distinguish avoidable from accepted dissipation. Some loss is a consequence of uncertainty, experimentation, safety margins, redundancy, decay, or the physical characteristics of a process. Eliminating every loss can be more costly or more fragile than tolerating bounded dissipation. Research portfolios routinely contain unsuccessful projects; redundant infrastructure appears underutilized during ordinary periods; inventories can expire; organizational turnover can dissipate tacit knowledge while allowing renewal. The relevant governance question is therefore which losses should be prevented, buffered, recovered, redistributed, or accepted under the stated objective and risk structure.

Maintenance institutions are central where dissipation is cumulative. Deferred maintenance can preserve short-term budgets while accumulating infrastructural risk. Understaffing can produce hidden depletion of care, attention, or organizational memory. Ecological use can exceed regeneration without immediate financial evidence. Governance can make these processes visible through maintenance accounting, condition monitoring, reserve funds, lifecycle responsibility, recovery plans, and

allocation of stewardship duties.

Dissipation also has distributive incidence. One position can preserve output by transferring wear, pollution, time burden, stress, or repair responsibility elsewhere. Such displacement should not be recorded simply as reduced dissipation within the focal organization if the broader economic boundary remains relevant. Process governance therefore benefits from boundary sensitivity and from records that distinguish genuine reduction, displacement, recovery, and transformation.

Proposition 16.126 (Dissipation-governance boundary condition)**.** *A claim that governance has reduced economic dissipation should specify the analytical boundary and distinguish genuine preservation or recovery of relevant generative conditions from displacement of loss, burden, or maintenance responsibility to another position, scale, or period.*

This boundary condition also limits conservation metaphors. Some economic processes are well represented through material or financial balances; others involve knowledge, trust, capability, option space, or institutional legitimacy for which scalar conservation is inappropriate. Governance should follow the ontology and measurement properties of the process under study.

16.13.8 Structural Transformation

Chapter 15 defined structural transformation in generative spacetime as change in the architecture governing materially relevant relations, constraints, capacities, boundaries, degrees of freedom, transition rules, or admissible continuations. Governance of structural transformation therefore differs from governance of ordinary state variation. Its object is the authority and procedure through which the rules of subsequent economic generation can change.

Structural transformation can arise through legislation, technological change, collective organization, institutional redesign, infrastructure replacement, standard setting, ecological transition, market reorganization, or cumulative decentralized adaptation. Governance can act before transformation through authorization and experimentation; during transformation through sequencing, transition support, monitoring, and coordination; and after transformation through evaluation, repair, review, and possible reversal. The architecture can be centralized or distributed depending on the process.

Three problems deserve explicit attention. The first is *epistemic uncertainty*: structural consequences are often known incompletely before implementation. Pilot programmes, staged commitment, scenario analysis, plural evidence, and monitoring can preserve learning capacity. The second is *transition incidence*: even a transformation with favorable aggregate or long-run effects can impose concentrated short-run burdens. Compensation, retraining, portability, bridge financing, public provision, or negotiated transition can govern these effects. The third is *revisability*: transformation can create new lock-in that makes later correction difficult. Interoperability, sunset rules, modularity, preserved alternatives, and review authority can keep parts of the transition revisable.

Governance of structural transformation should also distinguish transformation

from improvement. A new degree of freedom, institution, technology, or market architecture can expand some possibilities while foreclosing others. Section 16.9 developed generative justice precisely because increased generativity is not a complete normative criterion. Structural governance should therefore make the changed possibility architecture visible while leaving its normative assessment explicit.

Definition 16.127 (Structural-transformation governance profile)**.** A *structural-transformation governance profile* records, at the scale and horizon relevant to an inquiry, the authority and process through which a structural change is initiated, the evidence and uncertainty informing it, the positions affected during transition, the safeguards and support available, the mechanisms of monitoring and contestation, and the conditions under which the transformed architecture can be revised, reversed, or further adapted.

Definition 16.127 prepares, without duplicating, later sections. Section 16.15 specializes governance where sensitivity and amplification near criticality make intervention unusually uncertain. Section 16.16 examines comparatively stabilized institutional architectures. Section 16.20 returns to adaptation and evolution as ongoing governance modes. The present subsection establishes only the process-level architecture of governing a change in the generative rule or structural record.

16.13.9 Value Transmission and Transfer

Chapter 14 distinguished transfer, transmission, and propagation. A transfer is a bounded reassignment or provision of a value-bearing object, right, claim, access condition, representation, or control position. Transmission concerns the relational process through which something value-bearing becomes available or effective elsewhere, potentially through intermediaries and transformation. Propagation extends the analysis to broader downstream reproduction and reach. Governance of value transmission and transfer therefore centers on the channels through which movement or effective availability occurs.

A transmission-governance analysis begins with positions and roles. The generator, source, sender, legal owner, intermediary, recipient, bearer of burden, maintainer, and downstream beneficiary can be different positions. One actor can also occupy several of these roles. Governance should avoid inferring contribution or entitlement from the formal sender-recipient pair alone. Provenance, contribution, authorization, mediation, and affected positions can each matter to the rules governing the episode.

Channels create further governance objects. Contractual terms can specify timing and conditions. Payment systems govern settlement and reversibility. Platforms govern visibility and matching. Professional institutions govern credential recognition. Data infrastructures govern access, copying, portability, and deletion. Language and documentation govern practical usability. Intellectual-property regimes govern reuse. Public law can establish mandatory transfer, disclosure, taxation, or benefit-sharing rules. These channel mechanisms can enable transmission while also creating gatekeeping or capture positions.

Transformation during transmission deserves separate visibility. Currency conversion, translation, certification, aggregation, filtering, ranking, anonymization, stan-

dardization, and copying can alter form, incidence, or practical value. Governance can require provenance preservation, disclosure of transformation, version records, error correction, quality standards, or auditability where these properties matter. Such requirements do not imply that the source and transmitted forms are commensurable or conserved.

Timing and reversibility also matter. Delayed transfers can alter practical incidence even when nominal amount is unchanged. Irreversible disclosure of information differs from reversible financial settlement. A temporary access grant differs from permanent transfer of control. Governance should therefore identify duration, revocability, copying rights, residual obligations, and post-transfer control where these materially affect the process.

Definition 16.128 (Transmission-governance profile)**.** A *transmission-governance profile* records the authority to initiate, condition, route, transform, delay, block, reverse, or contest a specified value transmission or transfer, together with the relevant source, recipient, intermediary, affected positions, value form, provenance, temporal conditions, and channel rules at the resolution required by the inquiry.

The profile is intentionally broader than transaction compliance. A transfer can satisfy formal rules while downstream transformation or intermediary control materially changes its incidence. Conversely, complex mediation can add verification, risk-bearing, translation, infrastructure, or coordination that makes transmission possible. Governance should therefore reconstruct mediation before classifying it as friction, contribution, or capture.

16.13.10 Transfer Incidence, Return, and Capture

The governance of a transfer does not end when the formal recipient receives the object. Chapter 14 showed that downstream incidence can include indirect benefit, burden, exclusion, maintenance, dependency, spillover, return, and capture. The final subsection therefore examines how governance can preserve visibility and accountability beyond the transfer boundary without assuming that every consequence is attributable to the transferor or governable by one institution.

Transfer incidence concerns the positions materially affected by the episode and its subsequent pathway. A public subsidy can alter prices faced by nonrecipients. A data transfer can affect people represented in the data. Infrastructure financing can create maintenance obligations for future administrations. A technology transfer can displace existing skills or create dependency on proprietary components. Governance can address such incidence through impact assessment, disclosure, monitoring, participatory review, benefit-sharing rules, portability, transition support, or ex post correction. The appropriate mechanism depends on causal proximity, foreseeability, scale, reversibility, and institutional capacity.

Return concerns value-bearing conditions that move toward contributors, source positions, public institutions, communities, ecological conditions, or the generative process itself. Return can be financial, material, epistemic, institutional, relational, participatory, or ecological. Governance can specify entitlement, share, timing, destination, collective control, stewardship, and reinvestment conditions. Yet a larger return is not automatically superior. Excessive extraction from recipients to satisfy a

return claim can weaken their capacities, while under-return can deplete source conditions or reproduce unpaid maintenance burdens. The relevant question concerns the relation among contribution, need, rights, source reproduction, downstream incidence, and the purpose of the process.

Capture concerns obtaining or controlling part of a value-bearing flow or its downstream returns in a manner analytically distinct from generation or necessary mediation. Capture remains descriptive before normative evaluation. Governance can make capture visible through attribution, accounting boundaries, audit, data access, provenance records, beneficial-ownership disclosure, price transparency, or review of intermediary terms. It can alter capture through competition, taxation, collective bargaining, platform rules, fiduciary duties, commons governance, benefit sharing, or limits on exclusivity. Which mechanism is appropriate depends on the form and location of capture.

Return and capture can coexist. An intermediary can contribute real coordination while retaining a share that later becomes contested. A public authority can collect tax as a return to publicly supported generative conditions while some of the same revenue is captured through corruption. A community can receive monetary return while losing control over knowledge or ecological conditions. A firm can return wages and training while externalizing maintenance burdens. Governance therefore needs a multidimensional account rather than a single net-transfer balance.

Proposition 16.129 (Transfer-boundary insufficiency)**.** *Where downstream incidence, return, maintenance burden, dependency, or capture materially changes the interpretation of a value transmission or transfer, governance analysis limited to the formal sender, recipient, and transferred object is insufficient for the stated research problem. The analytical boundary should expand to the affected positions and pathways required to represent those consequences.*

Proposition 16.129 establishes a scope rule rather than a demand for unlimited tracing. Every economic process has remote consequences that eventually become analytically irrelevant to a particular inquiry. The boundary should expand only as far as needed to preserve materially consequential incidence, provenance, and governance mechanisms.

Taken together, Sections 16.13.1–16.13.10 establish process governance as a complement to relational governance. Relations provide channels, authorities, obligations, and positions through which processes operate. Processes generate, transform, move, accumulate, deplete, or restructure the conditions that later relations inherit. Governance therefore needs both views. A lifecycle analysis of relations can miss process-specific conversion, propagation, accumulation, or dissipation; a process analysis can miss the authority and membership structures through which its rules are constituted.

The section also clarifies why governance of generative processes cannot be reduced to maximizing generativity. A process can be highly generative while concentrating power, manufacturing vulnerability, depleting source conditions, or foreclosing alternatives. A process can also be deliberately slowed, buffered, or constrained to preserve safety, ecological capacity, rights, plural values, or future revisability. The relevant governance problem is to make the process architecture, incidence, and

tradeoffs explicit enough for institutional and normative evaluation.

Section 16.14 narrows the next object to *constraints and capacities*. Those conditions cut across every process developed here: allocation changes capacity; propagation encounters constraints; conversion depends on interfaces; accumulation can create or concentrate capability; extraction and dissipation can deplete it; structural transformation can create new degrees of freedom. Governance of constraints and capacities therefore provides the next layer between process architecture and governance under heightened sensitivity near criticality.

16.14 Governance of Constraints and Capacities

Sections 16.12 and 16.13 developed governance at the level of relations and generative processes. This section examines a complementary layer: the conditions that delimit what economic positions can practically do and the supported abilities through which they can act, adapt, resist, coordinate, and transform. Chapter 12 defined an economic constraint as a condition that changes the feasible, accessible, timely, or sustainable set of actions or transformations available to a specified subject or configuration, and defined economic capacity as a historically situated ability to initiate, sustain, resist, coordinate, transform, or complete an economically consequential process under specified conditions. The present section does not redefine those objects. Its role is to develop the governance architecture through which constraints and capacities are formed, relaxed, protected, converted, distributed, activated, and made consequential over time.

The section proceeds through eight analytical functions: constraint formation, constraint relaxation, capacity formation, capacity protection, capacity conversion, unequal capacity, latent capacity, and capability asymmetry. The discussion is conceptual and governance-oriented. It draws on the resource–capacity distinction, the option-space and delayed-generation architecture developed earlier in the book, and the power and vulnerability analysis of this chapter. The governing concern is neither the elimination of constraint nor the maximization of capacity in the abstract. Constraints can coordinate, protect, stabilize, or exclude; capacities can support autonomy, care, adaptation, domination, or extraction. Governance therefore requires specification of the focal process, carrier, affected positions, temporal horizon, conversion conditions, and downstream relational consequences.

Definition 16.130 (Constraint–capacity governance architecture)**.** A *constraint–capacity governance architecture* is the organized configuration of rules, resources, permissions, infrastructures, maintenance arrangements, interfaces, monitoring practices, review procedures, and transition mechanisms through which specified economic constraints and capacities are formed, altered, preserved, activated, distributed, or converted across positions and time.

Definition 16.130 keeps the analytical object broader than a single policy instrument. A training programme can form capacity while licensing rules constrain exercise; a public guarantee can relax financial constraint while creating reporting obligations; interoperability standards can constrain technical design while expanding relational capacity; a reserve requirement can constrain immediate use of re-

Table 16.12: Governance functions for constraints and capacities in substantive GRE analysis.

Governance function	Primary analytical object	Questions requiring specification
Constraint formation	Creation, strengthening, institutionalization, or migration of conditions that narrow or reshape accessible action	Source, authority, mechanism, scope, affected positions, intended function, incidence, duration, reversibility, and possible enabling effects
Constraint relaxation	Reduction in force, scope, duration, enforcement, reach, or practical effect of an operative constraint	Which barrier is relaxed, for whom, by what mechanism, whether another constraint replaces it, and whether observed expansion reflects release or new capacity
Capacity formation	Generation of supported ability to perform or sustain an economically consequential process	Carrier, generated ability, enabling conditions, learning or organizational pathway, robustness, transferability, maintenance requirements, and time horizon
Capacity protection	Preservation of existing ability against depletion, interruption, obsolescence, concentration, or loss of support	Maintenance, redundancy, repair, portability, reserves, rights, succession, knowledge retention, and acceptable costs of preservation
Capacity conversion	Translation of an existing resource-supported ability into another domain, scale, relation, form, or effective action	Conversion interface, complements, losses, recognition, portability, authority, dependence, reversibility, and evidence of successful conversion
Unequal capacity	Distribution of effective ability across economically relevant positions	Which capacity differs, along which dimension, at what scale and horizon, with what causes, thresholds, dependencies, and distributive or power consequences
Latent capacity	Supported but presently unexercised or incompletely manifested ability	Evidential support, activation conditions, readiness, decay, maintenance, observability, trigger events, and relation to reserve or redundancy
Capability asymmetry	Relationally consequential difference in effective capacity between positions	Comparative domain, conversion conditions, strategic relevance, persistence, substitutability, reversibility, and whether the difference converts into dependence, power, or vulnerability

sources while protecting future resilience. Governance analysis should therefore record which capacity or constraint is being conditioned and which additional constraints or capacities are created through the same arrangement.

Table 16.12 summarizes the eight functions developed in this section.

Proposition 16.131 (Constraint–capacity non-duality)**.** *Within a specified economic process, constraint relaxation and capacity formation should be analyzed as distinct mechanisms unless the evidence establishes the pathway connecting them. A reduction in constraint can reveal an already supported capacity, generate a new capacity, redis-*

tribute capacity, transform the constraint, or combine these effects.

Proposition 16.131 prevents a recurrent attribution error. A sudden increase in activity after reform can reflect the release of previously constrained ability rather than newly generated competence. Conversely, a policy can remove a formal barrier while leaving practical capacity unchanged because complementary knowledge, infrastructure, time, legal standing, trust, or coordination remains absent. Governance evaluation therefore benefits from separating the condition governing accessibility from the ability that becomes exercisable under that condition.

16.14.1 Constraint Formation

Constraint formation concerns the processes through which conditions that shape feasible, accessible, timely, or sustainable action are created, strengthened, stabilized, or shifted into new carriers. Constraints can be deliberately designed, historically accumulated, technologically embedded, relationally reproduced, ecologically inherited, or produced unintentionally by arrangements serving another purpose. Governance analysis therefore begins with provenance and mechanism rather than assuming a single locus of authorship.

The formation of a constraint can occur through law, contract, technical design, standards, classification, infrastructure, financing terms, spatial organization, institutional routine, resource scarcity, organizational procedure, information architecture, or accumulated relational dependence. Some of these mechanisms are explicit. A licensing requirement or capital rule usually has identifiable formal authority. Others emerge through interaction. Network effects can make switching costly even when no actor formally prohibits exit. A documentation regime can become constraining through cumulative procedural layering. A technical ecosystem can narrow interoperability because many individually reasonable design choices become jointly path dependent.

Governance of constraint formation therefore requires at least six distinctions. *Source* identifies where the constraining condition originates. *authority* identifies who can establish or revise it when formal authority exists. *mechanism* identifies how the condition changes accessible action. *incidence* identifies which positions bear the constraint and with what distribution. *duration* identifies whether the condition is episodic, renewable, cumulative, or structurally persistent. *function* identifies what coordination, protection, stabilization, exclusion, rationing, or risk-management role the constraint is intended or observed to perform.

These distinctions matter because a constraint can have enabling effects. Safety standards can restrict immediate production methods while sustaining trust and reducing harmful failure. Budget constraints can narrow discretion while enabling credible planning. Professional standards can limit entry while supporting recognized competence. Environmental limits can reduce current extraction while protecting future ecological capacity. A governance analysis that records only the narrowed option set can therefore miss the relation through which the constraint protects another capacity or future condition.

The inverse problem is equally important. A constraint justified by one function can acquire broader reach than that function requires. Temporary emergency au-

thority can become routine. A technical compatibility rule can expand into exclusionary certification. Risk controls can become barriers to entry whose incidence falls mainly on smaller organizations. Procedural safeguards can accumulate into delays that make formal entitlement practically unusable. Constraint governance should therefore preserve the original purpose while allowing review of scope, proportionality, incidence, and later transformation.

Proposition 16.132 (Constraint-formation traceability)**.** *A governance claim concerning the formation of an economic constraint becomes more informative when it identifies the source, mechanism, affected action set, incidence, temporal profile, governing authority where applicable, and the capacity or condition that the constraint is intended or observed to protect, enable, or coordinate.*

Proposition 16.132 is a scope condition. It does not require every constraint to have a centralized designer or a beneficial function. It requires enough reconstruction to distinguish imposed restriction, emergent limitation, resource bottleneck, relational dependence, and protective boundary where those differences matter to governance.

16.14.2 Constraint Relaxation

Constraint relaxation concerns a reduction in the force, scope, duration, enforcement, reach, bypass cost, or practical effect of an operative constraint. Relaxation can occur through repeal, waiver, technological substitution, infrastructure provision, resource support, legal recognition, interoperability, collective action, improved information, changed norms, reclassification, or the appearance of credible alternatives. Governance of relaxation therefore concerns both the mechanism of opening and the conditions under which the opening becomes practically usable.

The first analytical requirement is to specify the constrained action or transition. Relaxing a licensing rule can expand occupational entry while leaving financing constraints unchanged. Removing a mobility restriction can expand geographical access while caregiving obligations continue to limit movement. Reducing monetary cost can leave documentation or language barriers intact. A broad statement that "constraints were reduced" therefore carries little governance content without identifying which constraint changed and which practical pathways became newly accessible.

The second requirement concerns substitution and migration. Constraint reduction in one layer can create or reveal a constraint in another. Digitization can remove travel requirements while increasing dependence on identity systems, devices, connectivity, or technical literacy. Decentralization can reduce central approval burdens while increasing coordination costs across local units. Open standards can reduce proprietary lock-in while creating certification or maintenance burdens. Relaxation should therefore be evaluated against the updated constraint profile rather than only against the disappearing barrier.

The third requirement concerns distribution. A nominal relaxation can benefit positions differently because complementary capacities, timing, geography, wealth, knowledge, or institutional standing differ. Simplified procedures can still be difficult to use for positions lacking documentation. New credit access can remain unusable where repayment schedules are incompatible with income timing. A relaxed rule can also intensify competition and weaken some positions even while aggregate access

expands. Governance therefore needs incidence analysis rather than an assumption that opening is uniformly enabling.

Constraint relaxation can reveal latent capacity. Where skills, infrastructure, organizational readiness, or relational competence already exist, removal of a barrier can generate rapid observable activity. In such cases the governance intervention changes access to exercise more directly than it changes the underlying capacity. This distinction matters for attribution, evaluation, and transferability. A reform that succeeds because substantial latent capacity was already present may perform differently in a setting where capacity itself remains absent.

Proposition 16.133 (Relaxation–expansion non-equivalence)**.** *A reduction in a specified constraint does not by itself establish a durable expansion of effective capacity or accessible possibility. Governance analysis should examine complementary constraints, conversion conditions, persistence of the relaxation, distribution of usability, and whether the observed change reflects release of latent capacity, new capacity formation, or both.*

Proposition 16.133 also guards against an automatic normative reading. Some constraints protect safety, rights, ecological conditions, collective coordination, or long-horizon capacity. Relaxation can therefore expand one set of actions while weakening another protected condition. The relevant governance question concerns the architecture of the tradeoff, the positions affected, and the possibility of redesigning the constraint rather than treating relaxation as a universal objective.

16.14.3 Capacity Formation

Capacity formation concerns the generation of a supported ability to initiate, sustain, resist, coordinate, transform, or complete an economically consequential process. The relevant carrier can be an individual, household, organization, institution, collective, infrastructure-supported network, or another relational configuration. Governance of capacity formation therefore concerns the conditions through which resources, learning, organization, recognition, infrastructure, authority, time, and relations become an exercisable ability.

Resource provision is one pathway, yet resource transfer and capacity formation remain distinct. Equipment without maintenance, finance without legal access, information without interpretive competence, formal authority without administrative capability, or training without opportunity for exercise can leave the intended capacity weak. Conversely, capacity can sometimes be generated through organizational learning, collective coordination, trust, standardization, or institutional recognition even when additional material resources are modest. Governance should therefore reconstruct the conversion pathway rather than infer capacity from input volume.

Capacity formation often has a sequential structure. Access can precede learning; learning can precede recognized competence; recognized competence can precede authority; authority can precede repeated exercise; repeated exercise can generate robustness. Other capacities require joint formation. A hospital's emergency capacity can depend simultaneously on staff, equipment, protocols, supply chains, financing, communication, authority, and public trust. A missing complement can keep the configuration below a practical threshold even when several components are individ-

ually strong.

Formation also has a temporal horizon. Some capacities are quickly generated and quickly lost. Others require long histories of practice, trust, infrastructure, professionalization, institutional memory, ecological regeneration, or intergenerational knowledge. Governance that evaluates only short-run output can therefore understate slow capacity formation or reward visible throughput at the expense of future ability. Chapter 15's analysis of delayed generation is especially relevant where the created capacity becomes observable only after later activation.

The capacity being formed should also be typed. Capacity for production differs from capacity for refusal, adaptation, interpretation, maintenance, repair, coordination, exit, or institutional revision. A programme that increases productive capacity while reducing independent exit or local maintenance competence can produce a mixed capacity profile. Aggregating these dimensions into a single capacity score can obscure which abilities have expanded and which have become more dependent.

Definition 16.134 (Capacity-formation pathway)**.** A *capacity-formation pathway* is a historically ordered set of enabling changes through which specified resources, relations, knowledge, infrastructures, permissions, routines, or other supporting conditions become an exercisable economic capacity for a stated carrier and process.

Proposition 16.135 (Capacity-formation conditionality)**.** *Evidence that enabling inputs were provided is insufficient to establish capacity formation where the conversion pathway remains materially incomplete. A capacity-formation claim should identify the supported ability, carrier, relevant enabling configuration, exercise conditions, and evidence that the capacity can be activated within the horizon of the claim.*

Definition 16.134 and Proposition 16.135 make governance evaluable at intermediate stages. A programme can succeed in improving access while remaining incomplete in learning, recognition, or practical exercise. That diagnosis is more informative than treating the entire intervention as either successful or unsuccessful.

16.14.4 Capacity Protection

Capacity protection concerns the governance of supported abilities that already exist but can weaken through depletion, interruption, obsolescence, concentration, loss of complementarity, institutional erosion, ecological degradation, or dependence on fragile infrastructure. Protection is therefore a maintenance problem as well as a rights, resource, knowledge, and organizational problem.

The first object is continuity of support. Physical infrastructure requires maintenance; software requires updates and security; professional competence often requires practice and continuing learning; organizations require succession and institutional memory; social relations require trust and repeated coordination; ecosystems can require regeneration; public capacities require stable finance, staffing, and legitimacy. A capacity can remain formally recognized while its supporting configuration erodes below practical usability.

The second object is robustness. A capacity that works only under narrow conditions can be less protective than one supported by redundancy, reserves, interoperability, diversified suppliers, distributed knowledge, backup authority, or alternative

pathways. Governance can therefore preserve capacity through mechanisms that appear inefficient under short-run utilization metrics. Spare infrastructure, reserve staffing, inventories, archives, drills, cross-training, and duplicated knowledge can function as protective capacity rather than waste when the relevant horizon includes disruption.

The third object is portability and independence. Capacity can persist in aggregate while becoming concentrated in one provider, platform, contractor, expert group, or jurisdiction. Such concentration can increase operational efficiency while reducing independent capacity elsewhere. Governance should therefore distinguish preservation of system-level output from preservation of distributed competence, local repair ability, bargaining capacity, or exit capacity where these are relevant to resilience and power.

Protection does not imply freezing the existing form. Some capacities are preserved through transformation. Technical competence can migrate to new tools; institutional memory can be preserved through documentation and succession; ecological capacity can require changing current production; professional standards can evolve while maintaining recognized competence. Capacity protection should therefore preserve the economically relevant ability or supporting function, with the level of form continuity determined by the inquiry.

Definition 16.136 (Capacity-protection profile)**.** A *capacity-protection profile* records the maintenance, repair, redundancy, reserve, renewal, portability, succession, knowledge-retention, institutional-support, and recovery conditions through which a specified economic capacity is expected to remain exercisable across the relevant disturbance range and temporal horizon.

Proposition 16.137 (Capacity-protection–form distinction)**.** *Protecting an economic capacity does not require preserving every existing organizational, technical, or institutional form through which that capacity was previously exercised. Governance should distinguish continuity of the relevant ability from continuity of its current carrier, interface, or implementation.*

Proposition 16.137 is important for later governance near criticality. A system can become fragile when protective policy defends an obsolete implementation while the underlying capacity could be maintained through adaptation. Conversely, rapid replacement can destroy accumulated knowledge, trust, or maintenance competence that the new form does not yet reproduce.

16.14.5 Capacity Conversion

Capacity conversion concerns the processes through which an existing ability becomes usable in another domain, scale, relation, organizational form, or practically consequential action. Earlier chapters emphasized that resources do not become capacities automatically because conversion conditions differ. The present governance problem extends that insight: capacities themselves can be difficult to transfer, scale, institutionalize, coordinate, or translate across contexts.

Several conversion patterns are analytically distinct. *Resource-to-capacity conversion* concerns whether resources become supported abilities. *Capacity-to-capacity*

conversion concerns whether one competence generates or supports another, such as technical expertise becoming organizational implementation capacity. *Capacity-to-action conversion* concerns whether an existing ability can actually be exercised under prevailing permissions, timing, access, and relational conditions. *Individual-to-collective conversion* concerns whether distributed personal abilities become coordinated capacity. *Local-to-institutional conversion* concerns whether successful local practice becomes reproducible in a larger or more formal architecture.

Governance enters through interfaces. Credentials can convert demonstrated competence into institutional recognition. Documentation can convert tacit practice into transferable organizational knowledge. Standards can convert local interoperability into broader compatibility. Legal authorization can convert technical ability into permissible action. Funding and administrative systems can convert collective knowledge into implementable programmes. Conversely, poor interfaces can trap capacity in one domain even when the underlying ability is substantial.

Conversion can involve loss. Scaling can reduce contextual sensitivity. Formalization can suppress tacit knowledge. Standardization can improve transferability while narrowing diversity. Automation can convert human competence into technical capacity while depleting independent human exercise. Centralization can convert dispersed capacity into organizational coordination while increasing dependence on one infrastructure. Governance should therefore record what is preserved, lost, concentrated, redistributed, or newly required during conversion.

Definition 16.138 (Capacity-conversion interface)**.** A *capacity-conversion governance interface* is the set of recognition rules, permissions, standards, complementary resources, coordination mechanisms, translation practices, and review arrangements through which a specified existing capacity becomes usable in another stated domain, scale, relation, form, or action context.

Proposition 16.139 (Conversion-bottleneck visibility)**.** *Where a supported capacity fails to become practically consequential, governance analysis should distinguish absence of capacity from a bottleneck in authorization, recognition, coordination, complementarity, portability, timing, or another conversion interface relevant to exercise.*

This distinction affects intervention design. Additional training may contribute little where the operative bottleneck is licensing, childcare, interoperability, organizational authority, or access to complementary infrastructure. Conversely, interface reform can reveal that a capacity previously described as absent was present but poorly convertible into recognized or effective action.

16.14.6 Unequal Capacity

Unequal capacity concerns differences in effective ability across economically relevant positions. Section 16.7 treated capability distribution as one dimension of the wider distributional profile. The present subsection focuses on governance of those differences: how they are identified, generated, protected, compensated, narrowed, widened, or made consequential in relations and processes.

Capacity inequality is multidimensional. Two firms can differ in financing capacity while possessing similar technical competence. Two workers can differ in bargaining

and exit capacity while having similar productive skill. Two regions can possess comparable infrastructure but differ in institutional capacity to maintain it. Two public agencies can have similar legal mandates while differing sharply in staffing, information, legitimacy, or coordination ability. Governance should therefore identify the focal capacity before assigning a general ranking.

Magnitude is only one dimension. The strategic significance of a capacity difference can depend on thresholds, scarcity, substitutability, timing, network position, and control over complements. A small difference in liquidity can become decisive during a short refinancing window. A narrow difference in expertise can become consequential when only one position can certify or interpret a critical system. A large difference in a capacity irrelevant to the focal process can have little immediate effect. Governance therefore needs process-relative rather than purely scalar comparison.

Unequal capacity can sometimes be functional. Specialized roles, delegated expertise, professional competence, emergency authority, and differentiated organizational functions can require unequal abilities or permissions. The governance question then concerns scope, accountability, accessibility, succession, dependence, and the possibility of countervailing or complementary capacity. Differentiation becomes especially consequential when one position's capacity allows it to define the conditions under which others can act, obtain recognition, or access alternatives.

The normative analysis also remains separate. Capacity equality is not a complete theory of justice, and capacity inequality does not establish injustice without additional claims about rights, needs, legitimacy, historical formation, vulnerability, contribution, participation, or future possibility. At the same time, severe capacity differences can become materially relevant to relational justice when they create domination, manufactured vulnerability, inability to contest decisions, or systematic foreclosure of future options.

Proposition 16.140 (Capacity-inequality scope condition)**.** *A governance claim about unequal capacity should specify the capacity domain, compared positions, relevant process, temporal horizon, conversion conditions, and mechanism through which the difference becomes economically consequential. The observed inequality alone does not determine its functional, power, or justice significance.*

Proposition 16.140 keeps the analysis compatible with the chapter's earlier distinctions among asymmetry, power, vulnerability, and justice. Capacity differences are inputs to those analyses rather than substitutes for them.

16.14.7 Latent Capacity

Latent capacity concerns a supported ability whose enabling configuration is substantially present while the ability is currently unexercised or incompletely manifested because activation conditions, demand, opportunity, or triggering events are absent. Chapter 8 developed this concept for generative inquiry. The governance problem concerns how such capacities are identified, maintained, activated, protected from decay, and distinguished from speculative possibility.

Latent capacity is common in systems designed for episodic use. Emergency-response networks, reserve infrastructure, legal authorities, mutual-aid relations,

scientific equipment, trained personnel, backup supply routes, institutional contingency plans, and retained technical competence can remain inactive for long periods. Low current utilization therefore provides weak evidence about their future usefulness. Governance that evaluates capacity solely through immediate throughput can unintentionally eliminate the redundancy needed under disruption.

Evidence remains essential. A merely imaginable future ability should not be treated as latent capacity. Governance decisions can look for retained infrastructure, trained personnel, tested procedures, records of prior exercise, credible rehearsal, maintained permissions, viable supply chains, institutional memory, or observable activation pathways. The required evidence depends on the consequence of relying on the capacity. A low-stakes reserve can tolerate greater uncertainty than an emergency capability on which lives or system continuity depend.

Maintenance is central because latency can conceal decay. Skills become obsolete, equipment degrades, relationships weaken, software dependencies change, institutional knowledge disappears, and formal authority can become practically unusable. Periodic testing, drills, rotation, documentation, replacement cycles, interoperability checks, and succession planning can make latent capacity governable even when full activation is rare.

Activation also requires governance. A latent capacity can be available yet remain unused because responsibility is unclear, triggers are poorly specified, information does not reach decision makers, or activation carries uncompensated risk. Conversely, premature activation can impose cost, deplete reserves, create false alarms, or crowd out routine functions. Governance should therefore specify activation authority, evidence thresholds, escalation paths, temporal windows, and post-activation replenishment where these are material.

Definition 16.141 (Latent-capacity governance profile)**.** A *latent-capacity governance profile* records the evidential support, maintenance state, activation conditions, trigger authority, expected delay, decay risk, replenishment requirements, and practical domain of a supported but presently unexercised economic capacity.

Proposition 16.142 (Latent-capacity visibility)**.** *Where governance relies on a capacity that is rarely exercised, current utilization should not serve as the sole proxy for availability. The governing architecture should preserve evidence of support, readiness, activation conditions, and decay at a resolution proportionate to the consequence of failure.*

The latent-capacity perspective also improves interpretation of reform. If a relaxed constraint produces rapid activity, the prior existence of latent capacity becomes one plausible mechanism. If activation remains slow, the missing element can lie in complementary resources, recognition, coordination, or confidence rather than in the focal skill itself.

16.14.8 Capability Asymmetry

Chapter 12 defined capability asymmetry as difference in what subjects or configurations can effectively do under their resources, relations, institutions, and histories. The concept can concern production, learning, coordination, interpretation, negotia-

tion, innovation, mobility, adaptation, resistance to interruption, or exit. The present subsection asks how governance should treat such asymmetry once it becomes relationally consequential.

Capability asymmetry is comparative and domain-specific. A platform can have strong computational, informational, and rule-setting capacity while users possess greater local contextual knowledge. A central government can have fiscal and legal capacity while local organizations possess stronger relational trust and situational knowledge. A large firm can possess financial reserves while a small specialist supplier controls critical technical knowledge. Governance should therefore avoid compressing heterogeneous capability vectors into one global ranking unless the research problem justifies that aggregation.

Asymmetry becomes especially important when one capacity conditions another position's access to action, recognition, information, timing, exit, or future options. This is the point at which Section 16.1's power analysis becomes relevant. Yet conversion into power remains contingent on mechanisms. A capacity advantage can remain unused, be constrained by law or norms, be offset by countervailing institutions, or depend on cooperation from the apparently weaker position. Capability asymmetry therefore provides evidence about possible conditioning capacity without establishing a durable power relation by itself.

Governance can respond through several architectures. It can build the weaker position's capacity through education, finance, infrastructure, collective organization, translation, or legal support. It can limit the stronger position's unilateral conversion of capacity into control through duties, review, interoperability, fiduciary rules, procedural safeguards, or countervailing authority. It can reduce dependence by expanding alternatives and portability. It can create complementary specialization where equalization would be inefficient or impossible. It can also preserve beneficial asymmetry while strengthening voice, contestability, succession, and safeguards against abuse.

A further issue is recursive asymmetry. Capacity advantages can generate later advantages through learning-by-doing, data accumulation, reputation, infrastructure, institutional recognition, or control over standards. Conversely, governance can create widening effects if requirements are easier for already-capable positions to satisfy. A formally uniform compliance rule can therefore increase capability asymmetry when fixed costs, legal expertise, or data systems differ substantially. Recursive effects should be distinguished from the initial capacity difference.

Proposition 16.143 (Capability-asymmetry governance condition)**.** *Where a capability asymmetry materially conditions another position's access, dependence, contestability, exit, or future option structure, governance analysis should examine both the underlying capacity difference and the mechanisms through which that difference is converted, limited, compensated, or reproduced. Capability asymmetry alone does not establish power or injustice.*

Proposition 16.144 (Recursive capability asymmetry)**.** *Where present capability differences alter learning, access to data, institutional recognition, standards, financing, participation, or other conditions of later capacity formation, governance of the present relation should include the resulting feedback into future capability distribution at the*

horizon relevant to the inquiry.

Taken together, Sections 16.14.1–16.14.8 establish constraints and capacities as coupled but non-identical governance objects. A constraint can protect capacity, reveal capacity, suppress capacity, or redirect it. A capacity can relax an existing constraint, generate new constraints for others, reproduce dependence, or widen the space of practical alternatives. Governance therefore benefits from tracing the full configuration rather than treating capacity expansion and constraint reduction as interchangeable measures of improvement.

The section also clarifies the boundary with the next analytical unit. Governance of constraints and capacities concerns the architecture of what positions can do and what conditions limit or support them. Near criticality, the same capacities and constraints can acquire heightened consequence because sensitivity, amplification, fluctuation, and reversibility change. Section 16.15 therefore turns to governance under such heightened sensitivity, where small interventions, delayed information, or apparently modest capacity differences can have disproportionately large effects on later trajectories.

16.15 Governance near Criticality

Sections 16.12–16.14 developed governance of relations, generative processes, constraints, and capacities under conditions in which the governing field can often be treated as sufficiently stable for local diagnosis and revision. The present section addresses a narrower class of situations in which that presumption becomes materially uncertain because one or more defensible representations indicate heightened sensitivity, amplified response, changing fluctuation structure, or increased accessibility of qualitative transition. Its role is to specialize the criticality methodology of Chapters 8 and 11 for substantive economic governance. Its objective is to identify how governance should change when small interventions, delayed information, capacity differences, or epistemic events can become disproportionately consequential while the criticality hypothesis itself remains model-relative and revisable. The discussion proceeds through sensitivity, amplification, fluctuation, early warning, reversible intervention, over-control, adaptive governance, limits of criticality governance, and epistemic-event amplification. The method combines the criticality concepts established in Section 8.15, the transition-sensitive decision architecture of Section 11.11, the intervention and reversibility architecture of Chapter 11, and the generative-spacetime treatment of intervention in Chapter 15.

Governance near criticality should therefore be read as a conditional governance architecture. A field that is volatile, contested, rapidly changing, or politically salient does not thereby satisfy a criticality hypothesis. Likewise, evidence of a near-critical regime does not determine whether the desirable response is stabilization, transformation, delay, acceleration, experimentation, protection, or ordinary continuation. The practical task is to make sensitivity and transition uncertainty visible enough that governance can remain proportionate to the consequences of being wrong.

Definition 16.145 (Near-critical governance profile)**.** A *near-critical governance profile* is a versioned record of the criticality hypothesis relevant to a governed economic

Table 16.13: Governance dimensions near a possible critical transition.

Dimension	Governance object	Questions requiring explicit treatment
Sensitivity	Response to a specified perturbation class	Perturbation, affected variables, comparison regime, scale, horizon, distribution of response, and evidence that sensitivity has changed
Amplification	Growth of downstream consequence through a pathway	Amplifying stage, mechanism, affected positions, cross-scale propagation, thresholds, feedback, and opportunities for interruption or buffering
Fluctuation	Changing variability around a prevailing regime	Baseline, measurement system, variance or persistence pattern, alternative explanations, local heterogeneity, and whether fluctuation changes the governing hypothesis
Early warning	Signals interpreted as transition-relevant evidence	Mechanism linkage, false-positive and false-negative costs, lead time, actionability, monitoring burden, performativity, and escalation rules
Reversible intervention	Commitment under transition uncertainty	Pilot envelope, reversibility reserve, rollback authority, residual effects, option preservation, decision gates, and decay of reversibility
Over-control	Governance whose stabilizing action changes the field adversely	Suppressed information, displaced fluctuation, dependence, hidden fragility, maintenance burden, induced transition risk, and loss of adaptive capacity
Adaptive governance	Revision of governance as field and evidence change	Monitoring cadence, update authority, model plurality, staged commitment, reauthorization, participation, and exit or rollback conditions
Limits	Boundary of legitimate criticality-based governance	Evidential threshold, scope, duration, burden, emergency normalization, rights, accountability, and conditions for returning to ordinary governance
Epistemic-event amplification	Signals, classifications, forecasts, or announcements that alter the governed field	Audience, credibility, coordination pathway, expectation effects, institutional uptake, differential exposure, and feedback into later evidence

field, the represented transition mechanisms and comparison regimes, the perturbations to which sensitivity is being assessed, the pathways through which effects can amplify, the fluctuation and early-warning evidence being monitored, the intervention and reversibility conditions, the distribution of transition consequences, the model disagreements, and the conditions under which the governing response should be revised, narrowed, suspended, or reauthorized.

Definition 16.145 makes the governance object broader than a statistical warning signal. The profile connects evidence to authority, intervention, distribution, and reopening conditions. It also preserves the possibility that the criticality hypothesis weakens over time. Governance can intensify when transition-sensitive evidence accumulates and can return to ordinary operating modes when the evidential basis no longer supports exceptional treatment.

Table 16.13 is a coupled profile whose required depth depends on the governed field. A bounded low-stakes intervention can require only a modest criticality record. A transition whose consequences are difficult to reverse, widely distributed, or institutionally deep can justify more demanding evidence, review, option preservation, and monitoring.

16.15.1 Sensitivity

Section 8.15 defined generative susceptibility as the degree to which a specified perturbation produces a consequential difference in subsequent state, trajectory, relational configuration, or option space. The governance problem begins when this response structure becomes materially relevant to intervention design. A governing action that is modest in resource magnitude can be large in consequence when the field is highly sensitive to the particular perturbation that the action constitutes.

Sensitivity remains perturbation-specific. An economy can be highly sensitive to liquidity withdrawal and relatively insensitive to a small tax change. A labor market can be sensitive to certification rules while remaining robust to modest wage variation. A platform ecosystem can be sensitive to ranking changes and less sensitive to a limited fee adjustment. Governance should therefore identify the relevant perturbation class and keep the sensitivity claim local to the scale and horizon supported by the evidence.

The comparison regime also matters. A claim of heightened sensitivity requires some basis for saying that response has become stronger, faster, more persistent, more widely distributed, or more likely to alter future accessibility than under an appropriate comparison. The comparison can be historical, cross-sectional, model-based, experimental, or reconstructed from repeated perturbations. The governing significance depends on whether the difference changes the consequences of contemplated action.

Sensitivity can be heterogeneous across positions. A policy can generate little aggregate movement while producing large effects for highly exposed households, small suppliers, local institutions, or actors located near a threshold. Aggregate robustness can therefore coexist with local near-criticality. Governance near criticality should preserve this distributional structure and avoid inferring system-wide safety from averaged response alone.

Proposition 16.146 (Sensitivity-specific governance)**.** *Where a criticality hypothesis materially affects governance, the relevant sensitivity claim should specify the perturbation class, comparison regime, scale, temporal horizon, affected positions, and response dimension through which heightened consequence is inferred. Evidence of sensitivity to one perturbation does not by itself justify extending the same governance response to other perturbations or scales.*

Proposition 16.146 keeps intervention proportional to the represented mechanism. It also supports plural governance responses within one field. Different perturbations can require different monitoring, buffering, authorization, or staging even when they concern the same institution or market.

16.15.2 Amplification

Sensitivity becomes especially consequential when an initially bounded difference is amplified through feedback, coordination, thresholds, institutional rules, network branching, or cross-scale coupling. Section 8.15 established generative amplification as a process in which downstream consequence increases through an identifiable mechanism. Governance adds a further question: where can amplification be observed, interrupted, buffered, redirected, or deliberately used?

A governing architecture can intervene at several points. It can reduce the initiating perturbation, weaken the coupling through which the perturbation travels, create buffers between stages, diversify dependence, slow propagation, protect highly exposed positions, or preserve a controlled pathway for beneficial amplification. The appropriate target depends on the mechanism. Direct suppression of the initial signal can be ineffective when amplification occurs later through institutional interpretation or coordinated expectation.

Amplification can also be desired. A small public guarantee can restore confidence across a wider network. A limited interoperability rule can unlock broad participation. A credible safety standard can coordinate many actors toward protective behavior. Governance near criticality therefore concerns direction and incidence as well as magnitude. The same amplification architecture can support rapid repair in one setting and cascade failure in another.

Cross-scale amplification requires particular care. A local event can become consequential because a higher-order relation translates it into system-wide change. A supplier failure can matter because procurement rules concentrate substitution authority. A local classification can scale through national eligibility rules. A forecast can become macroeconomically significant when financial institutions respond synchronously. Governance should identify the conversion point and distribute causal or generative attribution across the pathway supported by the evidence.

Proposition 16.147 (Amplification-governance localization)**.** *When amplification is materially relevant to a governance decision, the governing analysis should identify the stage at which effect magnitude grows, the mechanism producing that growth, the dimensions and positions in which amplification occurs, and the intervention points capable of altering the pathway without presuming that the initiating perturbation is the only effective target.*

The proposition extends the methodological localization requirement of Chapter 8 into governance. It also creates a basis for later institutional analysis because different stages of one amplification pathway can fall under different mandates, jurisdictions, or technical authorities.

16.15.3 Fluctuation

Fluctuation is the most visible and often the most easily overinterpreted feature of a changing system. Variance, intermittency, covariance, persistence, or unusual excursions can contain information about changing response structure, while similar patterns can arise from external forcing, measurement change, institutional conflict, seasonal effects, strategic behavior, or ordinary stochastic variation. Governance

therefore needs an interpretive architecture before fluctuation becomes a trigger for action.

The first task is to define the baseline. A rise in variability can be material relative to one historical period and ordinary relative to another. A policy system with deliberate experimentation can display greater local variance because adaptation is working. A rigid system can appear stable because disagreement and local failure are suppressed from measurement. The meaning of fluctuation depends on what is being observed and how the observation system relates to the underlying process.

The second task is to preserve heterogeneity. Aggregate variance can increase because all components become more volatile, because a small subset destabilizes, or because previously synchronized components begin to diverge. These structures have different governance implications. Localized instability can justify targeted support; rising covariance can signal common exposure; widening dispersion can indicate differentiated transition; intermittent switching can suggest competing regimes. Compressing these patterns into one volatility index can conceal the mechanism most relevant to intervention.

The third task is to resist automatic stabilization. Some fluctuation carries information, supports exploration, reveals suppressed conflict, or permits local adaptation before system-wide change. Immediate suppression can remove the observable signal while leaving the underlying mechanism intact. Governance should therefore ask whether the objective is to reduce harmful consequence, preserve diagnostic information, prevent cascade, support experimentation, or stabilize a specific function.

Proposition 16.148 (Fluctuation-interpretation condition)**.** *A fluctuation pattern should become a basis for criticality-sensitive governance only after the relevant baseline, measurement architecture, scale, alternative explanations, and connection to a specified transition mechanism have been made explicit at a depth proportionate to the contemplated intervention.*

Proposition 16.148 does not require complete causal identification before action. Urgent situations can justify precaution under uncertainty. It requires the governance record to preserve the distinction between observed fluctuation, a criticality interpretation of that fluctuation, and the practical reason for intervening before the interpretation is settled.

16.15.4 Early Warning

Chapter 8 defined an early-warning indicator as an observable pattern hypothesized to provide information about increasing accessibility or probability of a specified transition before the transition is observed. Governance begins where that information is linked to monitoring, escalation, commitment, or protection. The governing problem is therefore broader than predictive accuracy. It includes the cost of acting, the cost of waiting, the distribution of errors, the available lead time, and the possibility that the warning itself changes behavior.

An early-warning system should distinguish signal from decision threshold. The same indicator can justify intensified observation at one level, preparatory capacity at another, reversible intervention at a higher level, and emergency action only un-

der stronger evidence. This layered architecture reduces pressure to convert every warning into a binary decision. It also permits governance to preserve readiness while additional evidence is gathered.

False positives and false negatives are distributed. A false positive can impose compliance costs, restrict access, trigger panic, stigmatize a region or population, or divert scarce protective resources. A false negative can delay evacuation, liquidity support, infrastructure repair, or institutional response. Governance should therefore record whose losses enter the error model and whose do not. An indicator calibrated to aggregate loss can remain unjustly insensitive to severe local consequences.

Lead time is equally important. An accurate indicator that becomes informative only after meaningful intervention options have closed can have limited governance value. Conversely, a weak but early signal can justify maintaining latent capacity or reversibility reserve without justifying large-scale intervention. Actionability depends on the relation between signal timing and the event order required for protection.

Proposition 16.149 (Early-warning action separation)**.** *A criticality-sensitive warning architecture should distinguish the evidential status of an indicator from the actions attached to it. Escalation rules should state the transition hypothesis, error consequences, lead-time requirements, reversible preparatory actions, stronger commitment thresholds, and conditions for de-escalation or withdrawal.*

This proposition complements the early-warning architecture of Section 8.15. Governance adds the institutional question of who is authorized to interpret a warning, who can escalate or de-escalate response, and how those decisions remain reviewable after the signal has passed.

16.15.5 Reversible Intervention

Critical-transition uncertainty can increase the value of reversible intervention because the field can reveal new information after action begins and because the intervention itself can alter transition accessibility. Chapter 11 developed reversible experimentation, reversibility reserves, rollback architecture, and transition-sensitive option profiles. The present subsection specializes those resources for governance near criticality.

Material reversibility depends on recoverable infrastructure, capacities, authority, records, alternatives, and relational conditions. Legal authority to withdraw a measure can coexist with sunk investment, new dependencies, coordinated expectations, displaced capabilities, migrated data structures, or institutional reorganization. A governance design should therefore distinguish withdrawal of the focal intervention from restoration of the earlier configuration.

Reversible intervention can be staged through bounded scale, limited duration, modular deployment, parallel systems, temporary authorization, contingent financing, preserved fallback infrastructure, or pre-specified review gates. These devices can create learning while limiting exposure. Their usefulness depends on whether delay itself is tolerable. When a harmful transition is approaching rapidly, excessive staging can close the remaining window for effective protection.

The reversibility reserve developed in Chapter 11 is especially important near criticality because reversibility can decay nonlinearly. Once a threshold is crossed, the resources required for return can increase sharply or a previously accessible return path can disappear. Governance should therefore monitor the reserve itself and reassess whether the assumed return pathway remains practically accessible as implementation proceeds.

Definition 16.150 (Near-critical reversible-intervention envelope)**.** A *near-critical reversible-intervention envelope* specifies the permitted scale, duration, depth, affected positions, transition hypotheses, monitoring signals, reversibility reserve, rollback authority, residual effects, option-preservation requirements, and decision gates within which an intervention can proceed while its criticality-relevant consequences remain under review.

Proposition 16.151 (Reversibility-decay condition)**.** *Where the feasibility or cost of rollback can deteriorate as a transition approaches or as implementation deepens, governance should monitor reversibility as a changing capacity and should reopen authorization before the relevant reserve is consumed or the assumed return pathway becomes materially less accessible.*

Definition 16.150 and Proposition 16.151 keep reversibility inside the lifecycle of intervention. They also prevent reversible design from becoming a justification for experimentation whose practical residues have not been considered.

16.15.6 Over-Control

Near criticality, heightened sensitivity can encourage increasingly forceful attempts to suppress fluctuation, constrain local deviation, or hold a system within its prevailing regime. Such intervention can be justified in some settings. It can also create a distinctive governance failure when stabilization removes information, concentrates dependence, displaces disturbance, consumes latent capacity, or prevents local adaptation while leaving the underlying transition mechanism intact.

The term *over-control* is analytically neutral about the preferred intensity of governance. A tightly governed air-traffic system, payment network, hospital, or emergency-response infrastructure can require strong control because failure costs are high. Over-control arises when the control architecture exceeds what is justified by the function and evidence in ways that materially degrade observation, adaptability, distributed capacity, or recovery.

One mechanism is signal suppression. If reporting local failure is costly, organizations can stabilize measured indicators by discouraging disclosure. If performance targets penalize variance mechanically, local units can narrow experimentation or reclassify problems. The visible field becomes smoother while unobserved strain accumulates. Criticality diagnosis then becomes harder precisely because governance has altered the observation process.

A second mechanism is displaced fluctuation. Central suppression of one pathway can move pressure into less monitored channels. Credit restrictions can shift borrowing into opaque markets. Supply quotas can shift scarcity into informal access mechanisms. Strict platform moderation can move coordination outside the observable

system. Governance needs boundary-sensitive monitoring to determine whether apparent stabilization reflects genuine reduction of transition risk or relocation of the relevant process.

A third mechanism is erosion of adaptive capacity. Redundancy, local discretion, slack, experimentation, and heterogeneous response can look inefficient during ordinary operation while providing capacity for adjustment under stress. Eliminating these features can increase short-run uniformity and reduce long-run resilience. Section 16.14 therefore matters directly: latent capacity and constraint architecture can be altered by the very measures intended to stabilize the system.

Definition 16.152 (Criticality-relevant over-control)**.** *Criticality-relevant over-control* is a governance condition in which measures intended to stabilize a field materially reduce the observability, adaptive capacity, redundancy, reversibility, or distributed problem-solving needed to manage the relevant transition uncertainty, or displace criticality-relevant processes beyond the governing boundary, without a correspondingly justified reduction in transition consequence.

The definition is deliberately conditional. Strong control can remain justified when it protects essential function and preserves adequate observation, accountability, and adaptation. The analytical task is to compare the generated consequences of stabilization across control architectures, including centralized and distributed arrangements.

16.15.7 Adaptive Governance

Adaptive governance near criticality concerns revision of governing action as the field, evidence, model set, and option structure change. Chapter 11 developed adaptive decision-making and feedback-based revision as general methods. The present problem is narrower: how should governance update when the response regime itself can change and when the act of monitoring or intervening can contribute to that change?

The first requirement is versioned diagnosis. A governance record should preserve which criticality hypothesis, models, observations, and comparison regimes justified each stage of action. Later evidence can then reveal whether the response changed because the system evolved, the model was revised, the intervention altered the field, or the observation system changed. Without versioning, adaptation can become untraceable policy drift.

The second requirement is plural update authority. A single technical model can fail locally while frontline institutions, affected communities, market participants, or maintenance organizations observe transition-relevant change earlier. This does not mean that every observation should carry equal epistemic weight. It means that the governance architecture should have channels through which heterogeneous evidence can reach the bodies authorized to reassess the criticality hypothesis.

The third requirement is staged reauthorization. A decision that was proportionate at one level of evidence can become excessive or insufficient after conditions change. Adaptive governance should therefore connect monitoring to pre-specified or newly recognized points at which authority, scale, duration, or intervention depth

must be reconsidered. Reauthorization is particularly important when temporary emergency arrangements begin to create durable institutions or dependencies.

Definition 16.153 (Adaptive criticality governance)**.** *Adaptive criticality governance* is a versioned arrangement through which criticality hypotheses, monitoring evidence, intervention scale, protective capacity, reversibility, model disagreement, and authorization are periodically or event-conditionally reassessed as the governed field changes.

Proposition 16.154 (Adaptive reauthorization)**.** *Where near-critical governance materially changes rights, burdens, access, institutional authority, or future option structure, adaptation of the governing response should include proportionate reauthorization and review. Technical updating of models or thresholds forms one component of that broader governance process.*

Proposition 16.154 preserves the boundary between epistemic updating and legitimate authority. Better prediction can improve governance without by itself resolving who should bear the consequences of adaptive change.

16.15.8 Limits of Criticality Governance

Criticality governance has several intrinsic limits. The first is epistemic. Near-criticality is model-relative, scale-relative, perturbation-specific, and historically revisable. A governance system that treats the diagnosis as settled can convert a provisional analytical hypothesis into an institutional fact whose consequences persist after the evidence weakens.

The second limit concerns scope. Transition-sensitive governance can require concentrated attention, rapid coordination, additional monitoring, or temporary restrictions. These measures can create strong incentives for jurisdictional expansion. A transition hypothesis concerning one subsystem can gradually become a reason to govern unrelated domains under the same exceptional architecture. Scope should therefore remain tied to the represented mechanism and the positions materially implicated by it.

The third limit concerns duration. Temporary crisis arrangements can produce organizations, data infrastructures, procurement systems, classifications, and authority relations that acquire constituencies and sunk costs. The disappearance of the original criticality signal does not automatically dissolve those structures. Sunset, review, and de-escalation mechanisms therefore belong to the governance architecture when exceptional measures are used.

The fourth limit is normative. Criticality analysis can identify heightened sensitivity, changing transition accessibility, or nonlinear consequence. It cannot determine which regime is just, whose losses should be accepted, whether transformation is preferable to stabilization, or which rights can legitimately be constrained. Those judgments require the relational, generative, and historical justice analysis developed in Sections 16.8–16.11.

The fifth limit is strategic and reflexive. Actors can have incentives to exaggerate, suppress, or selectively frame criticality claims. Declaring a system near collapse can justify resource transfer or emergency authority. Denying transition risk can protect

incumbent arrangements. Governance therefore needs provenance for the criticality claim and institutional separation, where feasible, between evidence production and actors who benefit directly from escalation or de-escalation.

Proposition 16.155 (Criticality-governance boundary)**.** *Exceptional governance justified by a criticality hypothesis should remain bounded by the evidential scope, scale, duration, affected positions, and transition mechanism that make the hypothesis practically relevant, with explicit review of rights, burdens, authority, and the conditions for de-escalation or return to ordinary governance.*

This boundary condition also protects methodological humility. A criticality lens can be highly informative in some domains while ordinary institutional analysis, historical explanation, market adjustment, or gradual structural change provides a better account in others.

16.15.9 Epistemic-Event Amplification near Criticality

Chapter 15 treated epistemic events as events whose primary contribution is to alter the represented or warranted state through observation, classification, measurement, interpretation, or judgment. Such events can also enter the practical field when actors respond to them. Near criticality, this coupling can become especially consequential because a modest informational event can be amplified through expectation, coordination, institutional rule, or strategic response.

Examples include a credit downgrade, public-health classification, bank stress announcement, regulatory warning, election-related market signal, scientific forecast, platform safety notice, court judgment, or official declaration of shortage. The epistemic content can alter beliefs; the institutional status of the event can alter permissions or duties; and coordinated response can change the field that the event described. The resulting effect can stabilize the system, destabilize it, or move it toward another regime.

Governance should therefore distinguish at least four layers. The first is the evidential content of the event: what observation, model, or judgment supports it. The second is the communication architecture: who receives the event, when, and in what form. The third is the response mechanism: how expectations, legal rules, algorithms, contracts, or collective behavior translate the signal into action. The fourth is the recursive effect: how the resulting action changes later evidence and the subsequent criticality diagnosis.

The same informational content can have different consequences depending on authority and audience. A confidential supervisory warning can trigger targeted preparation; a public warning can coordinate protective action; the same public warning can also accelerate withdrawal, hoarding, or migration. Secrecy can reduce immediate amplification while weakening accountability or delaying distributed preparation. Disclosure can increase transparency while creating a coordination shock. Governance therefore cannot infer an optimal communication rule from criticality alone.

Definition 16.156 (Epistemic-event amplification profile)**.** An *epistemic-event amplification profile* records the evidential basis, institutional authority, audience, timing, communication pathway, expected behavioral and rule-mediated responses, distri-

bution of exposure, potential amplification mechanisms, feedback into later observations, and revision or correction procedures associated with an epistemic event in a transition-sensitive field.

Proposition 16.157 (Epistemic-event criticality coupling)**.** *Where an epistemic event can materially alter the practical accessibility or probability of the transition it is intended to describe, governance should evaluate the event both as evidence and as a possible intervention, while preserving the distinction between the informational content of the event and the consequences generated by its communication and institutional uptake.*

Proposition 16.157 prevents a self-affecting warning from being evaluated solely as a forecast. A warning can be predictively inaccurate because it successfully induced protective action, or apparently accurate because it helped coordinate the transition it anticipated. The evaluation record should separate these possibilities where evidence permits.

Taken together, Sections 16.15.1–16.15.9 establish governance near criticality as a conditional and revisable architecture for fields in which response structure may be changing. Sensitivity identifies perturbation-specific consequence; amplification locates growth in downstream effect; fluctuation provides diagnostically ambiguous evidence; early warning connects evidence to prospective action; reversibility and option preservation discipline commitment; over-control identifies stabilization failures that can destroy information or capacity; adaptive governance connects monitoring to reauthorization; boundary conditions limit exceptional governance; and epistemic-event analysis captures reflexive amplification through knowledge and communication.

The section also clarifies the transition to institutional governance. Criticality-sensitive governance requires mandates, rules, authority, accountability, learning, adaptation, succession, and exit arrangements through which monitoring and intervention become collectively actionable. Section 16.16 therefore turns from the dynamics of near-critical governance to the institutional architectures that authorize, constrain, learn from, and revise economic governance more generally.

16.16 Institutional Governance

Sections 16.12–16.15 developed governance at the levels of relations, generative processes, constraints and capacities, and near-critical dynamics. The present section specifies the institutional architecture through which such governance can acquire continuity, recognized competence, memory, review, and revisability. Its role is to connect the book's earlier account of institutions as relational infrastructure in Section 12.12 with the substantive governance problems developed in this chapter. The objective is to identify the institutional components through which governance becomes collectively actionable across time while preserving the distinctions among institution, organization, rule, authority, accountability, learning, and adaptation. The discussion proceeds through mandates, rules, authority, accountability, learning, adaptation, institutional evolution, and institutional exit. The method is relational and historical. Institutional governance is analyzed through the mechanisms that au-

thorize, constrain, record, revise, and terminate governing activity, without treating institutional continuity as evidence of effectiveness or legitimacy by itself.

Section 12.12 defined *institutional relational infrastructure* as a comparatively stabilized configuration of rules, norms, recognized positions, classifications, procedures, expectations, records, enforcement capacities, and interpretive practices. That definition remains authoritative here. The present section adds a governance-specific representation. The distinction matters because an institutional configuration can organize economic relations without being designed primarily as a governing body, while governance can also occur through temporary, distributed, or cross-institutional arrangements whose components are carried by several organizations.

The institutional literature provides several complementary resources for this analysis. North emphasizes institutions as historically consequential rules and constraints that structure interaction (North 1990). Ostrom shows that rules in use, monitoring, collective-choice arrangements, and layered governance can differ substantially from simplified formal descriptions (Ostrom 2005). Nelson and Winter emphasize routines, search, retention, and organizational change in evolutionary processes (Nelson and Winter 1982). Contemporary public-governance frameworks further emphasize evaluation, evidence use, learning, and revision across policy cycles (OECD 2020b; OECD 2020a). GRE uses these resources as compatible analytical inputs while retaining its own distinction between descriptive institutional structure, causal institutional effect, and normative evaluation.

Definition 16.158 (Institutional-governance architecture)**.** For a specified domain and time horizon, an *institutional-governance architecture* is the comparatively stabilized configuration of mandates, rules, recognized authority, accountability pathways, records, learning mechanisms, adaptation procedures, succession arrangements, and exit or replacement provisions through which governance is authorized, enacted, reviewed, revised, and carried across events.

Definition 16.158 does not imply that every component is centralized or formally codified. A mandate can be distributed across several bodies; rules can combine statutes, standards, contractual provisions, and rules in use; authority can be delegated or shared; accountability can operate through several forums; learning can depend on local observation; and institutional exit can involve gradual replacement instead of formal dissolution. The analytical requirement is to identify which components materially organize the governing relation and how they interact.

Table 16.14 summarizes the principal functions developed below. The rows are analytically distinguishable while frequently overlapping in practice.

Proposition 16.159 (Institution–governance non-equivalence)**.** *The existence of an institution does not by itself establish the existence, scope, effectiveness, or legitimacy of a corresponding governance capacity. Institutional-governance analysis therefore requires identification of the mechanisms through which institutional infrastructure becomes practically consequential for governing action.*

Proposition 16.159 complements the institution–organization distinction established in Proposition 12.47. A ministry can exist while lacking practical capacity to implement its statutory mandate; a professional norm can govern conduct without a

Table 16.14: Institutional-governance functions in substantive GRE analysis.

Function	Primary governance object	Characteristic analytical questions
Mandate	Purpose, domain, jurisdiction, duration, delegated task	What is the institution authorized to govern, for whom, over which horizon, and under which conditions?
Rules	Conduct, procedure, eligibility, interpretation, revision	Which formal and informal rules structure action, and who can interpret or modify them?
Authority	Recognized competence to decide, interpret, allocate, direct, or sanction	Where is decision competence located, delegated, shared, constrained, or contested?
Accountability	Answerability, review, correction, sanction, remedy	To whom must reasons be given, what can be reviewed, and what consequences can follow?
Learning	Evidence uptake, memory, error recognition, model revision	How does the institution change what it knows or treats as warranted?
Adaptation	Revision of rules, procedures, roles, resources, or timing	How can governance change when conditions change, and who authorizes the change?
Evolution	Longer-horizon transformation of institutional architecture	Which components persist, vary, recombine, or disappear across institutional history?
Exit	Sunset, replacement, transfer, deactivation, residual obligations	How can an institutional arrangement cease, and what remains after its governing role ends?

centralized organization; a technical standard can condition market access through procurement and interoperability; and a temporary coordination arrangement can exercise significant governance without becoming a durable institution. Institutional status and governing effect therefore remain separate objects of inquiry.

16.16.1 Mandates

A mandate specifies the purpose, domain, jurisdiction, population, temporal scope, or task for which an institutional position or arrangement is recognized as competent to act. Mandates can arise through law, organizational constitutions, contracts, delegation, professional standards, treaties, collective agreement, customary recognition, or other institutional sources. Their governance importance lies in delimiting what an institution is expected or authorized to do and in creating a reference against which later action can be interpreted and reviewed.

Mandate analysis should distinguish at least five dimensions. The first is *purpose*: the problem, function, or public or organizational objective for which the institution exists. The second is *scope*: the subjects, activities, territories, resources, or relations within the mandate. The third is *competence*: the kinds of action the institution may undertake. The fourth is *duration*: whether the mandate is continuing, periodic, conditional, or temporary. The fifth is *revision*: who may expand, narrow, renew, reinterpret, or terminate the mandate.

Mandates can overlap. A financial regulator, competition authority, court, ministry, standards body, local government, and platform governance team can each possess partially overlapping competence over the same economic relation. Over-

lap can provide redundancy and review. It can also generate conflict, delay, forum selection, or gaps in responsibility. The relevant question is therefore not whether a single mandate is formally clear in isolation, but how mandates compose within the institutional field.

Mandate expansion requires particular attention in the settings developed in Section 16.15. Temporary criticality-sensitive authority can create data systems, emergency procedures, procurement relations, and organizational capacities that persist after the original condition weakens. Institutional governance should make the pathway of continuation visible instead of allowing temporary competence to become durable through administrative inertia alone.

Definition 16.160 (Institutional mandate profile)**.** An *institutional mandate profile* records the mandate's recognized source, purpose, domain, affected positions, authorized competences, temporal scope, resource basis, interaction with neighboring mandates, review conditions, and procedures for renewal, revision, or termination.

Proposition 16.161 (Mandate–capacity non-equivalence)**.** *A recognized mandate and the practical capacity to discharge that mandate are analytically separable. Governance analysis should therefore examine both the authorization to act and the resources, information, capabilities, access, coordination, and institutional support required for effective action.*

This distinction prevents a formal mandate from being treated as evidence of implementation. It also prevents weak implementation from being interpreted automatically as absence of authorization. The source of the gap can lie in resource scarcity, legal constraint, coordination failure, missing information, conflicting mandates, political contestation, technical limits, or deliberate under-enforcement.

16.16.2 Rules

Rules translate mandates into recurring conditions of action. They specify permissions, prohibitions, eligibility, procedures, thresholds, reporting requirements, decision sequences, interpretive standards, sanctions, and revision pathways. Section 12.12 already distinguished formal rules from informal rules and emphasized the difference between documented rule text and enacted practice. Institutional governance adds the question of how rules themselves are authorized, interpreted, monitored, revised, and coordinated across levels.

Formal rules can increase predictability by specifying who may decide and under which conditions. Informal rules can supply flexibility where codified procedures are incomplete. Either form can also generate opacity when participants cannot identify which rule actually governs practice. The distinction between rule on paper and rule in use is therefore not a secondary implementation issue. It can determine access, burden, timing, and the practical distribution of authority.

Rules can operate at several orders. First-order rules regulate conduct or access. Second-order rules specify who may interpret, modify, suspend, review, or replace first-order rules. Higher-order arrangements can govern constitutional or jurisdictional change. This layered structure is important because the practical rigidity of an institution depends partly on how difficult it is to revise the rules through which

ordinary decisions are made.

Rule revision also carries incidence. A procedural simplification can lower access costs for one group while weakening safeguards for another. A stricter reporting rule can improve observability while increasing administrative burden. A standardized classification can support coordination while obscuring heterogeneous cases. Institutional-governance analysis should therefore trace both the intended function of rule change and its effects across differently positioned participants.

Definition 16.162 (Institutional rule-governance profile)**.** An *institutional rule-governance profile* records the source, object, scope, interpretation pathway, implementation mechanism, monitoring arrangement, exception structure, revision competence, contestability, temporal validity, and relation between documented rule and recurrent practice for a specified institutional rule or rule set.

Proposition 16.163 (Rule-governance recursion)**.** *Where rules determine how other rules are interpreted, modified, suspended, or reviewed, institutional governance is recursive. Analysis should identify the relevant rule order and the authority through which revision at that order becomes possible.*

The proposition does not require an infinite hierarchy. Institutions commonly stabilize recursion through constitutions, statutes, delegated rulemaking, judicial review, bylaws, collective-choice procedures, or recognized conventions. The analytical task is to identify where practical revision authority terminates for the inquiry and which external relations can still alter that boundary.

16.16.3 Authority

Authority concerns recognized competence to decide, interpret, allocate, direct, certify, license, adjudicate, sanction, or otherwise make institutionally consequential determinations. Chapter 7 defined an institutional authority pathway as the positions through which a decision or directive is authorized, interpreted, communicated, implemented, reviewed, and potentially contested. The present subsection uses that methodological object substantively.

Formal authority can derive from office, law, contract, organizational delegation, professional status, or collective agreement. Effective authority depends on whether decisions are recognized and can be implemented. The two can diverge. An office can possess legal competence but weak implementation capacity; an informal coordinator can strongly shape decisions without formal power to issue commands; a technical standard can become effectively authoritative because access to infrastructure or procurement depends on it.

Authority can be concentrated or distributed. Distribution can separate standard setting, evidence production, enforcement, adjudication, and appeal. Such separation can reduce some conflicts of interest and create review capacity. It can also generate coordination costs and fragmented responsibility. The effects depend on how functions are linked, what information crosses institutional boundaries, and whether participants can identify which position is responsible for a consequential decision.

Delegation creates another layer. A legislature can delegate rulemaking to an agency; an organization can delegate decisions to committees or algorithms; a pro-

fessional body can delegate certification to accredited assessors. Delegation can increase specialization and responsiveness. It can also widen the distance between the source of authority and the position experiencing its consequences. Governance therefore requires traceability across the delegation chain.

Definition 16.164 (Institutional authority configuration)**.** An *institutional authority configuration* records the recognized sources of competence, authorized decision objects, delegation relations, interpretive discretion, implementation capacities, review pathways, overlapping authorities, and practical conditions under which institutional decisions become consequential.

Proposition 16.165 (Authority–effect non-equivalence)**.** *Formal institutional authority does not by itself establish effective control over the governed field, and observed institutional effect does not by itself establish formal authority. Attribution should identify the mechanism connecting recognized competence, implementation, response, and downstream consequence.*

This distinction is particularly important for power analysis. Authority can become one carrier of institutional power when it conditions others' feasible actions or trajectories through the mechanisms developed in Sections 16.1–16.5. Authority can also remain weak, constrained, or counterbalanced. Institutional office should therefore not be treated as a direct synonym for power.

16.16.4 Accountability

Accountability organizes the relations through which institutional action can be questioned, explained, evaluated, corrected, sanctioned, or remedied. It is closely connected to transparency and review while remaining distinct from both. Transparency can make information visible without providing anyone with standing or capacity to act on it. Review can reconsider a decision without creating responsibility for explanation, correction, or consequence. Accountability requires a relation between an accountable position, a forum or affected position, an object of account, and a response pathway.

Institutional accountability can operate through political, legal, administrative, professional, financial, organizational, participatory, or technical channels. A public agency can face legislative oversight, judicial review, audit, ombuds procedures, public reporting, professional norms, and electoral accountability. A firm can face boards, shareholders, regulators, contractual partners, workers, courts, professional bodies, and market discipline. These channels can reinforce one another or create conflicting demands.

The object of accountability also matters. Outcome accountability asks whether specified results were achieved. Process accountability asks whether recognized procedures were followed. Relational accountability asks how affected positions were recognized, heard, burdened, or provided with remedy. Epistemic accountability asks whether evidence, assumptions, uncertainty, and model revision were handled responsibly. Historical accountability can examine the reproduction of effects across time. A single institutional arrangement can require several of these objects simultaneously.

Definition 16.166 (Institutional accountability pathway)**.** An *institutional accountability pathway* links a specified institutional action or omission to the position expected to give an account, the forum or affected position entitled to receive or request that account, the evidential record, the evaluative standard, and the available consequences, including correction, review, remedy, sanction, or institutional revision.

Proposition 16.167 (Accountability actionability)**.** *Information disclosure contributes to institutional accountability when the governance architecture also provides an actionable pathway through which relevant information can be interpreted, questioned, reviewed, or connected to correction, remedy, sanction, or revision appropriate to the institutional context.*

Proposition 16.167 does not imply that every disclosure requires punitive consequence. Learning-oriented systems can distinguish error, negligence, misconduct, unavoidable uncertainty, and reasonable decisions that produced unfavorable outcomes. The relevant point is that accountability should connect evidence to an institutional response rather than ending at publication alone.

16.16.5 Learning

Institutional learning concerns change in what an institution can observe, remember, interpret, treat as warranted, and use in later governance. It therefore connects institutional memory to the epistemic-event architecture developed earlier in the book. Learning can arise through monitoring, evaluation, audit, experimentation, failure, participant feedback, litigation, scientific evidence, comparative experience, staff turnover, or changes in the classifications through which the institution perceives its field.

Learning should be distinguished from data accumulation. An institution can collect large volumes of information while leaving its categories, models, assumptions, and decision procedures unchanged. Conversely, a small but consequential epistemic event can alter how an institution interprets an existing record. The relevant question is whether evidence changes the institution's warranted representation or the decision architecture through which later action is selected.

Institutional memory conditions this process. Records, routines, precedents, model versions, archives, professional expertise, and organizational narratives can preserve knowledge across personnel turnover. Memory can also preserve obsolete classifications or reinforce historically sedimented assumptions. Learning therefore requires both retention and the possibility of reinterpretation.

The distribution of learning capacity matters as well. Front-line workers, local governments, users, affected communities, auditors, technical experts, and central authorities can observe different parts of the same institutional field. A governance architecture that filters all evidence through one channel can gain consistency while losing locally visible information. Distributed observation can expand evidence while creating problems of comparability, verification, and aggregation.

Definition 16.168 (Institutional learning process)**.** An *institutional learning process* is a traceable sequence through which observations, records, evaluation, experience, contestation, or other epistemic events alter an institution's warranted representa-

tion, retained knowledge, interpretive categories, decision assumptions, or recognized uncertainty in ways that can inform later governance.

Proposition 16.169 (Learning–adaptation non-equivalence)**.** *Institutional learning and institutional adaptation are analytically separable. An institution can learn without changing its governing arrangements, and it can adapt for reasons that do not arise from learning, including legal compulsion, political bargaining, resource change, strategic pressure, or external shock.*

The distinction matters for evaluation. A reform following a crisis does not by itself show that the institution learned the relevant mechanism. A well-documented evaluation does not by itself show that recommendations entered practice. Analysts should reconstruct the pathway from evidence to representation and, separately, from representation to institutional change.

16.16.6 Adaptation

Institutional adaptation changes rules, procedures, roles, resource arrangements, interfaces, timing, thresholds, classifications, or authority relations in response to changing conditions. Adaptation can be incremental or substantial. It can preserve an institutional function under new conditions, alter the function itself, or redistribute responsibility among institutional positions.

Adaptation should be indexed to an object. A regulator can adapt its monitoring frequency while leaving its mandate unchanged. A school can change admissions procedures while preserving its educational purpose. A platform can modify ranking rules while maintaining the same membership architecture. A welfare system can digitize access while changing the practical burden imposed on applicants. Describing each case simply as institutional adaptation hides which component changed and which remained stable.

The timing of adaptation matters. Slow change can protect due process and predictability while allowing a harmful mismatch to persist. Rapid change can improve responsiveness while destabilizing expectations, reducing participation, or exceeding implementation capacity. The near-critical governance of Section 16.15 makes this temporal problem especially visible, yet similar trade-offs occur under ordinary conditions.

Adaptation can also create path dependence. Temporary procedural changes can become embedded in software, staffing, contracts, budgets, or expectations. A pilot can generate infrastructure that changes the cost of returning to the previous arrangement. Institutional governance should therefore record not only the formal status of a change but also the new dependencies and capacities created through implementation.

Definition 16.170 (Institutional adaptation profile)**.** An *institutional adaptation profile* records the component being changed, the evidence or pressure motivating change, the authorized change mechanism, affected positions, implementation capacity, temporal horizon, reversibility, newly generated dependencies, review points, and criteria for continuation, modification, or withdrawal.

Proposition 16.171 (Adaptation–improvement non-equivalence)**.** *Institutional adap-*

tation records a change in governance architecture under changing conditions; it does not by itself establish increased effectiveness, justice, resilience, legitimacy, or generativity. Those evaluations require dimension-specific evidence and normative criteria.

This proposition protects the chapter from teleological language. Institutions can adapt in ways that improve one dimension and worsen another. A faster administrative process can reduce delay while narrowing review. Greater standardization can improve consistency while weakening accommodation of heterogeneous cases. Adaptation therefore remains an object for evaluation rather than a synonym for progress.

16.16.7 Institutional Evolution

Institutional evolution concerns longer-horizon change in the institutional relational infrastructure itself. Whereas adaptation can be analyzed as a bounded revision to a specified arrangement, evolution tracks histories in which rules, authority, classifications, routines, organizations, interpretive conventions, and governance functions vary, recombine, migrate, or disappear across successive configurations.

An evolutionary representation can be useful when no single reform episode explains the present architecture. Procurement systems, professions, welfare institutions, corporate forms, standards, regulatory regimes, and monetary arrangements often acquire their current structure through layered changes whose effects accumulate unevenly. Some components remain stable; others change repeatedly; some functions move across organizations; and new technologies can create governance objects that earlier institutions did not recognize.

Institutional evolution should not be reduced to competitive selection. Deliberate reform, legal interpretation, imitation, crisis response, political bargaining, technological change, professionalization, demographic change, and accidental path dependence can all contribute. Nelson and Winter's evolutionary perspective is useful for understanding routines and search (Nelson and Winter 1982), while GRE retains a wider field of mechanisms and does not infer an optimizing selection process from persistence.

Evolution can preserve function through carrier substitution. A licensing function can move from one agency to another; an informal professional norm can become codified; a paper procedure can become software-mediated; a centralized process can become distributed while preserving some authority relations. Conversely, symbols and organizational names can remain stable while the operative institution changes substantially. Historical reconstruction therefore requires tracing function, rule, authority, and practice rather than relying on nominal continuity.

Definition 16.172 (Institutional evolution profile)**.** An *institutional evolution profile* records, across a specified historical interval, the persistence, variation, recombination, migration, and disappearance of mandates, rules, authority relations, accountability pathways, routines, classifications, records, organizational carriers, and governance functions, together with the mechanisms connecting successive configurations.

Proposition 16.173 (Evolution–progress non-equivalence)**.** *The persistence or histor-*

ical spread of an institutional configuration does not by itself establish greater effectiveness, justice, legitimacy, efficiency, or fitness for future conditions. Institutional evolution should therefore be reconstructed causally before it is evaluated normatively or functionally.

The proposition also applies to institutional survival. An institution can persist because it remains useful, because switching costs are high, because powerful positions benefit from it, because complementary infrastructures depend on it, because alternatives are unavailable, or because its rules reproduce themselves through routine. Persistence is therefore evidence of reproduction, not a complete explanation of merit.

16.16.8 Institutional Exit

Institutional governance also requires an account of termination. Institutions are often designed in language of creation, continuity, and reform, while the conditions under which an institutional arrangement should cease receive less systematic attention. Yet mandates can expire, technologies can make procedures obsolete, harms can become unacceptable, functions can migrate elsewhere, and emergency institutions can outlive the conditions that justified them.

Institutional exit is distinct from participant exit and organizational closure. Section 16.10 distinguished individual exit from relation removal, while Section 12.12 distinguished institutional persistence from organizational persistence. An institution can disappear while an organization survives under new rules. An organization can dissolve while the institution continues through successor bodies. Participants can leave while the institutional arrangement remains intact.

Exit can take several forms. *Sunset* terminates an arrangement at a specified date unless renewed. *Replacement* transfers functions to a new institutional architecture. *Deactivation* leaves formal rules in existence while suspending their operation. *Dissolution* removes the relevant institutional arrangement more comprehensively. *Migration* moves rules or functions into another institutional setting. Each form generates different transition and accountability problems.

Residual obligations are central. Institutional termination can leave pensions, debts, warranties, archives, data, environmental duties, pending claims, legal proceedings, certifications, public expectations, and reliance interests. A clean formal end can therefore coexist with continuing relational consequences. Governance of institutional exit should identify which obligations survive, who inherits them, and what records remain available for later accountability.

Institutional exit can also destroy useful capacity. Staff expertise, trusted interfaces, monitoring infrastructure, local knowledge, legal standing, interoperability, and public memory can disappear faster than replacements become effective. Exit planning therefore belongs to capacity governance as well as institutional governance. Preservation of a function can sometimes require preservation of selected capacities while allowing the existing institutional form to end.

Definition 16.174 (Institutional exit pathway)**.** An *institutional exit pathway* specifies the conditions under which an institutional arrangement is sunsetted, deactivated,

replaced, migrated, or dissolved; the authority competent to initiate and confirm the transition; the treatment of residual obligations, records, claims, capacities, and dependencies; the successor arrangement where applicable; and the review of consequences generated by exit.

Proposition 16.175 (Institutional-exit non-equivalence)**.** *Institutional exit, organizational closure, participant exit, and termination of a particular rule are analytically distinct events. A claim that an institution has ended should identify which institutional functions and relational effects have ceased, migrated, or remained operative after the formal transition.*

Proposition 16.176 (Institutional continuity burden)**.** *Where continuation of an institutional arrangement materially depends on recurring renewal of authority, resources, exceptional conditions, or burdens imposed on affected positions, institutional governance should make those continuation conditions visible rather than treating persistence as the default state requiring no justification.*

Proposition 16.176 is especially relevant to temporary and emergency arrangements, yet its logic is broader. Mature institutions can also generate substantial maintenance costs, lock-in, or inherited obligations. Periodic review can therefore ask both whether an institution should change and whether its continuation remains warranted under current conditions.

Taken together, Sections 16.16.1–16.16.8 develop institutional governance as the architecture through which mandates are delimited, rules are enacted and revised, authority is organized, accountability becomes actionable, learning changes institutional knowledge, adaptation modifies governing arrangements, evolution transforms institutional infrastructure across longer histories, and exit makes termination or replacement governable. The resulting framework preserves institutional continuity where it remains useful while retaining explicit mechanisms for revision and cessation.

Institutional governance also clarifies the transition to law. Section 16.17 examines law as a particularly consequential institutional mode for protecting rights, procedures, participation, exit, and generative conditions while retaining revisability.

16.17 Law as Generative Field Protection

Section 16.16 developed institutional governance as the comparatively stabilized architecture through which mandates, rules, authority, accountability, learning, adaptation, evolution, and institutional exit are organized. The present section examines law as a more specific institutional mode through which relational and generative fields can be constituted, delimited, stabilized, protected, contested, and revised. Its objective is to explain how rights, duties, procedures, legal boundaries, exit, participation, and protection of generative conditions can enter substantive GRE governance while preserving the distinctions among legal validity, practical enactment, normative justice, and broader relational effect. The analysis is institutional and relational: it draws on the legal-inquiry methodology developed in Chapter 7, the relational infrastructure of Chapter 12, and the justice and governance architectures developed in Sections 16.8–16.16.

The phrase *generative field protection* names a bounded analytical function. It does not define law exhaustively and does not imply that the existing field should remain unchanged. Law can create legal persons and statuses, constitute property and contractual positions, allocate authority, authorize institutional action, structure remedies, and transform relations as well as protect them. In GRE, the protective question arises where legal ordering helps preserve the conditions under which persons, organizations, communities, institutions, infrastructures, and ecological or knowledge systems can continue to exercise capacities, contest decisions, revise relations, form alternatives, and generate later possibilities. Protection can therefore require stabilization in one setting and transformation in another.

Analytical jurisprudence helps specify the differentiated legal positions involved. Hart's primary- and secondary-rule architecture provides one influential account of how legal systems organize conduct together with recognition, change, and adjudication (Hart 2012). Hohfeld's analysis distinguishes claim-rights, duties, privileges, powers, liabilities, immunities, and disabilities rather than compressing legal relations into an undifferentiated vocabulary of rights (Hohfeld 1919). MacCormick's account of legal reasoning emphasizes interpretation, classification, precedent, analogy, consequences, coherence, and defeasibility in institutional judgment (MacCormick 2005). Moore's analysis of semi-autonomous social fields further clarifies that formal legal ordering interacts with social fields that can generate their own rules and compliance practices (Moore 1973). These traditions support the present section's distinction between formally specified law and the wider relational field through which law acquires economic consequence.

Definition 16.177 (Legal generative-field protection profile)**.** A *legal generative-field protection profile* records, for a specified relational and generative field, the legal positions, duties, procedures, boundaries, exit and participation protections, protected generative conditions, competent authorities, remedies, temporal scope, revision mechanisms, and practical realization pathways through which law conditions the field's capacity to persist, transform, remain contestable, and support later generation.

Definition 16.177 is deliberately wider than a catalogue of substantive entitlements. A right that lacks a usable procedure can have a different practical incidence from a right backed by accessible remedies. A duty can protect one generative condition while imposing a large maintenance burden elsewhere. A legally protected boundary can preserve a commons while excluding legitimate access, or can protect an organization while externalizing costs beyond the protected domain. The profile therefore connects legal form to relational enactment and downstream incidence.

Table 16.15 summarizes the eight functions developed below. The rows should be read compositionally. One legal arrangement can perform several functions, and the practical field can also be shaped by non-legal institutions that supplement, interpret, resist, or displace formal law.

Proposition 16.178 (Legal-governance scope condition)**.** *A legally specified position, rule, boundary, or procedure establishes a legally relevant component of governance within its competent domain; claims about its practical economic effect, justice, legitimacy, or broader relational consequences require additional evidence and evaluative criteria appropriate to those claims.*

Table 16.15: Legal functions in generative-field protection

Function	Primary legal object	Generative-field relevance	Characteristic governance risk
Rights	Claims, privileges, powers, immunities, and related legal positions	Protects standing, access, authority, domains of action, and remedies	Formal recognition with weak practical realization
Duties	Obligations, restraints, standards, disclosure, care, and performance requirements	Protects persons, relations, infrastructures, resources, and common conditions	Burden displacement, under-capacity, or unclear responsibility
Procedures	Recognition, decision, review, evidence, remedy, and revision pathways	Converts legal position into governable and contestable institutional action	Delay, complexity, cost, opacity, and procedural exclusion
Boundary protection	Jurisdictional, organizational, property, liability, ecological, and protected-domain boundaries	Stabilizes responsibility, access, stewardship, and protected fields	Exclusion, rigidity, leakage, and externalization across the boundary
Protection of exit	Termination, withdrawal, portability, succession, release, and transition protections	Reduces entrapment and preserves later relational and capability options	Formal exit without practical usability or residual protection
Protection of participation	Standing, notice, representation, consultation, voting, and related procedural positions	Stabilizes access to rule formation, review, and contestation	Symbolic participation without influence, information, or remedy
Generative-condition protection	Legal protection of capacities, infrastructures, ecological bases, knowledge conditions, and future options	Preserves or regenerates conditions required for later economic and relational generation	Status-quo preservation, capture, or misidentification of the protected condition
Limits of legal fixity	Amendment, interpretation, review, sunset, exception, transition, and repeal mechanisms	Permits law to remain responsive to changing relations, evidence, and generative conditions	Excessive rigidity or excessive volatility

Proposition 16.178 preserves law's specificity without treating formal law as the whole governed field. It also protects the later analysis from a converse reduction in which law becomes only a reflection of social power or economic structure. Legally recognized positions can create durable and causally consequential relations even when their practical effects are mediated by organizations, resources, informal norms, and institutional capacity.

16.17.1 Rights

Rights enter generative-field protection through the positions they secure and through the institutional pathways by which those positions can be exercised, defended, transferred, waived, revised, or remedied. The legal-inquiry discussion of rights in Chapter 7 established that the ordinary-language category of a right can

contain several legally distinct positions. Hohfeld's decomposition remains useful because a claim-right, privilege, power, and immunity condition relations differently and possess different correlatives (Hohfeld 1919). Substantive GRE governance should therefore preserve the legal position at sufficient resolution before evaluating its generative consequence.

A legal right can protect several types of field condition. A claim-right can protect payment, care, access, information, environmental quality, non-interference, or performance owed by another position. A privilege can preserve a domain of permitted action. A legal power can enable a position to create or alter legal relations, as in contracting, voting, transferring, appointing, or terminating. An immunity can protect a position against specified unilateral legal alteration. These differences matter because they distribute relational capacity differently even where the surface description is similar.

Rights also operate through institutional realization. Recognition by a legal order can stabilize a position across time and across changes in counterparties, yet practical use can depend on evidence, standing, filing requirements, information, representation, time, money, language, institutional competence, and the availability of remedies. A nominal right can therefore coexist with significant practical dependence. Section 13.6 developed this divergence in the analysis of enabling conditions: legal possibility is one dimension of practical accessibility, and formal recognition does not by itself establish enacted possibility.

Definition 16.179 (Rights-protection profile)**.** A *rights-protection profile* records the legally recognized position, holder, relevant correlatives, protected interest or domain, competent institutions, procedures of recognition and exercise, available remedies, temporal scope, transfer or waiver conditions where applicable, practical access requirements, and the relation between the protected position and the capacities or relations it is expected to secure.

The profile helps distinguish rights protection from rights proliferation. Creating additional legal entitlements can expand protection in some settings, while overlapping or poorly specified entitlements can also create uncertainty, conflict, administrative burden, or barriers to coordination. The governance question concerns which legal position protects which interest or relation, through what institutional mechanism, with what incidence and revisability.

Rights can protect future generativity directly or indirectly. Portability rights can preserve mobility across organizations. Information rights can support learning and contestation. Property or use rights can support investment while also constraining access. Procedural rights can preserve review and participation. Rights protecting bodily integrity, family life, ecological conditions, or social provision can preserve capacities whose economic importance extends beyond immediate exchange. The generative relevance of a right should therefore be traced rather than presumed from its legal label.

Proposition 16.180 (Formal-right–practical-protection distinction)**.** *The existence of a legally recognized right is analytically distinct from the practical protection generated through that right. Assessment of practical protection should consider procedural accessibility, institutional capacity, information, remedies, temporal delay, retaliation*

risk, material resources, and other conditions that affect the right's exercise or enforcement.

This proposition does not weaken the significance of formal rights. Formal recognition can itself change bargaining position, legal standing, institutional obligation, and the expectations of other participants. The distinction identifies the additional mechanisms through which legal recognition becomes effective field protection.

16.17.2 Duties

Rights protection often depends on duties, yet duties form a broader governance object than the correlate of a claim-right. Legal duties can require performance, restraint, care, disclosure, monitoring, payment, preservation, reporting, accommodation, restoration, or compliance with procedural and substantive standards. They can attach to private actors, organizations, professionals, public institutions, office holders, trustees, regulators, or other legally recognized positions.

The governance significance of a duty depends on its specification and on the capacity to perform it. A general duty to maintain safety, disclose risk, protect data, preserve an ecological condition, provide access, or act within a fiduciary mandate can have limited field-protective effect if the duty bearer lacks information, resources, authority, or organizational infrastructure required for performance. Conversely, a highly detailed duty can become rigid when the relevant environment changes faster than the legal specification. Duties therefore connect legal normativity with capacity governance from Section 16.14.

Definition 16.181 (Duty-governance profile)**.** A *duty-governance profile* records the duty bearer, protected position or interest, triggering conditions, required or prohibited conduct, standard of performance, temporal horizon, exceptions and defenses, monitoring and evidentiary arrangements, enforcement and remedy pathways, delegated implementation responsibilities, and the practical capacities required for performance.

The profile is especially useful where a legal duty is organizationally distributed. A statute can assign an obligation to an institution, internal rules can allocate tasks among units, software can structure the operational pathway, and frontline staff or contractors can carry out the actual performance. Failure can arise from unclear delegation, resource shortage, incompatible incentives, unavailable evidence, or a gap between formal responsibility and practical control. Attribution of breach and governance repair should therefore reconstruct the pathway rather than locating every failure at the final point of delivery.

Duties can also protect common and future conditions for which no single present participant receives the whole benefit. Maintenance of infrastructure, preservation of records, ecological stewardship, disclosure of systemic risk, professional care, and contributions to common funds can protect generative conditions whose benefits are distributed across positions and time. The legal form can make these maintenance burdens more durable than voluntary coordination alone would permit.

The same durability can produce burden problems. A duty can protect one part of the field while transferring compliance costs, liability exposure, time burdens, or

administrative complexity to another. A requirement imposed uniformly across heterogeneous positions can also have unequal capacity effects. Duty design therefore belongs to distributive and relational analysis as well as legal analysis.

Proposition 16.182 (Duty-capacity incidence condition)**.** *Where a legal duty materially depends on resources, information, authority, infrastructure, or specialized competence for its performance, governance assessment should distinguish the normative assignment of the duty from the distribution of capacities required to discharge it and from the incidence of the burdens created by compliance.*

This distinction is relevant to both under-enforcement and over-burdening. A legally appropriate duty can fail because the responsible institution is under-capacitated. The same duty can also become exclusionary if compliance costs prevent smaller or less-resourced positions from participating. Neither outcome is visible from the duty's textual statement alone.

16.17.3 Procedures

Legal procedures connect positions and norms to decisions, recognition, enforcement, review, and change. They determine how a person establishes status, presents evidence, receives notice, contests a classification, obtains a remedy, challenges authority, seeks review, participates in rulemaking, transfers a legal position, or invokes an exception. Procedures therefore belong to the generative field because they condition which formally available legal positions can become practically operative.

Procedure is also constitutive. A legal entity can come into existence through registration; a license can arise through an application and decision pathway; a right can vest after specified events; a public decision can become valid only after notice or hearing requirements; and a rule can change through recognized amendment procedures. Hart's secondary-rule framework is relevant to this institutional organization of recognition, change, and adjudication (Hart 2012). MacCormick's account of legal reasoning further shows why application frequently involves interpretation, classification, analogy, consequence, coherence, and defeasibility rather than mechanical execution of text (MacCormick 2005).

Definition 16.183 (Procedural realization pathway)**.** A *procedural realization pathway* is the legally and institutionally specified sequence through which a legal position, claim, duty, authority, classification, or proposed change can be recognized, evidenced, decided, reviewed, remedied, or revised, including the relevant actors, deadlines, information requirements, costs, representation conditions, reasons, records, and appeal or review points.

Procedural design affects more than transaction cost. It can determine whose evidence becomes visible, which time horizons are feasible, which positions can participate, how uncertainty is treated, and whether errors remain correctable. Short filing periods can exclude claims whose evidence emerges slowly. Complex proof requirements can privilege positions with specialized representation. Automatic or digital procedures can reduce delay while creating new classification or accessibility problems. Public reasoning requirements can improve traceability while also creating administrative burdens. Procedure therefore participates in epistemic and distributive governance.

Procedural accessibility should also be separated from procedural abundance. More hearings, forms, approvals, or review stages do not automatically increase protection. Duplicative procedure can exhaust participants, delay urgent action, or generate strategic obstruction. Conversely, very streamlined procedure can reduce the opportunity to discover error, represent heterogeneous values, or contest consequential decisions. The appropriate procedural architecture depends on stakes, reversibility, uncertainty, affected positions, and available review.

Proposition 16.184 (Procedure–protection non-equivalence)**.** *The existence or formal availability of a legal procedure does not by itself establish effective protection, procedural justice, or substantively appropriate outcomes. Evaluation should examine accessibility, intelligibility, evidentiary opportunity, temporal burden, reasons, review, remedy, institutional competence, and the consequences of procedural error.*

Proposition 16.184 prepares Section 16.18, where voice, representation, deliberation, contestation, review, and appeal are treated more fully. The present section's narrower concern is how law stabilizes procedural pathways through which field-protective positions can become actionable.

16.17.4 Boundary Protection

Law draws and protects boundaries around persons, organizations, jurisdictions, assets, liabilities, public functions, ecological zones, common resources, protected information, professional roles, and other legally specified domains. These boundaries can stabilize responsibility and make coordinated action possible. They can also determine who may enter, use, transfer, control, represent, tax, regulate, sue, exclude, or bear liability within a defined field.

Boundary protection is therefore one way law stabilizes generative conditions. Organizational asset partitioning can protect a firm's operating pool from some personal claims while defining organizational creditor relations. Jurisdictional boundaries can assign responsibility and competence. Ecological boundaries can protect habitats or resource regimes. Confidentiality and privacy boundaries can protect informational relations. Property or access boundaries can support stewardship and investment. Legal personality can create a boundary through which a changing population of persons and assets remains institutionally recognizable.

The protective function of a boundary depends on what crosses it. A formally protected domain can still lose value, pollution, risk, maintenance burden, or information through channels the legal boundary does not regulate. Conversely, a boundary can block beneficial exchange or make participation excessively costly. Section 16.13 developed the analogous problem of displaced dissipation: apparent protection inside one accounting or institutional boundary can coexist with externalized burdens elsewhere.

Definition 16.185 (Legal boundary-protection profile)**.** A *legal boundary-protection profile* records the protected domain, inclusion and exclusion criteria, competent authority, rights and duties at the boundary, permitted and restricted crossings, liability and stewardship relations, monitoring and enforcement arrangements, externalities or cross-boundary effects, temporal scope, and mechanisms for boundary revision.

Boundary analysis should also preserve the distinction between legal boundary and relational boundary. A supply chain can cross many jurisdictions. A digital platform can connect participants whose legal positions differ across territories. An ecological system can exceed property and administrative borders. A household can contain legally distinct persons whose economic dependence is strongly coupled. The relevant generative field can therefore be wider or narrower than the formal legal unit.

Proposition 16.186 (Boundary-protection incidence condition)**.** *Where legal protection of a specified boundary materially redistributes access, responsibility, risk, maintenance burden, extraction, dissipation, or future option structure across positions inside and outside that boundary, governance assessment should trace those cross-boundary effects rather than infer field protection from internal stabilization alone.*

This proposition keeps boundary protection compatible with openness and revision. A boundary can be necessary for responsibility or stewardship while still requiring interfaces, exceptions, portability, mutual recognition, shared standards, or cross-boundary obligations to prevent protection in one domain from becoming deterioration in another.

16.17.5 Protection of Exit

Section 16.8 defined relationally effective exit, and Section 16.12 developed governed exit pathways. Law can protect these pathways by stabilizing termination rights, withdrawal procedures, portability, vesting, release from specified obligations, insolvency processes, organizational dissolution, succession, notice requirements, nonretaliation rules, and remedies for obstruction. Legal exit protection can thereby reduce entrapment and preserve later relational possibilities.

Formal permission to leave remains only one component. An employee may possess a right to resign while losing non-portable benefits or credentials. A tenant may terminate a lease while facing severe moving costs and housing scarcity. A user may close an account while data, reputation, or accumulated network relations remain non-portable. A firm may leave a regulatory or contractual arrangement only after satisfying residual obligations. A legally recognized exit can therefore vary substantially in practical effectiveness.

Definition 16.187 (Legally protected exit pathway)**.** A *legally protected exit pathway* specifies the legal competence to terminate, withdraw from, or otherwise leave a relation; the notice, timing, and procedural requirements; treatment of vested claims, data, credentials, assets, liabilities, and residual duties; portability and transition protections; remedies against obstruction or retaliation; and the legal conditions governing successor or post-exit relations.

Exit protection can serve several generative functions. It can preserve bargaining alternatives, reduce lock-in, support experimentation across organizations, and allow harmful or obsolete relations to dissolve. Portability can permit capacities and relational investments to survive organizational change. Insolvency law can create an ordered exit from unsustainable obligations while preserving some productive assets. Corporate and organizational law can govern dissolution and succession so that termination does not erase outstanding claims or public responsibilities.

Exit protection also has limits. Some obligations cannot be left unilaterally at will without harming protected positions or undermining the relation's purpose. Tax duties, child-support obligations, fiduciary responsibilities, environmental remediation, public-safety requirements, and certain collective commitments can survive departure. Durable cooperation can also depend on notice periods, vesting rules, or transition duties. The governance problem is therefore the legal structure of exit and residual obligation, not maximal freedom of instantaneous withdrawal.

Proposition 16.188 (Formal-exit–effective-exit distinction)**.** *A legally recognized competence to exit is distinct from a practically effective exit pathway. Assessment of legal exit protection should include transition costs, portability, residual obligations, available alternatives, timing, retaliation, recovery capacity, and the extent to which legally protected claims and capacities survive departure.*

Protection of exit should also remain distinct from relation dissolution. Section 16.10 established that an individual position can leave while the wider relation persists. Law may need different procedures for withdrawal by one participant, termination by mutual agreement, institutional dissolution, public-law withdrawal, or transformation of the relation itself.

16.17.6 Protection of Participation

Law can stabilize participation by creating standing, notice rights, consultation requirements, voting positions, representation rights, access to information, collective bargaining rights, procedural hearings, public-comment opportunities, board participation, or other institutionally recognized routes into decision and review. Such protections can reduce dependence on discretionary invitation and can make participation survive changes in office holders, managers, or counterparties.

Participation protection should be tied to the governance object. Participation in rule formation differs from participation in implementation, adjudication, monitoring, review, or institutional redesign. A person can possess a vote without access to the information needed to use it meaningfully. A consultation process can invite views while leaving the relevant authority unchanged. A hearing can secure the opportunity to present evidence without guaranteeing agreement with the participant's preferred outcome. Legal protection therefore secures positions and procedures rather than a predetermined substantive result.

Definition 16.189 (Legally protected participation position)**.** A *legally protected participation position* is a legally recognized competence, claim, or procedural standing through which a specified position can receive information, present reasons or evidence, select or instruct representatives, vote, consult, negotiate, object, initiate review, or otherwise enter a defined governance process, together with the institutional conditions required for that participation to be exercised.

The generative significance of protected participation can be substantial. Participation can reveal local knowledge, expose hidden burdens, improve classification, surface alternative pathways, preserve legitimacy during change, and distribute capacity for institutional learning. It can also slow decisions, create representation conflicts, privilege organized interests, or become ceremonial where the authority to respond is absent. Participation therefore requires process-specific evaluation.

Legal participation rights also interact with power. A position formally entitled to participate can remain weak where information, time, expertise, language, organization, or fear of retaliation sharply constrain use. Conversely, legally protected representation or collective organization can convert dispersed interests into a more durable institutional capacity. These effects prepare the more detailed analysis of voice, representation, contestation, review, appeal, and unequal voice in Section 16.18.

Proposition 16.190 (Participation-protection scope condition)**.** *Legal protection of participation establishes an institutionally recognized route into a specified governance process; the practical influence, representativeness, inclusiveness, and justice of that participation require additional analysis of information, resources, organization, authority, response obligations, and affected positions.*

The proposition keeps participation protection compatible with differentiated institutional roles. Courts, scientific bodies, fiduciaries, emergency institutions, and technical regulators may require forms of expertise or role separation that limit direct participation in some decisions. The relevant question is how participation, representation, reasons, review, and protection of affected positions are organized relative to the function and stakes of the decision.

16.17.7 Preservation of Generative Conditions

Law can protect conditions whose significance lies partly in what they enable later. Ecological systems can support future livelihoods; public infrastructure can support exchange and mobility; educational and scientific institutions can support later capacities; interoperable standards can preserve entry and recombination; labor protections can preserve human capacities; insolvency and organizational rules can preserve productive assets while reorganizing claims; record and transparency duties can preserve future accountability; and legal protections for common resources can support continued collective use. These examples differ substantially, yet each concerns conditions whose value cannot be represented fully by their present output.

The concept of generative condition was developed earlier in GRE as a condition that supports later capacities, relations, processes, values, or possibilities. Legal protection adds an institutional layer: law can make specified conditions more durable, allocate stewardship duties, constrain extraction, require maintenance, prevent unilateral enclosure, or create procedures through which the protected condition can be revised. The legal object should remain identifiable. A broad appeal to future generations or innovation is insufficient to justify any particular legal restriction.

Definition 16.191 (Generative-condition protection)**.** *Legal generative-condition protection* is the use of legally recognized positions, duties, boundaries, procedures, remedies, stewardship arrangements, or institutional authorities to preserve, regenerate, or responsibly transform a specified condition whose continued existence or quality materially supports later capacities, relations, processes, or future possibilities.

This definition includes regeneration and transformation because preservation of generative capacity can require alteration of the present form. A degraded ecosystem may require restoration rather than conservation of its current state. A public

institution may require governance reform to preserve its substantive function. A technical standard may need revision to retain interoperability. An obsolete right or category can require modification where its original protective function no longer operates under changed relations.

Legal generative-condition protection therefore interacts with power and capture. A legal arrangement described as protection can preserve incumbent advantage, block entry, convert temporary scarcity into durable exclusion, or protect a particular organizational form long after the underlying public or relational function could be served differently. Conversely, insufficient protection can allow extraction or short-horizon incentives to degrade conditions whose loss is difficult or impossible to reverse. The relevant inquiry concerns the protected condition, its generative role, affected positions, alternative protection mechanisms, and temporal incidence.

Proposition 16.192 (Generative-condition protection–status-quo distinction)**.** *Protecting a generative condition does not require preserving the existing legal, organizational, or relational form through which that condition is currently maintained. Where the form and the protected generative function diverge, governance assessment should distinguish preservation of the function or capacity from preservation of the incumbent arrangement.*

The proposition aligns legal protection with Section 16.14's distinction between capacity protection and institutional-form preservation. It also limits legal conservatism within GRE. Stability can be valuable where reliance, rights, coordination, and investment depend on it, while transformation can be necessary where existing law reproduces vulnerability, blocks revision, or fails to protect the underlying generative condition.

16.17.8 Limits of Legal Fixity

Law derives part of its coordinating capacity from relative stability. Rights, duties, jurisdiction, remedies, property positions, organizational forms, and procedural expectations become difficult to rely on when rules change unpredictably or retroactively. Legal fixity can support planning, investment, equal treatment, institutional memory, accountability, and protection against discretionary power. A governance framework that values adaptation should therefore preserve the benefits created by sufficiently stable legal expectations.

The same stability can become maladaptive where classifications, rights structures, jurisdictional boundaries, remedies, or procedures cease to fit the field they govern. New technologies can alter practical control without changing formal ownership. Long-lived environmental effects can exceed inherited liability rules. Automated decision systems can shift evidentiary and procedural conditions. Organizational forms can acquire functions that earlier law did not anticipate. Historical re-epistemization can reveal harms or dependencies previously poorly understood. Legal governance therefore requires mechanisms through which stability and revisability can coexist.

Legal systems already contain multiple forms of revision: legislation, amendment, repeal, judicial interpretation, administrative rulemaking, contractual variation, constitutional procedures, delegated regulation, exceptions, waivers, sunset clauses, transitional provisions, and changes in recognized institutional practice. Hart's

distinction between rules of conduct and rules organizing recognition, change, and adjudication helps clarify why legal order includes procedures for altering law as well as rules to be followed (Hart 2012). MacCormick's treatment of interpretation and defeasibility likewise illustrates how legal meaning can change through reasoned institutional application without requiring textual amendment in every case (MacCormick 2005).

Moore's semi-autonomous-field analysis adds a practical caution. Formal legal revision enters fields that may have their own rules, routines, enforcement capacities, expectations, and resistance (Moore 1973). Rapid statutory change can therefore coexist with slow relational change, while informal practice can sometimes move ahead of legal reform. Legal revisability should be evaluated through enactment pathways rather than the amendment event alone.

Definition 16.193 (Legal revisability profile)**.** A *legal revisability profile* records the mechanisms through which a legal position, rule, category, boundary, procedure, or remedy can be interpreted, amended, reviewed, suspended, sunsetted, replaced, or repealed; the authorities competent to initiate and confirm change; the evidentiary and procedural conditions for revision; reliance and transition protections; temporal effects; and the pathways through which revised law becomes practically enacted.

Legal revisability also requires limits. Continuous discretionary change can erode reliance, equality before rules, independence of protected positions, and the ability to contest authority. Emergency powers can become normalized. Experimental rules can generate transition costs for participants repeatedly forced to adapt. Frequent changes can privilege well-resourced actors capable of monitoring and influencing revision. Adaptability therefore has its own incidence and power structure.

Proposition 16.194 (Legal stability–revisability condition)**.** *The appropriate degree and form of legal stability or revisability are context-sensitive. Governance assessment should consider the protected interests and rights, reliance, uncertainty, rate of change in the governed field, reversibility, transition costs, distribution of adaptation capacity, consequences of error, and availability of review rather than treating either legal fixity or continual flexibility as a general objective.*

Proposition 16.195 (Legal-validity–justice distinction)**.** *Legal validity, practical effectiveness, institutional legitimacy, and normative justice are analytically distinct properties. Evidence that a rule is legally valid or effectively enforced therefore does not by itself settle its justice, while a normatively attractive objective does not by itself establish a valid or administrable legal pathway for realizing it.*

The distinction is important for the chapter's architecture. Sections 16.8–16.11 develop justice criteria; Sections 16.12–16.16 develop governance architecture; the present section specifies one particularly consequential institutional mode through which some of those criteria and architectures can be stabilized. Law can protect participation, exit, generative conditions, and revision capacity, yet the justice of the legal arrangement remains open to normative evaluation and the practical effect remains open to empirical inquiry.

Taken together, Sections 16.17.1–16.17.8 treat law as a differentiated architecture of legal positions, duties, procedures, boundaries, protections, and revision mechanisms that can preserve and transform the conditions of relational and generative

life. The approach avoids reducing law to a static constraint and avoids reducing generative-field protection to preservation of the status quo. Legal ordering can constitute the very positions and institutions through which economic relations become possible, while its protective contribution depends on accessibility, capacity, interpretation, enforcement, cross-boundary incidence, and revisability.

Section 16.18 develops the participatory side of this architecture in greater detail. It examines voice, representation, deliberation, contestation, review, appeal, distributed governance, and unequal voice as governance problems that extend beyond the existence of legally protected participation positions.

16.18 Participation and Contestability

Section 16.17 examined legal positions through which participation can be recognized, protected, and made procedurally actionable. The present section widens the analytical frame from legal protection to the broader governance architecture through which affected positions can speak, be represented, exchange reasons, challenge arrangements, obtain review, seek appeal, and participate across distributed centers of decision. Its role is to connect the chapter's earlier analyses of relational justice, governance, institutional authority, and law with the practical organization of participatory influence. The objective is to distinguish eight governance functions that are often compressed under the general language of participation: voice, representation, deliberation, contestation, review, appeal, distributed governance, and the unequal practical capacity to exercise voice. The method is relational and stage-sensitive. Each function is examined through the pathways, authorities, conversion conditions, burdens, and response mechanisms that make participation consequential in practice.

The section specializes the domain-general participation architecture developed in Chapter 10, Section 10.12, while retaining its principal distinctions. That earlier section distinguished affected subjects, stakeholders, participation, representation, voice, distributed decision making, collective agency, unequal participation, and contestability in application-dominant praxis. The present analysis asks how those distinctions operate once substantive GRE has introduced economic power, manufactured vulnerability, distributional profiles, relational justice, law, and institutional governance. Participation in economic governance can affect resource allocation, conversion rules, access, institutional membership, standards, infrastructure, data classification, value transmission, and the future option structures developed in Sections 16.1–16.17. The same participatory form can therefore carry different practical significance depending on the object and stage it can actually influence.

Three restraints organize the discussion. First, participation should not be inferred from physical or formal presence alone. A person can attend, submit comments, cast a vote, or possess a nominal right to be heard while having little practical capacity to affect interpretation, agenda formation, review, or implementation. Second, influence should not be equated with entitlement to determine the outcome. Governance can preserve meaningful voice and contestability while allocating differentiated decision rights according to mandate, expertise, affectedness, responsibility, or institu-

tional role. Third, participation is itself a governed and resource-dependent process. Time, information, translation, procedural knowledge, representation, safety, organizational support, and persistence affect who can participate effectively and whose contributions remain visible across repeated decision cycles.

Definition 16.196 (Participation-governance profile)**.** A *participation-governance profile* is a stage- and object-specific record of the positions able to enter a consequential governance process, the voice and representational pathways available to them, the forms of deliberation and challenge through which contributions can be considered, the review and appeal mechanisms connected to decisions, the distribution of decision rights across governance centers, and the principal inequalities, burdens, protections, and response conditions shaping practical influence.

Table 16.16 treats these functions as analytically distinct while allowing them to interact. Representation can extend voice where direct participation is difficult. Deliberation can improve the informational basis of review. Contestation can trigger appeal. Distributed governance can bring decisions closer to affected positions while also increasing coordination burdens. Unequal voice can operate through each function. The profile therefore records a participatory architecture without assigning a single scalar level of participation.

Proposition 16.197 (Participation–presence non-equivalence)**.** *The presence of a position within a meeting, consultation, vote, platform, hearing, or other participatory venue does not by itself establish effective participation. The practical significance of participation depends on the object and stage open to influence, the usability of the participation pathway, the response conditions attached to contributions, and the burdens and protections shaping continued involvement.*

This proposition carries forward Chapter 10's distinction between formal access and effective participation and Section 16.17's distinction between legally protected participation and its practical realization. It also provides the organizing condition for the subsections below.

16.18.1 Voice

Chapter 10 defined practical voice as a situated capacity to articulate a relevant experience, claim, interpretation, value, warning, objection, proposal, or dissent through a channel that can be received, considered, and responded to. Substantive economic governance adds several reasons to retain that full pathway. Economic decisions frequently operate through specialized categories, technical models, procurement rules, eligibility criteria, standards, accounting conventions, or institutional vocabularies. A position can therefore possess the ability to speak while lacking a pathway through which its contribution becomes legible to the relevant governance process. Conversely, an institution can collect extensive input while structuring response conditions so narrowly that the input has little practical consequence.

Voice in GRE should therefore be analyzed through more than expression. A governance process can be asked whether participants can formulate contributions in usable forms, whether channels exist, whether translation or accessibility support is available, whether relevant authorities receive the contribution, whether the contribution is recorded, whether a reasoned response is possible, and whether the process

Table 16.16: Participation and contestability functions in substantive GRE governance.

Function	Governance object	Principal analytical question	Characteristic limitation
Voice	Expression and uptake pathway	Which positions can articulate claims, evidence, warnings, proposals, or dissent, and through what response pathway?	Expression can be formally permitted while institutionally weak
Representation	Mandate and relation to represented positions	Who can act or speak on behalf of whom, for which objects, and under what feedback and accountability conditions?	Representation can drift, simplify internal difference, or become weakly revisable
Deliberation	Exchange and revision of reasons	How can relevant claims, evidence, values, and alternatives encounter one another before or during consequential judgment?	Discussion can occur after decisive options are already fixed or under unequal conditions of uptake
Contestation	Challenge to consequential arrangements	Which assumptions, categories, rules, decisions, implementations, or representations can be challenged and reopened?	Complaint channels can remain weak when challenge has no route to response or remedy
Review	Re-examination by a competent process	What can be reconsidered, on what evidence, by whom, and with what authority to correct or revise?	Review can reproduce the original error when competence, information, or independence are insufficient
Appeal	Escalated challenge to an earlier determination	Which decisions can be taken to another authority or forum and under what standing, timing, and remedial conditions?	Formal appeal can be unusable because of cost, delay, complexity, or irreversible interim effects
Distributed governance	Allocation of participatory and decision functions across centers	How are local knowledge, differentiated authority, coordination, escalation, and shared constraints organized across multiple governance centers?	Distribution can become fragmentation or create responsibility gaps
Unequal voice	Uneven capacity to use participatory pathways	Which differences in time, resources, recognition, safety, expertise, language, persistence, and institutional access shape effective influence?	Equal formal opportunity can reproduce cumulative practical inequality

can alter interpretation, action, review, or the reasons maintained for the current course. These dimensions can diverge sharply. A legally protected speaking opportunity can coexist with weak institutional uptake; an informal warning can sometimes have substantial effect where it enters a high-leverage decision point.

Definition 16.198 (Voice-governance profile)**.** A *voice-governance profile* records, for a specified governance object and stage, the positions able to express relevant claims or dissent, the channels and translation conditions through which those expressions travel, the protections surrounding expression, the authorities receiving them, the

procedures for recording and considering them, and the forms of response, explanation, investigation, or revision to which they can connect.

Voice also carries a temporal dimension. Early voice can alter problem formation, boundaries, options, or evidence collection. Voice introduced only after commitment can remain important for implementation and review, yet it has a different practical scope. Repeated participation can generate institutional memory, shared vocabulary, and organizational capacity, while repeated non-response can discourage future participation and increase representational dependence. Analysis should therefore record when voice enters the sequence and what later effects remain reachable at that stage.

Protection matters because voice can be costly. Workers, contractors, beneficiaries, residents, researchers, minority shareholders, professional staff, or public officials may face retaliation, reputational cost, loss of access, contractual disadvantage, or social sanction when they challenge a dominant interpretation. Section 10.12's concept of protected dissent remains relevant here. The protection required depends on the relation: confidentiality, anti-retaliation provisions, whistleblowing mechanisms, independent reporting channels, collective representation, or procedural safeguards can each make voice more usable under different conditions.

The existence of voice should remain distinct from influence. Governance can receive an objection, assess it seriously, provide reasons, and nevertheless choose another course. Conversely, a position can exercise substantial influence through agenda setting, private access, technical control, or institutional status while rarely using public voice. Separating the concepts prevents both symbolic participation and informal power from being hidden inside a single measure.

Proposition 16.199 (Voice–influence distinction)**.** *Practical voice and practical influence are related but distinct. Voice concerns an actionable pathway of expression and response; influence concerns the capacity of a contribution or position to alter interpretation, agenda, options, decision, implementation, review, or future governance conditions. Analysis should therefore identify the mechanism connecting voice to influence before attributing one from evidence of the other.*

The proposition also restrains normative interpretation. Greater influence for every participant over every object is neither feasible nor necessarily justified. The justice question concerns whether differentiated influence is appropriately related to standing, affectedness, knowledge, responsibility, rights, mandate, and the possibility of challenge, as developed in Section 16.8.

16.18.2 Representation

Representation becomes necessary when scale, time, expertise, distance, disability, risk, organizational complexity, dispersed membership, or future affectedness makes continuous direct participation impracticable. Chapter 10 defined practical representation as a recognized relation through which an actor, collective, or institution is positioned to articulate claims or exercise specified functions on behalf of other positions. Section 16.18 now places that relation inside the institutional and economic structures developed in Part V.

The governance significance of representation depends on what is represented. A representative can carry preferences, interests, claims, knowledge, rights, professional judgment, local experience, fiduciary responsibility, or organizational authority. These objects need not align. A technical expert may accurately represent evidence while lacking authority to represent the values of an affected community. A union representative may carry a negotiated mandate while still confronting internal differences among workers. A board member can possess legal authority without reproducing the experiences of every constituency affected by the organization. Representation should therefore specify both the represented position and the represented object.

Definition 16.200 (Representational governance profile)**.** A *representational governance profile* records the represented positions, the objects or functions represented, the basis of selection or authorization, the scope and duration of mandate, the information and translation pathways connecting representative and represented positions, the mechanisms of feedback and accountability, the possibility of replacement or correction, and the principal internal differences that can be compressed by the representational relation.

Representational distance remains important. Distance can increase through long chains of delegation, weak feedback, professionalization, informational asymmetry, organizational dependence, or changes in the represented population. Geographic proximity does not guarantee low representational distance, and large-scale representation can remain responsive where mandate, reporting, review, and correction pathways are strong. The analytical task is therefore to reconstruct the representational chain. Election, appointment, expertise, or organizational office remain insufficient as self-validating proxies for responsiveness.

Representation also creates its own power structure. Representatives can gain privileged information, agenda access, procedural knowledge, relationships with authorities, and continuity that represented positions do not possess. Those advantages can improve coordination and effectiveness, while also creating the possibility of drift. Section 16.5's account of power reproduction is relevant where representational office becomes a durable source of institutional or epistemic power. Rotation, reporting, mandate renewal, recall, independent information, plural representation, or direct participation at selected stages can alter this dynamic, although no single mechanism is universally appropriate.

Some positions cannot provide contemporaneous authorization or feedback. Future persons, young children, some persons with limited decision capacity, diffuse ecological interests, or other absent positions may enter governance through trusteeship, guardianship, expertise, scenario analysis, institutional duties, or legally recognized stewardship. These mechanisms require explicit limits because the ordinary feedback loop is weaker. Section 16.9's analysis of intergenerational generative inheritance and Section 16.11's treatment of future recognizability provide additional reasons to preserve assumptions, reasons, and revision pathways when representation reaches beyond presently participating constituencies.

Proposition 16.201 (Representation–substitution condition)**.** *Representation can extend participation where direct participation is limited, but the existence of representation does not by itself establish that relevant knowledge, interests, claims, or internal dif-*

ferences have been adequately carried. The adequacy of representational substitution depends on mandate, feedback, accountability, correction, scope, and the consequences of representational error for the positions concerned.

The proposition avoids a presumption that direct participation is always superior. Large and technically complex systems often require representation. The requirement is analytical visibility of the relation through which representation is produced and revised.

16.18.3 Deliberation

Voice and representation create pathways through which claims can enter governance. Deliberation concerns what occurs when relevant claims, reasons, evidence, interpretations, values, and alternatives are brought into a process that permits mutual examination and possible revision before or during consequential judgment. This function differs from mere information collection. A survey, public-comment form, or stakeholder meeting can gather views without creating a process in which reasons encounter one another or participants can revise their positions in response to new evidence and argument.

The importance of deliberation has been developed in several traditions of democratic and legal theory. Habermas, for example, connects legitimacy to procedures through which norms can be publicly justified and contested, extending analysis beyond simple imposition or aggregation (Habermas 1996). Young's analysis of difference and decision-making cautions that apparently universal forms of reason-giving can themselves privilege particular styles of communication or social positions (Young 1990). GRE does not adopt either framework as a complete theory of economic governance. The narrower implication is that the architecture of reason exchange, translation, recognition, and response can affect which considerations become practically visible and revisable.

Definition 16.202 (Deliberative governance profile)**.** A *deliberative governance profile* records the questions open to reasoned examination, the positions able to participate directly or through representation, the forms of evidence and expression recognized, the information available to participants, the facilitation and translation conditions, the relation between deliberation and decision authority, the treatment of disagreement, and the pathways through which deliberative outcomes can alter later governance.

Deliberation is stage-sensitive. Deliberation during problem formation can alter boundaries and the definition of the object. Deliberation during option formation can widen or narrow feasible alternatives. Deliberation after a provisional decision can clarify implementation, monitoring, and reasons for revision. A process that becomes deliberative only after the principal options have already been excluded offers a different participatory relation from one that permits challenge to the option set itself.

Deliberation also has resource conditions. Technical documents can be difficult to interpret without support. Repeated meetings require time. Some participants possess staff, legal counsel, data access, or institutional memory while others participate intermittently. Translation, accessible formats, independent expertise, compen-

sation, childcare, asynchronous participation, or protected time can alter practical deliberative capacity. These supports should be analyzed as governance inputs because they shape practical deliberative capacity.

Disagreement need not indicate deliberative failure. Heterogeneous values, interests, experiences, and predictions can persist after serious exchange. Section 16.19 will examine value heterogeneity directly. The present section therefore treats deliberation as a mechanism for improving mutual intelligibility, evidential scrutiny, reason disclosure, and revision capacity without requiring consensus. Persistent disagreement can itself clarify the dimensions on which aggregation, compromise, domain differentiation, rights protection, or further contestation are required.

Proposition 16.203 (Deliberation–decision distinction)**.** *Deliberation and decision are distinct governance functions. A deliberative process can inform, constrain, or revise a decision without possessing final decision authority, and a decision can be institutionally valid despite limited deliberation. Assessment should therefore specify how deliberative outputs enter authorization, reasons, implementation, review, or later revision.*

This distinction also prevents deliberation from obscuring accountability. When final authority remains concentrated, responsibility for commitment should not be diffused merely because consultation was broad.

16.18.4 Contestation

Governance requires provisional closure. Budgets are adopted, licenses issued, contracts implemented, classifications applied, technical standards selected, benefits determined, and infrastructures built. Contestability preserves a pathway through which consequential closure can remain challengeable after authority and routine begin to stabilize it. Chapter 10 defined practical contestability as the capacity to question, challenge, supplement, appeal, reopen, or seek review of a consequential element of praxis. The present subsection specializes that architecture for substantive economic governance.

The object of contestation can differ. A participant can challenge factual evidence, model assumptions, classification, procedural fairness, jurisdiction, value judgment, burden allocation, representative authority, implementation practice, or the continued suitability of a rule under changed conditions. A single complaint mechanism rarely handles all these objects equally well. Effective architecture therefore benefits from identifying what can be contested and which forum possesses the competence and authority to address that kind of challenge.

Definition 16.204 (Contestation-governance profile)**.** A *contestation-governance profile* records the governance objects open to challenge, the positions with standing to challenge them, the information and evidence accessible to challengers, the channels and protections available, the authorities receiving challenges, the timing and escalation structure, and the possible consequences of a justified challenge, including explanation, correction, suspension, compensation, redesign, or reopening.

Contestation differs from permanent veto. A governance system can continue operating while challenges are examined. It also differs from generalized opposition: a challenge may concern one classification or implementation practice while leaving

the wider institution intact. This distinction matters for continuity. Excessively broad reopening can impose delay, uncertainty, or strategic obstruction, while excessively narrow standing or remedy rules can make contestation largely symbolic.

Power affects contestability. A position dependent on the institution being challenged can face retaliation or loss of access. A large organization can sustain litigation, technical submissions, and repeated review requests more easily than an individual or small association. Information required to challenge a decision can be held by the original decision-maker. The contestation architecture therefore interacts with Section 16.4's forms of power and Section 16.6's manufactured vulnerability. Independent advice, fee support, disclosure rules, collective representation, confidentiality, time limits, and anti-retaliation mechanisms can change the practical capacity to contest.

Proposition 16.205 (Contestability–remedy condition)**.** *A challenge pathway has stronger practical contestability when justified challenges can connect to a consequential response appropriate to the governance object, such as reasoned explanation, correction, review, compensation, suspension, redesign, or reopening. The existence of a complaint channel alone therefore provides limited evidence about effective contestability.*

The proposition does not require a favorable outcome for the challenger. A reasoned rejection can be part of effective contestability where the process is competent, sufficiently independent, and connected to further review where appropriate.

16.18.5 Review

Review is the governance function through which a prior decision, rule, classification, procedure, implementation, or institutional practice is re-examined by a process competent to assess whether it should be maintained, corrected, supplemented, suspended, or revised. Review can occur automatically, periodically, upon trigger, or after challenge. It can be internal or external, technical or normative, narrow or systemic. Its defining feature is re-examination of an already formed governance object under specified standards and authority.

Review is especially important in a historically generative framework because consequences can become visible after initial authorization. Section 16.15 showed that warning signals and model interpretations can change as evidence accumulates. Section 16.16 distinguished institutional learning from adaptation. Review provides one institutional interface through which new evidence, changed conditions, or accumulated challenges can enter reconsideration without requiring complete institutional dissolution.

Definition 16.206 (Review architecture)**.** A *review architecture* specifies the governance objects subject to re-examination, the triggers or schedule for review, the reviewing body and its competence, the evidence and standards considered, the relation between reviewer and original decision-maker, the participatory and representational positions available during review, the authority to require correction or revision, and the recording and follow-up of the review outcome.

Review can be weak even when formally available. A reviewing body may lack

relevant information, expertise, independence, time, or remedial authority. Internal review can possess strong contextual knowledge while facing conflicts of interest. External review can provide distance while lacking local understanding. The appropriate degree of independence therefore depends on the object, conflict structure, consequences, and availability of complementary safeguards.

The timing of review is also consequential. A retrospective review can support accountability and learning while arriving too late to prevent irreversible harm. Pre-implementation review can prevent some errors while delaying action. Periodic review can detect gradual drift, yet intervals that are too long can allow obsolete rules to persist. Triggered review can respond to anomalies, complaints, threshold crossings, or evidence updates. Governance design can combine these forms, with no presumption that one review rhythm is generally sufficient.

Proposition 16.207 (Review-independence proportionality)**.** *The independence required for credible review generally increases with the severity of conflicts of interest, concentration of original authority, difficulty of contestation, and consequences of error, while the design should also preserve access to the contextual knowledge and technical competence necessary for substantive re-examination.*

The proposition is deliberately proportional. Complete organizational separation is not the only form of independence, and internal review is not inherently defective. The relevant question is whether the architecture can re-examine the object rather than merely reproduce the original determination.

16.18.6 Appeal

Appeal is a more specific governance pathway through which a party or represented position asks another competent authority, level, or forum to reconsider an earlier determination or its consequences. It commonly follows an adverse decision, although some systems also permit appeals concerning procedural exclusion, jurisdiction, standing, classification, or remedy. Appeal therefore belongs within contestability while remaining distinct from review in general.

Definition 16.208 (Appeal pathway)**.** An *appeal pathway* is a recognized sequence through which a position with standing can seek reconsideration, modification, reversal, remand, or another specified remedy concerning an earlier determination before an authority or forum possessing defined appellate competence.

Appeal architecture includes standing, filing rules, time limits, evidentiary scope, standards of review, interim effect, representation, cost, accessibility, reason-giving, remedial authority, and possibilities for further escalation. These design choices shape whether an appeal is practically usable. A formally broad right of appeal can remain inaccessible where deadlines are short, procedures are highly technical, legal assistance is costly, records are difficult to obtain, or the contested consequence becomes irreversible before the appeal is resolved.

Appeal also has distributive incidence. Well-resourced organizations can sometimes use repeated appeal to delay regulation, enforcement, compensation, market entry, or infrastructure decisions. Vulnerable positions can face the opposite problem: the cost of appeal exceeds the value of the claim, or the process requires capaci-

ties they do not possess. Fast-track procedures, collective actions, ombuds functions, fee shifting, simplified forms, interim protection, or differentiated review standards can change this incidence under some conditions. Their appropriateness remains domain-specific.

Review and appeal should therefore remain analytically distinct. A regulator can periodically review a rule without any party filing an appeal. A participant can appeal a particular decision even where the underlying rule is not under review. An appeal can also trigger broader review when repeated cases reveal a systematic problem.

Proposition 16.209 (Appeal–review distinction)**.** *Appeal is a standing-dependent challenge pathway concerning an earlier determination, while review is the broader governance function of re-examination and can occur without an appellant. The two functions can be linked, but their triggers, scope, authority, and incidence should be specified separately.*

This distinction helps preserve accountability. A system that relies entirely on individual appeals can transfer the burden of detecting systemic failure onto those already affected by it. Periodic or risk-based review can complement appeals where problems are difficult for individual participants to observe or challenge.

16.18.7 Distributed Governance

Participation and contestability need not be organized through a single decision center. Economic governance often spans local organizations, professional bodies, courts, regulators, firms, standards organizations, platform operators, unions, community institutions, public agencies, and transnational arrangements. Different centers can possess distinct information, mandates, capabilities, and relations to affected positions. Distributed governance concerns how participatory and decision functions are allocated across this field and how the centers remain connected.

The analysis has affinities with polycentric governance, in which multiple formally independent or partially autonomous centers interact within a wider institutional field (Ostrom 2010). GRE uses this literature as one important precedent while retaining a broader analytical category. Distributed governance can include polycentric systems, nested organizations, delegated local authority, multi-level administration, network governance, or hybrid public-private arrangements. The relevant question is how authority, knowledge, participation, contestation, and responsibility are distributed and coordinated.

Definition 16.210 (Distributed participatory governance)**.** *Distributed participatory governance* is an arrangement in which voice, representation, deliberation, decision rights, implementation, review, appeal, or other governance functions are allocated across multiple centers whose activities remain consequentially connected through interfaces, shared constraints, escalation pathways, mutual recognition, or higher-order governance relations.

Distribution can create several advantages. Local centers can possess situated knowledge, lower participation costs, and closer relations to affected positions. Multiple centers can provide redundancy and alternative venues for challenge. Specialization can improve technical competence. Overlapping authority can provide checks

against concentration. These possibilities should be treated conditionally because distributed governance also creates coordination costs, inconsistent standards, forum complexity, duplication, and responsibility gaps.

Interfaces are therefore central. Participants need to know which center controls which object, where challenges should be directed, how decisions travel across levels, what happens when centers disagree, and which authority can resolve conflicts. Section 16.12's higher-order relational governance is especially relevant because relations among governance centers can determine whether distribution functions as coordination or fragmentation.

Distributed governance also affects participation inequality. Highly organized actors can navigate multiple venues strategically, maintain staff across levels, and shift arguments among forums. Less-resourced participants can experience the same institutional plurality as complexity and burden. More access points therefore do not automatically produce greater practical inclusion. Interoperability of procedures, information sharing, common standing rules, referral mechanisms, and support for navigation can influence the practical incidence of distributed governance.

Proposition 16.211 (Distributed-governance coordination condition)**.** *Distribution of participatory and decision functions can widen access, knowledge, redundancy, or contestability when the participating centers possess workable interfaces for coordination, responsibility, information exchange, conflict handling, escalation, and revision. In the absence of such interfaces, distribution can create fragmentation or shift burdens onto participants required to navigate the resulting complexity.*

The proposition leaves open the appropriate degree of centralization. Emergency response, network infrastructure, monetary coordination, local land use, workplace governance, and professional regulation can require different architectures. GRE therefore treats centralization and distribution as design dimensions rather than universal normative endpoints.

16.18.8 Unequal Voice

Participatory systems operate within unequal economic and institutional fields. Positions differ in time, income, staff, legal support, technical expertise, data access, language, mobility, confidence, social recognition, safety, organizational continuity, and proximity to decision-makers. Section 10.12 defined participation inequality as a consequential difference in the practical capacity to access, sustain, influence, benefit from, or safely withdraw from participatory processes. The present subsection focuses on one dimension of that inequality: unequal voice within repeated governance processes.

Definition 16.212 (Unequal-voice profile)**.** An *unequal-voice profile* records consequential differences among positions in their capacities to formulate, transmit, sustain, legitimate, document, amplify, and obtain response to governance-relevant claims, together with the resource, recognition, representational, procedural, safety, and temporal conditions producing those differences.

Unequal voice can arise before any meeting occurs. Agenda access determines which questions are considered. Data and professional expertise affect what counts

as institutionally legible evidence. Organizational continuity affects who remembers previous decisions and can follow implementation across years. Financial resources affect the ability to commission studies, retain counsel, travel, or sustain repeated participation. Social recognition affects whose warning is treated as credible. Language and procedural familiarity affect translation into accepted categories. These differences can compound across cycles and gradually generate institutional asymmetry even where each individual procedure appears formally open.

Young's analysis of domination, marginalization, and cultural representation is relevant because formally neutral procedures can carry unequal effects when institutional norms privilege some positions, experiences, or communicative forms (Young 1990). Sen's capability-oriented analysis provides a complementary warning against equating nominal provision with substantive opportunity (Sen 1999). Within GRE, the analogous point is that an equal legal right to speak or submit a comment can coexist with unequal practical capacity to convert that right into sustained and intelligible participation.

Proposition 16.213 (Formal-equality–voice divergence)**.** *Formally equal opportunities for participation can coexist with materially unequal voice when positions differ in the capacities, protections, information, recognition, time, representation, or procedural access required to convert formal opportunity into sustained governance influence.*

Governance responses need not seek identical voice in every setting. Some roles carry specialized responsibilities; some decisions require expertise; some procedures allocate formal authority according to law or mandate. The justice question concerns whether these differences are appropriately scoped and whether weakly positioned participants retain meaningful pathways of recognition, representation, challenge, review, and protection. Supports such as translation, compensation, accessible formats, independent expertise, public-interest representation, protected time, capacity building, procedural simplification, or collective organization can sometimes alter the conversion structure, while each mechanism has costs and possible capture risks of its own.

Unequal voice also has a recursive dimension. Participation can generate later capacity. Actors who repeatedly enter governance accumulate procedural knowledge, contacts, records, legitimacy, and organizational memory. Excluded positions can lose opportunities to build those same capacities. Conversely, well-designed participation can generate collective agency, institutional literacy, and durable channels that reduce later dependence on exceptional access. The distribution of voice therefore affects future participation as well as current decisions.

Proposition 16.214 (Participatory-capacity recursion)**.** *Where repeated participation materially changes procedural knowledge, organizational continuity, representational capacity, institutional recognition, or access to decision pathways, the participation architecture can recursively widen or narrow later differences in voice. Evaluation should therefore consider the capacities generated or eroded through participation over time as well as the immediate influence exercised in a single decision episode.*

Participation and contestability, taken together, provide a governance architecture for keeping consequential economic relations open to expression, representation, reason exchange, challenge, re-examination, escalation, distributed decision, and revi-

sion. Their analytical value lies in making visible who can enter a process, what can be influenced, how disagreement travels, where correction remains possible, how decision centers are connected, and which positions possess the capacities needed to use those pathways in practice. This architecture remains compatible with differentiated authority and differentiated influence across governance objects.

This architecture also exposes a problem that participation alone cannot resolve: participants can remain divided about the values through which a common decision should be judged. Increasing voice can reveal value plurality, including disagreements that persist after extensive participation, and deliberation can clarify incommensurability without producing a single aggregate ordering. Section 16.19 therefore turns to governance under heterogeneous values, examining value plurality, incommensurability, conflict, coexistence, procedural accommodation, domain-specific norms, and the limits of universal aggregation.

16.19 Governance under Heterogeneous Values

Section 16.18 established participation and contestability as governance functions through which economically consequential claims can enter, be represented, examined, challenged, reviewed, and revised. Participation can improve the visibility of affected positions while leaving a further problem unresolved: the participating positions may evaluate the same relation, institution, intervention, or trajectory through heterogeneous value forms and evaluative orders that cannot be reduced to a single uncontested metric. Chapter 14 already developed the analytical architecture of value plurality, comparison, commensuration, translation, conflict, aggregation, and evaluative remainder, especially in Section 14.11. The role of the present section is therefore institutional rather than classificatory. Its objective is to specify how governance can proceed when heterogeneous valuations remain consequential at the point of collective or institutional decision. The discussion proceeds through value plurality, incommensurability, conflict, coexistence, procedural accommodation, domain-specific norms, and limits of universal aggregation. The method is mechanism-oriented and procedurally plural: it asks how governance architectures preserve, translate, prioritize, constrain, or close value claims without treating the closure of a practical decision as proof that the underlying value order has become complete.

The section begins from the definition of value plurality already established in Chapter 14. A governance problem involves heterogeneous values when more than one materially relevant value form, evaluative standpoint, or order of worth bears on a consequential decision, and when the relation among those valuations affects what can be justified, compared, protected, compensated, or revised. Heterogeneity can arise among persons, organizations, institutions, domains, generations, or evaluative practices within one actor. A hospital can simultaneously operate under clinical, legal, fiscal, professional, care, accessibility, and public-accountability norms. A research institution can face epistemic, educational, financial, ethical, legal, ecological, and organizational concerns. A land-use decision can implicate livelihood, housing, ecological continuity, cultural attachment, property, public revenue, and future option value. Governance under heterogeneous values therefore concerns the architec-

Table 16.17: Governance functions under heterogeneous values in GRE

Governance function	Primary object	Possible governance response	Principal risk or remainder
Value plurality	Several relevant value forms or orders	Multi-dimensional representation, explicit standing, protected conditions	One evaluative order becoming an implicit default
Incommensurability	Absent or contested common metric	Partial ordering, thresholds, reasons, scenarios, protected claims	Forced cardinalization or false closure
Conflict	Incompatible claims, priorities, or trajectories	Priority rules, compromise, compensation, sequencing, contestation	Burdens or losses concealed by procedural closure
Coexistence	Persistent heterogeneous valuations within one system	Institutional differentiation, layered norms, plural pathways	Fragmentation, strategic forum use, incompatible obligations
Procedural accommodation	Need to decide while disagreement persists	Standing, reason-giving, representation, translation, review, recorded remainder	Procedure substituting for substantive justification
Domain-specific norms	Different normative grammars across domains	Interface rules, limited translation, jurisdiction, boundary governance	Domain capture or inappropriate export of one norm system
Aggregation limits	Pressure for one summary ordering or metric	Purpose-specific aggregation plus recoverable disaggregation	Loss of incidence, structure, minority claims, or irreversibility

ture through which these dimensions acquire standing and practical consequence.

Definition 16.215 (Heterogeneous-value governance profile)**.** A *heterogeneous-value governance profile* records the materially relevant value forms, evaluative orders, affected and represented positions, comparison or translation procedures, protected conditions, decision authority, unresolved conflicts, aggregation rules where used, domain-specific constraints, residual claims, review conditions, and pathways through which the governing arrangement can be revised when values, evidence, positions, or consequences change.

Definition 16.215 does not require every governance process to represent every conceivable value. The scope remains problem-relative. It requires enough visibility to prevent a materially consequential value operation from disappearing into an apparently neutral technical procedure. A budget rule, cost-benefit model, ranking, professional standard, constitutional right, ecological threshold, fiduciary duty, community norm, or bargaining procedure can each organize value differently. When one of these mechanisms governs a decision, its selection and scope become part of the governance analysis.

Table 16.17 summarizes the seven governance functions developed below. The rows are connected and non-exclusive. One institutional problem can contain plurality, partial incommensurability, conflict, domain differentiation, procedural accommodation, and bounded aggregation simultaneously.

A first scope principle follows from this architecture. Governance often has to close an action problem even where the value problem remains partly open. A deadline, budget cycle, safety intervention, contract, election, or infrastructure decision can require commitment before every disagreement is resolved. Chapter 14 distinguished decision closure from value closure. The governance consequence is that institutions should not infer an achieved common value order merely because a binding decision

has been made.

Proposition 16.216 (Governance–value-closure distinction)**.** *The adoption, authorization, or implementation of a governance decision does not by itself establish closure of the heterogeneous value relations underlying that decision. Where unresolved value claims remain materially consequential, governance should preserve enough information about their standing, incidence, and revision conditions to support later review, remedy, adaptation, or re-evaluation.*

The proposition is especially important where a winning coalition, administrative rule, market price, legal judgment, or technical optimization creates a clear operational outcome. Such closure can be institutionally necessary while leaving distributive, relational, ecological, epistemic, or intergenerational claims unresolved. Recording those claims is therefore part of governance memory rather than evidence of indecision.

16.19.1 Value Plurality

Chapter 14 defined value plurality as the presence of more than one analytically relevant value form, evaluative standpoint, or order of worth bearing materially on assessment. The governance problem begins one step later: which of those values receive standing, through which institutions or procedures, at what stage, and with what capacity to affect the decision? Plurality can remain invisible when one value order is built into the default metric, jurisdiction, mandate, or organizational routine.

Governance of plurality therefore starts with visibility. A public agency can use financial cost as a common administrative language while separately protecting legal rights and ecological thresholds. A university can evaluate research through disciplinary peer judgment while applying independent rules for ethics, employment, safety, and financial stewardship. A community organization can combine member deliberation with legal obligations that are not open to simple majority waiver. These arrangements do not eliminate value plurality. They distribute evaluative authority across mechanisms.

The need for multiple evaluative mechanisms has precedents in philosophical and sociological work on plural modes of valuation. Anderson argues against treating different goods as appropriately governed by one market-like mode of valuation (E. Anderson 1993). Lamont's sociology of valuation similarly emphasizes that worth, categorization, and judgment are socially organized through heterogeneous evaluative practices (Lamont 2012). GRE uses these traditions selectively. The institutional question is how the governance architecture identifies which evaluative order is relevant to which object, what relations exist among the orders, and which authority can resolve or manage their interaction.

Plurality also exists inside nominally unified goals. "Efficiency" can mean lower financial cost, lower time cost, lower energy use, greater throughput, or lower administrative burden. "Resilience" can concern financial solvency, ecological regeneration, infrastructure redundancy, community capacity, or institutional continuity. "Access" can refer to legal eligibility, geographic proximity, affordability, technical interoperability, linguistic intelligibility, or practical usability. Governance should therefore unpack composite labels when different operational meanings could generate differ-

ent decisions.

The same point applies to affected positions. An intervention can generate financial benefit for an organization, capability benefit for some participants, ecological loss for another population, and future-option loss for later users. Section 16.7 developed distributional non-equivalence precisely because similar aggregate resources can coexist with divergent capability, access, participation, and future-possibility distributions. Governance under value plurality adds an evaluative layer: positions can also disagree about which of those distributions should have priority, what thresholds should be protected, and which burdens can be compensated.

Proposition 16.217 (Plurality-visibility condition)**.** *Where several value forms, evaluative orders, or affected standpoints materially alter the interpretation of a governance problem, adequate governance requires their relevant differences to remain visible at the level needed for decision, incidence analysis, contestation, and revision. Visibility does not require equal weight or identical institutional treatment across all values.*

The final sentence matters because plural governance is not equivalent to indiscriminate balancing. Rights, safety constraints, fiduciary obligations, ecological thresholds, or constitutional competencies can legitimately receive different institutional status from discretionary preferences. The governance task is to make those differences explicit and justified within the relevant architecture.

16.19.2 Incommensurability

Value plurality becomes more demanding where a defensible common metric is absent, inadequate, or contested. Chapter 14 defined incommensurability in precisely these terms while preserving the possibility of comparison and judgment. This distinction should carry directly into governance. An institution can compare alternatives, reject unacceptable conditions, establish priorities, or make a bounded choice without representing every relevant value on one cardinal scale.

Philosophical discussions of incommensurability emphasize that absence of a common measure is weaker than complete incomparability (Raz 1986; Chang 1997). Governance therefore has several possible architectures besides forced scalar aggregation. It can use thresholds, protected conditions, partial orders, dominance relations, scenario-specific comparisons, lexicographic priorities, portfolio approaches, deliberative judgment, or explicit discretion bounded by reasons and review. Each architecture carries its own assumptions and risks.

Definition 16.218 (Incommensurability governance)**.** An *incommensurability-governance profile* records the values or claims for which a common metric is absent or contested, the comparison relations that remain available, any protected thresholds or priority rules, the authority responsible for judgment, the reasons required for decision, the residual claims that survive closure, and the conditions under which the comparison architecture can be revised.

A practical example is environmental licensing. Financial cost, local employment, habitat continuity, public safety, cultural significance, and legal rights can all be relevant. Monetary valuation can clarify some trade-offs while ecological thresholds or legal duties constrain others. The presence of several decision procedures in the

same case need not indicate inconsistency. It can reflect an institutional recognition that different claims require different forms of appraisal.

Incommensurability also changes the meaning of compensation. Where a loss can be adequately represented in a shared metric and reversible substitutes exist, compensation can restore a relevant position under specified conditions. Where the affected value is historically unique, relational, ecological, identity-bearing, or practically irreversible, monetary compensation can remain useful without establishing equivalence. Chapter 14's conversion-remainder analysis and Section 16.11's distinction between repair and restitution are relevant here. Governance should record what the compensation addresses and which claims remain.

Proposition 16.219 (Incommensurability–decision possibility)**.** *Incommensurability does not preclude governance decision when a justified procedure can establish thresholds, priorities, partial comparisons, protected conditions, or reasoned judgment adequate to the problem. The resulting decision should not be represented as evidence that the underlying values have become fully commensurable.*

This proposition preserves practical agency while resisting false precision. It also creates a burden on governance to distinguish the rule that authorizes closure from the claim that one alternative possesses a universally higher value.

16.19.3 Conflict

Heterogeneous values can coexist without immediate conflict when they concern different objects, stages, or domains. Conflict arises when claims, obligations, priorities, or trajectories cannot all be realized within the relevant constraints and horizon. The conflict can concern resources, authority, timing, risk, rights, ecological limits, recognition, identity, distribution, or future possibilities. Treating every conflict as a measurement problem can obscure the fact that some losses arise from genuine incompatibility rather than insufficient information.

Conflict should therefore be typed. *Factual conflict* concerns disagreement about states of the world, causal mechanisms, or likely consequences and can sometimes be reduced through evidence. *Priority conflict* concerns disagreement about the relative importance or ordering of accepted values. *Scope conflict* concerns which values, subjects, or time horizons properly belong inside the decision. *Rule conflict* concerns which institution, right, standard, or jurisdiction should govern. *Trajectory conflict* concerns futures that cannot be jointly realized because one pathway forecloses another. These categories can overlap, and their governance responses differ.

Definition 16.220 (Heterogeneous-value conflict profile)**.** A *heterogeneous-value conflict profile* records the incompatible or competing claims, their affected positions and temporal horizons, the source of conflict, the feasible joint realizations if any, protected constraints, allocation of decision authority, burden and benefit incidence, possible forms of compromise or sequencing, residual losses, and available pathways for contestation, compensation, repair, or later revision.

Conflict governance can use several mechanisms. Priority rules can establish that some conditions are protected before discretionary balancing occurs. Compromise can distribute gains and losses across positions. Sequencing can realize different

values at different times. Portfolio arrangements can preserve several pathways. Compensation and repair can address burdens that remain after choice. Rights can remove some options from ordinary aggregation. Experimental or reversible interventions can postpone stronger closure while generating information. None of these mechanisms is universally superior because the conflict object, reversibility, affected positions, and institutional competence differ.

The distribution of conflict-management burdens deserves explicit attention. A governance system can appear to reconcile values by repeatedly asking one group to adapt, translate, wait, accept residual risk, or carry the cost of institutional compromise. Section 16.6's manufactured-vulnerability analysis and Section 16.18's unequal-voice analysis provide tools for examining this incidence. Procedural agreement among formally participating actors does not remove the need to ask who bears the unresolved remainder.

Proposition 16.221 (Conflict-closure adequacy)**.** *Governance of heterogeneous-value conflict is adequate only to the extent warranted by the problem when the closure rule identifies the relevant conflict, allocates decision authority, preserves protected constraints, makes material incidence visible, and records significant residual claims or losses that the decision does not resolve.*

The proposition does not require every conflict to remain institutionally open forever. It requires clarity about what the decision closed and what it left behind.

16.19.4 Coexistence

Persistent value difference does not always require convergence. Economic systems routinely contain distinct professions, communities, institutions, jurisdictions, ownership forms, religious or cultural practices, scientific fields, organizational missions, and public functions whose internal evaluative grammars differ. Governance can therefore support coexistence by preserving differentiated spaces while regulating the interfaces through which those spaces affect one another.

Definition 16.222 (Value-coexistence architecture)**.** A *value-coexistence architecture* is a governance arrangement that permits several materially different evaluative orders, practices, or institutional forms to remain operative within a shared economic field while specifying their domains of competence, interface conditions, mutual constraints, conflict pathways, and higher-order rules for cases in which one domain materially affects another.

Coexistence can take several forms. Jurisdictional differentiation can assign different questions to different legal or administrative bodies. Organizational pluralism can permit public, cooperative, nonprofit, professional, community, and for-profit forms to coexist. Professional autonomy can protect domain-specific standards while public law supplies outer constraints. Technical interoperability can allow systems to interact without requiring one internal architecture. Federal or polycentric arrangements can allocate authority across levels. These examples share a design logic of interface governance rather than complete homogenization.

Coexistence also creates risks. Differentiated domains can become insulated from affected outsiders. Actors can select the forum whose evaluative rules are most ad-

vantageous. Incompatible obligations can accumulate at interfaces. Higher-status domains can export their categories into weaker ones. Local autonomy can protect domination as well as diversity. Interface rules therefore matter as much as internal autonomy.

Proposition 16.223 (Coexistence–fragmentation distinction)**.** *Persistent value plurality can be institutionally accommodated through differentiated domains or governance centers when workable interface rules preserve coordination, responsibility, conflict handling, and protection against cross-domain externalization. Differentiation without such interfaces can produce fragmentation rather than stable coexistence.*

This proposition connects directly to Section 16.18's treatment of distributed governance. Multiple centers can preserve value diversity while also creating navigation burdens and responsibility gaps. Coexistence therefore requires governance of the relations among plural orders, not merely tolerance of their separate existence.

16.19.5 Procedural Accommodation

Where heterogeneous values cannot be fully reconciled before action, procedure becomes an important part of governance. Procedural accommodation concerns the conditions under which disagreement can be carried through a decision process without requiring prior substantive convergence. Its purpose is to create a legitimate and revisable way of acting amid persistent difference while preserving enough of the disagreement for later accountability and learning.

The participatory architecture of Section 16.18 supplies several components: standing, voice, representation, deliberation, contestation, review, appeal, and support for unequal participatory capacities. Heterogeneous-value governance adds requirements concerning translation among evaluative languages, disclosure of priority rules, treatment of non-negotiable or protected claims, documentation of residual disagreement, and the relation between procedural outcome and substantive authority.

Definition 16.224 (Procedural accommodation profile)**.** A *procedural accommodation profile* records the positions with standing, the value claims and forms of expression recognized, translation and evidential supports, protected constraints, agenda and decision rules, procedures for reason-giving and disagreement, allocation of authority, treatment of minority or residual claims, review and appeal pathways, and conditions for reopening the decision when consequences or value relations change.

Procedural accommodation can include negotiated settlement, deliberative judgment, supermajority rules, bicameral or multi-body approval, independent rights review, expert panels with public contestation, participatory budgeting, mediation, ombuds functions, citizen panels, professional self-governance under public constraints, or mixed systems. The appropriate mechanism depends on scale, expertise, rights, reversibility, urgency, affected positions, and the character of the conflict.

Procedure cannot carry unlimited normative weight. A carefully designed process can still produce a substantively objectionable outcome, and a substantively defensible outcome can emerge from a procedurally weak process. Chapter 16 has repeatedly separated institutional mechanism from justice. The same discipline applies

here. Procedural quality is one dimension of evaluation, especially where heterogeneous values make direct substantive comparison incomplete.

Proposition 16.225 (Accommodation–endorsement distinction)**.** *A procedurally accommodated decision can create an authorized and revisable basis for collective action without implying that every affected position endorses the result or that all substantive value conflicts have been resolved. Governance should distinguish compliance with the decision procedure from convergence of underlying values.*

The distinction is important for legitimacy and record keeping. Minority reasons, dissenting assessments, unresolved harms, and conditions for review can remain institutionally visible after a decision becomes operative. Such records can later matter when consequences diverge from expectations or when historically marginalized claims acquire new recognition.

16.19.6 Domain-Specific Norms

Heterogeneous values are often organized through domains with partially distinct normative grammars. Law, medicine, science, education, finance, engineering, public administration, ecological stewardship, care, and democratic governance each contain specialized concepts of responsibility, evidence, competence, acceptable risk, authority, and professional obligation. Chapter 14 treated cross-domain value conversion as a partial and potentially remainder-producing operation. Governance must therefore ask how domain-specific norms interact without assuming that one domain can supply a complete evaluative vocabulary for all others.

Domain specificity can be productive. Scientific communities can maintain evidential standards different from electoral preference. Courts can protect rights through legal reasoning that differs from market valuation. Medical practice can recognize fiduciary or care obligations that cannot be reduced to revenue. Engineering safety standards can impose constraints on otherwise profitable designs. Democratic institutions can require public justification for uses of authority that private contracting alone would not provide. These differences allow specialized knowledge and responsibility to develop.

The risk is domain capture. A financial metric can become the sole criterion for educational policy; a technical risk score can displace legal judgment; legal categories can become an inadequate proxy for lived harm; electoral popularity can override scientific evidence; professional expertise can become insulated from affected public claims. Cross-domain governance therefore requires interface rules that define what each domain can authoritatively determine and where translation, consultation, review, or external constraint is required.

Definition 16.226 (Domain-norm interface)**.** A *domain-norm interface* is the governance arrangement through which norms, evidence, classifications, responsibilities, or decisions generated within one institutional or evaluative domain become relevant to another domain, including the scope of recognized authority, translation procedure, retained remainder, contestation pathway, and limits on cross-domain substitution.

Interface design can use jurisdictional rules, professional standards, statutory

mandates, evidentiary requirements, constitutional constraints, interoperability protocols, ethics review, public consultation, or multi-disciplinary decision bodies. The central requirement is visibility of the translation. If a scientific estimate becomes a regulatory threshold, governance should distinguish the evidential claim from the policy judgment. If a legal finding becomes a financial liability, the conversion should not be treated as a complete valuation of the underlying harm. If a market price informs public allocation, price remains one representation among others where rights, access, ecological conditions, or future generativity are materially relevant.

Proposition 16.227 (Domain-norm translation condition)**.** *Where a governance decision imports a norm, metric, classification, or judgment from one domain into another, analytical adequacy requires the interface to specify the imported object, its authority and scope, the translation or conversion performed, and any materially relevant remainder or constraint that does not travel with the imported representation.*

The proposition follows the book's broader anti-premature-synthesis principle. Productive coordination across domains does not require theoretical identity among them.

16.19.7 Limits of Universal Aggregation

Aggregation is indispensable to many forms of governance. Budgets, elections, composite indicators, social accounts, risk scores, portfolio decisions, public-health measures, cost-benefit analyses, and organizational dashboards all combine information. The governance question therefore concerns the scope and consequences of aggregation rather than a general opposition to it. Chapter 14 showed that aggregation can remove distributional, relational, structural, and temporal information even when the underlying measurements are accurate. The present subsection asks when a summary ordering or metric can legitimately govern and when additional architecture is required.

Commensuration studies are especially relevant because metrics can reorganize the objects and behavior they measure (Espeland and Stevens 1998). An index used only for descriptive reporting has a different governance role from the same index used to allocate funding, determine legal eligibility, rank organizations, trigger sanctions, or define institutional status. As the metric becomes consequential, the weighting, normalization, missing dimensions, error distribution, and opportunities for strategic response become governance objects.

Universal aggregation carries a stronger claim than purpose-specific aggregation. A purpose-specific metric can be adequate within a bounded domain: monetary accounting for a financial budget, an engineering safety index for a specified technical system, or a standardized educational indicator for one diagnostic task. A universal aggregation claim treats the same representation as sufficient for heterogeneous domains, affected positions, or normative questions. The burden of justification therefore rises with the breadth of the claim.

Capability-oriented approaches provide one important precedent for resisting premature reduction to a single utility measure. Sen's work allows plural informational bases and incomplete ordering, and operational capability research has explored ex-

plicit weighting and public reasoning without requiring that every evaluative difference collapse into one final cardinal quantity (Sen 1992; Alkire 2002). GRE generalizes the governance lesson: incomplete ordering can remain actionable when decision rules, thresholds, protected conditions, and revision procedures are explicit.

Several safeguards can accompany aggregation. Disaggregated source data can remain recoverable. Distributional incidence can be reported alongside totals. Protected thresholds can constrain what an aggregate is permitted to trade off. Sensitivity analysis can show how results change under different weights. Minority or residual claims can be recorded separately. Multiple dashboards can preserve domain distinctions. Review can be triggered when the metric produces unexpected or systematically asymmetric effects. These mechanisms retain the practical advantages of aggregation while reducing the risk that the aggregate becomes a hidden theory of value.

Proposition 16.228 (Universal-aggregation scope condition)**.** *A common metric or aggregate can govern a heterogeneous-value problem only within the scope for which its dimensions, normalization, weighting, substitution assumptions, affected-position incidence, and information loss are sufficiently justified. Expansion of the metric across additional domains or normative questions requires renewed justification rather than automatic extension of its authority.*

The proposition leaves substantial room for quantitative governance. It requires institutional modesty about what a metric establishes. A measure can be useful, reliable, and decision-relevant without being an exhaustive representation of value.

Governance under heterogeneous values therefore concerns more than choosing among competing preferences. It concerns the architecture through which plural value forms and evaluative orders become visible, compared, translated, constrained, protected, aggregated, or left partly unresolved. The section's seven functions provide a governance vocabulary for acting under plural valuation while preserving disagreement, domain boundaries, residual claims, and revision pathways where they remain consequential. This architecture also reveals a temporal problem. Value relations, evidence, affected positions, technologies, ecological conditions, and institutional capacities change after a decision is made. A governance arrangement adequate at one moment can become poorly fitted later even when its original procedure was defensible. Section 16.20 therefore turns to adaptive and evolutionary governance, examining monitoring, feedback, iteration, experimentation, reversibility, institutional learning, rule evolution, and co-evolution with governed systems.

16.20 Adaptive and Evolutionary Governance

Sections 16.12–16.19 developed governance architectures for relations, generative processes, constraints and capacities, near-critical fields, institutions, law, participation, and heterogeneous values. The present section addresses the temporal problem that follows from those architectures: governance arrangements operate in fields whose evidence, participants, technologies, capacities, relations, values, and institutional conditions can change while governance is underway. Its role is to specify how governance can remain revisable without reducing revision to continuous improvi-

sation. The objective is to develop a coherent architecture of monitoring, feedback, iteration, experimentation, reversibility, institutional learning, rule evolution, and co-evolution with governed systems. The method is synthetic and historical. It specializes the adaptive decision architecture of Chapter 11 and the institutional-learning and institutional-evolution concepts of Section 16.16 for substantive GRE governance, while preserving the chapter's distinctions among effectiveness, justice, legitimacy, generativity, and historical persistence.

Adaptive and evolutionary governance concern related but distinct temporal scales. *Adaptive governance* concerns revision within a governing trajectory when new evidence, consequences, capacities, or conditions become materially relevant. *Evolutionary governance* concerns longer-horizon change in the architecture of governing rules, authority, routines, interfaces, classifications, and institutional carriers. Adaptation can occur without large-scale institutional evolution, while evolutionary change can accumulate through many local adaptations whose aggregate consequences were not designed in advance. Neither term implies improvement. Section 16.16 already established adaptation–improvement and evolution–progress non-equivalence; the present section develops the governance mechanisms through which such change becomes observable, actionable, and historically reconstructable.

Definition 16.229 (Adaptive–evolutionary governance architecture)**.** An *adaptive–evolutionary governance architecture* is a versioned configuration of monitoring, feedback, revision, bounded variation, reversibility, institutional memory, learning, rule-change procedures, and higher-order review through which governance can alter its actions and, where justified, its own governing rules as the governed field and the consequences of governance change through time.

Definition 16.229 places versioning at the center of adaptation. A governance arrangement can change responsively while still preserving which evidence, interpretations, authorities, rules, and expected consequences supported each stage. This prevents adaptive change from becoming indistinguishable from unrecorded drift. It also makes later historical justice and accountability possible because the reasons for change, the conditions under which a rule operated, and the consequences attributed to it remain reconstructable.

Table 16.18 summarizes the eight functions developed in the section.

The functions in Table 16.18 are analytically separable but operationally connected. Monitoring without a feedback pathway can accumulate information without changing governance. Feedback without iteration can produce one-time correction without institutional learning. Experimentation without reversibility can expose affected positions while leaving weak correction capacity. Rule evolution without historical records can erase the basis on which earlier decisions were made. Co-evolution can make all of these functions endogenous because actors adapt to governance while governance adapts to actors.

16.20.1 Monitoring

Monitoring provides the observational infrastructure of adaptive governance. Chapter 11 defined monitoring as part of an adaptive decision architecture, and Section 16.15 showed that monitoring can become especially consequential near criti-

Table 16.18: Functions of adaptive and evolutionary governance in substantive GRE analysis.

Function	**Primary governance object**	**Characteristic discipline**
Monitoring	Materially relevant change in the governed field and governance process	Specify object, boundary, cadence, provenance, affected positions, uncertainty, behavioral effects, and review responsibility
Feedback	Pathway through which observed change can alter governance	Distinguish signal, interpretation, authority, response, delay, amplification, correction, and strategic reaction
Iteration	Repeated cycles of governed action and revision	Preserve versioning, comparability, stopping conditions, cumulative burden, and reasons for continuation or change
Experimentation	Bounded variation introduced partly to generate learning	Define exposure, comparison, safeguards, consent or authority, spillovers, stopping rules, and limits on learning-through-harm
Reversibility	Capacity to alter, withdraw, repair, or roll back commitments	Track practical rollback capacity, temporal decay, asymmetric recoverability, residual effects, and successor obligations
Institutional learning	Change in institutional representation, competence, or governing practice through experience	Connect evidence to retained memory, interpretation, correction, organizational transmission, and later action
Rule evolution	Historical change in rules and meta-rules of governance	Record amendment, reinterpretation, recombination, migration, selection, persistence, and authority over rule change
Co-evolution	Reciprocal change between governance and governed configurations	Model strategic response, performativity, technological and relational adaptation, feedback into rules, and changing governance boundaries

cality. The present subsection broadens the object. Governance monitoring covers target outcomes, implementation processes, distributional incidence, institutional capacity, value conflicts, unintended consequences, boundary effects, and changes in the validity of the assumptions that justified the governing arrangement.

A monitoring architecture therefore requires an explicit object. A labor regulation can monitor wage compliance while missing scheduling instability. A digital-service regime can monitor system uptime while missing exclusion produced by authentication requirements. A conservation programme can monitor protected land while missing extraction displaced beyond the protected boundary. A social programme can monitor recipient outcomes while ignoring administrative burden borne by caregivers or frontline workers. Monitoring that is accurate within its selected object can remain incomplete for the wider governance question.

The boundary of observation is equally important. Section 16.13 showed that process governance can displace extraction or dissipation beyond a formal organizational boundary. Section 16.6 showed that vulnerability can be reproduced through distributed relations without one visible source. Monitoring should therefore specify the positions, scales, externalities, and temporal horizons treated as relevant. Expanding the boundary indefinitely is neither feasible nor analytically useful; the requirement is proportionate visibility of materially plausible consequences.

Monitoring can itself alter the field. Actors can redirect effort toward measured

indicators, change reporting behavior, strategically time actions around audits, or avoid activities that generate unfavorable metrics. Section 16.15 treated signal suppression and displaced fluctuation as risks of over-control. Similar effects occur under ordinary governance. The monitored indicator should therefore be distinguished from the underlying process, and governance should retain channels for anomalies, qualitative evidence, affected-position testimony, and evidence that the monitoring architecture is itself becoming performative.

Definition 16.230 (Governance monitoring profile)**.** A *governance monitoring profile* records the object and boundary of observation, indicators and qualitative evidence, provenance, cadence, temporal horizon, affected positions, uncertainty, responsible monitors, behavioral or institutional effects of observation, escalation conditions, and the authority through which monitoring can trigger review.

Monitoring should also remain proportionate to consequence. High-frequency observation can improve responsiveness while increasing administrative burden, privacy intrusion, gaming incentives, and false alarms. Sparse observation can reduce burden while allowing harmful trajectories to persist unnoticed. The appropriate cadence depends on process speed, consequence, reversibility, evidence latency, and the cost of observing the system.

OECD governance frameworks provide one institutional precedent for connecting implementation monitoring to later adjustment and policy review (OECD 2020b; OECD 2020a). GRE adds relational and generative dimensions: monitoring should make visible whether a target was met together with the capacities, dependencies, option spaces, participation structures, and historical traces generated through the governing process.

Proposition 16.231 (Monitoring–adaptation non-equivalence)**.** *The production of monitoring evidence does not by itself constitute adaptive governance. Adaptation requires an authorized and practically usable pathway through which materially relevant evidence can alter interpretation, action, rule, resource allocation, review, or closure.*

Proposition 16.231 prevents a data-rich governance system from being classified as adaptive merely because it measures extensively. The next function concerns the pathway that gives monitored change practical consequence.

16.20.2 Feedback

Feedback links observed consequences to later governance. The term is often used loosely to describe any flow of information. In substantive governance analysis, the relevant object is narrower: a feedback pathway exists when information generated through action, observation, affected-position response, or environmental change can alter a later governing state through an identifiable interpretation and authority structure.

The pathway contains several stages. A signal is produced. The signal is interpreted relative to an existing model, norm, threshold, or institutional category. An authorized position determines whether the interpretation warrants action. A response is initiated, delayed, rejected, or escalated. The response then changes the

governed field or the observation system, producing later evidence. Each stage can introduce delay, distortion, exclusion, or amplification.

Feedback can have different dynamic effects. Some pathways damp deviation by correcting emerging problems. Others amplify change by rewarding growth, reinforcing classifications, or directing additional resources toward already successful positions. Some feedback is stabilizing over one horizon and destabilizing over another. For example, repeated emergency support can reduce immediate disruption while creating expectations that alter future risk taking. A performance-ranking system can improve short-run target compliance while narrowing unmeasured experimentation. The sign of feedback therefore requires evidence about realized dynamics beyond the corrective intention that initiated it.

Distribution matters as well. Those who experience a consequence may have limited ability to generate a signal recognized by the governing institution. Complaint rates can fall because conditions improve, because access to the complaint system deteriorates, or because expected response becomes too weak to justify the effort. Feedback architecture therefore interacts directly with participation and contestability developed in Section 16.18.

Definition 16.232 (Governance feedback pathway)**.** A *governance feedback pathway* is the traceable relation through which observed or reported consequences are interpreted, assigned institutional significance, transmitted to an authorized governing position, and connected to a possible change in action, rule, resource, classification, monitoring, or review.

Feedback can also be strategic. Regulated actors can anticipate thresholds and adapt behavior around them. Beneficiaries can learn which categories unlock support. Administrators can adjust classification practices to meet performance targets. Public announcements can change expectations before the underlying condition changes. These responses make reflexivity part of feedback-system design.

Proposition 16.233 (Feedback traceability)**.** *Where governance claims to respond adaptively to observed consequences, the feedback architecture should make sufficiently visible the signal, interpretive rule, responsible authority, response option, relevant delay, and later evidence used to assess whether the response altered the governed condition.*

Traceability allows governance to distinguish failure of observation from failure of interpretation, authority, implementation, or model. It also supports historical learning when the same signal produces different responses under changing rules.

16.20.3 Iteration

Iteration organizes repeated governance cycles. Repetition alone is insufficient. An institution can repeatedly apply the same procedure without learning, or repeatedly change a rule without preserving enough continuity to determine whether change improved the governed condition. Iterative governance requires comparability across versions and a reasoned relation among successive commitments.

The minimal iterative cycle contains a represented condition, an authorized action, observation of consequences, an evaluative or diagnostic stage, and a decision con-

cerning continuation, modification, escalation, de-escalation, or closure. The cycle can be fast, as in operational control, or slow, as in periodic regulatory review. It can be calendar-based or event-triggered. The relevant feature is that later decisions are institutionally connected to earlier versions and to the evidence generated between them.

Iteration has cumulative costs. Consultation fatigue, repeated reporting requirements, recurring software migration, unstable eligibility criteria, and continuous organizational restructuring can impose substantial burdens. An arrangement that is highly revisable for the governing body can be difficult to navigate for less-resourced participants. Adaptive governance should therefore monitor the incidence of adaptation itself, including who bears learning, compliance, transition, and recoordination costs.

Iteration also needs stopping conditions. Some governance systems acquire a permanent pilot status in which temporary rules are continuously renewed without either stabilization or termination. Others treat every disappointing outcome as evidence that one more revision is required. A disciplined iterative architecture identifies when the current arrangement becomes sufficiently supported for a period of stability, when deeper redesign is warranted, and when continuation has lost adequate justification.

Definition 16.234 (Governance iteration cycle)**.** A *governance iteration cycle* is a versioned sequence connecting a represented condition, authorized governing action, observation of consequences, evaluative or diagnostic interpretation, and a recorded decision to continue, revise, escalate, de-escalate, replace, suspend, or close the governing arrangement.

Proposition 16.235 (Iteration–repetition distinction)**.** *Repeated governing action constitutes an adaptive iteration only where successive cycles preserve enough provenance, comparability, and revision logic to connect later action to evidence or consequences generated through earlier cycles.*

Iteration thus depends on institutional memory. Without preserved baselines, reasons, model versions, and implementation histories, a sequence of revisions can become difficult to distinguish from policy volatility. This dependency becomes central in Subsection 16.20.6.

16.20.4 Experimentation

Experimentation introduces bounded variation partly for the purpose of learning. Chapter 11 developed experimental and pilot intervention as methodological objects, including policy and institutional experiments. Adaptive governance uses those resources when uncertainty concerns how a rule, procedure, allocation architecture, interface, or institutional arrangement will operate under practical conditions.

Governance experimentation can take many forms. A new administrative process can be piloted in a limited jurisdiction. Alternative reporting rules can be tested across comparable organizational units. A digital interface can be introduced in parallel with an existing access channel. A procurement standard can be trialed for a subset of contracts. A participatory process can be used for one class of de-

cisions before wider adoption. Experimentation can use randomized assignment, quasi-experimental comparison, staged introduction, parallel procedures, or other bounded forms of variation. Randomized comparison alone establishes neither the practical nor the normative adequacy of an intervention.

The experimental object should be explicit. A pilot can test implementation feasibility while providing weak evidence about long-run distributional effects. A short trial can reveal user error while missing institutional lock-in. An experiment conducted with unusually capable implementers can overstate scalability. Learning therefore depends on the relationship between the experimental configuration and the broader field to which conclusions are applied.

Experimentation also has incidence. Participants can bear risk, administrative burden, uncertainty, transition cost, or irreversible consequence so that governing institutions can learn. Where affected positions have little choice or where basic rights and essential services are involved, the permission to experiment deserves especially careful justification. Learning value operates alongside requirements for safeguards, authority, participation, remedy, and stopping conditions.

Definition 16.236 (Governance experimentation profile)**.** A *governance experimentation profile* records the governing object varied, learning objective, comparison logic, scope and duration, affected positions, authorization and participation conditions, foreseeable exposure, safeguards, monitoring, stopping rules, reversibility, spillovers, external-validity limits, and procedure for deciding whether the experimental result should be retained, modified, expanded, or abandoned.

Bounded experimentation can preserve option value under uncertainty. It can also create path dependence. Software, staff training, vendor contracts, public expectations, and complementary investment can make a nominal pilot difficult to reverse. Section 16.15 showed why reversibility should be treated as a changing practical capacity. Experimental governance should therefore track the dependencies generated by the experiment itself.

Proposition 16.237 (Experimental learning boundary)**.** *Authorization of exposure in a governance experiment requires more than prospective learning value. It should remain sensitive to affected-position incidence, rights and protected conditions, reversibility, uncertainty, alternative learning pathways, and the capacity to repair foreseeable harm.*

The proposition allows substantial room for experimentation while preventing uncertainty from becoming a general license to externalize learning costs.

16.20.5 Reversibility

Reversibility provides correction capacity when governance operates under uncertainty. Chapters 10 and 11 developed reversibility, rollback, exit, and option preservation as practical objects, while Section 16.15 specialized reversible intervention for near-critical fields. The present subsection treats reversibility as a general component of adaptive governance.

Reversibility should be decomposed. A rule can be legally revocable while its effects remain materially difficult to reverse. A software requirement can be formally

withdrawn after organizations have reorganized their data systems. A land-use decision can be administratively reopened after ecological change has become irreversible. A benefit rule can be changed while households retain debts or commitments made in reliance on the earlier arrangement. Governance therefore needs to distinguish reversal of authorization, reversal of implementation, recovery of affected positions, restoration of ecological or material conditions, recovery of data and institutional memory, and reopening of future options.

Reversibility also changes through time. Sunk investment grows. Organizational routines stabilize. Complementary infrastructures accumulate. Expertise migrates. Contracts and expectations form. A decision that was readily reversible at initiation can become costly to reverse after several iterations. Monitoring should therefore include practical rollback conditions alongside the target outcomes of the governing arrangement.

Some commitments are appropriately difficult to reverse. Constitutional rights, long-horizon environmental protections, infrastructure standards, and credible institutional guarantees can require stability precisely because easy reversal would undermine reliance or protection. Adaptive governance therefore treats reversibility as one design dimension among stability, reliance, protection, and revisability. It identifies which dimensions of commitment should remain stable and which should preserve revision pathways under the relevant uncertainty.

Definition 16.238 (Governance reversibility profile)**.** A *governance reversibility profile* records, for a specified governing commitment, the legal and institutional ability to revise or withdraw it, the practical feasibility and timing of rollback, recoverability for affected positions, residual obligations and irreversible effects, resources and authority required for correction, and the way those conditions change as implementation proceeds.

Proposition 16.239 (Formal–practical reversibility distinction)**.** *A formally revocable governance arrangement is practically reversible only to the extent that materially relevant effects, dependencies, capacities, obligations, and option losses can still be altered, repaired, compensated, or otherwise governed within the relevant horizon.*

This distinction also clarifies experimentation. Calling an arrangement temporary or pilot-like has weak analytical value if the conditions needed for rollback are allowed to disappear while the experiment runs.

16.20.6 Institutional Learning

Section 16.16 defined an institutional learning process as a traceable sequence through which evidence or experience changes institutional representation, competence, or governing practice. The present subsection retains that definition and asks what institutional learning contributes to an adaptive–evolutionary governance architecture.

Learning requires memory. Monitoring evidence, reasons for earlier decisions, implementation records, dissent, near misses, model versions, evaluation results, and records of repair can become institutional resources for later revision. Without preserved memory, organizational turnover can convert recurrent problems into repeat-

edly rediscovered problems. Yet indiscriminate retention creates costs and can conflict with privacy, security, legal limits, or data minimization. Institutional memory therefore requires governed selection, provenance, access, retention, and deletion.

Learning also requires interpretive capacity. Institutional understanding depends on interpretive capacity as well as data volume. Institutions need competence to recognize anomalies, compare heterogeneous evidence, reconstruct causal mechanisms, distinguish local failure from model failure, and identify where a successful intervention depended on context that may not travel. Participation can contribute to this process by bringing frontline and affected-position knowledge into institutional representation.

A third requirement is transmission. Learning held by one team, office, contractor, or generation of staff can disappear when personnel change. Routines, training, documentation, professional communities, archives, standards, and succession arrangements can preserve some learned capacity. Excessive codification can also freeze context-dependent lessons into rules whose original conditions are forgotten. Institutional learning therefore involves both retention and the ability to reopen inherited lessons.

OECD work on policy evaluation provides one practical precedent for treating evaluation as a source of both accountability and learning (OECD 2020a). Nelson and Winter's evolutionary analysis also emphasizes routines, search, and organizational change over time (Nelson and Winter 1982). GRE uses these precedents without reducing learning to organizational optimization. An institution can learn how to pursue a harmful objective more effectively, or improve technical performance while worsening justice or legitimacy. Learning remains distinct from normative improvement.

Proposition 16.240 (Institutional-learning retention condition)**.** *For institutional learning to support adaptive governance across organizational or personnel change, materially relevant evidence, reasons, uncertainty, dissent, implementation history, and revision outcomes require a governed form of retention and transmission that remains open to later reinterpretation.*

The proposition connects learning to historical re-epistemization. A record preserved for one purpose can acquire different significance when later concepts, evidence, or harms become visible. Institutional memory should therefore support both continuity and responsible re-reading.

16.20.7 Rule Evolution

Adaptive governance can revise actions while leaving governing rules largely intact. Rule evolution concerns the longer-horizon case in which the rules, meta-rules, categories, procedures, and authority relations through which governance operates themselves change. Section 16.16 developed institutional evolution at the broader infrastructural level. The present subsection isolates the evolution of governing rules because rule change can alter what later adaptation is possible.

Rules evolve through several mechanisms. Formal amendment can alter statutory or contractual language. Judicial or administrative interpretation can change how

stable text operates. Standards bodies can revise technical requirements. Software updates can change executable rules without altering visible policy language. Organizational practice can generate rules in use that differ from formal statements. Exceptions can accumulate until they form a new default. Emergency procedures can become ordinary. Private interfaces can acquire public-like governance functions as dependence on them grows.

Rule evolution is therefore partly designed and partly emergent. North's institutional analysis emphasizes the role of changing rules and constraints in structuring economic interaction (North 1990); evolutionary economics emphasizes routines, search, and path-dependent change (Nelson and Winter 1982). GRE adds explicit attention to the generative effects of rule histories: changing a rule can alter capacities, participation, classifications, power conversion, future options, and the conditions under which later rules are produced.

Meta-rules are central. Governance systems contain rules about how rules may be proposed, interpreted, amended, suspended, reviewed, and repealed. These meta-rules can become more consequential than the content of one substantive rule because they determine the field of future institutional change. A highly adaptive operational rule embedded in a rigid amendment architecture differs from a stable substantive rule embedded in a flexible, accountable revision process.

Definition 16.241 (Rule-evolution profile)**.** A *rule-evolution profile* reconstructs, across a specified interval, the creation, amendment, reinterpretation, exception, recombination, migration, codification, automation, suspension, and retirement of governing rules and meta-rules, together with the authorities, evidence, conflicts, dependencies, and generated capacities that connect successive rule configurations.

Rule evolution can produce layering alongside replacement. New rules can accumulate on top of old rules, producing complexity, contradictory mandates, or unequal navigation burdens. Simplification can remove such burdens while also deleting safeguards or institutional memory. Evolutionary analysis should therefore trace what functions disappear as well as what new functions are added.

Proposition 16.242 (Rule-evolution traceability)**.** *Where successive rule changes materially alter rights, burdens, participation, capacity, authority, or future option structure, governance should preserve enough historical trace to reconstruct which rule configuration operated, how it changed, and which mechanisms connected earlier and later consequences.*

Traceability supports accountability while allowing evolution. It also makes possible the historical-justice analysis of Section 16.11, because later effects can be connected to the rule histories that generated them.

16.20.8 Co-Evolution with Governed Systems

The preceding functions can be analyzed sequentially, yet governance and governed systems often change reciprocally. Chapter 11 defined rule–field co-evolution for adaptive decision-making: decision rules alter the practical field, while responses in the field alter the basis for later rules. The present subsection extends that concept to substantive governance architectures involving institutions, technologies, markets,

communities, infrastructures, and classifications.

Governed positions learn the governance system. Firms reorganize around regulation. Households adapt to eligibility rules. Platforms redesign interfaces around legal requirements. Professionals develop practices around standards. Communities build organizations around funding categories. Strategic actors can exploit gaps between formal rules and monitoring. These responses can improve alignment, create new capacities, or undermine the original governing objective. Later governance then responds to the altered field.

Technological change makes this reciprocity especially visible. A reporting rule can encourage software standardization; the resulting software can make some data easy to collect and others difficult; the new data architecture can shape later regulatory categories. A safety standard can stimulate technical innovation; innovation can make the original standard obsolete or create risks it did not anticipate. Governance is therefore partly constitutive of the system to which later governance responds.

Adaptive-network research provides a useful formal analogy for reciprocal change between node states and network topology (Gross and Blasius 2008). GRE uses the analogy cautiously. Social and economic governance involves meaning, law, authority, strategic interpretation, institutional history, and normative judgment that are not captured by network co-evolution alone. The useful structural insight is that the state of the governed field and the architecture connecting positions can change through feedback with one another.

Polycentric governance provides a complementary institutional perspective. Multiple centers of decision making can generate locally adapted responses and comparative learning, while also producing coordination and accountability challenges (Ostrom 2010). Co-evolution in such settings can occur across levels: local practices alter higher-order rules, higher-order rules reshape local option spaces, and actors move among or strategically use overlapping governance centers.

Definition 16.243 (Governance–system co-evolution profile)**.** A *governance–system co-evolution profile* records reciprocal changes between a governance architecture and the governed field, including changes in actor behavior, capacities, relations, technologies, classifications, infrastructures, rules, monitoring systems, authority, and boundaries, together with the feedback pathways that connect those changes across time.

Co-evolution complicates evaluation. An intervention can appear successful because actors adapt around it, yet the adaptation may shift burden elsewhere. A rule can appear ineffective because behavior changes in ways that evade its original indicator while still satisfying its deeper purpose. Historical baselines can become obsolete because governance has helped create a different system. Evaluation therefore needs to distinguish failure of a rule within a stable field from transformation of the field that changes the meaning of the rule itself.

Proposition 16.244 (Co-evolutionary reflexivity)**.** *Where governed positions materially adapt to governance and those adaptations feed back into later governing rules, evaluation of governance should include the endogenous response of the governed field and the resulting change in the governance architecture, modeling both sides as temporally variable across the relevant interval.*

Adaptive and evolutionary governance therefore concern more than periodic policy revision. They organize the temporal relation among observation, response, learning, institutional memory, bounded variation, rollback capacity, rule change, and endogenous transformation of the governed field. The architecture is compatible with periods of stability: adaptation can justify retaining a rule when evidence continues to support it, and evolutionary analysis can explain persistence without presuming either stagnation or progress. Its central requirement is revisability with traceability, so change can occur without erasing the reasons, burdens, and consequences through which governance acquired its present form.

This temporal architecture also exposes an epistemic concentration in governance. Monitoring determines what becomes visible. Feedback depends on interpretation. Experiments privilege some observations and comparison regimes. Institutional learning depends on preservation and classification. Rule evolution depends on what histories are remembered, and co-evolution can change the categories through which the system is known. Section 16.21 therefore turns to the epistemic dimensions of governance and economy, examining knowledge as power, classification power, evidential access, epistemic asymmetry, attention, orientation, and the transition into the knowledge and epistemic economy developed in Chapter 17.

16.21 Epistemic Dimensions of Governance and Economy

Section 16.20 showed that adaptive and evolutionary governance depends on monitoring, feedback, institutional memory, interpretation, and revision. Those functions already presuppose an epistemic architecture. A governance system acts through what it can observe, record, classify, verify, remember, compare, and treat as relevant; economic positions likewise differ in their access to knowledge, evidence, interpretive resources, and recognized expertise. The role of the present section is to make that epistemic layer explicit at the close of Chapter 16. Its objective is to synthesize the power and governance implications of knowledge, classification, evidential access, epistemic asymmetry, attention, and orientation while preserving a bounded interface to Chapter 17, where knowledge and epistemic economy become substantive economic objects in their own right. The method is synthetic and scope-sensitive. It reuses the research-epistemic architecture of Chapter 6, the practical-orientation architecture of Chapters 10–11, and the economic-power architecture developed earlier in the present chapter without redefining those concepts.

The section therefore treats power, domination, exclusion, and injustice as mechanism-dependent interpretations whose warrant depends on consequential pathways linking knowledge difference, classification, evidential absence, or attention allocation to economic relations and outcomes. Its narrower concern is the set of mechanisms through which epistemic conditions become consequential for access, authority, coordination, vulnerability, participation, institutional learning, and future economic possibility. Table 16.19 summarizes the seven dimensions developed below.

Definition 16.245 (Epistemic governance profile)**.** An *epistemic governance profile* records the knowledge claims, classifications, evidential resources, interpretive

Table 16.19: Epistemic dimensions of governance and economy in substantive GRE analysis.

Dimension	Primary analytical object	Characteristic governance question
Knowledge as power	Consequential knowledge conditions and recognized interpretive capacity	Through which mechanism does a knowledge position alter another position's access, action, standing, or feasible trajectory?
Classification power	Categories, thresholds, labels, taxonomies, and standards with practical consequences	Who defines, applies, revises, contests, and escapes consequential categories, and what follows from classification?
Evidential access	Practical ability to obtain, inspect, understand, verify, challenge, and preserve relevant evidence	Which positions can reach the evidence needed for participation, review, accountability, learning, or remedy?
Epistemic asymmetry	Uneven knowledge, interpretation, verification, prediction, or evidential capability	Which asymmetries are merely differences, which generate dependence, and which convert into economic power?
Attention	Selective allocation of finite perceptual, organizational, and institutional reception capacity	Which claims, persons, risks, anomalies, and future possibilities receive sustained notice and response?
Orientation	Stabilized practical direction connecting attention, judgment, priorities, and resource commitment	How are problems and possible futures selected for sustained governance under uncertainty and value plurality?
Epistemic economy interface	Economic production, access, circulation, control, and preservation of epistemic objects and capacities	When does the epistemic architecture itself become a substantive economic field requiring separate analysis?

capacities, attention structures, orientation processes, authorities, contest routes, preservation conditions, and consequential pathways through which what can be known, noticed, represented, or acted upon is organized within a specified economic-governance field.

Definition 16.245 is deliberately broader than an inventory of information. It includes the institutional relations through which evidence is produced and admitted, the classifications through which cases become legible, the capacities required to interpret records, the allocation of scarce attention, and the orientation processes through which some questions acquire sustained practical priority. These components can be distributed across persons, organizations, infrastructures, standards, archives, professional communities, software systems, and public institutions.

The rows in Table 16.19 are connected without being interchangeable. Classification can redirect attention; attention can determine which evidence receives institutional uptake; evidential access can condition the capacity to contest a classification; orientation can determine which forms of knowledge receive investment; and knowledge positions can become power when these mechanisms materially condition another position. The analytical value of the table lies in preserving these intermediate pathways.

16.21.1 Knowledge as Power

Section 16.4.3 defined *economic epistemic power* as economic power whose principal conditioning mechanism arises from the capacity to shape consequential knowledge conditions, including visibility, evidence production, data access, classification, measurement, validation, recognized expertise, interpretation, prediction, or admissible representation. Chapter 6 supplied the broader research analogue through its definition of research epistemic power. The present subsection retains those definitions and states the conversion discipline that connects knowledge to power across the governance architecture developed since Section 385.

Knowledge can matter economically in several ways. It can reduce uncertainty for its holder, support better coordination, permit anticipation of changing conditions, improve conversion of resources into capability, enable maintenance of infrastructure, or create access to specialized domains. These advantages can remain private or mutually beneficial. The stronger interpretation of power becomes warranted where a knowledge position participates in a mechanism that conditions another position's feasible action, recognized standing, access to resources, exposure to risk, or capacity to contest a decision.

A professional certification system illustrates the distinction. Expertise held by a physician, engineer, auditor, or scientist can improve collective decision quality while remaining compatible with relations that do not exhibit domination. Power becomes analytically relevant when recognized expertise carries authority over admission, compliance, eligibility, safety, credit, licensing, diagnosis, or another consequential boundary. The same expertise can therefore support coordination and carry power at the same time. The descriptive power claim identifies the conditioning mechanism; legitimacy and justice require additional evaluation.

Data possession provides another example. Proprietary data can improve forecasting without directly conditioning another position. The power relation becomes clearer when access to those data determines whether others can verify a rating, challenge a denial, compete in a market, reproduce a model, bargain over a contract, or demonstrate compliance. The crucial difference lies in the pathway from knowledge position to practical consequence.

Proposition 16.246 (Knowledge–power conversion condition)**.** *A difference in knowledge, information, expertise, or predictive capacity supports a claim of economic epistemic power when an identifiable relational mechanism connects that difference to material conditioning of another position's access, action, standing, burden, contestability, or feasible economic trajectory.*

Proposition 16.246 preserves the chapter's broader asymmetry–power distinction. A better-informed actor can possess an epistemic advantage without possessing power over a specific counterpart. Conversely, modest informational differences can become highly consequential where an institution grants one source recognized authority over a gate, classification, or review process.

Knowledge can also become infrastructural. Accounting standards, public statistics, scientific assessments, registries, credentials, identity systems, technical documentation, and shared records can support wide fields of coordination. Their power significance often arises from their role in organizing common reference conditions.

Porter documents the institutional importance of standardized quantitative objectivity, while Bowker and Star show how classification systems can become infrastructures through which social and organizational worlds are made legible (Porter 1995; Bowker and Star 1999). GRE uses these precedents to emphasize that epistemic power can be distributed across infrastructures, procedures, and knowledgeable individuals.

This infrastructural character also creates possibilities for countervailing design. Open records, interoperable data, independent verification, plural expertise, contestable models, accessible reasons, and distributed preservation can reduce concentrated epistemic dependence. Such arrangements can preserve expertise while widening the conditions under which expert claims are checked, interpreted, and revised. The relevant governance question is therefore how knowledge enters consequential relations and how specialization, reviewability, and countervailing capacity can be jointly organized.

16.21.2 Classification Power

Classification has appeared repeatedly throughout Chapter 16 because it connects representation to action. Section 16.5.5 examined classification as a mechanism through which power can reproduce itself; Section 16.4.3 treated classification as one pathway of economic epistemic power; Sections 16.17–16.19 showed that legal, participatory, and heterogeneous-value governance all depend on categories whose boundaries determine standing, eligibility, comparison, or protection. The present subsection gathers these pathways into an explicit governance profile.

Economic governance continuously classifies persons, organizations, transactions, occupations, risks, assets, regions, technologies, evidence, claims, and events. Classification permits coordination by reducing complexity into repeatable distinctions. It can determine which tax rule applies, whether a worker counts as an employee or contractor, whether a firm qualifies for support, whether a loan enters a risk category, whether an activity is treated as regulated, or whether a harm becomes institutionally recognizable. Classification therefore has both epistemic and practical dimensions.

Classification power becomes especially visible at threshold boundaries. A continuous or multidimensional situation can be converted into a categorical determination with discontinuous consequences. Small differences in recorded attributes can then produce large differences in access or obligation. The relevant power mechanism can lie in category design, data collection, threshold selection, application, exception handling, review, or control over the institutional consequences attached to the category.

Bowker and Star's analysis of classification and standards is useful because it shows that categories can become embedded in information infrastructures and ordinary organizational practice (Bowker and Star 1999). Hacking's historical work likewise emphasizes the historical emergence of concepts and classifications through changing styles of reasoning and institutional practice (Hacking 2002). These precedents support a historical and infrastructural treatment of classification while leaving the epistemic quality and normative status of particular categories to separate evaluation.

Definition 16.247 (Classification-power profile)**.** A *classification-power profile* records the category or taxonomy, its evidential basis, boundary and threshold structure, authority of definition and application, institutional consequences, affected positions, exceptions, contest routes, revision procedures, historical provenance, and the practical alternatives available to positions adversely classified.

The profile makes several distinctions visible. A scientifically useful classification can be poorly suited to legal allocation. A legal category can be procedurally valid while producing burdens that require separate justice analysis. A statistical category can be necessary for public administration while remaining too coarse for individual adjudication. The movement of a classification across domains therefore requires renewed justification of its purpose and consequence.

Proposition 16.248 (Classification–description distinction)**.** *Where a classification materially changes eligibility, obligation, visibility, valuation, surveillance, recognition, or access, its governance significance extends beyond descriptive accuracy to the institutional consequences and revision pathways attached to the category.*

Proposition 16.248 preserves the importance of accurate description while adding a governance layer when a category carries practical force. A credit score can be predictive yet still require governance of data provenance, appeal, threshold choice, and error incidence. A medical or safety classification can be well supported yet still require clear authority and review procedures because its consequences are substantial.

Classification also affects future evidence. Once institutions organize around categories, actors can adapt to them, records can accumulate according to them, and later analysis can inherit their boundaries. Section 16.20 described such co-evolution at the level of governance. Classification adds an epistemic recursion: categories shape the records through which their later adequacy is evaluated. Historical trace, alternative categories, and preserved raw or less-compressed evidence can therefore become important safeguards against self-confirming classificatory systems.

16.21.3 Evidential Access

Governance depends on evidence, yet evidence can be unevenly reachable. Chapter 6 treated evidential resources as part of epistemic justice in research; Chapters 10–11 treated incomplete knowledge, observability, and evidential situation mapping as problems of consequential praxis. The present subsection specializes these concerns to economic governance by distinguishing access to evidence from the mere existence of records.

A record can exist while remaining practically inaccessible because of cost, confidentiality, technical format, language, institutional gatekeeping, fragmented custody, time limits, computational requirements, or lack of standing. A person can possess a document while lacking the expertise needed to interpret it. An organization can receive a model output while lacking access to the model, inputs, assumptions, or validation history. A regulator can possess formal authority to request information while lacking the capacity to inspect it at the relevant scale. Evidential access therefore has several layers.

Definition 16.249 (Evidential-access profile)**.** An *evidential-access profile* records which positions can obtain, inspect, understand, verify, reproduce where appropriate, challenge, supplement, preserve, and carry forward the evidence materially relevant to a specified economic or governance decision, together with the legal, technical, linguistic, temporal, financial, and institutional conditions governing those capacities.

The profile distinguishes access from disclosure. Publishing information can widen access while leaving high interpretation costs, inaccessible formats, missing provenance, or short response windows. Accountability can also be supported through scoped arrangements such as confidential review, fiduciary access, independent audit, secure data enclaves, representative access, or appropriately limited disclosure, which can sometimes reconcile privacy, security, commercial sensitivity, and reviewability. The appropriate architecture depends on the object and consequence.

Evidential access is closely connected to participation. Section 16.18 showed that voice and contestation can remain weak where time, expertise, information, or procedural knowledge are uneven. A right to appeal carries limited practical force when the evidence supporting the original decision cannot be inspected or meaningfully challenged. Similarly, adaptive governance in Section 16.20 depends on the capacity to compare versions, consequences, and reasons across time. Preservation and provenance are therefore part of evidential access whenever later review matters.

Proposition 16.250 (Evidential-access–possession distinction)**.** *Effective evidential access requires more than possession or formal disclosure when materially relevant interpretation, verification, contestation, preservation, or use remains impracticable for the position whose participation or accountability depends on that evidence.*

This proposition also guards against a stronger inference. Unequal evidential access requires a separate normative evaluation. Confidentiality, role specialization, security, privacy, or evidential quality control can justify differentiated access. The governance task is to identify the purpose of restriction, the consequence of exclusion, the existence of review or representation, and whether affected positions retain a practicable route to challenge consequential claims.

Evidential access can itself alter economic capability. Access to technical knowledge can enable maintenance; access to records can support claims; access to price information can improve bargaining; access to public data can enable entry and innovation; access to historical evidence can support repair. Chapter 17 will examine these processes as part of the epistemic economy. The present section limits itself to their implications for power and governance.

16.21.4 Epistemic Asymmetry

Epistemic asymmetry is broader than information asymmetry in a narrow transactional sense. Economically relevant positions can differ in factual knowledge, data access, expertise, interpretive vocabulary, verification capacity, modeling resources, computational capacity, institutional memory, predictive ability, or recognized credibility. These differences can be temporary, complementary, productive, compensable, or deeply consequential depending on the relation in which they operate.

The chapter has already distinguished asymmetry from power. The same discipline applies here. A specialist can know more than a client while fiduciary, professional, and review structures constrain misuse and support effective service. A local community can possess contextual knowledge unavailable to a central agency. A regulator can hold confidential supervisory information that market participants do not. A firm can possess technical knowledge required for product development. Epistemic asymmetry is therefore a descriptive relation before it becomes a claim about dependence, power, vulnerability, or injustice.

Definition 16.251 (Epistemic-asymmetry profile)**.** An *epistemic-asymmetry profile* records materially relevant differences among positions in knowledge, evidence, interpretation, verification, prediction, computational capacity, institutional memory, and recognized credibility, together with the relations through which those differences can be compensated, shared, contested, converted into dependence, or translated into economic power.

The profile makes conversion mechanisms explicit. A difference in expertise can be compensated through representation or independent advice. A difference in data access can be reduced through disclosure, interoperability, audit, or public infrastructure. A difference in computational capacity can remain economically minor where decisions do not depend on large-scale computation. A credibility asymmetry can become powerful where institutional procedures accept one source's testimony or model while excluding others from review.

Fricker's analysis of testimonial and hermeneutical injustice provides an important precedent for examining unequal credibility and unequal participation in shared interpretive resources (Fricker 2007). GRE uses that precedent within a wider mechanism-based architecture. Credibility is one dimension among several. Some epistemic exclusions occur before testimony is evaluated because a category is absent, a record was never created, a system is inaccessible, or a position lacks standing to enter evidence into the process.

Proposition 16.252 (Epistemic-asymmetry–power non-equivalence)**.** *Epistemic asymmetry constitutes economic power when the asymmetry is converted through a consequential relation that materially conditions another position's access, action, standing, burden, contestability, or feasible trajectory.*

Proposition 16.252 aligns the section with Proposition 16.246. It also preserves productive heterogeneity. Economies depend on specialized knowledge, differentiated experience, distributed memory, and division of epistemic labor. Governance can preserve productive specialization while organizing accountability, translation, contestability, redundancy, and pathways through which concentrated epistemic capacity becomes reviewable.

Epistemic asymmetry can also be reciprocal. A regulator can know legal rules while a regulated organization knows operational realities; a platform can know aggregate behavioral patterns while users know local context and lived effects; an engineer can know technical constraints while maintainers know recurring failure modes. Treating one side as universally knowledgeable can obscure the relation through which distinct forms of knowledge need to be combined. This becomes a central economic problem once knowledge itself is treated as a resource, capacity,

relation, and infrastructure in Chapter 17.

16.21.5 Attention

The existence of knowledge and evidence leaves uptake as a separate institutional function. Governance systems operate under finite perceptual, organizational, and institutional attention. Chapter 6 treated research attention as part of orientation and drew on Simon's account of information-rich environments, in which abundance of information creates scarcity of recipient attention (Simon 1971). The same relation applies to economic governance. Institutions can receive more reports, indicators, complaints, forecasts, proposals, risks, and model outputs than they can examine with equal depth.

Attention therefore becomes an allocation problem. Budgets determine which analytical teams exist; meeting agendas determine which issues receive deliberative time; dashboards determine which indicators are continuously visible; media and platform systems affect which events reach decision-makers; professional routines determine which anomalies count as urgent; regulatory calendars determine which risks can enter a review window. Attention is consequently distributed through material and institutional infrastructure as well as through individual cognition.

The distinction between visibility and significance is important. A highly visible event can have limited structural importance, while a slow or weakly represented process can carry substantial long-horizon consequence. Manufactured vulnerability, ecological degradation, maintenance debt, classification error, or gradual capability erosion can remain institutionally peripheral because their signals are dispersed or difficult to aggregate. Conversely, highly salient metrics can dominate attention because they are timely, comparable, and easy to communicate.

Definition 16.253 (Governance-attention profile)**.** A *governance-attention profile* records which claims, signals, positions, risks, anomalies, historical traces, and future possibilities receive sustained institutional notice; the channels, filters, queues, deadlines, and resource allocations through which attention is distributed; and the procedures through which neglected or emerging objects can enter or re-enter consideration.

Proposition 16.254 (Attention–importance non-equivalence)**.** *The amount of institutional attention received by an economic object or claim is an insufficient standalone indicator of epistemic quality, normative importance, or generative consequence because attention is jointly shaped by salience, legibility, incentives, institutional routines, representation, and available processing capacity.*

This proposition has governance consequences. A system that concentrates attention on immediately measurable indicators can systematically underweight slow processes, uncertain possibilities, unorganized positions, or effects whose evidence is costly to assemble. A system that continuously expands its agenda can overwhelm institutional capacity and weaken action. Attention governance therefore involves prioritization together with routes for anomaly detection, periodic reconsideration, protected long-horizon inquiry, and contestation of what the institution treats as worthy of notice.

Attention can also become power. A platform, media organization, professional body, funder, senior administrator, or technical dashboard can condition what other positions see or what issues receive institutional time. The power claim still depends on consequence. Unequal visibility becomes economically powerful when it materially affects access, demand, reputation, policy priority, investment, investigation, or the opportunity to have a claim considered. Chapter 17 will treat attention more fully as a scarce economic object and as a target of allocation and capture. Here the concept remains bounded to its role in governance and power.

16.21.6 Orientation

Attention concerns what receives notice; orientation concerns how sustained attention, judgment, commitments, and resource allocation organize a direction of inquiry or action. Chapter 6 defined research orientation as a provisionally stabilized configuration directing inquiry toward selected problems and possible futures. Chapter 11 defined an orientation architecture for practical fields containing multiple, partly comparable, and sometimes conflicting orientations. The present subsection specializes those concepts to economic governance without replacing them.

Governance orientation operates before many technical choices. An institution that frames housing primarily as an affordability problem will seek different evidence and instruments from one that frames it primarily as a supply problem, a spatial-access problem, a financialization problem, a rights problem, or a long-horizon urban-capacity problem. These orientations can coexist, but their relative standing shapes which variables are measured, which interventions are considered feasible, whose expertise is sought, and what counts as a successful outcome.

Orientation also has historical provenance. Institutions inherit mandates, categories, professional cultures, legal traditions, performance indicators, public expectations, and past crises that shape which problems appear actionable. Section 16.16 showed that institutional evolution can preserve routines long after their original setting changes. Epistemic analysis adds that inherited orientation can stabilize what the institution expects to see and therefore which evidence becomes salient.

Definition 16.255 (Governance-orientation profile)**.** A *governance-orientation profile* records the problems, practical directions, protected conditions, temporal horizons, evidential priorities, affected positions, institutional sources, resource commitments, and revision conditions through which a governance configuration organizes sustained attention and action within a specified field.

The profile should preserve plural orientations where they remain consequential. Immediate protection can coexist with long-horizon capacity formation; fiscal sustainability can coexist with access and participation; ecological preservation can coexist with livelihoods and infrastructure; institutional continuity can coexist with transformation. Section 16.19 showed that practical closure under heterogeneous values can coexist with an incomplete value ordering. The same principle applies to orientation. A governance arrangement can authorize a direction while documenting protected claims and residual disagreement.

Proposition 16.256 (Orientation recursion)**.** *Governance orientation can be recursively generative because the problems, evidence, categories, infrastructures, and*

capacities prioritized by a present orientation can alter what becomes observable, actionable, and institutionally credible in later governance.

Orientation recursion creates both learning and lock-in possibilities. Sustained investment in one measurement infrastructure can improve knowledge within its domain while making alternative representations comparatively costly. Long-horizon commitment can build expertise and institutional memory while reducing responsiveness to newly relevant objects. A crisis orientation can mobilize rapid coordination while normalizing emergency categories after the original trigger fades. Adaptive governance therefore includes capacity to revise orientation itself alongside parameters within a currently stabilized orientation.

The governance of orientation is necessarily bounded. Equal activation of the full space of possible problems is generally infeasible under finite attention, time, and resources, so selection remains a recurrent governance condition. The relevant discipline is to make consequential selection sufficiently visible, historically reconstructable, contestable, and revisable when evidence, values, affected positions, or future possibilities change.

16.21.7 Knowledge and Epistemic Economy

The preceding subsections complete Chapter 16's account of epistemic conditions as components of power and governance. Knowledge can become power through consequential conversion mechanisms; classification can organize practical boundaries; evidential access can condition participation and accountability; epistemic asymmetry can generate dependence without doing so automatically; attention distributes institutional reception capacity; and orientation organizes sustained practical direction. Taken together, these mechanisms reveal that epistemic conditions are already economically consequential before knowledge is treated as a separate economic domain.

The next analytical step is larger. Once knowledge, evidence, expertise, data, verification, attention, orientation, archives, compute, language, standards, and interpretive capacity are themselves produced, accumulated, accessed, withheld, circulated, preserved, priced, governed, or converted into other capacities, the epistemic architecture becomes a substantive economic field. That field requires analysis beyond the power and governance questions developed in the present chapter.

Definition 16.257 (Epistemic-economy interface)**.** An *epistemic-economy interface* is a configuration in which epistemic objects, capacities, relations, or infrastructures simultaneously participate in the production and organization of knowledge and in economically consequential processes of access, allocation, accumulation, conversion, dependency, value generation, power, preservation, or institutional reproduction.

The interface concept is intentionally modest. It leaves open how far ownership, commodity, capital, or scarcity language can represent particular knowledge relations and preserves the distinctively epistemic dimensions of those relations. It identifies cases where the production and organization of knowing participate materially in economic processes and therefore require the analytical resources of both epistemology and political economy.

A university, for example, can simultaneously be a site of inquiry, credential formation, employment, infrastructure provision, reputational signaling, archive preservation, and allocation of scarce research attention. A public statistical agency can produce shared knowledge infrastructure while shaping which populations and activities are economically visible. A digital platform can organize information retrieval while allocating visibility, capturing attention, accumulating data, and mediating market access. An AI system can generate symbolic abundance while increasing demand for verification, orientation, compute, provenance, and accountable judgment. Each case exceeds a single description of knowledge as a private informational asset.

Proposition 16.258 (Epistemic-economy boundary condition)**.** *When epistemic objects, capacities, relations, or infrastructures materially participate in economic access, allocation, accumulation, conversion, value generation, dependency, power, preservation, or institutional reproduction, analysis of governance alone is insufficient to characterize their economic organization; a substantive epistemic-economy analysis becomes warranted.*

Proposition 16.258 establishes the boundary with Chapter 17. The present chapter has asked how epistemic conditions enter power, justice, and governance. Chapter 17 reverses the emphasis and asks how knowledge and epistemic capacities themselves become economic objects and processes. It will examine knowledge as resource, capacity, relation, infrastructure, power, and generative condition; scarcity and abundance; attention and orientation; epistemic asymmetry; knowledge capital; generative exploitation; institutions and infrastructure; epistemic justice; preservation and re-epistemization; knowing as relational participation; and knowledge commons.

The transition is therefore substantive. Chapter 16 has shown that governance depends on an epistemic field and can reorganize that field through classification, evidence, attention, orientation, institutional learning, and legal or procedural authority. Chapter 17 examines the economic organization of the field itself. This division preserves the architecture of Part VI: power and justice establish the conditions under which epistemic relations become consequential; epistemic economy then examines how those relations are produced, distributed, accumulated, and transformed; Chapter 18 subsequently addresses the intensified capability asymmetries that arise when artificial systems participate in knowledge generation and economic action at scale.

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